

MID-CURRITUCK BRIDGE STUDY

**WBS ELEMENT: 34470.1.TA1
STIP No. R-2576
CURRITUCK COUNTY
DARE COUNTY**

BIOLOGICAL ASSESSMENT

June 2011

Primary Agency:



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Executive Summary

Overview of Project Action

The North Carolina Turnpike Authority (NCTA), a division of the North Carolina Department of Transportation (NCDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a Final Environmental Impact Statement (FEIS) to evaluate proposed transportation improvements in the Currituck Sound area. The US Army Corps of Engineers (USACE) is a cooperating agency. The proposed action is included in NCDOT's 2009 to 2015 State Transportation Improvement Program (STIP), the North Carolina Intrastate System, the *North Carolina Strategic Highway Corridor Plan*, and the *Thoroughfare Plan for Currituck County*. 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 FEIS evaluates the five detailed study alternatives (ER2, MCB2/C1, MCB2/C2, MCB4/C1, and MCB4/C2) identified in the March 2010 *Administrative Action Draft Environmental Impact Statement for the Mid-Currituck Bridge Study* (DEIS) (NCTA and FHWA, 2010), as well as the Preferred Alternative (a refinement of MCB4/C1) identified in the FEIS. For the four MCB2 and MCB4 alternatives, two design options also were evaluated for the mainland approach to the bridge over Currituck Sound (between US 158 and Currituck Sound): Option A and Option B. The Preferred Alternative, refined MCB4/C1 with Option A, was recommended based on design considerations; cost; travel benefits; community, natural resource, and other impacts; agency comments and suggestions; and public comments. Impacts and effects of construction practices are based upon estimated impacts of the Preferred Alternative. The Preliminary Design for the Preferred Alternative is enclosed separately.

Location of the Action Area

The action area for this Biological Assessment is shown in Figure 1 in Section 1.2. The action area represents the area of potential indirect and direct impacts of the Preferred Alternative on protected species under National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS) jurisdiction. The action area is in northeastern North Carolina within Currituck County. A portion also is in Dare County. The portion of the action area that encompasses the Preferred Alternative reflects the following project components: a segment of US 158 where lanes could be reversed for hurricane evacuation, an interchange with US 158, the mainland approach road to Currituck Sound (including a bridge across Maple Swamp), the Mid-Currituck Bridge, the Outer Banks approach road to the Mid-Currituck Bridge, improvements to NC 12 south of the bridge, and a third outbound lane for hurricane evacuation on US 158 between the

Wright Memorial Bridge and the US 158/NC 12 intersection. Potential indirect effects add to the action area the dune line and beach between the northern end of NC 12 and the Virginia line. Specific characteristics of the action area are described in Section 5.0.

Timeframe

Construction of the Mid-Currituck Bridge project would occur over a 52-month period. Operation of the bridge would be indefinite but at least 50 years.

Summary of Effects

As of February 2011, NMFS and USFWS identified 13 federally-protected species (see Table 1) occurring in Currituck and Dare counties (NMFS, 2011; USFWS, 2011a). Some of these 13 species are under the jurisdiction of USFWS and some are under NMFS jurisdiction. Table 1 also lists the agency with jurisdiction for each protected species, as well as the determinations of effect for each species by agency. Because the five sea turtle species use both the waters (NMFS jurisdiction) and land (beach, USFWS jurisdiction) within the project area, they are under joint NMFS and USFWS jurisdiction, so two determinations are made, taking into account impacts encountered in both environments.

For the Preferred Alternative, six of the 13 protected species have an ultimate determination of No Effect. Four of those six are solely under USFWS jurisdiction and the other two species are under joint USFWS/NMFS jurisdiction. Five protected species have a single determination of May Affect, Not Likely to Adversely Affect for reasons discussed in Section 7.1. Two protected species (green and Kemp's ridley sea turtles) have two different determinations – one for impacts occurring in the water under NMFS jurisdiction (May Affect, Not Likely to Adversely Affect), and one for impacts occurring on the beach under USFWS jurisdiction (No Effect). An effects determination is not applicable for one species (the American alligator). There is no critical habitat for any of the protected species in the action area. In addition, there is no habitat for any of the 13 protected species in Maple Swamp. The effects determinations for all 13 protected species also are documented in the DEIS.

NCTA, FHWA, and USACE are requesting concurrence on the determinations of May Affect, Not Likely to Adversely Affect for all species with this conclusion (see Table 1).

Table 1. Summary of Effect Determinations for the Proposed Action

Species		Listing Status			Conclusions for USFWS Jurisdictional Species ²	Conclusions for NMFS Jurisdictional Species ²
Scientific Name	Common Name	Federal Status ¹	Designated Critical Habitat Present	Habitat Present		
<i>Canis rufus</i>	Red wolf	E-EXP	No	Yes	No Effect	NA
<i>Trichechus manatus</i>	West Indian manatee	E	No	Yes	MA-NLAA	NA
<i>Charadrius melodus</i>	Piping plover	T	No	Yes	MA-NLAA	NA
<i>Picoides borealis</i>	Red-cockaded woodpecker	E	No	No	No Effect	NA
<i>Sterna dougallii dougallii</i>	Roseate tern	E	No	Yes	No Effect	NA
<i>Alligator mississippiensis</i>	American Alligator	T(S/A)	No	Yes	NA	NA
<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	E	No	No	No Effect	No Effect
<i>Dermochelys coriacea</i>	Leatherback sea turtle	E	No	No	No Effect	No Effect
<i>Chelonia mydas</i>	Green sea turtle	T	No	Yes	No Effect	MA-NLAA
<i>Caretta caretta</i>	Loggerhead sea turtle	T	No	Yes	MA-NLAA	MA-NLAA
<i>Lepidochelys kempii</i>	Kemp's ridley sea turtle	E	No	Yes	No Effect	MA-NLAA
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	E	No	Yes	NA	MA-NLAA
<i>Amaranthus pumilus</i>	Seabeach amaranth	T	No	Yes	No Effect	NA

Source: USFWS, 2011a; NMFS, 2011.

¹T – Threatened.

T(S/A) – Threatened because of similarity of appearance to American crocodile

E – Endangered.

E-EXP – Endangered and population is experimental.

²MA-NLAA – May Affect, Not Likely to Adversely Affect.

NA – Not Applicable; no biological conclusion required.

MID-CURRITUCK BRIDGE STUDY

BIOLOGICAL ASSESSMENT

1.0 Project Overview

1.1 Federal Nexus

This Biological Assessment addresses the proposed action in compliance with Section 7 (C) of the Endangered Species Act (ESA) of 1973, as amended in 1978. In compliance with Section 7 of the ESA, consultation and/or conferencing with USFWS and NMFS is required to ensure federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species or result in the destruction or adverse modification of critical habitat. Managed fish within the action area fall under the joint responsibility of Mid-Atlantic Fisheries Management Council (MAFMC), South Atlantic Fisheries Management Council (SAFMC), and NMFS. As required by the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), both MAFMC and SAFMC have defined several areas of essential fish habitat (EFH) in the action area. The threatened, endangered, or proposed species and areas of EFH will be evaluated in this Biological Assessment for potential effects of the Mid-Currituck Bridge project. Specific project design elements are identified that avoid or minimize adverse effects of the proposed project on listed species or critical habitat.

The federal lead agency for the preparation of a FEIS for the Mid-Currituck Bridge project pursuant to the National Environmental Policy Act (NEPA) is the Federal Highway Administration (FHWA). The US Army Corps of Engineers (USACE) and the US Coast Guard are cooperating agencies. This Biological Assessment was prepared as a part of meeting the consultation and/or conferencing requirements for all three agencies. Federal actions associated with the project are:

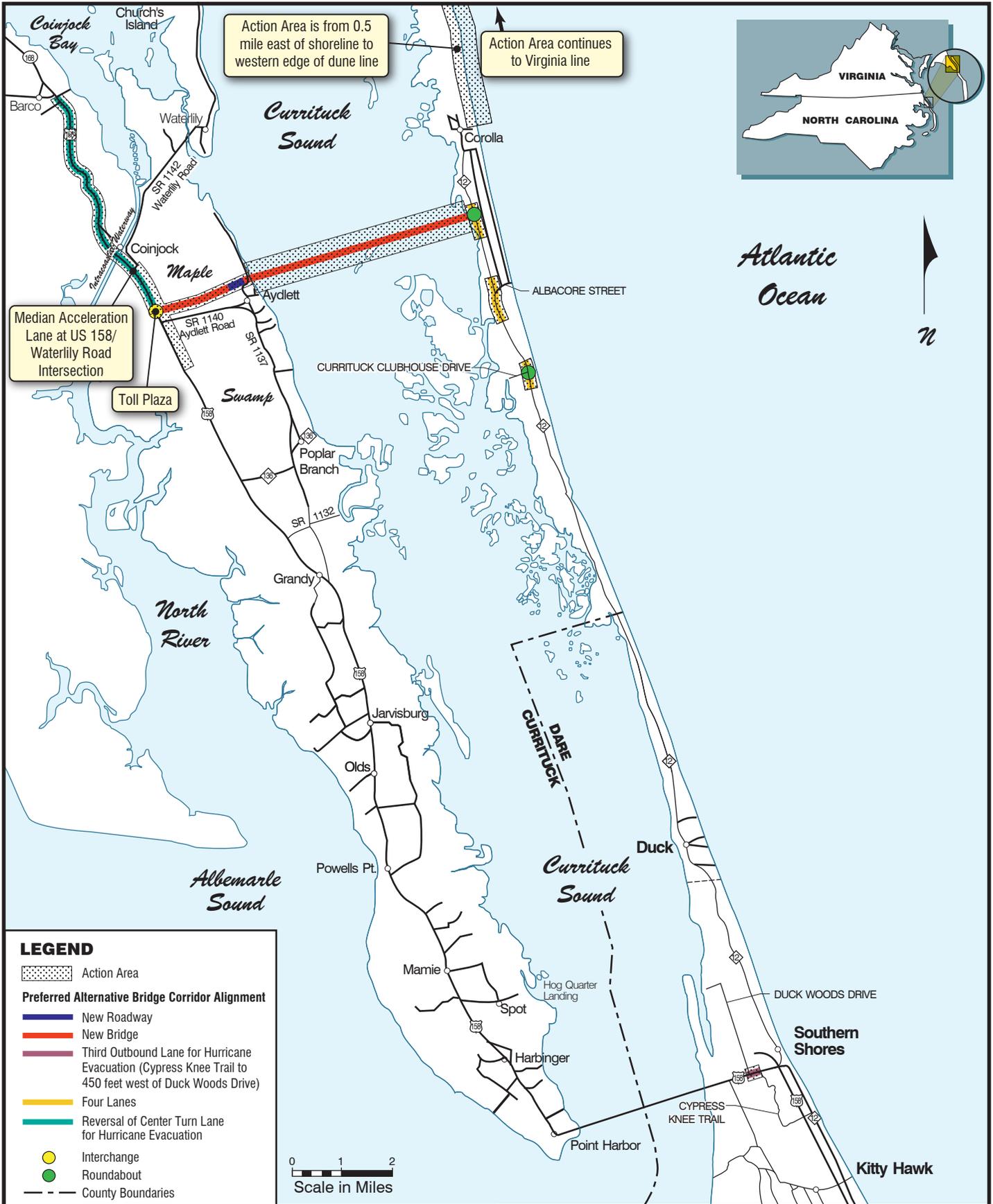
- FHWA: Potential for project financing via a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan;
- USACE: Dredge and fill permit under Section 404 of the Clean Water Act; and
- US Coast Guard: Bridge permit under Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946.

1.2 Project Description

NCTA, a division of NCDOT, in cooperation with FHWA is evaluating proposed transportation improvements near Currituck Sound in Currituck and Dare counties. The project area, action area, and Preferred Alternative are shown in Figure 1. The proposed action is included in NCDOT's *2009 to 2015 State Transportation Improvement Program (STIP)*, the *North Carolina Intrastate System*, the *North Carolina Strategic Highway Corridor Plan*, and the *Thoroughfare Plan for Currituck County*. 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 project's history includes the following events:

- In 1975, at Currituck County's request, the NCDOT Board of Transportation adopted a resolution identifying an east-west bridge crossing Currituck Sound as the most desirable access route to the Currituck Outer Banks.
- In 1981, a Mid-Currituck Bridge was discussed as an alternative in an Outer Banks Access Environmental Impact Statement. Extending NC 12 to Corolla was selected as the Preferred Alternative and built.
- In 1989, NCDOT decided that the first phase of any transportation improvement for Currituck Sound should be widening the Wright Memorial Bridge to four lanes. This project was built.
- In 1991, a potential terminus for a Mid-Currituck Bridge was identified and protected under the provisions of the Transportation Corridor Official Map Act.
- Between 1991 and 1998, NCDOT conducted studies for the Mid-Currituck Bridge Study. A Notice of Intent to prepare an Environmental Impact Statement (EIS) was issued on July 6, 1995 and posted in the Federal Register. A DEIS was signed and approved for public distribution in January 1998.
- In May 1998, Public Hearings were held. The majority of the comments received on the project indicated opposition to a Mid-Currituck Bridge. Environmental resource and regulatory agencies expressed the concern that the DEIS had not assessed in detail an alternative that widened existing roads instead of a bridge. Following the public hearings, the assessment process was paused so that the issues raised during the public and agency review could be considered.
- On June 3, 2008, the 1995 Notice of Intent and the 1998 Draft EIS were rescinded by FHWA by notice in the Federal Register. On June 16, 2008, a Notice of Intent to prepare a new EIS for the project was issued in the Federal Register.
- In March 2010, a new DEIS was issued.



Action Area is from 0.5 mile east of shoreline to western edge of dune line

Action Area continues to Virginia line

Median Acceleration Lane at US 158/Waterlily Road Intersection

Toll Plaza



Atlantic Ocean



Albemarle Sound

Currituck Sound

Southern Shores

Kitty Hawk

Project Area, Action Area, and Preferred Alternative

Figure 1

- In May 2010, three Pre-Hearing Open Houses and three Public Hearings were held.
- Currently NCTA is preparing a FEIS for its Preferred Alternative, which includes a Mid-Currituck Bridge.

The Preferred Alternative for the project is a refined version of an alternative designated as MCB4/A/C1 in the DEIS. This Preferred Alternative will be included in the FEIS. It is shown in Figure 1 and includes:

- Constructing a 4.7-mile-long, two-lane toll bridge across Currituck Sound.
- An interchange between US 158 and the mainland approach road to the bridge. A toll plaza would be placed within the US 158 interchange. The mainland approach road to the bridge over Currituck Sound would include a bridge over Maple Swamp. A median acceleration lane would be built at the intersection of US 158 and Waterlily Road.
- Improvements to NC 12 on the Outer Banks that include:
 - The 2.1 miles of NC 12 widening with turn lane improvements concentrated at three locations: the bridge terminus, the commercial area surrounding Albacore Street, and Currituck Clubhouse Drive, as well as left turn lane improvements in two other locations, affecting an additional 0.5 mile of NC 12.
 - Roundabouts at the bridge terminus and Currituck Clubhouse Drive.
 - Marked pedestrian crossings.
- Reversing the center turn lane on US 158 between the US 158/Mid-Currituck Bridge interchange and NC 168 to provide additional road capacity during a hurricane evacuation and reduce clearance times, as well as 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.

The Preliminary Design for the Preferred Alternative is enclosed separately.

The only component of the Preferred Alternative that would directly affect protected species is the Currituck Sound Bridge. The roadway improvements to US 158 and NC 12, as well as the interchange at US 158 on the mainland and the bridge across Maple Swamp, would not affect the 13 protected species occurring in Currituck and Dare counties. As discussed in Section 4.0, construction, operations, and maintenance are also components of the Preferred Alternative. These activities also would not affect any of the 13 protected species except as these activities relate to the Currituck Sound Bridge.

1.3 Project Area and Setting

The project area includes portions of Currituck and Dare counties, which are in northeastern North Carolina, south of the Virginia Beach-Norfolk, Virginia (Hampton Roads) metropolitan area, within the Tidewater Region of the Atlantic Coastal Plain physiographic province. It encompasses the Currituck County peninsula on the mainland and its Outer Banks, as well as the Dare County Outer Banks north of Kitty Hawk (see Figure 1). The total map image area in Figure 1 is considered the project area. The project area contains two thoroughfares: US 158 from NC 168 to NC 12 (including the Wright Memorial Bridge) and NC 12 north of its intersection with US 158 to its terminus in Currituck County. US 158 is the primary north-south route on the mainland. NC 12 is the primary north-south route on the Outer Banks. The Wright Memorial Bridge connects the mainland (southern end of Currituck County) with the Dare County Outer Banks approximately 18 miles south of the proposed Mid-Currituck Bridge. Topography of the project area consists of nearly level and gently sloping land that drains primarily into Currituck Sound.

1.4 Consultation History

The consultation history for this project consists of primarily three types of agency coordination. Turnpike Environmental Agency Coordination (TEAC) meetings began December 2006 and are ongoing. Representatives of NMFS and USFWS participated in these meetings, which primarily focused on project development. Biological conclusions for threatened and endangered species were included in the DEIS, for which NMFS and USFWS provided comments. Direct communication with NMFS and USFWS regarding the need for consultation occurred in November and December 2010 and April 2011. These events are listed in Table 2. Meeting minutes are included in Appendix C.

Table 2. Consultation History

Date	Topics of Discussion
Turnpike Environmental Agency Coordination (TEAC) Meetings	
December 15, 2006	Agency coordination plan.
January 17, 2007	Project status.
April 18, 2007	Statement of Purpose and Need, conceptual alternatives, and alternatives screening criteria.
May 23, 2007 and May 31, 2007	Statement of Purpose and Need, conceptual alternatives, and analysis of conceptual alternatives.

Table 2 (continued). Consultation History

Date	Topics of Discussion
June 20, 2007	Statement of Purpose and Need, conceptual alternatives, and agency coordination plan.
July 10, 2007	Field trip to view the project area's natural and cultural resources.
July 18, 2007	Statement of Purpose and Need, conceptual alternatives and their merits, functional design plans for the alternatives, funding constraints, and the North Carolina hurricane evacuation clearance time statute.
September 19, 2007	Responses to questions raised at the July 18 meeting and in agency letters; NCTA's recommendation for alternatives to be evaluated in DEIS.
November 14, 2007	Results of environmental field studies; an assessment of three potential US 158/Mid-Currituck Bridge interchange configurations and seven potential NC 12 bridge termini locations based on suggestions made by agency representatives at the July 10, 2007 field trip.
February 5, 2008	Overview of upcoming Citizens Informational Workshops, Statement of Purpose, and results of Mid-Currituck Bridge study on the number of bridge lanes.
April 8, 2008	A draft Statement of Purpose and Need report, a draft Alternatives Screening Report, and public comments from the February 2008 Citizens Informational Workshops.
May 6, 2008	Written agency comments on the draft Statement of Purpose and Need report and draft Alternatives Screening Report; and planned NCTA Public Private Partnership Predevelopment Agreement.
July 8, 2008	Agreement on components of Statement of Purpose and Need and alternatives to be evaluated in the DEIS; DEIS impact assessment scope.
October 7, 2008	Indirect and cumulative impact assessment and detailed study alternative design concepts.
June 10, 2009	Discussion of mainland approach road Option B and agreement to assess it in detail in the DEIS.

Table 2 (continued). Consultation History

Date	Topics of Discussion
March 9, 2010	Presentation of an overview of the DEIS format and findings; discussion of construction options in Currituck Sound, including construction dredging moratorium applicability in Currituck Sound; discussion of recent and future public involvement activities and schedule.
August 10, 2010	Discussion of DEIS comments, the Preferred Alternative Identification Information Package (Handout 23 in Appendix B), and “practicable” as it relates to project funding.
September 8, 2010	Discussion of bridge storm water management, bridge construction methodologies, and the practicability of ER2.
November 2, 2010	Discussion of new groundwater and surface water hydrology studies in Maple Swamp and FHWA/NCTA’s recommended Preferred Alternative.
January 20, 2011	Discussed responses to comments on October 2010 Preferred Alternative Report, as they pertain to changes in the January 2011 Preferred Alternative Report. Introduced and discussed the Preferred Alternative as being the LEDPA (Least Environmentally Damaging Practicable Alternative). Agencies present stated that no further study is needed for alternative ER2.
Agency Communications	
June 4, 2010	Comments from NMFS opposed an initial determination by NCTA and FHWA that no “substantial adverse impacts” to EFH or federally managed fish species should result from the Mid-Currituck Bridge project and proposed EFH conservation recommendations.
November 4, 2010	Communication with USFWS Fish and Wildlife Biologist, Gary Jordan, indicating that no consultation is needed and concurrence with the determination of May Affect, Not Likely to Adversely Affect for the piping plover.
November 5, 2010	Communication with NMFS Fisheries Biologist, Eric Hawk, indicating the need for a Biological Assessment for appropriate sea turtles and the shortnose sturgeon.

Table 2 (concluded). Consultation History

Date	Topics of Discussion
November 8, 2010	Communication with USFWS Fish and Wildlife Biologist, Gary Jordan, indicating that no consultation is needed and concurrence with the determination of May Affect, Not Likely to Adversely Affect for the West Indian manatee.
March 30, 2011	Communication with USFWS Fish and Wildlife Biologist, Gary Jordan, indicating that a potential for increased beach driving between the ending of NC 12 and the Virginia line was being included in the Biological Assessment, as well as biological conclusions for species under USFWS jurisdiction.
April 21, 2011	After further communication and additional information was supplied, USFWS Fish and Wildlife Biologist, Gary Jordan, indicated agreement with the determination of May Affect-Not Likely to Adversely Affect for loggerhead sea turtles.
May 5, 2011	Communication with USFWS Fish and Wildlife Biologist, Gary Jordan, related to the draft biological conclusions proposed to be presented in the Biological Assessment for the species under USFWS jurisdiction. The biological conclusions were agreed to, with one minor recommended change in the wording for the loggerhead sea turtle, which was subsequently addressed.

2.0 Federally Proposed and Listed Species and Designated Critical Habitat

As of February 2011, NMFS and USFWS identified 13 federally-protected species (see Table 1) occurring in Currituck and Dare counties (NMFS, 2011; USFWS, 2011a). There is no suitable nesting habitat for sea turtles crossed by the Preferred Alternative or within Currituck Sound, so there would be no direct impacts to nesting sea turtles or their nesting habitat. However the construction of the Mid-Currituck Bridge is estimated to cause increased day trips and beach driving in the area north of Corolla and therefore could have some indirect impacts to nesting sea turtles and their nesting habitat. Evolutionary significant unit (ESU) and distinct population segment (DPS) categories are not applicable to protected species other than the shortnose sturgeon. The shortnose sturgeon has 19 recognized distinct population segments. The designated North Carolina population segment is the population that pertains to the Mid-Currituck Bridge project action area. There is no designated critical habitat for these species within the action area or North Carolina. In addition, there is no habitat for any of the 13 protected species in Maple Swamp. This information is based on the current best available information from referenced literature and USFWS and NMFS correspondence.

Information given in this section pertains to protected species as it directly relates to their habitat in the action area. Species biology, life history information, and global status are discussed in detail in Appendix B for those species for which a determination of May Affect, Not Likely to Adversely Affect is made.

2.1 Mammals

2.1.1 Red Wolf (*Canis rufus*)

Red wolves were extirpated from North Carolina and most other southeastern states by the 1920s. In the mid 1980s, USFWS reintroduced the species to the Alligator River National Wildlife Refuge (ARNWR) in eastern North Carolina. There are no records of this species in the project area (North Carolina Natural Heritage Program [NCNHP], 2011). In addition, it is unlikely that the reintroduced population in ARNWR will cross vast water bodies (Albemarle, Roanoke, and/or Croatan sounds) and reach the project area.

2.1.2 West Indian Manatee (*Trichechus manatus*)

The shallow waters of Currituck Sound and the extensive SAV beds found in the area provide potential foraging habitat for manatees. NCNHP shows sporadic occurrences of manatee in the vicinity of Currituck Sound over the past several decades (NCNHP, 2011). The northern limit of the manatee's range extends to North Carolina, but low temperatures prevent this species from commonly occurring in the area. The presence of a bridge structure and associated construction activities could disrupt potential manatee foraging areas; however, the rarity of its occurrence in the vicinity of the project area makes impacts to this species unlikely (NatureServe, 2007; North Carolina Wildlife Resources Commission [NCWRC], 2008; USFWS, 2008; personal communication, Gary Jordan, Fish and Wildlife Biologist, USFWS, November 8, 2010). Construction contracts would require compliance with the USFWS's *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters* (USFWS, 2003).

2.2 Birds

2.2.1 Piping Plover (*Charadrius melodus*)

Piping plover have not been documented within the project area, but there are sightings from Currituck National Wildlife Refuge (CNWR) approximately 4 miles to the north (NCNHP, 2011). Open sandy beaches that serve as nesting, foraging, and resting habitat are not present in the area directly affected by the project; however, they do exist along the beaches north of Corolla that are included in the action area. Within the refuge piping plovers are regularly sited by visitors, however the plovers have not nested there for 10 or more years due to man-made primary dunes that restrict overwash occurrences, and regular four-wheel drive traffic on the beach (personal communication, Mike Hoff, CNWR Manager, USFWS, March 30, 2011).

2.2.2 Red-cockaded Woodpecker (*Picoides borealis*)

The red-cockaded woodpecker (RCW) typically utilizes open, mature stands of southern pines, particularly longleaf pine, for foraging and nesting/roosting habitat. There are no mature stands of pine forests present in the project area or surrounding areas. Although some older pine trees do occur along the pine/hardwood fringes of upland and wetland areas, these trees, usually loblolly pines, and the surrounding habitat are not characteristic of those occupied by RCWs. Furthermore, the species is currently not known from Currituck County. USFWS indicated the status of this species as historic with no valid records within the past 50 years. The NCNHP database contains an unconfirmed report from 1979 in a tree near the eastern side of North River, approximately 1.25 miles west of the project area. Currently the closest known active

colony is over 2.5 miles west of the project area, near Indian Island, on the NCWRC North River Game Lands in Camden County (personal communication, John Fussell, March 30, 2008).

2.2.3 Roseate Tern (*Sterna dougallii*)

Although sight records of this species exist for June, July, and August, these are likely non-breeding males. Only one nesting record for this species has been documented for the state within the past 20 years. However, if this species expands its range, it is likely to choose coastal areas of the state for nesting. The roseate tern nests on isolated, less disturbed coastal islands in areas characterized by sandy, rocky, or clayey substrates with either sparse or thick vegetation. Eggs are usually laid such that grasses or overhanging objects provide shelter. They may also nest in marshes, but it is an uncommon occurrence (NatureServe, 2007; USFWS, 2008).

2.3 Reptiles

2.3.1 American Alligator (*Alligator mississippiensis*)

The project area is located at the northern extreme of the range of the American alligator, which is largely because of the species' inability to tolerate low temperatures. While alligators are commonly found on the Dare County mainland, there is only one record from Currituck County (photo and reported to NCNHP by CZR, Incorporated, December 3, 2008). This record was during the summer of 2003 from an unnamed tributary/canal to Deep Creek adjacent to the project area. Although appropriate habitat for the American alligator is present, the species is rare in the project area. The American alligator remains on the protected species list because of its similarity in appearance to the endangered American crocodile (NatureServe, 2007; USFWS, 2008).

2.3.2 Hawksbill Sea Turtle (*Eretmochelys imbricata*)

Hawksbill sea turtles are typically found in tropical and subtropical oceans. However, sightings of these turtles have been reported on the east coast of the United States as far north as Massachusetts, although rarely north of Florida. Sightings have been recorded from a handful of counties in North Carolina, but the turtle is not known to breed in the state, and there are no known occurrences of this species recorded from Currituck County or in the vicinity of the project area (NCNHP, 2011; Personal communication, Mathew Godfrey, Sea Turtle Biologist, NCWRC, December 8, 2010).

2.3.3 Leatherback Sea Turtle (*Dermochelys coriacea*)

Leatherbacks are distributed world-wide in tropical waters of the Atlantic, Pacific, and Indian oceans. They are generally open-ocean species, and may be common off the North Carolina coast during certain times of the year. However, in northern waters leatherbacks are reported to enter into bays, estuaries, and other inland bodies of water. Major nesting areas occur mainly in tropical regions. In the United States, primary nesting areas are in Florida; however, nests are known from Georgia, South Carolina, and North Carolina as well. There are no known occurrences of this species recorded in the vicinity of the project area (NCNHP, 2011; Personal communication, Mathew Godfrey, Sea Turtle Biologist, NCWRC, December 8, 2010).

2.3.4 Green Sea Turtle (*Chelonia mydas*)

The green sea turtle has been documented in the last 20 years in Dare, Onslow, New Hanover, and Brunswick counties of North Carolina. In North Carolina, adult green sea turtles feed on sea grass. Therefore, their distributions in the action area vicinity would be expected to be found in association with sea grass beds, which occur in sound-side locations behind the Outer Banks islands. Green sea turtles tracked by Duke University researchers have occupied shallow waters and seem to prefer the areas along Core Banks and amongst the tiny marsh islands within Back Sound (Field Trip Earth web site, 2007). The fall season is the time of the year with the second highest strandings of sea turtles (see Table 3). From 2000 to 2010, no green sea turtle occurrences have been recorded in Currituck Sound; however, one stranding of an unidentifiable species did occur in the Currituck Sound area near the Wright Memorial Bridge, approximately 18 miles south of the action area (personal communication, Mathew Godfrey, Sea Turtle Biologist, NCWRC, December 8, 2010). Actual occurrences of sea turtles in the sound may be underreported because of the lack of regular patrols in this area. Within the stretch of beach considered in the action area (north of Corolla to the Virginia line) two beach strandings have been recorded since 2006 (personal Communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).

2.3.5 Loggerhead Sea Turtle (*Caretta caretta*)

Only one sighting of a loggerhead sea turtle has been documented in Currituck Sound recently (personal communication, Joanne McNeill, Fisheries Biologist, NMFS, December 8, 2010). Additionally, during the time frame from 2000 to 2009, three loggerhead sea turtle strandings were reported in the Currituck Sound area (see Table 3), including the mouth of the North River. There was also one stranding of an unidentifiable species of sea turtle in Currituck Sound near the Wright Memorial Bridge during this time frame (personal communication, Matthew Godfrey, Sea Turtle

Table 3. Sea Turtle Strandings in Currituck Sound from 2000 to 2009

Date	Scientific Name (Common Name)	Sex	Strand Location	Latitude	Longitude
1/1/2000	<i>Caretta caretta</i> (Loggerhead)	M	2.5 miles north of the mouth of the North River, Albemarle Sound, between SR 1124 and SR 1126, Jarvisburg.	36.19333	-75.89
7/11/2000	<i>Lepidochelys kempii</i> (Kemp's ridley)	M	285 N. Dogwood Trail, 3 miles north of US 158, Southern Shores.	36.12833	-75.745
9/25/2001	<i>Caretta caretta</i> (Loggerhead)	F	Across from 156 S. Albetuck Road, in Currituck Sound, Point Harbor.	36.07667	-75.795
10/26/2001	<i>Caretta caretta</i> (Loggerhead)	NA*	Near mouth of North River, Jarvisburg, NC, at end of Fisher Landing Road.	36.2	-75.9
9/23/2005	Unknown (Unknown)	NA*	133 S. Albetuck Road, Point Harbor, 0.5 mile north of Wright Memorial bridge, on mainland.	36.07765	-75.79275

(Mathew Godfrey, sea turtle biologist, NCWRC, December 2010)

* Gender of these sea turtles could not be determined.

Biologist, NCWRC, December 8, 2010). Within the portion of the action area that encompasses the stretch of beach north of Corolla to the Virginia line, five loggerhead nests and three false crawls have been recorded since 2006. Loggerhead strandings on this stretch of beach total 47 since 2006, three of which were alive (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).

2.3.6 Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)

While the Kemp's ridley sea turtle is rarely found in North Carolina, numbers of this species sighted in North Carolina appear to be on the increase (personal communication, Joanne McNeill, Fisheries Biologist, NMFS, November 21, 2007). NCNHP has indicated this species is likely to use, or reside in all of these listed North Carolina counties: Beaufort, Brunswick, Carteret, Dare, Hyde, and Pamlico counties (NCNHP, 2006). Records indicate that between 2000 and 2010 only one occurrence (stranding, see Table 3) of a Kemp's ridley sea turtle was recorded in Currituck Sound (personal communication, Mathew Godfrey, Sea Turtle Biologist, NCWRC, December 8, 2010). Strandings in Currituck Sound could be underreported because of no regular patrols of the area. No nests have been recorded in the action area; however, four strandings have

been recorded here (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).

2.4 Fish—Shortnose Sturgeon (*Acipenser brevirostrum*)

Information given in this section pertains to the shortnose sturgeon as it directly relates to their habitat in the action area. Species biology, life history information, and global status are discussed in detail in Appendix B.

Historically the species probably occurred in major rivers throughout North Carolina; however, the current distribution is not well known. Oakley (2003) adds evidence to the opinion that the species has been extirpated from the Neuse River of North Carolina. In North Carolina the shortnose sturgeon seems to be most abundant in the Cape Fear River system. NCNHP data identifies records of this species presence in 18 North Carolina counties. The closest record identified by NCNHP was from the mouth of the Pasquotank River from Lee et al., 1980; however, a more recent record occurs further west in Bachelor Bay near the mouth of the Roanoke River in 1998 (personal communication, Judy Ratcliffe, Eastern Region Freshwater Ecologist, NCNHP, April 6, 2011). Also, a shortnose sturgeon encounter was recorded from 2006 in the Pamlico Sound in Dare County (personal communication, David Rabon, Fish and Wildlife Biologist, USFWS, November 30, 2006). Further information from NMFS indicates that this record probably occurred in summer of 2005 during the North Carolina Independent Fisheries Assessment. Personnel participating in this assessment were trained to identify species, but the sturgeon referred to in this instance was not verified nor were any photographs taken. The shortnose sturgeon is not likely to be in the action area (personal communication, Stephanie Bolton, Fisheries Biologist, NMFS, November 19, 2007). Suitable habitat exists within the action area and historic records document the species within Dare and Currituck counties.

2.5 Vascular Plants—Seabeach Amaranth (*Amaranthus pumilus*)

Seabeach amaranth appears to require extensive areas of barrier island beaches and inlets that function in a relatively natural and dynamic manner and is one of the pioneer species to colonize newly created beach areas. These characteristics allow it to move around in the landscape, occupying suitable habitat as it becomes available (NCNHP, 2001; Schafale and Weakley, 1990; USFWS, 1996; USFWS, 2006; USFWS, 2008). The preferred habitat associated with dynamic barrier island features (foredunes, overwash fans, and inlets) do not occur in the action area. The closest record of this species was in 1988, over 6.0 miles north of the project area on the Outer Banks (NCNHP, 2011).

3.0 Environmental Baseline

Protected species habitat with the action area includes Currituck Sound and the dunes and beaches between the northern end of NC 12 and the Virginia line. This environmental baseline describes the characteristics of these areas. A full description of the characteristics of the project is included in Chapter 3 of the DEIS, as well as associated technical reports. These descriptions also will be included in the FEIS and its technical reports.

The environmental baseline for listed species in the action area is described in Chapter 2. This description includes records or occurrences and relevant biological background information. Further details of life history and general biology of species for which a determination of May Affect, Not Likely to Adversely Affect is made are found in Appendix B.

The environmental characteristics pertinent to this Biological Assessment and discussed in this chapter are:

- Various water resource classifications that apply or do not apply to the sound.
- Water quality, which is generally reflective of the impact of past and present activities on the sound.
- Aquatic wildlife.
- Essential fish habitat.
- Submerged aquatic vegetation.
- Floodplain.
- Beach and dune.

Currituck Sound is shallow, with an average depth of 5 feet and maximum depth of about 13 feet. Some locations are only one foot deep. It has no defined channel. A power cable supplying power to the Outer Banks lies on the sound bottom in the action area. No other federal or state activities occur in the action area.

3.1 Water Resource Classification

Currituck Sound is designated as “SC” under North Carolina’s water quality classifications by the North Carolina Department of Environment and Natural Resources, Division of Water Quality (NCDENR-DWQ, 2008). This saltwater

classification represents the minimum quality standards applicable to all saltwaters. Suitable activities for waters classified SC include “aquatic life propagation and survival, fishing, wildlife and secondary recreation” (NCDENR-DWQ, 2008).

Most of Currituck Sound and all waters of the project area are closed to harvesting shellfish for direct marketing purposes or human consumption. There are no water bodies classified as High Quality Waters (HQW), Outstanding Resource Waters (ORW), or Water Supply Watersheds (WS-I, WS-II) within 1.0 mile of the project area.

Currituck Sound is not a Primary Nursery Area (PNA) or an Anadromous (fish that spawn in freshwater but live mainly in saltwater) Fish Spawning Area (AFSA). Essential Fish Habitat (EFH) does exist in the action area as described in Section 3.4.

3.2 Water Quality

Water quality of the Albemarle-Pamlico estuarine system, which includes Currituck Sound, is undergoing substantial degradation because of the area’s increasing population, changes in agricultural practices, and urbanization and industrialization of the region. Point source pollution within the project area is limited. Local non-point source pollution is typical of developed areas and generally is in the form of stormwater runoff.

Historic and present stressors to Currituck Sound include natural and anthropogenic fluctuations in nutrient loading, turbidity, and salinity (USACE, 2010). Increased development in the watershed has increased the amount of nutrients in runoff into the sound. Bottom disturbing fishing gear, construction of docks/piers/marinas, storms, shoreline erosion, dredging, boating, sedimentation, and runoff have contributed to increased turbidity in the sound. The erosion of some marsh islands in the sound because of wave energy and decreased sediment accretion has increased the wind fetch, creating more wave energy that can re-suspend particles in the water, increasing turbidity (USACE, 2010). The sound has become more saline since the late 1980’s (Caldwell, 2001). Continual increases in the salinity of Currituck Sound could result in shifts in the community structure of aquatic flora and fauna, and possibly increase essential fish habitat (EFH) value for managed species and other estuarine dependent species.

3.3 Aquatic Wildlife

Macroinvertebrate populations of Currituck Sound are composed primarily of burrowing amphipods near the shore, but there is a more diverse population in deeper areas. Currituck Sound has long been recognized as a nationally important area for freshwater recreational fishing. The decline of freshwater fisheries in Currituck Sound has been attributed to the increase in salinity and decrease in submerged aquatic

vegetation (SAV) during the 1980s. Commercial fishing activities with haul seines and gill nets have also decreased since the 1960s (Borawa et al., 1978). Currituck Sound is an important nursery area for migratory and resident fish.

In the past, nursery areas for two anadromous fish species, the blueback herring and alewife, were known to occur within Currituck Sound. Nursery areas for these species, including Whale Head Bay and Sanders Bay, were identified in the sound from 1980 to 1983. The status of the populations of these two species was identified as declining in the sound during 1980 (Copeland and Gray, 1989), and these areas are no longer officially recognized as anadromous fish spawning areas or primary nursery areas.

3.4 Essential Fish Habitat (EFH)

Essential fish habitat (EFH) does exist in the action area. Types of EFH found within the action area include SAV, intertidal flats, palustrine emergent and forested wetlands, freshwater tidal aquatic beds, and estuarine waters. Not all palustrine wetlands (i.e., Maple Swamp) within the project area are EFH. Palustrine wetlands determined to be EFH were adjacent waters and marshes of Currituck Sound and subject to tidal/wind inundation. Detailed information about EFH and how it relates to protected species can be found in Appendix A.

3.5 Submerged Aquatic Vegetation

The shallow waters (6 feet deep or less) of Currituck Sound provide potential habitat for SAV. The North Carolina Marine Fisheries Commission (NCMFC) defines SAV habitat as currently vegetated with one or more appropriate (native) SAV species, or has been vegetated by one or more appropriate species within the past 10 annual growing seasons, and meets the average growing conditions needed (water depth of 6 feet or less, average light availability [Secchi depth of 1 foot or more], and limited wave exposure). Potential SAV habitat consists of areas of the sound 6 feet deep or less that do not meet NCMFC's definition of SAV habitat. These definitions of SAV habitat and potential SAV habitat were agreed to during project coordination with the environmental resource and regulatory agencies with jurisdiction over water resources in the project area (i.e., NMFS, NCWRC, and the NCDENR, Division of Marine Fisheries [DMF]).

Survey data from the last 10 annual growing seasons was gathered in 2003, 2006, 2007, and 2010 and is shown in Figure 2. These SAV communities (existing and past beds) are included within the open water areas of Currituck Sound and are mainly on the eastern side of the sound in the project area. For many juvenile and adult fish, the structural complexity of SAV habitat provides refuge from predators. These habitats are also rich in invertebrates and, therefore, serve as important foraging areas. Other SAV roles include stabilizing sediment, nutrient cycling, reducing wave energy, and providing



**SAV Data from
2003, 2006, 2007
and 2010**

**Figure
2**

organic matter that supports complex food webs (NCWRC, 2005). For these reasons, SAV communities are considered Habitat Areas of Particular Concern (HAPC) for several managed fish species.

3.6 Floodplains

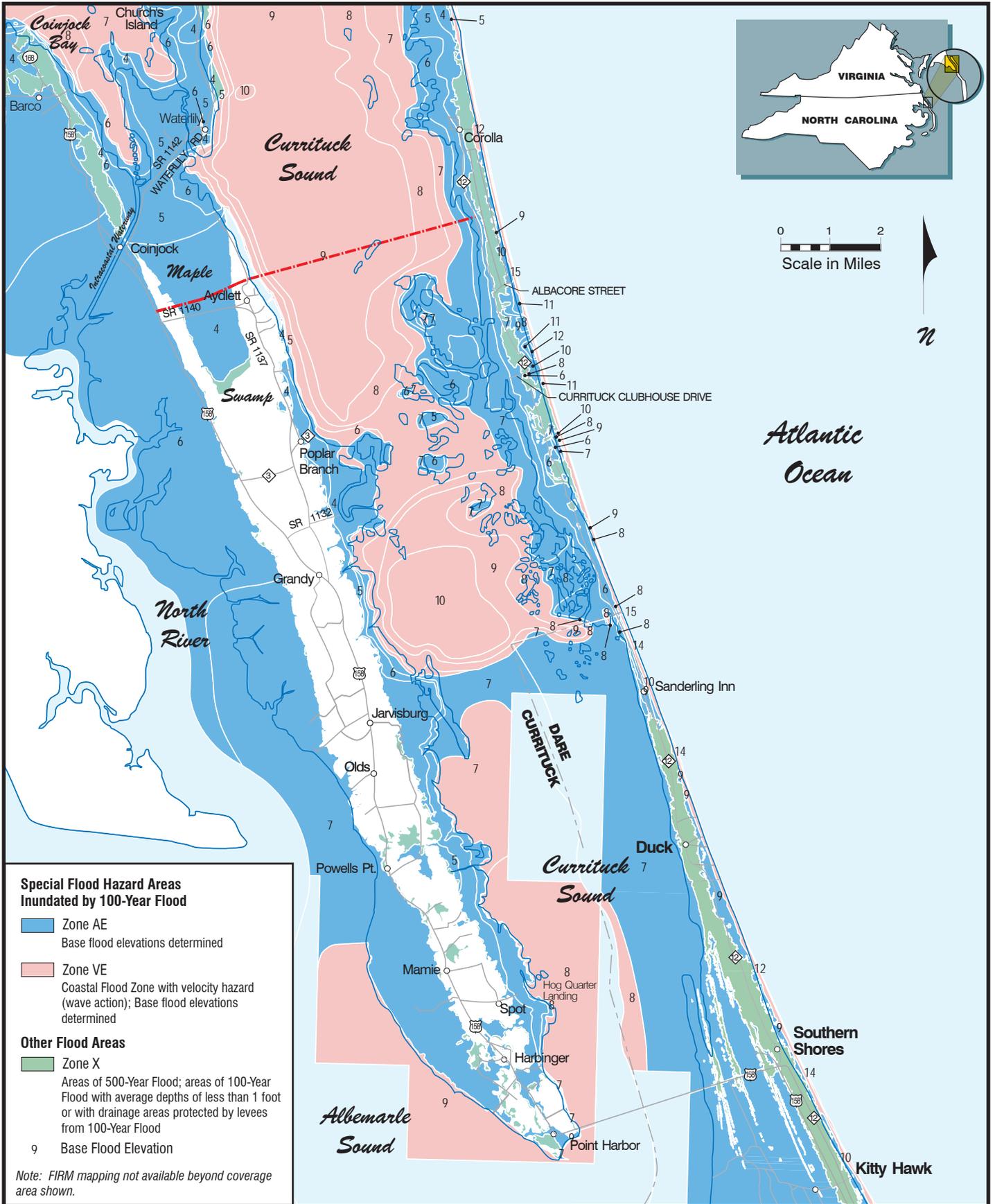
Floodplains and associated Base Flood Elevations in the action area and larger project area are shown on Figure 3. The floodplains in the project and action areas do not serve the same function as floodplains in non-coastal areas (fluvial or river/stream floodplains with associated stormwater runoff) because water levels in the project and action areas are not dependent on floodplain storage capacity. Rather, the project and action areas are subject to coastal flooding caused by both hurricanes in the summer and fall months and northeasters in the winter and spring, both of which can raise water levels substantially via storm surge. The tidal surge comes into shore with the storm, and then begins to retreat almost immediately once the storm moves on. The only storage that occurs in the project and action areas floodplains is during the brief interval between the surge and the ebb of the storm-induced tide.

3.7 Beach and Dune

Beach consists of bare, transitional areas between the open water and terrestrial upland communities characterized by sand flats. They typically consist of a dry berm zone beyond the mean high tide line, an intertidal zone that is regularly covered by tidal action, and a subtidal zone that exists below the low tide mark, including the top and beachside of dunes. This community undergoes frequent, natural disturbance and is typically void of vegetation, however, it can be characterized by a small number of species and the dominance of succulents.

Dunes in the action area are landward and generally parallel to the beach community. This community undergoes constant gradual movement and is subject to abrupt changes during storms, particularly during strong northeasterly winds. The primary dune system developed as winds moved intertidal sands landward. Mobile sand was trapped by vegetation and by fences in many areas.

Within the action area motor vehicle driving is common on the 10 miles of beach between the end of NC 12 and the Virginia line. West of the beach and dunes are numerous sand roads behind the dune line in the subdivisions. Traffic on the beach is associated with commuting to the 611 residences (2007) in the area, as well as day visitors who want to see the wild horses, visit the beach, or simply drive in the sand. Currently, beach driving is unrestricted. There are no level of service standards developed for beaches as roadways and no comprehensive traffic counts. Public comments regarding the DEIS by area citizens familiar with the beaches noted that summer peak days experience congested traffic and crowded beaches. The presence of



Floodplains

Figure 3

persons or horses on the beach lowers the speed limit, thereby increasing congestion. Continued development of the permanent, weekly, and daily populations will be associated with increased beach driving in the absence of access restrictions.

A portion of the action area between the end of NC 12 and the Virginia line is within the Currituck National Wildlife Refuge (CNWR). CNWR was created in 1984 and is 4,570 acres in size. The first tract of land within CNWR is 0.75 mile north of the end of NC 12. The Refuge is managed as a satellite of the Mackay Island National Wildlife Refuge. Some tracts transition from the Atlantic Ocean to Currituck Sound, which include sandy beaches, grassy dunes, maritime forests, shrub thickets, and fresh and brackish marshes. Refuge objectives are:

- Protect and improve the last remaining habitat in the Refuge of the endangered or threatened piping plover, loggerhead sea turtle and seabeach amaranth.
- Actively manage and improve the interdunal flats for wintering waterfowl, wading birds and shorebirds through discing, planting, and a proactive water management plan.
- Pursue an active land acquisition program on the Outer Banks.
- Through various techniques, develop a database and working knowledge on neotropical bird use. (USFWS, 2011b)

The Refuge consists of six separate units. It has four marsh units (the Currituck, Station Landing, South, and the County marsh units) and two island units (the Swan and Monkey Island units). Beach driving is permitted in the 202 acres of beach within the Refuge.

4.0 Project Details

The project was described in Section 1.2. The bridge across Currituck Sound would be the only component of those components listed in Section 1.2 that could directly affect the threatened and endangered species habitat of the 13 species under consideration in this Biological Assessment. The portions of the Preferred Alternative on the mainland, including within Maple Swamp, and on the Outer Banks are not within protected species habitat. Therefore, the construction, operation, and maintenance of these portions of the project are not described because they are not relevant to this Biological Assessment. Thus, the focus of this section is on the Mid-Currituck Bridge.

The Mid-Currituck Bridge location is shown in Figure 1. It generally would be 47 feet wide with two lanes and two 10-foot shoulders. The bridge at its eastern end for 1,920 feet would be 81 feet wide where it would widen to four lanes as it approaches its eastern terminus at NC 12. The total bridge length would be 4.7 miles. The following sections provide details related to bridge construction, stormwater management, and potential impacts to Currituck Sound.

4.1 Construction

4.1.1 Project Timeline and Sequencing

Construction for the entire project is expected to occur over four annual construction seasons. The bridge would likely be built at both ends simultaneously. Construction also could occur simultaneously at additional locations.

4.1.2 Site Preparation

Site preparation would involve establishing staging areas on both shorelines of Currituck Sound on upland sites near the bridge termini and building a temporary construction trestle over shallow areas (depths 6 feet deep or less) at both ends of the sound. Also, turbidity curtains would be utilized during pile installation (permanent and temporary bridges) and pile removal (temporary bridge). Turbidity curtains would prevent any silt from migrating outside the curtain perimeter.

4.1.3 Construction Access and Staging

On the Currituck County mainland, construction materials and equipment would be transported by truck along US 158. Transport to Currituck Sound of construction materials and equipment for building the Mid-Currituck Bridge would be via Aydlett

Road (between US 158 and Aydlett only) and Narrow Shore Road. Depending on allowable use of project right-of-way in Maple Swamp, the bridge corridor through Maple Swamp could also be used for access to the Narrow Shore Road area. Construction materials and equipment also would be staged on vacant upland sites along Narrow Shore Road near the western Mid-Currituck Bridge terminus.

On the Outer Banks, construction materials and equipment would be transported by truck via NC 12 to construction sites. Construction materials and equipment would be staged on vacant upland sites near the NC 12 widening areas and at the eastern Mid-Currituck Bridge terminus.

4.1.4 In-Water Work

NCTA is currently planning the construction methodologies described below for construction of the bridge over Currituck Sound to minimize construction-related impacts to Currituck Sound. NCTA will continue to work with environmental resource and regulatory agencies as the project progresses into final design and permit application to refine this approach. Construction methodologies planned include:

- No dredging in any part of Currituck Sound.
- A combination of work trestle and barges for constructing both the substructure (piles and pile caps) and superstructure (beams and deck), including:
 - An approximately 1,900-foot-long work trestle extending from the western shoreline. Based on the absence of SAV habitat (including existing beds) that meets NCMFC’s definition of SAV habitat (see Section 3.5) on the western side of Currituck Sound, an open trestle would not be necessary. This closed surface work trestle is envisioned to be approximately 50 feet wide. Its footprint would allow a parked crane and a small lane to allow necessary materials to pass the crane for loading onto barges. The bridge in this area of the sound would be constructed from the work trestle. The barge method would be used east of the trestle in deeper water. A barge loading area would be at the eastern end of this trestle.
 - Remaining construction from small, low draft barges for approximately 20,000 feet or 3.8 miles. The barges would be launched from the trestle extending off the shoreline from Narrow Shore Road in Aydlett.
 - On the eastern side, use of temporary construction trestle for approximately 4,500 feet or 0.8 mile (over habitat [including existing beds] = 3,000 feet and over shallow water = 1,500 feet). Bridge erection equipment would operate on the trestle to place the components of the bridge foundation and spans. An open trestle would be used to minimize the shading of SAV habitat during

construction. Marine industry standard pans attached to equipment would be used to capture any accidental release of petroleum products from equipment.

- Bridge construction from land for approximately 400 feet total.
- Driving of bridge piles with no jetting (using pressurized water to wash out a hole for a pile to set in).

State and federal environmental resource and regulatory agencies at the time of the release of this report have concerns with impacts to SAV habitat (including existing beds) associated with bridge shading and driving piles. In response to this concern, NCTA would follow the protocols discussed below during construction of the Preferred Alternative to protect existing SAV habitat (including existing beds) that meets NCMFC's definition of SAV habitat (see Section 3.5). This definition was agreed to during project coordination with the environmental resource and regulatory agencies with jurisdiction over water resources in the project area (i.e., NMFS, NCWRC, and NCDENR-DMF):

- No bottom disturbing in-water work in the SAV habitat (including existing beds) during a moratorium period from approximately February 15 to September 30. In-water work (i.e., bottom-disturbing activities) would consist of temporary trestle pile placement and removal and driving permanent piles. Working above the water, including, for example, barge operations in waters (non-bottom disturbing), installation and removal of temporary trestle beams and decking, and installation of Mid-Currituck Bridge pile caps, beams, and decking, would occur up to 365 days a year at the discretion of NCTA. Opportunities would be investigated to allow in water work before or after the moratorium window, based on water temperatures and other factors approved by the regulatory agency during the time of construction.
- As noted in the general description, use of an open (i.e., beams only to support a crane) temporary construction trestle on the eastern side of the sound to minimize shading impacts while the trestle is in place. Marine industry standard pans would be placed under construction equipment operating on the open trestle to capture any accidental release of petroleum products from equipment.
- The eastern side of the sound is the only location within the project corridor that includes SAV habitat (including existing beds) that meets NCMFC's criteria. The environmental resource and regulatory agencies with jurisdiction over water resources in the project area (i.e., NMFS, NCWRC, and NCDENR-DMF) agreed to this conclusion about the location of SAV habitat within the project corridor. In this area of the sound, to minimize SAV impacts, NCTA would install temporary piling and a temporary open work trestle for approximately 4,500 linear feet. Pile driving would occur outside of the moratorium dates in this area, for both the permanent bridge and the temporary trestle within the SAV habitat (including existing beds).

- Turbidity curtains would be utilized during pile installation (permanent and temporary bridges) and pile removal (temporary bridge). Turbidity curtains would prevent any silt from migrating outside the curtain perimeter. This is a common and proven turbidity control technique. Pile installation would be performed both by vibratory and impact hammers, with no jetting of piles.

On the eastern side, limiting pile placement to times outside the moratorium period is expected to result in the following construction sequence over the SAV habitat (including existing beds) on that eastern side of Currituck Sound:

- Construction Season 1. The October 1 to February 14 non-moratorium window would allow installation of approximately 35 percent of both work trestle and permanent bridge pilings along with deck construction.
- Construction Seasons 2 and 3. During these two seasons, the remaining temporary work trestle and permanent bridge construction would be completed.
- Construction Season 4. During this season, the temporary work trestle would be removed/dismantled.

Minimization of potential impacts to potential SAV habitat (areas of the sound 6 feet deep or less) would be accomplished through no dredging anywhere in Currituck Sound and by pile installation using both vibratory and impact hammers, with no jetting of piles.

The project would not involve any flow diversion or fish capture and release.

4.1.5 Potential Impacts on Water Quality and Aquatic Habitat

The most notable temporary impact to water quality in Currituck Sound would be the potential for increased turbidity levels produced during the period of construction. As noted above, increased turbidity would be minimized by driving rather than jetting piles, as well as the use of turbidity curtains during pile installation (permanent and temporary bridges) and pile removal (temporary bridge) to prevent dispersal of sediment or other pollutants. The duration and severity of these impacts would vary based on the number of simultaneous construction sites for the bridge. Currently three or more construction locations are estimated to be occurring simultaneously. Increases in turbidity and sedimentation could negatively affect aquatic flora and fauna by reducing light penetration, lowering dissolved oxygen levels, fluctuation of nutrient levels, and limited visibility. These temporary impacts could be prolonged because of existing poor water circulation in the sound. Turbidity and sedimentation levels also could temporarily increase as a result of runoff from construction areas on land until post-construction re-vegetation occurs. Temporary impacts to water quality would be minimized through the use of NCDOT erosion and sedimentation control measures both

in the water as mentioned and on land. Existing water/turbidity conditions in the sound would be verified prior to and after construction.

The temporary impacts to aquatic habitat would include short-term increases in noise, vibration, turbidity, and siltation. Noise and vibration from open water construction activity would be a temporary, localized disturbance to fish. Construction related noise generated during pile driving could be of sufficient intensity to kill or injure marine organisms (reviewed in Hanson et al., 2004). However, the Hanson report mostly documented activities in deep fresh waters in California, as well as some salt waters, in seismic conditions, and addressed large piles. The report does state that noise from vibratory pile driving is less evasive than large impact hammers. The in-water work moratorium in SAV habitat should help reduce noise/vibration impacts from pile placement to listed species as well as other anadromous fish using SAV habitat for foraging. In addition, current plans include vibratory pile driving, which as previously noted, result in less noise, thus reducing the effect on marine organisms. At the ecosystem level, increased turbidity would result in a reduction in ecosystem productivity (i.e., ability of the system to produce and export energy) and nursery value by eliminating organisms that cannot readily move, and displacing mobile organisms. In-water turbidity precautions include the use of turbidity curtains during pile installation (permanent and temporary bridges) and pile removal (temporary bridge) to prevent dispersal of sediment or other pollutants. Temporary impacts could affect foraging habitat (reduction of quality and quantity) for species addressed in this Biological Assessment; however, these impacts are not expected to cause direct harm, incidental take, or have adverse affects. In the unlikely instance any listed species are in the area, they would probably avoid disturbed construction areas. Moreover, it is likely the forage areas affected by construction would recover. Additionally, SAV mitigation planting is proposed for suitable sites, which are yet to be determined, within the project area at up to a 2:1 ratio.

4.1.6 Post-Project Site Restoration

Minimal post-project site restoration would be required with the Preferred Alternative. The construction trestle piles would be removed post-construction. If surveys following construction operations reveal that permanent impacts to SAV beds have occurred as a result of the construction trestles, permanent impact mitigation would be provided using one or more options described in Section 4.2.2.

4.2 Operations

The Mid-Currituck Bridge would carry motor vehicle traffic between the Currituck County mainland and the Currituck County Outer Banks. The features important to

potential long-term impacts of the bridge on Currituck Sound are stormwater management and mitigation of shading impacts.

Permanent impacts to water quality would be primarily associated with increased levels of bridge and highway runoff, which is considered a non-point source discharge. The effects of runoff are highly site specific. The primary pollutants associated with bridge and highway runoff include particulates, organic compounds, nutrients, and heavy metals. These pollutants accumulate on impervious surfaces and derive from automobiles and materials used in construction and maintenance of roadways. These substances have the potential to affect negatively aquatic life by directly or indirectly interfering with various biological processes and cycles. It is difficult to predict the amounts and specific types of future pollutants that would occur on a bridge, as well as the frequency and severity of future rain events which determine level of exposure. The highest traffic volumes (highest pollutant production) in the action area currently occur on summer weekends and it is assumed that this would continue in the future given the tourism-based nature of the Outer Banks.

Pollutants discharged into Currituck Sound near the bridge could dissipate slowly because of poor water circulation, and could result in higher sediment pollutant levels and bioaccumulation when compared to bridges over high-flow areas with better water circulation. Thermal and turbidity differences in runoff could also affect water quality by depressing oxygen levels and light penetration. Methods to reduce pollutant discharge and minimize this impact are described in Section 4.2.1 below.

Fill, pile placement, shading, and clearing would result directly in the permanent loss or alteration of aquatic habitat within the action area. Shading by the bridge would affect 27.8 acres of aquatic bottom, 8.7 acres of which are 6 feet deep or less. Existing SAV beds affected by shading would total 3.8 acres, with an additional 1.0 acres of SAV habitat shaded, for a total of 4.8 acres. Also, bridge pilings would remove 0.1 acre of aquatic bottom and associated benthic organisms.

Permanent loss of habitat resulting from pile placement could generate several other impacts, including changes in water quality, water flow, and light levels of the areas both underneath the bridge and for some distance surrounding the bridge. Altered light levels and the introduction of piles as a hard substrate previously unavailable in the area would have multiple effects, thereby resulting in changes to the existing food web structure. Primarily, decreased autotrophic productivity (phytoplankton and aquatic vegetation) resulting from lower light levels could result in decreased abundances of aquatic vegetative habitat (including SAV). SAV is a primary producer and acts as the base of the food web structure. A decrease in the quantity and quality of SAV because of shading would have the potential to cause shifts in the base of the food web, from autotrophic to heterotrophic organisms.

On the other hand, organisms could be attracted to bridge pilings as a reef structure for organisms such as sessile invertebrates and some fish.

4.2.1 Stormwater Management

The stormwater management plan for the Mid-Currituck Bridge would have the following components:

- Source Control. Source control would be used on the Maple Swamp and Currituck Sound bridges. Source control would be provided by frequent deck cleaning using state of the art, multi-function cleaning equipment that employs mechanical, vacuum, and regenerative air systems. Cleaning would occur weekly during the summer until the most effective cleaning frequency regime can be determined. Weather dependent cleaning may occur prior to known large rain events such as hurricanes. Source control through deck cleaning would be a contractual element of the agreement between NCTA and the concessionaire operating and maintaining the toll bridge. Failure to comply with contractual terms could result in a financial penalty.

Modern pavement sweeping and vacuuming technology has been shown to remove effectively upwards of 97.5 percent of materials that cause pollution from the bridge deck (Real World Street Cleaner Pickup Performance Testing, Roger C. Sutherland, PE, Pacific Water Resources, Inc., July 2008). Even when graduated by particle size, this technology removes over 90 percent of the smallest particles and nearly all of the larger particles. Use of this technology prior to a storm event would remove the vast majority of the pollutants from the bridge runoff, thereby substantially improving the water quality of the runoff reaching the sound. Therefore, the sweeping approach is a pre-treatment method.

- Stormwater Capture over Existing SAV Habitat (including existing beds) at the Eastern End of the Currituck Sound Bridge. For the bridge over Currituck Sound, the first 1.5 inches of stormwater runoff would be captured from the eastern end of the bridge for a distance of 4,000 feet to prevent direct discharge into the existing SAV habitat (including existing beds) along the eastern shore of the sound. The runoff would be piped to the end of the bridge for treatment to a wet detention basin. The bridge stormwater collection system would be subject to:
 - Regular pipe inspections and maintenance (including debris and litter removal); and
 - Periodic removal and disposal of accumulated sediments in the wet detention basin.

The remaining length of this 4.7 mile bridge would have no stormwater capture and would directly discharge through bridge scuppers into Currituck Sound. According

to FHWA research (Design of Bridge Deck Drainage, HEC 21, May 1993), stormwater from bridge scuppers that are 25 feet or greater above the ground has no erosive force. Instead, because of wind and other normal conditions encountered during rain and storm events, this water returns to a state similar to rain. For the bridge over Currituck Sound, the scupper height would be approximately 22 feet above the water, minimizing the impact of discharged stormwater. No impacts to SAV from stormwater concentrations discharging from scuppers would occur because no scuppers would be over SAV habitat (including existing beds) – the stormwater would be collected as previously mentioned. In addition, NCTA would ensure the stability of the sound would not be affected by erosion as a result of stormwater discharge from scuppers during at minimum, an annual inspection.

- Stormwater Capture at Either End of the Maple Swamp Bridge. The first 1.5 inches of stormwater would be captured for 500 feet on both ends of the Maple Swamp Bridge and piped to infiltration basins for treatment. The remaining length of the bridge would have pre-treated discharge (via the frequent deck cleaning) exiting through scuppers 7 to 18 feet above the ground of Maple Swamp. If the energy of the water exiting the scupper is determined to be a problem, dissipation would be provided either at the pipe outlet or on the ground.
- Water Quality Monitoring and Research. A water quality monitoring program would be conducted as a part of bridge operations. NCTA would monitor the effectiveness of the bridge deck cleaning program so adjustments to the program could be made as needed. The monitoring program would first establish (test) existing water quality levels, including turbidity levels. Research could be supported for better understanding of the effect of bridge deck cleaning and/or the effect of bridge deck stormwater runoff on receiving waters.
- To further minimize the water quality impacts on Currituck Sound from the project, on the mainland and the Outer Banks, stormwater capture and treatment would be through typical roadway BMPs using infiltration trenches and basins. To the maximum extent practicable, all 38 acres of non-bridge additional impervious surface area, plus all 18 acres of existing roadway impervious surface in the project's area of affect, would have the first 1.5 inches of runoff captured and either treated or used on the project site. 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. There would be no outfalls from NC 12 to Currituck Sound.
- NCTA would continue to work with environmental resource and regulatory agencies as the project progresses into final design and permit application to refine this approach.

4.2.2 Shading

NCTA would mitigate permanent impacts to SAV habitat (including existing beds), as defined by NCMFC (see Section 3.5), resulting from Mid-Currituck Bridge shading and pile placement with the Preferred 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 Best Management Practices (BMPs); stormwater management improvement projects; acquisition of properties identified as important for the protection of water quality (as reported in the November 2006 *Countywide Land Parcel Prioritization Strategy for Water Quality Enhancement, NCCLT, 2006*); and other measures that would reduce the turbidity of water in Currituck Sound.
- Support for SAV research.
- Participation in the Currituck Sound Ecosystem Restoration Project coordinated by USACE.

Efforts to improve conditions for SAV propagation and survival within Currituck Sound, support for SAV research, and participation in the Currituck Sound Ecosystem Restoration Project 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 do not meet NCMFC's definition of SAV habitat). Other options could be considered during the permit process.

NCTA will continue to work with environmental resource and regulatory agencies as the project progresses into final design and permit application to refine this approach.

4.3 Maintenance

Maintenance activities that include in-water work or are associated with maintaining water quality would be:

- Inspection of bridge foundations from boats or with divers.

- Regular inspection of the closed stormwater collection piping on the eastern end of the proposed Mid-Currituck Bridge and both ends of the Maple Swamp Bridge and periodic removal and disposal of accumulated sediments in the wet detention basin.

5.0 Project Action Area

5.1 Project Action Area

The action area for this Biological Assessment is shown in Figure 1 in Section 1.2. The action area represents the area of potential indirect and direct impacts of the Preferred Alternative on protected species under NMFS and USFWS jurisdiction. The action area is in northeastern North Carolina within Currituck County. A portion also is in Dare County. The portion of the action area that encompasses the Preferred Alternative reflects the project components described in Section 1.2. The specific boundaries include:

- On land the project's proposed right-of-way and permanent and temporary easement plus 500 feet.
- The proposed Mid-Currituck Bridge plus 0.5 mile north and south of the bridge rail (approximately 1 mile total). This includes Currituck Sound directly below the bridge corridor, as well as a location on either side of the bridge that encompasses the area potentially affected by construction activities and stormwater runoff.
- Also on land the shoreline that drains into the sound at the termini of the proposed Mid-Currituck Bridge. The shoreline component encompasses the area of the sound that could receive runoff from developed areas along the shoreline.

Potential indirect effects add to the action area the dune line and beach between the northern end of NC 12 and the Virginia line. Its eastern boundary is 0.5 mile east of the shoreline and its western boundary is the western boundary of the dune line. Potential indirect effects also add to the action area developable land near the US 158/Mid-Currituck Bridge interchange.

Only two portions of the action area includes protected species habitat; Currituck Sound, which would be bridged, and the dune line and beach between the northern end of NC 12 and the Virginia line, where indirect impacts could occur.

5.2 Limits of the Action Area

5.2.1 Right-of-Way and Permanent and Temporary Easement plus 500 Feet

This portion of the action area encompasses the areas that would be directly disturbed by project construction, operation, and maintenance. The additional 500 feet recognizes that disturbances could occur beyond the land area directly disturbed, including noise

and stormwater runoff. There is not threatened or endangered species habitat in this portion of the action area.

5.2.2 Mid-Currituck Bridge

The Mid-Currituck Bridge would cross protected species habitat and have construction, operation, and maintenance impacts. Noise and disturbance from construction activities, as well as motor vehicle pollutants from bridge runoff, may extend beyond the actual work area, necessitating the need to enlarge the area of direct impact to encompass more than the bridge and areas with active construction or continued bridge presence. The area of Currituck Sound that could be included in the action area is difficult to ascertain because of the varying nature of weather and currents within the sound. However, it would not likely extend beyond 0.5 mile on either side of the bridge, 500 feet west of the western shoreline of Currituck Sound, or east of NC 12 in regards to protected species.

The influence of the Mid-Currituck Bridge would decrease with distance from the bridge and actions to minimize increases to turbidity during construction and manage stormwater runoff described in Section 4.0 would minimize impacts both at the bridge and further from it. Measures to limit increased turbidity include no dredging and driving piles (as opposed to jetting). Furthermore, turbidity curtains would be utilized during pile installation (permanent and temporary bridges) and pile removal (temporary bridge). These efforts would help to isolate turbidity effects from the surrounding water column but containment may also depend on environmental conditions at the time of disturbance such as current, wind, and weather patterns. Noise and vibrations also would occur during pile placement. In addition, compliance with NC Session Law 2008-211's (An Act to Provide for Improvements in the Management of Stormwater in the Coastal Counties in Order to Protect Water Quality) requirement for new development to capture and treat the first 1.5 inches of runoff from additional impervious surface areas would be met, to the maximum extent practicable, through a combination of pollutant source control and capture and treatment. Source control would be through the use of pavement sweeping and vacuuming on the bridge deck. Capture and treatment of pollutants would be through the use of a closed bridge drainage system, stormwater wetlands, wet detention basins, rooftop rainwater harvesting, and other traditional roadway BMPs, to the maximum extent practicable. Based on these factors, the bridge and the 0.5 mile distance on either side of the bridge is believed to be more than adequate to capture the area of notable potential direct impact.

The soundside shoreline component was included in this report when considering potential indirect and cumulative impacts to water quality associated with development near the Mid-Currituck Bridge's area of influence for direct impact.

5.2.3 Additional Action Area Associated with Indirect Impacts

Indirect effects of the Preferred Alternative would include:

- A change in the order in which available lots on the NC 12-accessible Outer Banks would develop.
- Approximately 68 acres of business development likely would occur using land near the US 158/Mid-Currituck Bridge interchange immediately north of Aydlett Road.
- Day visitor potential demand would increase, which could have some effect in the NC 12 area but likely would have more impact in the unregulated beach-driving area.

Development is not planned within threatened and endangered species habitat on the Outer Banks, which is confined to the beach and adjoining dunes. Therefore, the action area does not encompass areas planned for future development on the Outer Banks.

There is adequate land classified as in the Currituck County land use plan as suitable for development to accommodate the 68 acres of business development. Land considered suitable for development in the Mid-Currituck Bridge/US 158 interchange area is upland and primarily in agricultural use. It does not contain or adjoin threatened and endangered species habitat. Therefore, the action area does not encompass areas where the 68 acres of business development is expected to occur.

The beach and adjoining dunes north of NC 12 to the Virginia line have unrestricted beach driving and could increase as an indirect impact of building a Mid-Currituck Bridge. This area is used for sea turtle (i.e., loggerhead) nesting and foraging by piping plovers. Thus the beach and adjoining dunes are included in the action area. An additional area of 0.5 mile east of the shoreline also is included in the action area to account for potential effects of vehicle lighting. However, the potential increase in beach driving is expected to be associated with day visitors.

6.0 Effects Analysis

Direct, indirect, and cumulative effects are analyzed for the Mid-Currituck Bridge project in the following sections. Many direct effects also result in indirect effects, which can also be shared cumulatively. Construction effects are analyzed with regard to federally protected species that may reside in or use the action area for any part of that species' life history. None of the 13 protected species have critical habitat in the action area; however, SAV beds in the action area provide potential foraging habitat and the beach provides nesting area for sea turtles and foraging area for protected shore birds.

Use of the action area within Currituck Sound by listed fish and turtle species is estimated to be minimal partially because of the distance to the nearest inlet and the low number of sea turtle sightings (1) and strandings (5 from 2000 to 2010) in Currituck Sound and no documented occurrences of the shortnose sturgeon in the area.

Additionally, new gill net restrictions in all North Carolina waters stemming from unacceptable sea turtle interactions and fatalities were implemented in 2010 by NCDENR-DMF (15A NCAC 03J.0103 and NCDENR-DMF proclamation M-2-2011). However, Currituck Sound was exempted from these new regulations because of lack of sea turtle interactions based on observer data and fisheries independent gill net surveys (personal communication, Red Mundin, Assistant to the NCDENR-DMF Director and Protected Species Specialist, NCDENR-DMF, January 13, 2011).

Protected species use of the action area occurring on the stretch of beach included for indirect impacts would likely not change from current use. No expansion of the area used for beach driving would occur in the action area as a result of the Preferred Alternative because all beaches that could be affected by increased beach driving are currently open for vehicle use, and are used between the foreshore and the dune line whether for driving or parking. Given this and that current beach driving volumes are considered notable, as opposed to minor, by those concerned with the impact of beach driving, the potential increases in beach driving would not likely create a new or increased form of impact for sea turtles or protected shore birds.

6.1 Direct Effects

Direct effects on the 13 protected species resulting from the Mid-Currituck Bridge project include increased noise, vibration, turbidity, siltation, shading, run-off, and bottom disturbance by pile placement. These were described in Section 4.0. There is no critical habitat for these species in the action area.

In determining direct effects the key factors are:

- The direct construction, operation, and other direct effects of the project as described in Section 4.0 (nature of the effect).
- The limit of the effect to near the bridge as reflected in the action area described in Section 5.0 (distribution and proximity of the effect).
- Rare occurrences in the action area of the listed species and the whole of the estuarine system as described above and in Section 2.0 (frequency of the disturbance).
- The duration of construction impacts and long-term stormwater impacts described in Sections 4.0 (timing and duration of the effect).
- The potential for the effect to illicit a response from the listed resources and what the response would be, including the temporal and spatial limits of effects, species tolerances, severity of effect, mortality and other forms of “take” (i.e., harm, harassment, capture, etc.), and habitat loss (nature of the effect).

These factors are addressed for each of the 13 species in Table 4. The following can be observed from Table 4:

- None of the species are common or occur with any regularity in the area.
- In all cases, the response to the construction or operational effect would likely be for these species to avoid the area directly affected.
- In all cases, the measures to minimize or mitigate the impact are planned.
- There is no expected construction, operations, or maintenance activities that would result in an incidental take of any of the 13 species.

6.2 Indirect Effects

Indirect effects are caused by actions taken because of the presence of the project and occur later in time, or are farther removed in distance, but are still reasonably foreseeable. Within the action area, development has already occurred or is occurring at this time without the presence of the bridge. Thus, development in the action area is not directly dependent on the construction of the Preferred Alternative. Currituck County has placed no restrictions on development contingent upon the completion of the Preferred Alternative.

Findings on the affect of the Preferred Alternative on development in the project area were presented in the DEIS. They also were presented in more detail in the *Indirect and*

Table 4. Impact by Species and Type of Exposure

Effect or Factor	Red Wolf	West Indian Manatee	Piping Plover	Red-cockaded Woodpecker	Roseate Tern	Hawksbill Sea Turtle	Leatherback Sea Turtle	Green Sea Turtle	Loggerhead Sea Turtle	Kemp's Ridley Sea Turtle	Shortnose Sturgeon	Seabeach Amaranth
Occurrence of Species	No records in the action area	Sporadic occurrences near Currituck Sound over the past several decades	Sightings have occurred in CNWR (approximately 4 miles from the proposed bridge). No nesting has been documented in CNWR or the surrounding beach in 10+ years.	No records of this species in Currituck County or the Dare County portion of the action area.	No records of this species in Currituck County. Records in Dare County are likely from Cape Point. There is no known nesting in either county.	No known records from Currituck County or near the action area	No known records from Currituck County or near the action area	From 2000 to 2009 no green sea turtle sightings recorded, however, one stranding of an unidentifiable species did occur in the Currituck Sound area over 17 miles from the action area.	One recent sighting in Currituck Sound. From 2000 to 2009 three loggerhead sea turtle strandings were reported in the Currituck Sound area, including the mouth of the North River. Five nests, three false crawls, and 47 strandings have been documented since 2006 between Corolla and the Virginia line.	From 2000 to 2009 one stranding of a Kemp's ridley sea turtle in Currituck Sound was recorded.	No verified records from the action area or Currituck Sound.	No known records from Currituck County or near the action area since 1988.
Construction Effects and Response												
Noise and vibration from pile placement	No Effect	Disturbance resulting in avoidance	No Effect				Disturbance resulting in avoidance.				No Effect	
Turbidity and siltation from pile placement	No Effect	Temporary degradation of forage habitat resulting in the need to forage in other parts of the sound.	No Effect				Temporary degradation of forage habitat resulting in the need to forage in other parts of the sound, but work in SAV habitat subject to a moratorium during time when most actively used and turbidity curtains used when driving piles. Piles would be driven and not jetted.				No Effect	
Duration	No Effect	Parts of 52 months when temporary and permanent piles would be driven and temporary piles removed.	No Effect				Parts of 52 months when temporary and permanent piles would be driven and temporary piles removed, but no pile placement in SAV beds/habitat during the moratorium (February 15 to September 30).				No Effect	
Limit of Effect	No Effect	Near the construction area where noise and vibration would be transmitted through the water and subject to higher levels of turbidity until sediments suspended by pile driving settle back to the bottom of the sound.	The eastern Mid-Currituck Bridge terminus during construction may disrupt foraging in the marshes and sound mud flats within 0.5 mile.	No Effect	No Effect	No Effect	No Effect	Near the construction area where noise and vibration would be transmitted through the water and subject to higher levels of turbidity until sediments suspended by pile driving settle back to the bottom of the sound.			No Effect	
Operations Effects and Responses												
Run-off	No Effect	May affect forage habitat quality in the bridge vicinity, but not likely to generate a response. Compliance with NC Session Law 2008-211's requirement for new development to capture and treat the first 1.5 inches would be met, to the maximum extent practicable, through a combination of pollutant source control and capture and treatment.	May have a minimal effect on forage material; however, compliance with NC Session Law 2008-211's requirement for new development to capture and treat the first 1.5 inches would be met, to the maximum extent practicable, through a combination of pollutant source control and capture and treatment.	No Effect	No Effect	No Effect	No Effect	May affect forage habitat quality in the bridge vicinity, but not likely to generate a response. Compliance with NC Session Law 2008-211's requirement for new development to capture and treat the first 1.5 inches of runoff from additional impervious surface areas would be met, to the maximum extent practicable, through a combination of pollutant source control and capture and treatment.			No Effect	
Shading	No Effect	Potential loss of 3.8 acres of SAV bed forage habitat and 1.0 acre of SAV habitat (no SAV currently present), which would be replaced or otherwise mitigated. Species could move to other foraging habitat.	No Effect	No Effect	No Effect	No Effect	No Effect	Potential loss of 3.8 acres of SAV bed forage habitat and 1.0 acre of SAV habitat (no SAV currently present), which would be replaced or otherwise mitigated. Species could move to other foraging habitat.			No Effect	
Duration	Indefinite but at least 50 years											
Limit of Effect	No Effect	In the case of runoff, up to 0.5 mile from the bridge; in the case of shading, the area under the bridge containing SAV habitat (including existing beds).	In the case of run-off, may affect foraging for up to 0.5 mile on either side of the bridge; there should be no effect from shading.	No Effect	No Effect	No Effect	No Effect	In the case of runoff-up to 0.5 mile from the bridge; in the case of shading the area under of the bridge containing SAV habitat (including existing beds).			No Effect	
Maintenance Effects and Responses												
Maintenance	No Effect	No Effect		No Effect	No Effect	No Effect	No Effect	No Effect			No Effect	
Indirect Effects and Responses												
Indirect Effects	No Effect	No Effect	Potential further beach habitat degradation	No Effect	No Effect	No Effect	No Effect	May affect some land/beach habitat for few nesting loggerhead sea turtles. No effect to land/beach habitat for the green and Kemp's ridley sea turtles.			No Effect	No Effect

Note: The American alligator was not included because no biological conclusion is required for this species.

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Cumulative Effects Technical Report (ECU and Parsons Brinckerhoff, 2009). The findings in the Biological Assessment also reflect refinements to the indirect and cumulative effects analysis made in response to DEIS comments. These refinements also will be included in the FEIS and a revised *Indirect and Cumulative Effects Technical Report* to be published with the FEIS.

Actions caused by the presence of the Preferred Alternative that could result in indirect impacts include:

- A change in the order in which available lots on the NC 12-accessible Outer Banks would develop.
- Approximately 68 acres of business development likely would occur using land near the US 158/Mid-Currituck Bridge interchange immediately north of Aydlett Road.
- Day visitor potential demand would increase, which could have some effect in the NC 12 area but likely would have more impact in the unregulated beach-driving area north of the end of NC 12 to the Virginia line.

Only the final action has the potential to have indirect effects on protected species. This is reflected in Table 4. Indirect effects may be caused by the following:

- Changes to ecological systems resulting in altered predator/prey relationships;
- Changes to ecological systems resulting in long-term habitat alteration; and
- Anticipated changes in human activities, including changes in land use.

6.2.1 Altered Predator-Prey Relationships

No natural predators exist for sea turtles, the West Indian manatee, and shortnose sturgeon in Currituck Sound, including the action area. The piping plover may currently encounter an occasional predator in its beach habitat. An increase in beach driving may re-enforce avoidance of these traffic areas by both the piping plover and any predators. An altered predator-prey relationship is not expected to occur as a result of avoidance of higher traffic areas.

6.2.2 Long-Term Habitat Alteration

Driving on the approximate 10 miles of beach that is between the end of NC 12 in Corolla and the Virginia line has caused degradation of existing habitat for listed species on this stretch of beach. If the Preferred Alternative was implemented, there is a reasonable expectation of induced beach driving if it remains unregulated, which would increase this activity.

CNWR resides within the approximate 10-mile area of beach that may have increased traffic with the implementation of the Preferred Alternative. CNWR manager Mike Hoff indicated that loggerhead turtle nests have been successful in the area within the last few years. When nest locations are confirmed, they are roped off both inside and outside CNWR. Sightings of piping plovers are a regular occurrence, although none have nested there in 10 or more years. He believes nesting has not occurred for a variety of reasons, including the large amount of four-wheel drive traffic and a large man-made dune that prevents over wash areas preferred by the plovers. Mr. Hoff also indicated that no seabeach amaranth (*Amaranthus pumilus*) has been found in the refuge for 10 or more years, mostly as a result of the presence of the wild horses (personal communication, Mike Hoff, CNWR Manager, USFWS, March 30, 2011).

No expansion of the area used for beach driving would occur in the action area as a result of the Preferred Alternative because all beaches that could be affected by increased beach driving are currently open for vehicle use, and are used between the foreshore and the dune line whether for driving or parking. Given this and that current beach driving volumes are considered notable, as opposed to minor, by those concerned with the impact of beach driving, the potential increases in beach driving would not likely create a new or increased form of impact for sea turtles or protected shore birds.

6.2.3 Indirect Land Use Impacts

As indicated in Section 5.2.3, development is not planned within threatened and endangered species habitat on the Outer Banks, which is confined to the beach and adjoining dunes. A change in the order of development would alter the timing of natural resource impacts associated with additional development, but not the impacts themselves. In addition, there is adequate land classified in the Currituck County land use plan as suitable for development to accommodate the 68 acres of business development. Land considered suitable for development in the Mid-Currituck Bridge/ US 158 interchange area is upland and primarily in agricultural use. It does not contain or adjoin threatened and endangered species habitat. Both of these activities, however, are reasonably foreseeable future actions, so they are considered in the discussion of cumulative impacts (Section 6.4).

6.3 Interrelated and Interdependent Actions and Activities

There are no interrelated actions or activities associated with the Preferred Alternative. Operation and maintenance activities associated with the completed project are considered a part of the project and are assessed as such in this Biological Assessment. The Preferred Alternative is not a part of a larger project. There are no directly interdependent actions or activities associated with the Preferred Alternative. There are no specific actions or activities that could not occur without the completion of the

Preferred Alternative except for the potential constraint on planned development that could occur with the No-Build Alternative, as discussed in Section 6.4. That constraint would not affect the action area, whose Outer Banks shoreline is already developed or developing (see Section 5.2).

6.4 Cumulative Effects

Cumulative effects associated with the Preferred Alternative were documented in the DEIS and *Indirect and Cumulative Effects (ICE) Technical Report* (Parsons Brinckerhoff, 2009) and will be in the FEIS, as well as a planned revision to the ICE report based on DEIS comments. This assessment covers cumulative effects over a broad cumulative effects study area that encompasses all of Currituck County and parts of the Dare County Outer Banks. The primary other reasonably foreseeable actions or trends in the project area that could contribute to cumulative impacts to threatened and endangered species are development and associated potential changes in water quality and beach driving.

As indicated in Section 6.2, within the action area, development has already occurred or is occurring at this time without the presence of the bridge. Thus, development in the action area is not directly dependent on the construction of the Preferred Alternative. Currituck County has placed no restrictions on development contingent upon the completion of the Preferred Alternative. The Mid-Currituck Bridge project is intended to improve traffic flow on the larger project area's thoroughfares (US 158 and NC 12) and reduce travel time for persons traveling between the Currituck County mainland and the Currituck County Outer Banks. The improved accessibility to the Currituck County Outer Banks gained with the bridge would cause the order of future development in the larger project area to change such that development occurs first in Currituck County and later in Dare County. However, the extent and character of existing and planned development on the Outer Banks and the mainland by 2035 would be the same (except at the bridge terminus) with or without the bridge project. Most of the Outer Banks is already subdivided into lots. The presence of the bridge could result in business development on uplands in proximity to US 158 at the project's terminus on the mainland.

The primary cumulative impact of development in the adjoining action area and the bridge project would be the affect of stormwater runoff on water quality in Currituck Sound, which provides habitat or potential habitat for sea turtles, the West Indian manatee, and the shortnose sturgeon. Future development between the end of NC 12 and the Virginia line also would contribute to increased beach driving in habitat or potential habitat for the piping plover, roseate tern, and seabeach amaranth.

6.4.1 Water Quality in Currituck Sound

Water quality in Currituck Sound has been degraded in recent years as a result of non-point sources and is expected to experience some degradation (likely only temporary) in association with the Mid-Currituck Bridge project. However, the long-term consequences the bridge might contribute to the action area because of bridge run-off are not expected to be severe, in part because of the implementation of a stormwater management plan, as described in Section 4.2.1.

The cumulative effects of development on the seven protected species in the action area combined with the Preferred Alternative would be largely determined by the regulation of land uses on shore. Onshore development would affect the amount and quality of runoff into the estuary.

However, the bridge project and future development would comply with NC Session Law 2008-211, which requires new development to capture and treat the first 1.5 inches of runoff from new impervious surfaces. The proposed stormwater management plan for the project is described in Section 4.2.1.

During land development on the mainland, sediment loading and turbidity into the sound could increase, although erosion control measures would be required of developers. Once developed with a perennial ground cover, the conditions likely would be an improvement over tilled agricultural land.

Finally, NCDENR and USACE are currently sponsoring an improvement project titled the Currituck Sound Ecosystem Restoration Project. This restoration effort addresses water quality issues, as well as past SAV decline. This project is jointly funded by state and federal funds with a projected completion date of 2012 for feasibility phase and initiation of pre-construction engineering and design. Knowledge gained and restoration efforts from this effort will provide positive effects on Currituck Sound as a whole, including the Mid-Currituck Bridge action area.

6.4.2 Beach Driving

Additional beach driving as a result of expected development north of the end of NC 12 (No-Build Alternative), combined with potential induced beach driving with the Preferred Alternative, is not expected to result in disturbance of larger areas of the beach than are disturbed today. All beaches that could be affected by increased beach driving are currently open for vehicle use, and are used between the foreshore and the dune line whether for driving or parking. Given this and that current beach driving volumes are considered notable, as opposed to minor, by those concerned with the impact of beach driving, the potential increases in beach driving would not likely create a new or increased form of cumulative impact for sea turtles or protected shore birds.

6.5 Conservation Measures

6.5.1 Species in Currituck Sound

Protected species habitat usage in the direct impact action area post-construction is expected to be similar. Therefore, conservation measures would not be unique to listed species, but applicable to all species affected. Methods of avoidance/minimization of ecosystem effects would be utilized, including: an in-water work moratorium from approximately February 15 to September 30 and an open deck temporary construction trestle over SAV habitat (including existing beds); the use of turbidity curtains during pile installation (permanent and temporary bridges) and pile removal (temporary bridge) to prevent dispersal of sediment or other pollutants; driving rather than jetting piles; and stormwater management. Additionally, mitigation of impacted SAV habitat would be implemented at a 2:1 ratio. The proposed methods are described below:

- A bottom-disturbing in-water work moratorium in areas of existing SAV beds as defined by NCMFC (see Section 3.5). The period of moratorium would be approximately February 15 to September 30. The purpose of the moratorium as described by the *North Carolina Division of Marine Fisheries Habitat Alteration Permit Review Guidelines* is “to reduce negative effects on critical fish life history activities, including anadromous fish spawning migrations and nursery functions, and primary nursery area functions.” The moratorium would apply to SAV habitat (including existing beds) within the project area, which currently only exist on the eastern end of the project as delineated by the 2007 survey (Forte and Martz, 2007). An additional pre-construction survey would be conducted to account for changes in SAV bed size and location.
- Construction methods for avoidance and minimization of ecosystem effects include an open deck temporary construction trestle and the use of turbidity curtains during pile installation (permanent and temporary bridges) and pile removal (temporary bridge) to prevent dispersal of sediment or other pollutants. Piles would be driven and not jetted. The open deck design would minimize potential shading from the temporary trestle. Marine industry standard pans would be placed under construction equipment operating on the open trestle to capture any accidental release of petroleum products from equipment. The temporary trestle would require installation and removal of pilings in an area estimated to be 5 to 7 square feet per pile. The area impacted by the temporary trestle would be monitored before, during, and after construction. Mitigation would be provided for the trestle pile impact in the event that SAV do not reestablish following removal. The temporary trestle used on the eastern end of the bridge would cover approximately 1.8 acres of SAV habitat.
- NCDOT and NCTA would comply with NC Session Law 2008-211 (An Act to Provide for Improvements in the Management of Stormwater in the Coastal

Counties in Order to Protect Water Quality) to the maximum extent practicable. In compliance with the mentioned water quality laws, stormwater run-off would be managed using a comprehensive stormwater management plan. This plan is described in Section 4.2.1 as including the following components as it relates to threatened and endangered species:

- Source control (pre-treatment) on the Currituck Sound bridge.
 - Stormwater capture on the eastern end of the Currituck Sound bridge (4,000 feet).
 - Baseline, as well as ongoing, water quality monitoring to establish existing water quality levels and understand the effectiveness of the deck cleaning program and to make adjustments, if needed.
- Permanently impacted SAV habitat (including existing beds) would be mitigated. Options for mitigation include:
 - In-kind restoration of SAV in the project area at suitable locations at a 2:1 ratio (if feasible). SAV restoration would follow currently adopted SAV protocols in North Carolina and best practices from recent successful SAV restoration efforts. Restoration efforts could be contracted with research and educational entities such as Elizabeth City State University or East Carolina University.
 - Improvement of conditions for SAV propagation and survival within Currituck Sound also is an option. Included in this option could be: protection and establishment of riparian buffers; contribution of funds to support agricultural Best Management Practices (BMPs); stormwater management improvement projects; acquisition of properties identified as important for the protection of water quality (as reported in the November 2006 *Countywide Land Parcel Prioritization Strategy for Water Quality Enhancement*); and other measures that would reduce the turbidity of water in Currituck Sound.
 - Other options considered for SAV mitigation include support for SAV research and participation in the Currituck Sound Ecosystem Restoration Project coordinated by USACE.

6.5.2 Beach Driving

Currituck County has the legal authority to regulate and manage driving on its beaches. The County's next land use plan update could include developing and implementing regulations governing beach driving. NCTA has no authority to implement regulations concerning beach driving.

7.0 Effect Determinations

This Biological Assessment discusses the 13 federally-protected species (see Table 1) occurring in Currituck and Dare counties as of February 2011 (NMFS, 2011; USFWS, 2011a). Some of these 13 species are under the jurisdiction of USFWS and some are under NMFS jurisdiction. Table 1 also lists the agency with jurisdiction for each protected species, as well as the determinations of effect for each species by agency. Because the five sea turtle species use both the waters (NMFS jurisdiction) and land (beach, USFWS jurisdiction) within the project area, they are under joint NMFS and USFWS jurisdiction, so two determinations are made, taking into account impacts encountered in both environments.

For the Preferred Alternative, six protected species have an ultimate determination of No Effect. Four of those six are solely under USFWS jurisdiction and the other two species are under joint USFWS/NMFS jurisdiction. Five protected species have a single determination of May Affect, Not Likely to Adversely Affect for reasons discussed in this section. Two protected species (green and Kemp's ridley sea turtles) have two different determinations – one for impacts occurring in the water under NMFS jurisdiction (Table 5) (May Affect, Not Likely to Adversely Affect), and one for impacts occurring on the beach under USFWS jurisdiction (Table 6) (No Effect). An effects determination is not applicable for one species (the American alligator). There is no critical habitat for any of the protected species in the action area. The effects determinations for all 13 protected species also are documented in the DEIS.

NCTA, FHWA, and USACE are requesting concurrence on the determinations of May Affect, Not Likely to Adversely Affect for all species with this conclusion (see Table 1). See Table 5 and Table 6 for a summary of effect determinations for construction, maintenance, and operations impacts in water and on land to listed species.

7.1 Effect Determination for Listed Species

7.1.1 No Effect or Not Applicable Determinations for Listed Species

- **Red wolf (*Canis rufus*)**

USFWS Biological Conclusion: No Effect

- While potential habitat exists within the project area (Great Swamp and Maple Swamp), there are no published records of this species in the project area (NCNHP, 2011). In addition, it is unlikely that the reintroduced population in ARNWR will cross vast water bodies (Albemarle, Roanoke, and/or Croatan sounds) and reach the project area.
- Experimental population is closely managed by USFWS.

Table 5. Summary of Effect Determination for Impacts in Water for Listed Species

Project Action/ Stages	Activity Category	Minimization Measure	Enhancement Activities	Presence/ Exposure of Listed Species	Chemical and Physical Changes	Biological Response	Effect Determination
Construction							
Noise and vibration	Pile placement	In-water work moratorium in SAV habitat (including existing beds) to avoid impacts during time periods when listed species interactions could be highest	None	Rare	None	Avoidance	May Affect, Not Likely to Adversely Affect
Turbidity and siltation	Pile placement	Turbidity curtains around piles when driven. Piles driven and not jetted.	None	Rare	None	Reduced use of forage habitat because of degradation and avoidance	May Affect, Not Likely to Adversely Affect
Operations							
Run-off	Bridge drainage	Stormwater management plan with source control and partial source capture	Water quality monitoring and research. Capture and treatment of runoff from existing roads improved as a part of the Preferred Alternative	Rare	Run-off particulates if washed into the sound could contain organic compounds, nutrients, and heavy metals	Reduced use of forage habitat because of degradation and avoidance	May Affect, Not Likely to Adversely Affect
Shading	Bridge presence	None	In-kind restoration of shaded SAV and SAV habitat or alternative mitigation program	Rare	None	Reduced or ceased usage of forage habitat shaded by the bridge	May Affect, Not Likely to Adversely Affect
Maintenance	Pipe maintenance and foundation inspection	None needed.	None needed	Rare	None	None	No Effect
Indirect Effects	Beach driving	None needed.	None needed	No	None	None	No Effect

Table 6. Summary of Effect Determination for Impacts on Land for Listed Species

Project Action/Stages	Activity Category	Minimization Measure	Enhancement Activities	Presence/Exposure of Listed Species	Chemical and Physical Changes	Biological Response	Effect Determination
Construction	Pile Placement	None needed	None needed	No	None	None	No Effect
Operations							
Run-off	Bridge drainage	None needed	None needed	No	None	None	No Effect
Shading	Bridge presence	None needed	None needed	No	None	None	No Effect
Maintenance	Pipe maintenance and foundation inspection	None needed	None needed	Rare	None	None	No Effect
Indirect Effects	Beach driving	Sea turtle nests are roped off to reduce disturbance	Partial areas managed by CNWR	Rare	None	Avoidance	May Affect, Not Likely to Adversely Affect

- **Red-cockaded woodpecker (*Picoides borealis*)**

USFWS Biological Conclusion: No Effect

- The closest active red-cockaded woodpecker colony is over 2.5 miles west of the project area, making the presence of a bridge or other road improvements, as well as related construction activities, associated with the Mid-Currituck Bridge project not likely to result in an effect on this species.
- There are no mature stands of pine forests present in the project area or surrounding areas, therefore no suitable nesting/roosting habitat exists in the action area.

- **Roseate tern (*Sterna dougallii*)**

USFWS Biological Conclusion: No Effect

- There are no USFWS or NCNHP records from Currituck County.
- There is only one documented nest of this species from North Carolina in Carteret County (Lee and Parnell, 1990).

- **American alligator (*Alligator mississippiensis*)**

USFWS Biological Conclusion: Not Applicable

- The American alligator is listed as threatened on the protected species list because of its similarity in appearance to the endangered American crocodile (NatureServe, 2007; USFWS, 2008). However, this species is not biologically endangered or threatened and is not subject to Section 7 consultation, and therefore a biological conclusion is not applicable.

- **Hawksbill sea turtle (*Eretmochelys imbricata*)**

USFWS/NMFS Biological Conclusion: No Effect

The project would not affect the hawksbill sea turtle because:

- There are no known occurrences of this species recorded in Currituck County or in the vicinity of the action area (NCNHP, 2011; NCWRC, unpublished data).
- It prefers tropical open-ocean and beach habitats.

- **Leatherback sea turtle (*Dermochelys coriacea*)**

USFWS/NMFS Biological Conclusion: No Effect

The project would not affect the leatherback sea turtle because:

- There are no known occurrences of this species recorded near the action area (NCNHP, 2011; NCWRC, unpublished data).
- It prefers tropical open-ocean and beach habitats.

- **Seabeach amaranth (*Amaranthus pumilus*)**

USFWS Biological Conclusion: No Effect

The project would not affect seabeach amaranth because:

- No records of this species have been identified in ten or more years within CNWR (personal communication, Mike Hoff, CNWR Manager, USFWS, March 30, 2011).
- The last record of this species was in 1988, in the Swan Island Natural Area, near the southern boundary of the northern unit of CNWR on the Outer Banks (NCNHP, 2011).
- This species requires extensive areas of barrier island beaches and inlets that function in a relatively natural and dynamic manner, allowing it to move around and colonize sparsely vegetated sand.

7.1.2 May Affect, Not Likely to Adversely Affect Determinations for Listed Species

- **West Indian manatee (*Trichechus manatus*)**

USFWS Biological Conclusion: May Affect, Not Likely to Adversely Affect

The project may affect the West Indian manatee because:

- The shallow waters of Currituck Sound and the extensive SAV beds found in the area provide potential foraging habitat for manatees. NCNHP records show sporadic occurrences of manatee near Currituck Sound over the past several decades (NCNHP, 2011).
- In-water work such as pile placement may cause turbidity and siltation which could cause manatees to avoid these areas of the sound during construction, thereby leading to a reduction in foraging habitat; however, minimization measures to reduce these impacts to the sound would be in place (see Table 5 for a list of these measures).

The project is not likely to adversely affect the West Indian manatee because:

- The northern limit of the manatee’s range extends to North Carolina, but low temperatures prevent this species from commonly occurring in the action area.
- The rarity of occurrence near the project area makes impacts to this species unlikely (personal communication, Gary Jordan, Fish and Wildlife Biologist, USFWS, November 8, 2010).
- Construction contracts would require compliance with the USFWS’s *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters* (USFWS, 2003).

- **Piping plover (*Charadrius melodus*)**

USFWS Biological Conclusion: May Affect, Not Likely to Adversely Affect

The project may affect the piping plover because:

- Potential foraging habitat occurs in the direct impact action area when irregular wind tides expose mud flats within Currituck Sound. Open sandy beach areas that serve as nesting, foraging, and resting habitat exist in the action area (see Table 6 for a summary of effect determinations for species on land).

The project is not likely to adversely affect the piping plover because:

- No nests have been recorded in CNWR in 10 or more years (personal communication, Mike Hoff, CNWR Manager, USFWS, March 30, 2011).
- Piping plovers have not been documented within the direct impact action area, but there are sightings from the action area (i.e., CNWR) approximately 4 miles to the north (NCNHP, 2011).

- **Green sea turtle (*Chelonia mydas*)**

USFWS Biological Conclusion: No Effect

- Beaches within the action area are not used for nesting by the green sea turtle (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).
- The occurrence of green sea turtles is rare on the beaches north of Corolla; however, two strandings have been recorded since 2006 (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).

NMFS Biological Conclusion: May Affect, Not Likely to Adversely Affect

The project may affect the green sea turtle because:

- Currituck Sound provides potential foraging habitat for the green sea turtle because of the abundance of SAV found in the action area.
- In-water work such as pile placement may cause turbidity and siltation which could cause green sea turtles to avoid these areas of the sound during construction, thereby leading to a reduction in foraging habitat; however, minimization measures to reduce these impacts to the sound would be in place (see Table 5 for a list of these measures).

The project is not likely to adversely affect the green sea turtle because:

- No nesting, mating, or critical habitat occurs within the action area.
- The occurrence of all sea turtles, including the green sea turtle, in Currituck Sound is rare, and there are no published records of living individuals in the action area (NCNHP, 2011). However, unpublished NCWRC stranding data shows three sea turtle carcasses have been found in Currituck Sound over the past 10 years. One of these was an unidentified skeleton found September 23, 2005 and could possibly have been a green sea turtle (personal communication, Wendy Cluse, Assistant Sea Turtle Biologist, NCWRC, December 18, 2008).
- Sea turtles are unlikely to be found in the action area and are more commonly found in the higher salinity waters of Albemarle Sound. Currituck Sound also is relatively isolated, with the nearest inlet located over 25 miles away (Oregon Inlet).
- Currituck Sound was exempted from recent gill net restrictions for internal coastal waters (rule 15A NCAC 03J.0103). Details of exempt waters are in proclamation M-2-2011 issued by NCDENR-DMF. This rule was implemented to reduce or eliminate incidental take of endangered species, primarily sea turtles. Currituck Sound was exempted from these new restrictions because of lack of interaction of sea turtles based on NCDENR-DMF observer data and fisheries independent gill net surveys (personal communication, Red Mundin, Assistant to the NCDENR-DMF Director and Protected Species Specialist, NCDENR-DMF, January 13, 2011).
- If present, the response to construction and operation-related impacts would be avoidance.

- **Loggerhead sea turtle (*Caretta caretta*)**

USFWS Biological Conclusion: May Affect, Not Likely to Adversely Affect

The project may affect the loggerhead sea turtle because:

- Beaches within the action area are used for nesting habitat. No nests were found during 2010; however, there have been five nests recorded between 2006 and 2009 (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).
- Of the sea turtles occurring in the action area, the occurrence of the loggerhead sea turtle is the most likely. Since 2006, 47 strandings have been recorded from the stretch of beach north of Corolla to the Virginia line, three of which were still alive (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).

The project is not likely to adversely affect loggerhead sea turtles because:

- All sea turtle nests found north of Corolla are roped off to mark locations and offer protection from vehicular traffic on the beach. Nests are also moved (up the beach slope) if in danger of washing out or at risk from other reasonable dangers (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, April 18, 2011).
- Potential increases in beach driving cannot be quantified because there is no prior or existing enumeration of beach driving in this area. However, no expansion of the area used for beach driving would occur in the action area as a result of the Preferred Alternative because all beaches that could be affected by increased beach driving are currently open for vehicle use, and are used between the foreshore and the dune line whether for driving or parking. Given this and that current beach driving volumes are considered notable, as opposed to minor, by those concerned with the impact of beach driving, the potential increases in beach driving would not likely create a new or increased danger for sea turtle nests (see Table 6 for a summary of land impacts for listed species).
- NMFS Biological Conclusion: May Affect, Not Likely to Adversely Affect

The project may affect the loggerhead sea turtle because:

- Currituck Sound provides potential foraging habitat for the loggerhead sea turtle because of the abundance of SAV found in the action area.
- In-water work such as pile placement may cause turbidity and siltation which could cause loggerhead sea turtles to avoid these areas of the sound during

construction, thereby leading to a reduction in foraging habitat; however, minimization measures to reduce these impacts to the sound would be in place (see Table 5 for a list of these measures).

The project is not likely to adversely affect the loggerhead sea turtle because:

- No nesting, mating, or critical habitat occurs within the action area.
 - The occurrence of all sea turtles, including the loggerhead sea turtle, in Currituck Sound is rare, and there are no published records of living individuals from these waters within the action area (NCNHP, 2011). However, there is one known unofficial sighting of a loggerhead sea turtle in Currituck Sound (personal communication, Joanne McNeill, Fisheries Biologist, NMFS, December 8, 2010). In addition, unpublished NCWRC stranding data indicates there have been three loggerhead sea turtle strandings in the Currituck Sound area in the last ten years (2000 to 2010); see Table 3 for detailed locations (personal communication, Matthew Godfrey, Sea Turtle Biologist, NCWRC, December 8, 2010).
 - Loggerhead sea turtles exhibit a mostly pelagic life history; however, when utilizing bays or sounds for foraging, a viable entry point is needed. Currituck Sound is a substantial distance from ocean entry points, the closest being Oregon Inlet (25 miles).
 - Currituck Sound was exempted from recent gill net restrictions for internal coastal waters (rule 15A NCAC 03J.0103). Details of exempt waters are in proclamation M-2-2011 issued by NCDENR-DMF. This rule was implemented to reduce or eliminate incidental take of endangered species, primarily sea turtles. Currituck Sound was exempted from these new restrictions because of lack of interaction of sea turtles based on NCDENR-DMF observer data and fisheries independent gill net surveys (personal communication, Red Mundin, Assistant to the NCDENR-DMF Director and Protected Species Specialist, NCDENR-DMF, January 13, 2011).
 - If present, the response to construction and operation-related impacts would be avoidance.
- **Kemp's ridley sea turtle (*Lepidochelys Kempii*)**

USFWS Biological Conclusion: No Effect

The project would not affect the Kemp's ridley sea turtle because:

- Beaches within the action area are not used for nesting by the Kemp's ridley sea turtle (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).

- The occurrence of Kemp’s ridley sea turtles is rare on the beaches north of Corolla; however, four strandings have been recorded here since 2006 (personal communication, Karen Clark, Program Coordinator, Outer Banks Center for Wildlife Education, NCWRC, March 31, 2011).

NMFS Biological Conclusion: May Affect, Not Likely to Adversely Affect

The project may affect the Kemp’s ridley sea turtle because:

- Currituck Sound provides potential foraging habitat for the Kemp’s ridley sea turtle because of the abundance of SAV found in the action area.
- In-water work such as pile placement may cause turbidity and siltation, which could cause Kemp’s ridley sea turtles to avoid these areas of the sound during construction, thereby leading to a reduction in foraging habitat; however, minimization measures to reduce these impacts to the sound would be in place (see Table 5 for a list of these measures).

The project is not likely to adversely affect the Kemp’s ridley sea turtle because:

- No nesting, mating, or critical habitat occurs within the action area
- The occurrence of all sea turtles, including the Kemp’s ridley sea turtle, in Currituck Sound is rare, and there are no published records of living individuals from Currituck County or the action area (NCNHP, 2011). However, unpublished NCWRC stranding data indicates there was one Kemp’s ridley sea turtle stranding in the Currituck Sound area in the last ten years (2000 to 2010); see Table 3 for location details (personal communication, Matthew Godfrey, Sea Turtle Biologist, NCWRC, December 8, 2010).
- These turtles are primarily a tropical and sub-tropical species that prefer low wind and low wave habitats.
- Currituck Sound was exempted from recent gill net restrictions for internal coastal waters (rule 15A NCAC 03J.0103). Details of exempt waters are in proclamation M-2-2011 issued by NCDENR-DMF. This rule was implemented to reduce or eliminate incidental take of endangered species, primarily sea turtles. Currituck Sound was exempted from these new restrictions because of lack of interaction of sea turtles based on NCDENR-DMF observer data and fisheries independent gill net surveys (personal communication, Red Mundin, Assistant to the NCDENR-DMF Director and Protected Species Specialist, NCDENR-DMF, January 13, 2011).
- If present, the response to construction and operation-related impacts would be avoidance.

- **Shortnose sturgeon (*Acipenser brevirostrum*)**

NMFS Biological Conclusion: May Affect, Not Likely to Adversely Affect

The project may affect the shortnose sturgeon because:

- The estuarine waters, soft-bottom substrate, and extensive SAV beds in Currituck Sound provide potential foraging habitat for the shortnose sturgeon.
- The presence of a bridge across the sound could result in a decrease in benthic invertebrate food sources near the bridge structure.

The project is not likely to adversely affect shortnose sturgeon because:

- No spawning, or critical habitat occurs within the action area
- This species was most recently observed in the area of Batchelor Bay in Albemarle Sound in 1998 (NCNHP, 2011); however, there are no known records of this species occurring within Currituck Sound.
- Any occurrence of this species within the action area would likely be short-term and in conjunction with annual spring migrations.
- If present, the response to construction and operation-related impacts would be avoidance (see Table 5 for a summary of in-water impacts and effect determinations).

7.1.3 May Affect, Likely to Adversely Affect Determinations for Listed Species

This determination does not apply to any federally protected species occurring in the action area.

7.2 Effect Determinations for Proposed Species—Atlantic Sturgeon

7.2.1 Background

Five distinct population segments of Atlantic sturgeon (*Acipenser oxyrinchus*) have been identified, including: Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic. While not formally designated as “proposed” yet, the Carolinas distinct population segment was proposed to be listed as an endangered species in the October 6, 2010 Federal Register, and therefore addressed here with regard to potential habitat in

the action area. Historically, Atlantic sturgeon were abundant in most North Carolina coastal rivers and estuaries, with the largest fishery in the Roanoke River/Albemarle Sound system and the Cape Fear (Kahnle et al., 1998). Landing records from the late 1800s indicate that Atlantic sturgeons were very abundant in the Albemarle Sound, and North Carolina as a whole supported an estimated 7,200 to 10,500 adult females (Armstrong and Hightower, 2002; Secor, 2002). Currently it is estimated that fewer than 300 spawning adults reside within each river system in North Carolina (Atlantic Sturgeon Status Review Team [ASSRT], 2007). The Atlantic Sturgeon Status Review (ASSRT, 2007) and The Atlantic Sturgeon Tagging Database (Eyler et al., 2009) both indicate that Atlantic sturgeon individuals have been caught in the Albemarle and Croatan sounds. The Atlantic Sturgeon Status Review also has records of young of year captured in the Albemarle Sound and highlights its importance as a spawning ground. Limited observer coverage and no known direct sampling of the area has limited records of this species in Currituck Sound; however, they are expected to exist there, at least part of the year (personal communication, Joe Hightower, NC Cooperative Fish and Wildlife Unit, NCSU and Michael Loeffler, Fisheries Biologist, NCDENR-DMF, January 26, 2011). Proximity of the Albemarle Sound to Currituck Sound, along with appropriate habitat type, supports the assumption that the Atlantic sturgeon would be present in the Currituck Sound area.

7.2.2 Reasons for Decline

In 1870 the caviar market for Atlantic sturgeon was established (Smith and Clungston, 1997). Peak landings occurred in 1890 with over 3 million kilograms of Atlantic sturgeon landed from the Atlantic Coast (Smith and Clungston, 1997; Secor and Waldman, 1999). The fishery collapsed in 1901 when less than 10 percent of peak landings were reported. The fishery continued to decline, and in the 1950's began targeting the flesh instead of the caviar. During this time landings reported were 1 to 5 percent of peak levels until the fishery was closed in 1998 (50 Federal Register 61904-61929, October 6, 2010). According to The Nature Conservancy, the most significant threats in this region are reduction, removal, and/or impediments to spawning grounds and bycatch (accidental catch of a non-targeted species).

7.2.3 Determination

Biological Conclusion: May Affect, Not Likely to Adversely Affect

In the event that the Atlantic sturgeon becomes listed as a threatened or endangered species prior to completion of the project, a provisional effects determination is provided.

The project may affect the Atlantic sturgeon because of proximity of known spawning grounds in the Albemarle Sound; however, the project is not likely to adversely affect or jeopardize the continued existence of the Atlantic sturgeon because:

- Activities in the action area would not occur in any documented spawning areas. These areas occur in large rivers in areas of flow between the salt wedge and the fall line.
- No significant disruption to bottom sediments, such as dredging, is planned.
- Migration routes from spawning grounds to estuaries should not be impeded by a bridge over Currituck Sound because no known spawning occurs in waters upstream of the proposed Mid-Currituck Bridge.
- Atlantic sturgeon are assumed to occur and forage; however, few impacts are expected because of the mobility of this species and its anticipated avoidance of construction/disturbance areas in Currituck Sound.
- Indirect impacts from construction of the Mid-Currituck Bridge may include a reduction in forage quality as a result of bottom disturbance and siltation, water quality degradation, and some noise/vibration effects. None of these indirect impacts should jeopardize the continued existence of the Atlantic sturgeon population in North Carolina or the Albemarle Sound.

7.3 Effect Determination for Critical Habitat

7.3.1 Effect Determination for Designated Critical Habitat

No designated critical habitat exists for any federally protected species occurring in the action area, so an effect determination is not applicable.

7.3.2 Effect Determinations for Proposed Critical Habitat

No proposed critical habitat exists for any federally protected species occurring in the action area, so an effect determination is not applicable.

7.4 Making Overall Effect Determinations

Table 7 presents all affected species and project elements and effect determinations associated with each.

Table 7. Effect Determination for Each Affected Species

Jurisdiction	Federal Status	Common Name	Effect Determination for Construction	Effect Determination for Operations	Effect Determination for Maintenance	Effect Determination for Indirect Effects	Overall Effect Determination for Project
USFWS	Endangered (EXP) ¹	Red wolf	No Effect	No Effect	No Effect	No Effect	No Effect
USFWS	Endangered	West Indian manatee	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	No Effect	No Effect	May Affect, Not Likely to Adversely Affect
USFWS	Threatened	Piping plover	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	No Effect	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
USFWS	Endangered	Red-cockaded woodpecker	No Effect	No Effect	No Effect	No Effect	No Effect
USFWS	Endangered	Roseate tern	No Effect	No Effect	No Effect	No Effect	No Effect
USFWS	T(S/A) ²	American alligator	N/A	N/A	N/A	N/A	N/A
USFWS/ NMFS	Endangered	Hawksbill sea turtle	No Effect	No Effect	No Effect	No Effect	No Effect
USFWS/ NMFS	Endangered	Leatherback sea turtle	No Effect	No Effect	No Effect	No Effect	No Effect
USFWS/ NMFS	Threatened	Green sea turtle	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	No Effect	No Effect	No Effect/May Affect, Not Likely to Adversely Affect
USFWS/ NMFS	Threatened	Loggerhead sea turtle	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	No Effect	May Affect, Not Likely to Adversely Affect/No Effect	May Affect, Not Likely to Adversely Affect
USFWS/ NMFS	Endangered	Kemp's ridley sea turtle	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	No Effect	No Effect	No Effect/May Affect, Not Likely to Adversely Affect
NMFS	Endangered	Shortnose sturgeon	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	No Effect	No Effect	May Affect, Not Likely to Adversely Affect
USFWS	Threatened	Seabeach Amaranth	No Effect	No Effect	No Effect	No Effect	No Effect

¹ EXP-Population is experimental

² T(S/A)-Threatened because of similarity of appearance to American crocodile

7.5 Candidate Species—Red knot (*Calidris canutus rufa*)

The red knot (*Calidris canutus*), a type of sandpiper, consists of three subspecies. The *rufa* subspecies was listed as a candidate species for Endangered Species Act protection on September 12, 2006 (USFWS, 2010). This shorebird makes long migrations, wintering near the tip of South America and breeding/nesting near the Arctic Circle. Red knot migration relies heavily (often coinciding with) horseshoe crab spawning, which occurs in large numbers in the Delaware Bay and Cape May beginning in mid-May. A reduction in horseshoe crab numbers in these areas has resulted from harvesting the crabs for bait in the 1990's and more recently from harvesting for use in the pharmaceutical industry. Exacerbating horseshoe crab loss from direct takes is a reduction in optimal spawning habitat through beach erosion, disturbance by people and potential predators, and competition from gulls (Niles, 2008). Horseshoe crab eggs are especially important to red knots because of time constraints in completion of their trans-hemispheric migration (Morrison and Harrington, 1992). Reductions in these eggs put red knot populations at further risk of not completing a lifecycle. Threats to red knot habitat in North Carolina include beach stabilization (i.e., nourishment), channel relocation, and bulkhead construction. Housing development is also a threat to habitat, but is also a driver for beach stabilization. Other threats to key habitat include petroleum product shipping in Canadian waters where nesting occurs, as well as the previously mentioned decline in horseshoe crab eggs in the Delaware Bay area (Niles, 2008).

8.0 References

8.1 Publications and Technical Reports

- Atlantic Sturgeon Status Review Team. 2007. *Status Review of Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus)*. Prepared for National Marine Fisheries Service.
- Armstrong, J. L. and J. E. Hightower. 2002. "Potential for restoration of the Roanoke River population of Atlantic sturgeon." *Journal of Applied Ichthyology* 18:475-480.
- Borawa, J. C., J. H. Kerby, M. T. Huish, and A. W. Mullis. 1978. "Currituck Sound Fish Populations Before and After Infestation by Eurasian Water-milfoil." *Proc. An. Conf. S.E. Assoc. Fish and Wildlife Agencies*.
- Caldwell, William S. 2001. *Hydrologic and Salinity Characteristics of Currituck Sound and Selected Tributaries in North Carolina and Virginia, 1998-1999*. US Geological Survey, Water-Resources Investigations Report 01-4097.
- Copeland, B. J. and J. Gray. 1989. "The Albemarle-Pamlico Estuarine System. A Summary of the Preliminary Status and Trends Report of the Albemarle-Pamlico Estuarine Study." *Albemarle-Pamlico Estuarine Study Report 89-13B*.
- East Carolina University and Parsons Brinckerhoff. 2009. *Indirect and Cumulative Effects Technical Report*. State Project No. 6.049002T, STIP No. R-2576, Currituck County, Dare County.
- Eyler, S., M. Mangold, and S. Minkkinem. 2009. *Atlantic Coast Sturgeon Tagging Database*. US Fish and Wildlife Service Summary Report.
- Federal Register. October 6, 2010. No. 193 73:61904-61929. Proposed Rule. "Endangered and Threatened Wildlife and Plants; Proposed Listings for Two Distinct Population Segments of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) in the Southeast."
- Forte M. and T. Martz. 2007. *Currituck Sound Hydrographic and Submerged Aquatic Vegetation Survey*. US Army Corps of Engineers, Field Research Facility. Duck, North Carolina.
- Hanson, J., M. Helvey, and R. Strach. 2004. *Non-Fishing Impacts to Essential Fish Habitat and Recommended Conservation Measures*. National Marine Fisheries Service (NOAA Fisheries), Version 1. Southwest Region, Long Beach, California.

- Kahnle, A. W., K. A. Hattala, K. A. McKown, C. A. Shirey, M. R. Collins, T. S. Squiers, Jr., and T. Savoy. 1998. *Stock Status of Atlantic sturgeon of Atlantic Coast Estuaries. Report for the Atlantic States Marine Fisheries Commission. Draft III.*
- Lee, D. S., C. R. Gilbert, C. H. Hocutt, R. E. Jenkins, D. E. McAllister, and J. R. Stauffer, Jr. 1980 et seq. *Atlas of North American Freshwater Fishes.* North Carolina State Museum of Natural History, Raleigh, North Carolina.
- Lee, D. S. and J. F. Parnell. 1990. *Endangered, threatened, and rare fauna of North Carolina, Part III, a re-evaluation of birds.* Occasional papers of the North Carolina Biological Survey.
- Luczkovich, J. J. 2010. *Survey of the Submerged Aquatic Vegetation in the Proposed Alignment for the Mid-Currituck Bridge.* A report to the North Carolina Turnpike Authority.
- Morrison, R. I. G. and B. A. Harrington. 1992. "The migration system of the Red Knot *Calidris canutus rufa* in the New World." *Wader Study Group Bulletin 64 (Supplement): 71–84.*
- National Marine Fisheries Service and US Fish and Wildlife Service. 1991. *Recovery Plan for the US Population of Loggerhead Turtle.* National Marine Fisheries Service, Washington, D.C.
- National Marine Fisheries Service and US Fish and Wildlife Service. 1991. *Recovery Plan for US Population of Atlantic Green Turtle (Chelonia mydas).* National Marine Fisheries Service, Washington, D.C.
- National Marine Fisheries Service and US Fish and Wildlife Service. 2008. *Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (Caretta caretta), Second Revision.* National Marine Fisheries Service, Washington, D.C.
- National Marine Fisheries Service. 1998. *Recovery Plan for the Shortnose Sturgeon (Acipenser brevirostrum).* Prepared by the Shortnose Sturgeon Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland.
- Niles, Lawrence J., et al. 2008. "Status of the Red Knot (*Calidris canutus rufa*) in the Western Hemisphere." *Studies in Avian Biology* No. 36. Cooper Ornithological Society Publication.
- North Carolina Coastal Land Trust. November 2006. *Countywide Land Parcel Prioritization Strategy for Water Quality Enhancement.* Wilmington, North Carolina.

- North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries. 2007 (with modified text October 28, 2008). *North Carolina Division of Marine Fisheries Habitat Alteration Permit Review Guidelines*. North Carolina Department of Environment and Natural Resources, Morehead City, North Carolina.
- North Carolina Natural Heritage Program. 2001. *Guide to Federally Listed Endangered and Threatened Species of North Carolina*. Raleigh, North Carolina.
- North Carolina Turnpike Authority and Federal Highway Administration. 2010. *Administrative Action Draft Environmental Impact Statement for the Mid-Currituck Bridge Study*.
- NCWRC (North Carolina Wildlife Resources Commission). 2005. *North Carolina Wildlife Action Plan*. Available: http://www.wildlifeactionplans.org/pdfs/action_plans/nc_action_plan.pdf.
- Oakley, Nathaniel C. 2003. *Status of Shortnose Sturgeon (Acipenser brevirostrum) in the Neuse River North Carolina*. Graduate thesis. North Carolina State University.
- Parsons Brinckerhoff. 2009. *Alternatives Screening Report*. Prepared for the North Carolina Turnpike Authority.
- Secor, D. H. 2002. "Atlantic sturgeon Fisheries and Stock Abundances During the Late Nineteenth Century." *American Fisheries Society Symposium* 28:89-98.
- Secor, D. H. and J. R. Waldman. 1999. "Historical abundance of Delaware Bay Atlantic sturgeon and potential rate of recovery." *American Fisheries Society Symposium* 23:203-216.
- Schafale, M. P. and A. S. Weakley. 1990. *Classification of the Natural Communities of North Carolina, 3rd Approximation*. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation, Natural Heritage Program.
- Smith T. I. J. and J. P. Clungston. 1997. "Status and Management of Atlantic Sturgeon, *Acipenser oxyrinchus*, in North America." *Environmental Biology of Fishes* 48:335-346.
- US Army Corps of Engineers. 2010. *Currituck Sound Feasibility Scoping Meeting Report*. Available: <http://www.saw.usace.army.mil/Currituck/index2.htm>. Accessed: February 23, 2011.
- US Fish and Wildlife Service. 1996. *Recovery Plan for Seabeach Amaranth (Amaranthus pumilius Rafinesque)*. US Fish and Wildlife Service, Atlanta, Georgia.

US Fish and Wildlife Service. 2003. *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters*. Raleigh Field Office, Raleigh, North Carolina.

8.2 Web Sites

Field Trip Earth web site. 2007. Summer 2006 sea turtle tracking. Catherine McClellan, Duke University. Available: <http://www.fieldtripearth.org/>.

National Marine Fisheries Service. 2011. Office of Protected Species, NOAA Fisheries. Available: <http://www.nmfs.noaa.gov/pr/species/>.

National Oceanic and Atmospheric Administration. 2008. Fisheries, Office of Protected Resources. Available: <http://www.nmfs.noaa.gov/pr/species/>. Accessed: February, 2008.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available: <http://www.natureserve.org/explorer>. Accessed: February 15 and 18, 2008.

North Carolina Natural Heritage Program. 2006. North Carolina Natural Heritage Program List of the Rare Animal Species of North Carolina. Available: <http://www.ncnhp.org/Images/2006RareAnimalList.pdf>. Accessed: May 29, 2008.

North Carolina Natural Heritage Program. 2011. Heritage Data. Available: <http://www.ncnhp.org/Pages/heritagedata.html>. Accessed: March 2011.

North Carolina Wildlife Resources Commission. 2008. Wildlife Profiles: West Indian Manatee (*Trichechus manatus*). Available: http://www.ncwildlife.org/pg07_WildlifeSpeciesCon/Profiles/manateewindian.pdf. Accessed: February 18, 2008.

US Fish and Wildlife Service. 2006. Optimal Survey Windows for North Carolina's Federally Threatened and Endangered Plant Species. Available: http://www.fws.gov/nces/es/plant_survey.html. Accessed: February 18, 2008.

US Fish and Wildlife Service. 2011a. Threatened and Endangered Species in North Carolina. Available: <http://www.fws.gov/nc%2Des/es/countyfr.html>. Accessed: May 7 and December 8, 2008, February 25, 2009, and January 18, 2011.

US Fish and Wildlife Service. 2011b. Currituck National Wildlife Refuge. Available: <http://www.fws.gov/currituck/>. Accessed: April 11, 2011.

US Fish and Wildlife Service. 2010. Red Knot. Available: <http://www.fws.gov/northeast/redknot/>. Accessed: April 7, 2011.

US Fish and Wildlife Service. 2008. Threatened and Endangered Species Descriptions. Available: <http://www.fws.gov/nc-es/>. Accessed: January and February, 2008.

8.3 Personal Communication

Bolton, Stephanie. Fishery Biologist. National Marine Fisheries Service. November 19, 2007.

Clark, Karen. Program Coordinator, Outer Banks Center for Wildlife Education. North Carolina Wildlife Resources Commission. March 31, 2011 and April 18, 2011.

Cluse, Wendy. Assistant Sea Turtle Biologist. North Carolina Wildlife Resources Commission. December 18, 2008.

Fussell, John. Author: *A Birder's Guide to Coastal Carolina*. March 30, 2008.

Godfrey, Matthew. Sea Turtle Biologist. North Carolina Wildlife Resources Commission. December 8, 2010.

Hightower, Joe. Fisheries Biologist/Professor. NC Cooperative Fish and Wildlife Unit, NCSU. January 26, 2011.

Hoff, Mike. Manager, Currituck National Wildlife Refuge. US Fish and Wildlife Service. March 30, 2011.

Jordan, Gary. Fish and Wildlife Biologist. US Fish and Wildlife Service. November 8, 2010.

Loeffler, Michael. Fisheries Biologist, NCDENR-DMF. January 26, 2011

McNeill, Joanne B. Fishery Biologist. National Marine Fisheries Service. November 21, 2007 and December 8, 2010.

Mundin, Red. Assistant to the NCDENR-DMF Director, and Protected Species Specialist. NCDENR, Division of Marine Fisheries. January 13, 2011.

Rabon, David. Fish and Wildlife Biologist. US Fish and Wildlife Service. November 30, 2006.

Ratcliffe, Judy. Eastern Region Freshwater Ecologist. North Carolina Natural Heritage Program. April 6, 2011.

Appendix A

Essential Fish Habitat

A. Essential Fish Habitat (EFH)

The Magnuson-Stevens Fishery Conservation and Management Act (Title 16 *United States Code* Section 1801 *et seq.*) requires the US Secretary of Commerce to develop guidelines assisting regional fisheries management councils in the identification and creation of management and conservation plans for EFH. The National Marine Fisheries Service (NMFS), the South Atlantic Fishery Management Council (SAFMC), and the Mid-Atlantic Fishery Management Council (MAFMC) currently manage eight fish species that are known to occur within the project area (MAFMC, 2008; SAFMC, 2008).

Project Activities and Impact

These agencies have identified the SAV, intertidal flats, palustrine emergent and forested wetlands, aquatic bed (tidal freshwater), and estuarine water column of Currituck Sound as EFH. Currituck Sound and SAV habitat (including existing beds) in the area of the Preferred Alternative are shown in Figure 2. The Preferred Alternative would not affect palustrine emergent and forested wetlands since not all palustrine wetlands (i.e., Maple Swamp) within the project area are EFH. Palustrine wetlands determined to be EFH were adjacent waters and marshes of the Currituck Sound and subject to tidal/wind inundation. Permanent impacts to EFH communities and SAVs associated with the project's Preferred Alternative are shown in Table A-1. There would be no fill impact to EFH with the Preferred Alternative. The greatest permanent impact to EFH would be associated with shading by a Mid-Currituck Bridge of existing SAV, SAV habitat, and potential SAV habitat (areas of the sound 6 feet deep or less where SAV is not confirmed). Such impacts would shade 3.8 acres, 4.8 acres (inclusive of the 3.8 acres), and 5.2 acres, respectively. SAV would be protected from stormwater runoff through the use of a closed drainage system over the approximate 4,000 feet of SAV habitat (including existing beds) on the eastern side of the sound.

Permanent loss or alteration of EFH would result directly from shading and pile placement with the bridge structure associated with the Preferred Alternative, although pile placement is minimal at 0.1 acre.

The Preferred Alternative likely would result in short-term and long-term adverse effects to EFH and managed species. In general, the Preferred Alternative would not have a substantial long-term adverse impact on EFH or managed species given the small permanent pile impact (0.1 acre) and the small open water shading impact of the Mid-Currituck Bridge (27.8 acres) compared to the total area of Currituck Sound (97,920 acres). Bridge pilings could provide additional habitat for some managed species. The aquatic substrate generally would be expected to recover after construction.

**Table A-1. Permanent Impacts to Essential Fish Habitat Areas
by the Preferred Alternative**

Community¹	Fill	Pilings	Shading	Clearing
Palustrine forested wetland (acres)	0.0	0.0	0.0	0.0
Palustrine emergent wetland (acres)	0.0	0.0	0.0	0.0
Aquatic bottom (tidal freshwater) (total ² /≤6 feet) (acres)	0.0/0.0	0.1/0.0	27.8/8.7	0.0/0.0
TOTAL EFH IMPACT ³ (acres)	0.0	0.1	27.8	0.0
Primary nursery areas ⁴ (acres/linear feet)	0.0/0.0	0.0/0.0	0.0/0.0	0.0/0.0
SAV Communities				
• SAV beds (existing) ⁵ (acres)	0.0	0.0	3.8	0.0
• Areas <4 feet deep (potential SAV habitat) (acres)	0.0	0.0	2.0	0.0
• Areas 4 to 6 feet deep (potential SAV habitat) (acres)	0.0	0.0	2.9	0.0
• Areas >6 feet deep (unsuitable SAV habitat) (acres)	0.0	0.1	19.1	0.0
SAV Habitat ⁶	0.0	0.0	4.8	0.0

¹Communities that have not been mapped include intertidal flats and oyster reef/shell bank.

²Includes all SAV community sub-categories and is equivalent to estuarine water column (volume not calculated).

³Includes palustrine forested wetland, palustrine emergent wetland, and aquatic bottom.

⁴Jean Guite Creek is the only state-designated fish nursery/spawning area (primary, secondary, or anadromous spawning area) in the project area, but it is not crossed by the Preferred Alternative.

⁵Based on Luczkovich, 2010.

⁶SAV habitat as defined by the North Carolina Marine Fisheries Commission (NCMFC) is currently vegetated with one or more appropriate (native) SAV species, or has been vegetated by one or more appropriate species within the past 10 annual growing seasons, and meets the average growing conditions needed (water depth of 6 feet or less, average light availability [Secchi depth of 1 foot or more], and limited wave exposure). Available data for 2000 to 2010 is from 2003, 2006, 2007, and 2010 (see Figure 2).

Impact Minimization and Mitigation

Types of EFH found within the action area include SAV, intertidal flats, palustrine emergent and forested wetlands, freshwater tidal aquatic beds, and estuarine waters. As indicated above, the greatest permanent impact to EFH would be associated with shading by a Mid-Currituck Bridge over water 6 feet deep or less. With the Preferred Alternative, NCTA would mitigate permanent impacts to existing SAV and SAV habitat. 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 could involve: protection and establishment of riparian buffers; contribution of funds to promote agricultural Best Management Practices (BMPs); stormwater management improvement projects; acquisition of properties identified as important for the protection of water quality (as reported in the November 2006 *Countywide Land Parcel Prioritization Strategy for Water Quality Enhancement*); and other measures that would reduce the turbidity of water in Currituck Sound.
- Support for SAV research.
- Participation in the Currituck Sound Ecosystem Restoration Project coordinated by USACE.

Efforts to improve conditions for SAV propagation and survival within Currituck Sound, support for SAV research, and participation in the Currituck Sound Ecosystem Restoration Project 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 do not meet NCMFC's definition of SAV habitat).

Regarding potential stormwater runoff impacts, the stormwater management plan proposed for the Preferred Alternative is described in Section 4.2.1. NCTA would comply with NC Session Law 2008-211 (An Act to Provide for Improvements in the Management of Stormwater in the Coastal Counties in Order to Protect Water Quality) to the maximum extent practicable for the additional impervious surface area created by this project. With regard to mitigation of potential impacts to SAV, the first 1.5 inches of stormwater runoff would be captured/treated from the eastern end of the Currituck Sound bridge for a distance of 4,000 feet to prevent direct discharge into the existing SAV habitat (including existing beds) areas along the eastern shore of the sound, the only location they occur. The runoff would be piped to the end of the bridge for treatment to either a stormwater wetland or a wet detention basin. Source control also

would be used. Source control would be provided by frequent deck cleaning using state of the art, multi-function cleaning equipment that employs mechanical, vacuum, and regenerative air systems.

To minimize construction impacts to SAV by in-water work with the Preferred Alternative, NCTA would follow the following protocols to protect existing SAV habitat (including existing beds):

- No dredging in any part of Currituck Sound.
- No bottom disturbing in-water work in the SAV bed areas 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 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, would occur up to 365 days a year at the discretion of NCTA.
- Use of an open (i.e., beams only to support a crane) temporary construction trestle to minimize shading impacts while the trestle is in place. Marine industry standard pans would be placed under construction equipment operating on the open trestle to capture any accidental spills of oil and lubricants.
- The eastern side of the sound is the only location that includes SAV habitat (including existing beds) that meets NCMFC's criteria. In this area of the sound, NCTA would install temporary piling and temporary open work trestle for approximately 4,500 linear feet and would, outside of the moratorium dates, drive piles for both the permanent bridge and the temporary trestle within SAV habitat (including existing beds).
- Turbidity curtains would be utilized during pile installation (permanent and temporary bridges) and pile removal (temporary bridge). Turbidity curtains would capture any silt from migrating outside the curtain perimeter. These are common and proven turbidity control techniques. Pile installation would be performed both by vibratory and impact hammers, with no jetting of piles.

On the eastern side of Currituck Sound, limiting pile placement to times outside the moratorium period is expected to result in the following construction sequence over the SAV habitat (including existing beds) present there:

- Construction Season 1. The October 1 to February 14 non-moratorium window would allow installation of approximately 35 percent of both work trestle and permanent bridge pilings along with deck construction.
- Construction Seasons 2 and 3. During these two seasons, the remaining temporary work trestle and permanent bridge construction would be completed.

- Construction Season 4. During this season, the temporary work trestle would be removed/dismantled.

If surveys following construction operations reveal that additional permanent impacts to SAV beds have occurred, additional permanent impact mitigation would be provided using one or more options described in the previous section.

Minimization of potential impacts to potential SAV habitat (areas of the sound 6 feet deep or less) would be accomplished through no dredging anywhere in Currituck Sound and by pile installation using both vibratory and impact hammers, with no jetting of piles.

Conclusion

The impact to EFH would be associated with shading by a Mid-Currituck Bridge of existing SAV, SAV habitat, and potential SAV habitat (areas of the sound 6 feet deep or less where SAV is not confirmed). Such impacts would shade 3.8 acres, 4.8 acres (inclusive of the 3.8 acres), and 5.2 acres, respectively. The Preferred Alternative likely would result in short-term and long-term adverse (though not substantial) effects to EFH and managed species; however, it is not expected to have any adverse impacts to listed species.

The listed species in question have rarely occurred in the action area. Also the impacts to EFH on listed species pertain only to forage habitat (SAV beds), which, when surveyed in 2007 by USACE was indicated to contain 377 acres of existing SAV in the project area of Currituck Sound.

NCTA would mitigate permanent impacts to existing SAV habitat (including existing beds), as defined by NCMFC, resulting from Mid-Currituck Bridge shading and pile placement with the Preferred Alternative. Long-term efforts to support SAV research and improve SAV propagation have the ability to protect this resource independent of the Mid-Currituck Bridge project. Mitigation of affected SAV beds in the project area at suitable sites would ensure no net loss of existing SAV beds affected by this bridge project.

Appendix B

Detailed Listed Species Information

B. Detailed Listed Species Information

The following information on listed species was gathered largely from biological information on the NMFS and USFWS web sites. References are cited in Chapter 8, References.

Red Wolf (*Canis rufus*)

Red wolves were extirpated from North Carolina and most other southeastern states by the 1920s. In the mid-1980s, USFWS reintroduced the species to the Alligator River National Wildlife Refuge (ARNWR) in eastern North Carolina. Since that time, the wolves have expanded their range outside the refuge. Red wolves are generally crepuscular predators, preying on deer, nutria, raccoon, rabbits, and other small mammals. Any area that provides sufficient size, adequate food and water, and the basic cover requirement of heavy vegetation should be suitable habitat for the red wolf. Telemetry studies indicate that red wolf home range requirements vary from about 25 to 50 square miles (NatureServe, 2007; USFWS, 2008).

West Indian Manatee (*Trichechus manatus*)

Manatees have been observed in all the North Carolina coastal counties. Manatees are found in canals, sluggish rivers, estuarine habitats, salt water bays, and as far off shore as 3.7 miles. They utilize freshwater and marine habitats at shallow depths of 5 to 20 feet. In the winter, between October and April, manatees concentrate in areas with warm water. During other times of the year habitats appropriate for the manatee are those with sufficient water depth, an adequate food supply, and proximity to freshwater. Manatees require a source of freshwater to drink. Manatees are primarily herbivorous, feeding on any aquatic vegetation present, but they may occasionally feed on fish.

Piping Plover (*Charadrius melodus*)

The piping plover breeds along the entire eastern coast of the United States. North Carolina is uniquely positioned in the species' range, being the only state where the piping plover's breeding and wintering ranges overlap, and the birds are present year-round. They nest most commonly where there is little or no vegetation, but some may nest in stands of beachgrass. The nest is a shallow depression in the sand that is usually lined with shell fragments and light colored pebbles (NatureServe, 2007; USFWS, 2008).

Red-Cockaded Woodpecker (*Picoides borealis*)

The red-cockaded woodpecker (RCW) typically occupies open, mature stands of southern pines, particularly longleaf pine, for foraging and nesting/roosting habitat. The RCW excavates cavities for nesting and roosting in living pine trees, aged 60 years or older, which are contiguous with pine stands at least 30 years of age to provide foraging habitat. The foraging range of the RCW is normally no more than 0.5 mile (USFWS, 2008).

Roseate Tern (*Sterna dougallii*)

In North Carolina, the roseate tern is most likely to be seen on barrier islands as it passes through the area to and from northern breeding grounds. March through May and August through October are the most likely times to see these birds. Although sight records of this species exist for June, July, and August, these are likely non-breeding males. Only one nesting record for this species has been documented for the state within the past 20 years. However, if this species expands its range, it is likely to choose coastal areas of the state for nesting. The roseate tern nests on isolated, less disturbed coastal islands in areas characterized by sandy, rocky, or clayey substrates with either sparse or thick vegetation. Eggs are usually laid such that grasses or overhanging objects provide shelter. They may also nest in marshes, but it is an uncommon occurrence (NatureServe, 2007; USFWS, 2008).

American Alligator (*Alligator mississippiensis*)

In North Carolina, alligators have been recorded in nearly every coastal county and many inland counties to the fall line. The alligator is found in rivers, streams, canals, lakes, swamps, and coastal marshes. Adult animals are highly tolerant of salt water, but the young are apparently more sensitive, with salinities greater than 5 parts per thousand considered harmful. The American alligator remains on the protected species list because of its similarity in appearance to the Endangered American crocodile (NatureServe, 2007; USFWS, 2008).

Hawksbill Sea Turtle (*Eretmochelys imbricata*)

Hawksbill sea turtles are found in tropical and subtropical oceans. Sightings have been reported on the east coast of the United States as far north as Massachusetts, although rarely north of Florida. Sightings have been recorded from a handful of counties in North Carolina, but the turtle is not known to breed in the state. Adult hawksbills are found in coastal waters, especially around coral reefs, rocky outcrops, shoals, mangrove bays, and estuaries. Juveniles are often seen offshore in floating mats of seaweed. This

species nests on a wide range of beach types and substrates, using both low- and high-energy beaches on islands and mainland sites. The nest is typically placed near or under vegetation of some sort (NatureServe, 2007; NOAA, 2008; USFWS, 2008).

Leatherback Sea Turtle (*Dermochelys coriacea*)

Leatherbacks are distributed world-wide in tropical waters of the Atlantic, Pacific, and Indian oceans. They are generally open-ocean species and may be common off the North Carolina coast during certain times of the year. However, in northern waters leatherbacks are reported to enter into bays, estuaries, and other inland bodies of water. Major nesting areas occur mainly in tropical regions. In the United States, primary nesting areas are in Florida; however, nests are known from Georgia, South Carolina, and North Carolina as well. Nesting occurs from April to August. Leatherbacks need sandy beaches backed with vegetation in the proximity of deep water and generally with rough seas. Beaches with a relatively steep slope are usually preferred (NatureServe, 2007; NOAA, 2008; USFWS, 2008).

Green Sea Turtle (*Chelonia mydas*)



Photo courtesy of Doug Shea.

The largest of the hard-shelled sea turtles, the green sea turtle grows to a maximum of about 4 feet and 440 pounds. Variably colored, it has a heart-shaped shell, small head, and single-clawed flippers. Hatchlings generally have a black carapace, white plastron, and white margins on the shell and limbs, while the adult carapace is smooth, keelless, and light to dark brown with dark mottling and a white to light yellow plastron. Heads of adult green sea turtles are light brown with yellow markings. Identifying

characteristics include four costal plates which do not border the nuchal shield, no jagged marginals, and one pair of prefrontals between the eyes.

Affected Environment

The green sea turtle occurs primarily in the ocean, but also frequents shallow bays and open water estuaries, and may nest in beach areas along the coast. Oregon Inlet and Hatteras Inlet provide the only access to the back barrier, shallow estuarine systems preferred by the species when not in the deeper ocean.

Species Biology

When not migrating, green sea turtles are generally found in relatively shallow waters where marine grass and algae can flourish, such as those found inside lagoons, reefs, bays, and inlets. Green sea turtles require open, sloping beach platforms and minimal disturbance for nesting. Strong nesting site fidelity (tendency to return to birth beach areas) is characteristic of the species and long distances often exist between feeding grounds and nesting beaches. Sargassum clumps are often used as refugia and food resource areas. Carnivorous as hatchlings and juveniles, they begin feeding on algae and marine grasses when they are approximately 8 to 10 inches and, as adults, they are the only plant-eating sea turtle. For the southeastern United States, nesting season is June through September and occurs nocturnally at 2-, 3-, or 4-year intervals. One turtle may lay as many as seven clutches in a season at 9- to 13-day intervals with 75 to 200 eggs in a clutch requiring incubation for 48 to 70 days, depending on nest temperatures. Although hatching generally occurs at night, mortality is extremely high. Age at maturity is thought to be between 20 and 50 years (NMFS, 2011).

Current Status

In 1978, USFWS listed the green sea turtle as threatened under the ESA except for the breeding populations in Florida and on the Pacific coast of Mexico where it is considered endangered. International conservation bodies such as International Union for Conservation of Nature (IUCN), and Convention on International Trade in Endangered Species (CITES) consider it endangered. Estimated at no more than 600,000 adults worldwide, the green sea turtle is found in tropical and temperate seas and oceans with the Atlantic North American population distributed from Massachusetts to Mexico. In the Caribbean, green sea turtles also occur in Puerto Rico and the Virgin Islands with occasional nesting in these areas (NMFS and USFWS, 1991).

A major factor contributing to the green sea turtle's decline worldwide is commercial harvest for eggs and meat. Mortality of green sea turtles has been documented in Florida, Hawaii, and other parts of the world from fibropapillomatosis, a disease of sea turtles characterized by the development of multiple tumors on the skin and internal

organs. These tumors interfere with swimming, eating, breathing, vision, and reproduction, and heavy tumor burdens can lead to severe debilitation and death. Evidence is mounting that this disease may not be the death knell for green sea turtles as was originally thought in the early 1990s. Like other sea turtles, other threats to this species include loss and/or degradation of nesting habitat from human activities such as armoring and development projects; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and incidental take from channel dredging and commercial fishing operations (NMFS, 2011).

Loggerhead Sea Turtle (*Caretta caretta*)



Photo of loggerhead (with transmitter) courtesy of USFWS Digital Library (USFWS web site, 2007).

This species of sea turtle is widely distributed within its range of the temperate and tropical regions of the Atlantic, Pacific, and Indian oceans. The loggerhead has a large head with blunt jaws with a reddish-brown carapace and flippers and yellow plastron. Identifying characteristics include five pairs of costal scutes on the carapace, with the first touching the nuchal scute and three large inframarginal scutes on each of the bridges between the plastron and carapace. Adults grow to an average weight of about 200 pounds and feed on mollusks, crustaceans, fish, and other marine animals (NMFS, 2011).

Affected Environment

The loggerhead occurs primarily in the ocean, but also utilizes shallow bays, and open water estuaries in the action area. Oregon Inlet and Hatteras Inlet provide the only

access to the back barrier, shallow estuarine systems preferred by the species when not in the deeper ocean. The loggerhead has been documented in the last 20 years from all coastal counties of North Carolina with beach front (Currituck, Dare, Hyde, Carteret, Onslow, Pender, New Hanover, and Brunswick counties).

Species Biology

Loggerhead sea turtles are found at sea hundreds of miles from the coast, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. Common feeding areas are coral reefs, rocky places, and ship wrecks. Loggerheads nest on ocean beaches typically between the high tide line and the dune front, but occasionally will nest on estuarine shorelines with suitable sand. It is thought that most United States-hatched loggerheads lead a pelagic existence in the North Atlantic gyre for an extended period of time while young, perhaps as long as 10 to 12 years, and they are most documented from the eastern Atlantic near the Azores and Madeira. Post-hatchlings have been found floating at sea in association with Sargassum rafts taking advantage of the food and refuge offered in these rafts. Juvenile loggerheads begin moving to coastal areas in the western Atlantic, feeding on the benthos of lagoons, estuaries, bays, river mouths, and shallow coastal waters. These feeding grounds may be utilized for a decade or more before their first reproduction when females will return to their natal beach to lay their eggs.

The United States nesting season extends from about May through August with nesting occurring primarily at night. A single loggerhead may build from one to seven nests within a season (mean is about 4.1 nests per season) at intervals of approximately 14 days. Mean clutch size varies from about 100 to 126 along the southeastern United States coast, with incubation time ranging from about 45 to 95 days, depending on incubation temperatures. Hatchlings typically emerge at night. Remigration intervals of 2 to 3 years are most common in nesting loggerheads, but this has been known to vary from 1 to 7 years. Like all sea turtles, loggerheads are slow to mature with age of sexual maturity estimated to be about 20 to 30 years. Adult loggerheads will make long distance migratory journeys between foraging areas and nesting beaches.

The majority of loggerhead nesting is at the western rims of the Atlantic and Indian oceans. According to NMFS, only two loggerhead nesting beaches have greater than 10,000 females nesting per year: South Florida and Masirah, Oman. Beaches with 1,000 to 9,999 females nesting each year are north Florida through North Carolina, Cape Verde Islands, and Western Australia. Smaller nesting aggregations with 100 to 999 annual nesting females are found in northwest Florida, Cay Sal Bank (Bahamas), Quintana Roo and Yucatán (Mexico), Sergipe and Northern Bahia (Brazil), Southern Bahia to Rio de Janeiro (Brazil), Tongaland (South Africa), Mozambique, Arabian Sea Coast (Oman), Halaniyat Islands (Oman), Cyprus, Peloponnesus (Greece), Island of Zakynthos (Greece), Turkey, and Queensland (Australia). In the United States, loggerheads will

nest from Texas to Virginia, although the major nesting concentrations in the United States are found in south Florida. Total nesting in the United States is estimated to be from 68,000 to 90,000 nests/year and nearly 80 percent of these nests occur in six Florida counties (Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward counties). Adult females from United States beaches are found in waters off the eastern United States and throughout the Gulf of Mexico, Bahamas, Greater Antilles, and Yucatán in years when they are not nesting.

The Northwest Atlantic Population Recovery Plan indicates that the Recovery Team has divided Atlantic loggerheads into five Recovery Units based on geographically/genetically identifiable subunits (NMFS and USFWS, 2008). Four of these Recovery Units coincide with the four genetically distinct nesting assemblages identified in the southeastern United States. The fifth is a combination of all other nesting assemblages that nest elsewhere but may occur within United States waters. These five Recovery Units are as follows:

- Northern Recovery Unit occurring from North Carolina through northeast Florida;
- South Florida Recovery Unit occurring from just north of Cape Canaveral on Florida's east coast and extending up to around Sarasota on Florida's west coast;
- Dry Tortugas Recovery Unit occurring west of the Florida keys;
- Florida Panhandle Recovery Unit; and
- "Other" Recovery Unit including loggerheads which nest in the Yucatán, Cuba, Bahamas, Brazil, Cape Verde, and the Mediterranean.

Analysis of mitochondrial DNA between these Recovery Units indicates that gene flow between these five regions is very low. If nesting females are extirpated from one of these regions, regional dispersal will not be sufficient to replenish the depleted nesting subpopulation. No long-term trends are available for the Northern Recovery Unit Subpopulation, although researchers have documented substantial declines in nesting on some beaches since the early 1970s. Nesting trends were undetectable for North Carolina, South Carolina, or Georgia from 1989 to 1998 (NMFS and USFWS, 2008).

Current Status

The loggerhead sea turtle has received federal protection under the ESA since July 28, 1978. The State of North Carolina also considers this marine turtle threatened and offers protection under state law. The Northern Recovery Unit extends from northeast Florida through North Carolina and represents approximately 1,287 nesting females per year with annual total nests ranging from 3,629 to 6,642 between 1989 and 1998. With the addition of the females estimated to occupy the other three Recovery Units, the total

estimate of females nesting in the United States is 19,993 (NMFS and USFWS, 2008). Nesting of this species on all Florida beaches has declined 49 percent since 1998, according to a report recently issued by the Florida Fish and Wildlife Conservation Commission (Environment News Service, November 12, 2007).

Like other species of sea turtle, almost all threats are related to human activities, including: loss and/or degradation of nesting habitat from coastal development and armoring; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; disease; climate change; and incidental take from channel dredging and commercial trawling, longline, and gill net fisheries. There is particular concern about the extensive incidental take of juvenile loggerheads in the eastern Atlantic by longline fishing vessels from several countries (NMFS, 2011).

Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)



Photo of Kemp's ridley sea turtle courtesy of NOAA web site.

Kemp's ridley is the smallest of all extant sea turtles. Adults grow to about two feet in carapace length and 120 pounds. Kemp's ridleys have a light grey-olive carapace and a cream-white or yellowish plastron. Males display distinct morphological features not found on females including a longer tail, more distal vent, recurved claws and, during breeding, a softened, mid-plastron.

Affected Environment

Kemp's ridley sea turtles are primarily a tropical and subtropical species that prefers sheltered habitats with low wind and wave energy, such as estuaries and bays, as well

as nearshore waters less than 150 feet deep. Kemp's ridleys are flexible in their substrate preference, foraging in any area with high food availability including submerged aquatic vegetation (SAV), oyster reef, and mud and sand bottoms. Although this species is primarily tropical and subtropical, it can be found as far north as New England. The Pamlico Sound is a known foraging habitat. High energy beaches like those of the action area are not the preferred habitat of the Kemp's ridley, but the waters of North Carolina are considered within its range. Oregon Inlet and Hatteras Inlet provide the only access to the back barrier, shallow estuarine systems preferred by the species when not in the deeper ocean.

Species Biology

Approximately 60 percent of Kemp's ridley sea turtles nest within a 25-mile length of beach at Rancho Nuevo in Tamaulipas, Mexico. Scattered nests also exist to the north and south of this primary nesting ground. Hatchling sea turtles likely spend 1.5 to 4 years associated with floating sargassum near the ocean surface. Subsequently, at about 8 inches, they enter a benthic-feeding immature stage until reaching sexual maturity 7 to 9 years later. During this juvenile period they enter shallow coastal waters and forage along the bottom. As adults, Kemp's ridley sea turtles continue to forage in the sediments of shallow estuaries, consuming crabs and other invertebrates. Females reach sexual maturity at approximately 2 feet. Females nest multiple times during the nesting season (April to June in tropical areas) producing clutches of about 100 eggs. A unique feature of Kemp's ridleys is that they tend to nest in large aggregations. Most females nest once every two years. As with other sea turtles, nest sex ratios are temperature dependent. A 1:1 ratio of males to females is produced at 30.2° C. Above this temperature an egg will develop into a female, while males will be produced at 28 to 29° C. In most natural nests, 64 percent of hatchlings are female.

Current Status

This species is the most endangered of the sea turtles. Kemp's ridleys were historically abundant in the Gulf of Mexico. During one nesting season in the 1940's an estimated 40,000 turtle nests were recorded at Rancho Nuevo, the primary nesting ground for this species. However, Kemp's ridleys declined substantially from the 1940s to the 1980s, primarily because of the harvest of eggs and mortality from commercial fish and shrimp trawling and gill net operations, but also from pollution, dredging, and commercial exploitation of adults for food. By 1985, only 740 nests were recorded in Rancho Nuevo. The Kemp's ridley was given endangered status throughout its range in 1970. Since species management and recovery plans were implemented, populations have rebounded. Nesting increased steadily from the early 1990s to the present. In 2006, 7,866 nests were recorded in Rancho Nuevo.

Shortnose Sturgeon (*Acipenser brevirostrum*)



Photo by Nancy Haley, courtesy of NOAA Fisheries Office of Protected Species (NOAA web site, 2007).

Sturgeon, including the shortnose sturgeon, are among the most primitive of the bony fishes. All are characterized by bony plates (scutes) that run the length of the body, sensory organs called barbells, and a mouth positioned on the underside of their snout. The shortnose sturgeon is the smallest North American sturgeon, reaching 3 to 4.5 feet and 61 pounds. The shortnose sturgeon has a blackish head and back, a yellowish-brown body and a pale underside. The shortnose sturgeon can be distinguished from Atlantic sturgeon by its shorter snout, wider mouth, and the lack of scutes between the anal fin base and the lateral row of plates (NMFS, 1998).

Affected Environment

The shortnose sturgeon is an anadromous species that inhabits slow moving waters in the lower sections of larger rivers, as well as near shore marine waters of the Atlantic coast, moving into freshwater only to spawn in the spring. A bottom dweller and benthic feeder, it prefers areas with soft substrate and vegetated bottom for most of the year. While spawning in the river, it occupies areas with fast moving water with coarse bottom. Open water environments within the action area could serve as potential habitat for the shortnose sturgeon; however, there are no known records of this species occurring within Currituck Sound. This species was most recently observed in the waters of the northern Albemarle Sound in May 1999 (NCNHP, 2011).

Species Biology

The shortnose sturgeon occurs from the St. John River in New Brunswick, Canada, south into the St. Johns River in north Florida. They spawn in several major river systems along the east coast, including the Albemarle Sound drainage and the Cape Fear River. Shortnose sturgeons begin their freshwater migration in late winter and early spring and spawn from April to June. Maturing sturgeon may occupy the upper reaches of the natal river for up to five years, at which time they move to the ocean. However, unlike other anadromous species, the shortnose sturgeon does not seem to make long distance offshore migrations after spawning, but rather occupies the estuarine and nearshore

marine environments. In the mid-Atlantic region, both male and female shortnose sturgeons reach sexual maturity at three to five years, spawning every three years thereafter in the case of females and often yearly in males. Like other sturgeon, this species is long lived and may reach 60 years of age. As bottom-feeding animals, shortnose sturgeon primarily consume organisms associated with sediment such as worms, bivalves, crustaceans, insect larvae and small fish. They also consume live and detrital plant material.

Current Status

It is believed that the shortnose sturgeon declined along with the Atlantic sturgeon beginning in the early 1900s. Population declines resulted from dam construction, commercial fishing, pollution, and habitat loss. In March 1967, the shortnose sturgeon was given endangered species status. NMFS later assumed jurisdiction for shortnose sturgeon under a 1974 government reorganization plan (38 FR 41370). The shortnose sturgeon is managed by the Atlantic States Marine Fisheries Commission of which North Carolina is a member. In 1990, the ASMFC devised a Fishery Management Plan (FMP) to aid in the recovery of Atlantic and shortnose sturgeon. In response to continued declines, in 1998, the FMP was amended to include a moratorium on sturgeon fishing in participating states. Although the shortnose sturgeon was not targeted by the commercial fishing industry, it was a common incidental catch in the Atlantic sturgeon fishery. Therefore, by banning all sturgeon fishing, the ASMFC reduced the fishing related mortality to the shortnose sturgeon. In addition, possession of the shortnose sturgeon is illegal because of its federally protected status.

There is no historical information on the shortnose sturgeon population size. Today, the health of shortnose sturgeon populations varies by river system. The shortnose population in the St. John River, New Brunswick, Canada is among the largest in North America, and the Hudson and Delaware Rivers also support substantial numbers of shortnose sturgeon. Few, if any, shortnose sturgeon are collected in scientific trawl surveys. Therefore, population assessments are difficult to make.

Seabeach Amaranth (*Amaranthus pumilus*)

Seabeach amaranth occurs on barrier island beaches where its primary habitats consists of overwash flats at accreting ends of islands, lower foredunes, and upper strands of noneroding beaches (landward of the wrack line). In rare situations, this annual is found on sand spits 160 feet or more from the base of the nearest foredune. It occasionally establishes small temporary populations in other habitats, including sound-side beaches, blowouts in foredunes, interdunal areas, and on sand and shell material deposited for beach replenishment or as dredge spoil. The plant's habitat is sparsely vegetated with annual herbs (forbs) and, less commonly, perennial herbs (mostly

grasses) and scattered shrubs. It is intolerant of vegetative competition and does not occur on well-vegetated sites. The species usually is found growing on a nearly pure silica sand substrate, occasionally with shell fragments mixed-in. Seabeach amaranth appears to require extensive areas of barrier island beaches and inlets that function in a relatively natural and dynamic manner. These characteristics allow it to move around in the landscape, occupying suitable habitat as it becomes available (NCNHP, 2001; Schafale and Weakley, 1990; USFWS, 1996; USFWS, 2006; USFWS, 2008).

Appendix C

Consultation History

C. Consultation History

TURNPIKE ENVIRONMENTAL AGENCY COORDINATION

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Turnpike Environmental Agency Coordination Meeting

TEAC Meeting Protocols & Project Coordination Plans

MEETING MINUTES

Date: December 15, 2006

Time: Morning Session – 9:00 am to 12:00 pm

Place: NCTA Board Room

Purpose: Discuss meeting protocols and project coordination plans

Attendees:

Donnie Brew, FHWA	Scott McLendon, USACE
Clarence Coleman, FHWA	Kathy Matthews, USEPA
George Hoops, FHWA	Chris Miltischer, USEPA
Sarah McBride, NCDOT-SHPO	Marella Bunick, USFWS (via phone)
Cathy Brittingham, NCDENR-DCM	Steve DeWitt, NCTA
John Hennessey, NCDENR-DWQ	Gail Grimes, NCTA
Rob Ridings, NCDENR-DWQ	Jennifer Harris, NCTA
David Wainwright, NCDENR-DWQ	David Joyner, NCTA
Amy Simes, NCDENR	Bill Malley, Akin Gump
Wally Bowman, NCDOT-Division 5	Jeff Dayton, HNTB
David Chang, NCDOT-Hydraulics Unit	Craig Deal, HNTB
John Conforti, NCDOT-PDEA	Donna Keener, HNTB
Charles Cox, NCDOT-PDEA	Adin McCann, HNTB
Missy Dickens, NCDOT-PDEA	Tracy Roberts, HNTB
Dewayne Sykes, NCDOT-Roadway Design	Christy Shumate, HNTB
Marla Wilson, NCWRC	Whit Webb, HNTB
Eric Alsmeyer, USACE	Chris Lloyd, PB
Bill Biddlecome, USACE	Jill Gurak, PBS&J
	David Griffin, URS

The following items were discussed during the meeting:

The NCTA opened the meeting with introductions and a brief history of the North Carolina Turnpike Authority (NCTA). The NCTA was created by the state legislature to enhance project delivery without compromising environmental responsibility, quality, and safety. The NEPA and Section 404 permitting processes are critical to accomplishing this goal and the NCTA is aware of the need to advance both together. The agencies were asked to come to the meetings with open minds and the NCTA vowed to be open and honest with all stakeholders throughout the coordination process.

Turnpike Environmental Agency Coordination Meeting Protocols

The Turnpike Environmental Agency Coordination (TEAC) meeting protocols were presented. Several of the agency representatives recommended that a detailed agenda be sent prior to the monthly meetings. This information should contain sufficient detail to allow the agencies to determine if their attendance is required. The NCTA will provide meeting materials prior to the meeting, and it will be at the agencies' discretion to decide on attendance. These meetings are anticipated to be monthly. "Snapshot" projects may not warrant travel to Raleigh by out of town agency representatives. Participation for "snapshot" projects may be accomplished through conference calls. Future meetings may be audio recorded to aid in preparing accurate meeting minutes.

Draft Section 6002 Coordination Plan

The primary purpose of this first TEAC meeting was to review the Section 6002 Draft Coordination Plan. A template of the Draft Coordination Plan and a table describing the legislative background for elements of the plan were included in the Turnpike 101 binders and also distributed to meeting attendees. NCTA is in the process of drafting project-specific Coordination Plans for the Section 6002 projects – Cape Fear Skyway, Mid-Currituck Bridge, and Monroe Connector/Bypass. The final Project Coordination Plans will be approved by FHWA-Division Office.

The elements of the draft Project Coordination Plan discussed were:

Section 1: General

The plan meets the requirements for a Coordination Plan in SAFETEA-LU Section 6002.

Section 2: Project Initiation

A project initiation letter will be sent to FHWA at the beginning of the study process. FHWA will issue a Notice of Intent for the project.

Section 3: Project Schedule

A project schedule will be attached to each project-specific Coordination Plan. The schedule will be developed collaboratively with the agencies, and may be updated throughout the project development process.

Section 4: Agency Roles

Agencies will be identified as Lead Agencies, Cooperating Agencies, and/or Participating Agencies in each Coordination Plan. FHWA, NCDOT, and NCTA will be Lead Agencies for the candidate toll projects. The definition of a Cooperating Agency has not changed with Section 6002 and will generally consist of agencies with permitting interests in the project. Cooperating Agencies generally are included on the cover of the NEPA document so that the agencies can use the document to fulfill their own NEPA requirements. USACE is typically a Cooperating Agency for projects requiring an individual Section 404 permit.

A Participating Agency can be any agency with an interest in a project or any agency that would be expected to provide comments on a Draft EIS. Cooperating Agencies are a sub-set of the Participating Agencies.

Section 6002 sets forth a formal process for the Lead Agencies to invite participating agencies. In this process, one of the Lead Agencies will submit a written request to other agencies inviting them to participate. Federal agencies are not required to respond; they will be assumed to have accepted the invitation unless written explanation of their refusal is provided. State and local agencies will be requested to respond in writing in all cases.

Section 5: Agency Meetings

Monthly meetings will be used to provide updates to agencies and receive comments from the agencies on the projects. Meeting materials will be provided in advance; additional materials may be provided at the meeting, for discussion at future meetings. NCTA is investigating the use of a secure internet site for storing and distributing meeting materials. NCTA will coordinate with the agencies to determine if this method of providing information is effective or if other arrangements are required. At a minimum, a detailed agenda with a list of issues to be discussed and a summary of the previous month's meeting will be distributed with the meeting announcement. Sufficient information will be provided with the announcement so that agencies can determine whether it is necessary to attend. The length of the meetings will vary

depending on the projects and issues to be discussed. NCTA will coordinate closely with NCDOT to schedule meetings to coincide with regularly-scheduled Merger Meetings.

Section 6: Identification and Resolution of Project Issues
Agencies should raise any potential issues they have during project scoping. Because many of the candidate toll projects have a long history, NCTA is aware of many of the potential issues. Previous comments received from the agencies on NCTA projects will be collected and summarized. The project-specific Coordination Plans will include details on how previous agency inputs are incorporated into the current study.

Attempts will be made to resolve issues informally; however, Section 6002 does provide procedures when informal issue resolution is not possible.

Section 7: Methodologies and Level of Detail for Alternatives Analysis
Methodologies used to screen alternatives and analyze impacts will be determined in coordination with the cooperating and participating agencies. NCTA will prepare a memorandum summarizing the methodologies to be used and will obtain agency comments. This will include the level of engineering detail to be used on designs. In general, NCTA anticipates that functional designs will be used to analyze and compare Detailed Study Alternatives in the Draft EIS. Preliminary design may be completed on all or portions of the Detailed Study Alternatives if necessary to satisfy NEPA or permitting requirements; the need for this increased level of detail will be determined on a case-by-case basis. In any case, the Detailed Study Alternatives will be designed to an equivalent level of detail to allow for relative comparison in the Draft EIS. Preliminary designs will be completed for the Preferred Alternative and reflected in the Final EIS in order to refine the design and further minimize impacts.

Several of the agencies expressed general support for this approach, noting that in most cases an increased level of design would not affect the decision on a Preferred Alternative and completing preliminary design on multiple alternatives is often an inefficient use of time and funds.

No change to the level of investigations for other work is anticipated, including wetland and stream delineations, noise studies, and air quality reports. The NCTA plans to follow existing procedures and methodologies as used by NCDOT.

Section 7.4 (Level of Detail) of the Coordination Plan should be revised to include the timing for decisions on bridging and the process for presenting and discussing this issue with agencies.

Sections 8 and 9: Development of Purpose and Need & Development and Screening of Alternatives
NCTA will prepare a preliminary purpose and need statement and present it to agencies for input. NCTA envisions that the purpose and need will evolve throughout the project and will not seek concurrence on a written purpose and need. Additional input on the purpose and need will be solicited from agencies during the screening of alternatives. Public input will also be sought at this point on both the purpose and need and alternatives, and it is possible that based on public comment, the purpose and need would be revised.

Operation as a toll facility may or may not be included as part of a project's stated purpose and need, but it may be used as a consideration in screening alternatives. For example, toll feasibility may be used as a screening criterion where a project would not be financially feasible without implementation of tolls. If the purpose and need specifically calls for completion of a toll road, the only reasonable alternatives would be new location alternatives, because under North Carolina law, existing roads cannot be tolled.

Information on potential locations for alternatives, along with environmental constraints mapping, will be presented to the agencies as early as possible so that potential issues can be identified. This is similar to scoping in other projects.

EPA noted that they will need to confirm how this process fits with their existing procedures for scoping and document review and comment. EPA does not normally provide written comments on a project until the Draft EIS is published in the Federal Register.

Section 10: Selection of Preferred Alternative/LEDPA

On most projects, a public hearing will be held after publication of the DEIS to collect comments on the Detailed Study Alternatives. Following the hearing, NCTA will meet with agencies to discuss selection of a preferred alternative. NCTA will propose a preferred alternative in a report to the agencies. This report will address all applicable regulatory requirements, as identified in Section 10.1 of the project-specific Coordination Plans. The agencies will present comments to the NCTA and FHWA in writing. The FHWA will identify the Preferred Alternative in the Final EIS². The FHWA may also request a written indication as to the likelihood that a permit will be obtained from the appropriate agencies.

Section 11: Avoidance, Minimization, Mitigation, and Enhancement

Avoidance and minimization efforts will be built into the design process. As mentioned above, the Preferred Alternative may be developed to a higher level of design for the purposes of considering mitigation. NCTA intends to use NC Ecosystem Enhancement Program's (EEP) in-lieu fee program to comply with mitigation requirements to the extent possible; however, NCTA agrees that opportunities for on-site mitigation will be identified and considered during project development. Section 11 of the Draft Coordination Plan will be revised to separate Section 11.2 into subsections for Onsite Mitigation (11.2.1) and EEP (11.2.2). Onsite mitigation options would be identified conceptually in the Draft EIS and in more detail for the Preferred Alternative in the Final EIS.

Section 12: Section 404/401 Permitting

Several permits and approvals, in addition to the 404 and 401, would be required for most of the turnpike projects, including Coastal Area Management Act (CAMA) permits, stormwater management permits, Federal Emergency Management Agency (FEMA) flood zone permits, Coast Guard bridge permits, buffer authorizations, Section 106 consultations, Section 4(f) approvals, and Section 7 consultations. These items will be included in the project-specific Coordination Plans, as applicable.

The permit application process set forth in the draft Coordination Plan will be revised as follows:

- Sections 12.1 (Early Coordination) and 12.2 (Comment Opportunities) will be revised in the project-specific Coordination Plans to include other agencies from which permits will be required.
- Section 12.4 (Filing of Section 404 Permit Application) refers to the "permit application" submitted to USACE along with the Draft EIS that triggers USACE to issue a public notice for the Draft EIS and public hearing. This section will be retitled "Request for Public Notice."
- Section 12.8 (Updated Permit Application and Decision) will be revised to include Section 12.6 (Section 401 Certification by NCDENR), as well as to include other permits and approvals required for a project.
- NCTA will add a section discussing pre-application screening and coordination with permitting agencies, including time for detailed hydraulic design review, which will shorten permit decision time.

A timeline for permitting with regards to design-build construction will be developed in coordination with the agencies.

Project-Specific Coordination Plans

Draft Coordination Plans for Cape Fear Skyway, Mid-Currituck Bridge, and Monroe Connector/Bypass were distributed. Comments on these draft Coordination Plans will be discussed at the January TEAC meetings. Local government coordination sections are in the process of being drafted. NCTA requested feedback on the list of cooperating and participating agencies, and the extent to which divisions of umbrella agencies, such as DENR, should be broken out.

DENR and EPA are indicated in the Project Coordination Plans as cooperating agencies; however, neither DENR nor EPA has traditionally served as a cooperating agency. They will be included as participating agencies.

¹ The agencies request input on the selection of the preferred alternative at a TEAC meeting prior to publication of the Preferred Alternative Report.

² These procedures will be revisited and coordinated with the agencies in cases where a preferred alternative is identified in the Draft EIS.

MEETING MINUTES

Date: December 15, 2006
Time: Spotlight Project - 1:00 pm to 2:15 pm
Place: NCTA Board Room

Purpose: Project Update for Triangle Parkway

Attendees:

Clarance Coleman, FHWA
 George Hoops, FHWA
 John Hennessy, NCDENR Division of Water Quality
 Rob Ridings, NCDENR Division of Water Quality – TPU
 Missy Dickens, NCDOT-PDEA
 Travis Wilson, NCWRC
 Eric Alsmeyer, USACE Raleigh
 Steve DeWitt, NCTA
 Gail Grimes, NCTA
 Jennifer Harris, NCTA
 Bill Malley, Akin Gump
 Jerry McCraih, EcoScience
 Craig Deal, HNTB
 Adin McCann, HNTB
 Jay Bissett, Mulkey
 Johnny Banks, Mulkey
 Cindy Carr, Mulkey
 Bill Hood, Mulkey
 Michelle Fishburne, Mulkey
 Other Agency Representatives – see attendees from morning session

The following items were discussed during the meeting:

Highlights of the last agency coordination meetings held in July and October were reviewed. Based on questions and comments received from the agencies at the July coordination meeting, NCTA met with the USACE and NCDWQ in early October to discuss the McCrimmon Connector. Although the McCrimmon Connector was not officially part of the Triangle Parkway project, the NCTA studied the connection at the request of CAMPO and the Town of Morrisville. Based on traffic and revenue studies, as well as estimates of construction, operation, and maintenance costs, the NCTA has determined that it is not financially feasible to add this connection to the Triangle Parkway project. However, it was noted that the I-540 interchange with Triangle Parkway was designed to accommodate a future connection to McCrimmon Parkway, and the Triangle Parkway will be designed to accommodate a future connector to the McCrimmon Parkway. Decisions made for the Triangle Parkway will not restrict future road design options.

It was noted that Wilbur Smith Associates (WSA) is preparing an investment-grade traffic and revenue study for both the Triangle Parkway and Western Wake Parkway. The study should be completed in June 2007.

CAMPO's long-range transportation plans show the Triangle Parkway as a non-toll facility. CAMPO is amending their plan to show the project as a toll-facility. A corresponding air quality conformity update is scheduled to be completed in June 2007. The conformity update will be completed before FHWA signs the final environmental document (which is expected to be Finding of No Significant Impact).

Constraints that affect roadway design such as the CDC building/GSA property, the EPA property, the Keystone

development facilities, and the expansion of Eisai's facilities were discussed. A bridge over Burdens Creek is planned and would likely involve reconstruction of the NC 54 bridge. Improvements at the I-40 interchange with NC 147 may be required. Traffic projections are currently being updated and will be reviewed before decisions are made regarding the I-40/NC 147 interchange. The NCTA is coordinating with FHWA and NCDOT on this issue. Functional designs for these areas are expected to be available for the January 2007 Turnpike Environmental Agency Coordination Meeting. Designs for any required improvements to the interchange are expected to remain within existing ROW limits. Any lane improvements/widening on NC 147 would likely occur in the median. Preliminary reviews of NC 147 identified a stream located within the existing median.

Current functional designs show that the Kit Creek Drive connection to Davis Drive will be cut off by Triangle Parkway. The Town of Morrisville has concerns this will eliminate east-west mobility along Kit Creek Drive. The NCTA is evaluating bridge concepts to maintain the Kit Creek connection to Davis Drive. Based on the initial concepts, no additional stream or wetland impacts are anticipated as result of this grade separated crossing. NCTA will have more information regarding this topic at the January meeting. Access to Davis Drive from Triangle Parkway is provided at the proposed split diamond interchange.

A handout (figure) showing the schematic locations of the proposed toll plaza facilities was provided to attendees. The current toll collection concept for the Triangle Parkway included ramp plazas only and would not create additional stream or wetland impacts. Toll plazas would be located at I-540 ramps and the split diamond interchange ramps for Hopson Road. The NCTA is evaluating the proposed mainline toll plaza location on I-540P to determine if additional wetland impacts would occur.

A revised preliminary impacts table was provided to the attendees. The table includes revised impacts to residential and commercial properties. Jay noted the proposed cloverleaf interchange design at Davis Drive and Hopson Drive creates more impacts than the proposed split diamond interchange design. There are no changes to the stream and wetland impacts as a result of the service roads proposed between the two interchanges in the split diamond interchange concept. The split diamond configuration would reduce and minimize perennial stream impacts, have slightly more intermittent stream impacts, and create the same impacts to non-riparian wetlands as the cloverleaf design. Stream and wetland impacts have been avoided along Burdens Creek by using a bridge to completely span this area. A mainline toll plaza near Burdens Creek was also eliminated to reduce stream and wetland impacts. Stream impacts occur primarily along intermittent streams. Current functional designs reduce impacts to perennial streams. The NCTA is currently evaluating how to connect Jenkins Road to maintain EPA/NIEHS access to the air quality monitoring facility on the north end of the EPA property. The current Jenkins Road bridge over Burdens Creek is expected to be retained and used for this purpose. There will be no takes on EPA property.

Cut and fill slopes will be steepened where possible to reduce potential impacts to streams and wetlands. Consideration will be given to using retaining walls in some areas to reduce impacts.

A draft conceptual stream relocation plan was distributed to appropriate agencies representatives. The draft plan focuses on evaluating the possibility of performing on-site stream relocation and mitigation. The NCTA and NCEEP have discussed the availability of off-site mitigation through the in-lieu fee mitigation program. The NCEEP has sufficient credits available for the Triangle Parkway project in the watershed area. EEP also stated it can provide mitigation credits for the Western Wake parkway.

The NCTA would like to have agency agreement on mitigation strategy prior to the FONSI and permit application. The EA document is scheduled for March 2007, and the FONSI for July 2007. Construction is anticipated in late 2007.

NCWRC noted the highly erodible Triassic Basin soils disadvantage for on-site mitigation would also apply to any parallel stream impacts that would require stream relocation. The erodibility problem would apply to stabilization of relocated streams. The NCTA will keep this in mind as avoidance and minimization measures are implemented during roadway design.

Approximately 2,900 LF of perennial stream and 3,900 LF of perennial stream would potentially be impacted by the Triangle Parkway, but the impacts at NC 147 remained to be determined. The numbers on the impact table do not represent subset impacts for individual streams.

The NCTA would like to proceed with off-site mitigation through the EEP in-lieu fee mitigation program. The NCTA pursued off-site mitigation because of agency concerns presented in previous meetings. The NCDWQ concurred that it is widely known and accepted that Triassic Basin soils are highly erodible. However, Triassic Basin soils should not be used as the only reason to eliminate consideration of on-site mitigation opportunities. This may create the idea that stream mitigation should not be done in Triassic soils and that is not the case.

The NCTA noted that the unstable soils issue is one of many potential concerns. There are concerns about stepping down the stream system to tie-in to existing grade. Other concerns include the fact these are small stream systems, there is an existing sewer line easement, and the wooded buffer that would need to be removed for purposes of construction.

Smaller areas of on-site mitigation would be used where feasible to stabilize impacts at culverts and pipes. These areas could be used to increase mitigation provided on-site by as much as 500 or 1000 LF at each location.

USACE asked if the split diamond design was going to require stream relocation and create relocation impacts and if additional ROW could be purchased or condemned by the NCTA to provide mitigation for these impacts. This question could not be answered during the meeting. Mitigation issues will be discussed at the January meeting, along with updated traffic studies, air quality information, and that an alternative recommendation would be presented for agency consideration.

The NCTA is working with FHWA to determine the need for operational improvements at the NC 1471-40 interchange. The functional designs and associated impacts will be discussed at the next agency coordination meeting in January.

Toll traffic is expected in January. Preliminary designs will be prepared based on the toll traffic data.

The NCTA will provide an information package with the EA for public notice. The NCTA will coordinate the draft permit application with the USACE prior to the distribution of the EA and the advertisement of the Public Hearing.

MEETING MINUTES

Date: December 15, 2006
Time: Spotlight Project – 2:15 pm to 3:00 pm
Place: NCTA Board Room
Purpose: Project Update for Western Wake Parkway
Attendees:

Participants:
Clarence Coleman, FHWA
George Hoops, FHWA
John Hennessy, NCDWQ
Rob Ridings, NCDWQ
Gary Lovering, NCDOT-Roadway Design Unit
David Chang, NCDOT-Hydraulics Unit
Leilani Paugh, NCDOT-Natural Environment Unit
Missy Dickens, NCDOT-PDEA
Eric Alsmeyer, USACE
Steve DeWitt, NCTA
Jim Eden, NCTA
Gail Grimes, NCTA
Jennifer Harris, NCTA
Kristina Miller, ARCADIS
Martha Register, ARCADIS
Jerry McCrain, EcoScience Corp
Donna Keener, HNTB/NCTA GEC
Tracy Roberts, HNTB/NCTA GEC

Copies:
All Participants
Ann Steedly, ARCADIS
Steve Smallwood, ARCADIS
Len Hill, ARCADIS
Tyson Graves, ARCADIS
Barney O'Quinn, ARCADIS

The following items were discussed during the meeting:

A PowerPoint presentation provided the background, current project status, general information and projected schedule. A copy of the presentation was provided to the participants. More detailed information was included in a project handout also provided to the meeting participants.

A correction was noted on the Preliminary Tolling Locations diagram provided to the participants -The Future Morrisville Parkway, shown on the diagram north of Carpenter-Fire Station Road, should be located to the south of Carpenter-Fire Station Road and the road north of Carpenter-Fire Station Road is actually Amberly Parkway.

NCDWQ requested additional information on planned payment methods, especially regarding through traffic. NCTA described the various types of payment methods currently under consideration (e.g. cash, credit, video license recognition, call ahead, etc., pending available/current technology).

USACE requested additional information on how collecting of tolls would affect traffic flow, acceleration weave/merge conditions, especially in regard to the need for additional or lengthened ramps/lanes. The NCTA noted that traffic flow and potential environmental impacts are being considered in the location of toll plazas.

NCDWQ questioned if the free alternative route required by NCTA enabling legislation requires that the free alternative be the same type of facility as the toll route. NCTA responded that the free alternative facility can be any

parallel route, even if it is not the same type of facility as the proposed toll road. NCDWQ requested clarification whether an ICI (Indirect and Cumulative Impacts) analysis would be prepared for the project prior to permitting. An ICI is underway for the project.

P-Load model is a nutrient overland-flow model (sediment, nitrogen and phosphorus) and not the more commonly seen in-stream flow model. The PLOAD model looks at larger scale modeling which is more suited to this project. NCDWQ also noted that the project schedule which provides three months to process the wetland permit was very optimistic. The public notice, published by the USACE, is followed by a 30-day public comment period. After the comment period is closed and the USACE has responded to the comments, NCDWQ has a 60-day clock to process the permit. NCDWQ requested the NCTA look at their schedule in light of these regulatory response windows and consider allowing more time for permitting.

NCDOT noted a 4C meeting for Section C of the project is planned for April 2007. Additionally, final plans for Section C and preliminary plans for Sections A and B are in preparation.

The Western Wake Parkway project is located entirely within the Cape Fear River basin.

NCDOT noted that the jurisdictional wetland re-verification for the project has identified some wetlands that have increased in size due to beaver activity. NCDOT is proceeding from the hydraulics standpoint with decisions made during the project 4B meeting regarding the use of culverts and bridges. In particular, one wetland has expanded from 250 feet to 400 feet in width and would now likely require a 4-barrel culvert and not a 3-barrel culvert. However, if culverts are not feasible hydraulically, NCDOT will likely bridge the system, but only as wide as necessary to provide for appropriate hydraulic opening. No objections were voiced to this approach.

MEETING MINUTES

Date: December 15, 2006
Time: Spotlight Project – 3:00 pm to 4:15 pm
Place: NCTA Board Room
Purpose: Project Update for the Gaston E-W Connector

Attendees:

- Clarence Coleman
- George Hoops
- Sarah McBride
- John Hennessy
- Dewayne Sykes
- Missy Dickens
- Tony Houser
- David Chang
- Travis Wilson
- Marla Chambers
- Eric Alsmeyer
- Chris Millsicher
- Marella Buncick
- Steve DeWitt
- Gail Grimes
- Jennifer Harris
- Bill Malley
- Jerry McCrain
- Jeff Dayton
- Craig Deal
- Adin McCann
- Tracy Roberts
- Whit Webb
- Jill Gurak
- Clint Morgan
- FHWA
- FHWA
- NCDOT-SHPO
- NCDWQ
- NCDOT-Roadway Design
- NCDOT-PDEA
- NCDOT- Roadway Design
- NCDOT-Hydraulics
- NCWRC
- NCWRC
- USACE-Raleigh
- USEPA
- USFWS (via phone)
- NCTA
- NCTA
- NCTA
- Akin Gump
- EcoScience Corp.
- HNTB
- HNTB
- HNTB
- HNTB
- HNTB
- HNTB
- PBS&J
- PBS&J

The following items were discussed during the meeting:

A PowerPoint presentation provided a review of the project history, studies recently completed, studies in progress, and next steps undertaken as part of the Draft Environmental Impact Statement (DEIS) process. More detailed information was included in a project handout also provided to the meeting participants.

Toll scenarios for the Detailed Study Alternatives will be modeled in 2007.

Additional information was requested about the elimination of the "improve" existing alternative from further study. Concurrence Point 2 was achieved by signature of the Review Board in accordance with the Merger 01 elevation procedures. The Review Board consisted of senior managers of NCDOT, FHWA, NCDENR, and USACE. The USFWS, USEPA, and NCWRC elected to abstain from Concurrence Point 2 following the Review Board decision. They provided reasons for their abstention in letters/emails.

Information requested by the Review Board regarding the Improve Existing Roadways Alternatives was provided to the Review Board. This was a new process at the time, and distribution protocols were not established. It was assumed that Review Board members would distribute information as needed to the staff in their agencies. The NCTA will provide the materials given to the Review Board to the agencies.

An Alternatives Development and Analysis Report that documents the entire alternatives development process currently is being reviewed and will be distributed to interested agencies representatives upon finalization.

FHWA stated that another reason the Improve Existing Roadways Alternative could be eliminated is that funding is not available to construct the project as a non-toll facility. This can be applied to the purpose and need statement or as a screening factor when considering alternatives. This was guidance provided by FHWA in relation to a project in Colorado.

The historic architecture field work will be completed in early January. The survey report likely submitted to the SHPO in March.

The mussel survey report and protected species report will be submitted to USFWS in early 2009 for concurrence on the findings. The FHWA requests that all correspondence with USFWS be routed through FHWA.

The agencies requested a field review to inspect natural resources. Functional assessments of jurisdictional resources will be included in the NRTR. NCTA will apply the buffer rules on the main stem of the Catawba River and that they apply only to the main stem.

The geotechnical studies will consider the feasibility of either fill or structure across the fly ash basin at the Allen Steam Station. The stability of the fly ash basin material will affect how much fill would be needed or how deep piers would need to be constructed to support a bridge. The bridge over the Catawba River heading westward also needs to clear an active rail line spur (used by the Steam Station) near the west bank of the river between the river and the fly ash basin. Clearance requirements over this railroad track may influence the choice of fill or structure.

A preliminary hydraulics report will be prepared during the preliminary design process on the Detailed Study Alternatives to determine bridging and culvert sizes for major stream crossings needed from a hydraulic standpoint. The NCTA anticipates that a meeting will be held with environmental agencies to review the hydraulic report results as well as the results of the jurisdictional resources surveys.

The DEIS would include a qualitative CI analysis. A quantitative analysis, if necessary, would be performed for the Preferred Alternative and reported in the FEIS. The Detailed Study Alternatives are relatively close together with similar interchanges, so indirect and cumulative impacts are expected to be similar amongst the Detailed Study Alternatives. The USFWS expressed concern about potential indirect and/or cumulative impacts to bald eagle and to the one small Schweinitz's sunflower population. Indirect and cumulative impacts to protected species will be a part of the CI.

A question was asked about tolling influence/affect impacts on the local area, and how will toll collection sites be determined and where will they be located. General locations for potential toll collection sites were identified in the Traffic and Revenue Study. These will be considered during the refinements of the Detailed Study Alternatives' designs. Toll collection facilities will be included in the footprints of the Detailed Study Alternatives under toll scenarios.

There are two options for Section 404/401 permitting: one permit with phasing or multiple permits. The NCTA has made no decision regarding this issue on the project. NCDWQ suggested the I-540 project be considered as an example. This project used a phased permit, which was amended as funding became available to construct each section. Time between construction of sections/phases will influence the type of permit used. For example, if there will be 15 years between the construction of sections/phases, then multiple permits may be appropriate.

There is limited corridor protection available at this time. After a Preferred Alternative is identified, a Corridor Protection Map can be filed with Gaston County. However, protection is provided for a three-year period beginning when a subdivision or site plan is filed with the local government. If NCTA does not acquire the right-of-way within three years, the subdivision petition can proceed. NCTA has limited funds for buying right of way not needed for near term construction.

A question was raised regarding staged construction. There are two major north/south routes in southern Gaston County, US 321 and NC 279. The first phase of the project is proposed to be from NC 279 to I-485. The second

phase would extend westward to terminate at US 321, with the third phase ending the project at I-85. The traffic and revenue study would consider these phases in determining financial feasibility.

The NCWRC asked if the Gaston project will continue to follow the Merger 01 process and will a Coordination Plan be created for the Gaston project. A decision regarding the environmental review process to implement for the Gaston East-West Connector has not yet been made.

The January agency meeting will probably include a snapshot review for Gaston. More discussion will follow in February and March when the field surveys for wetlands, streams, bald eagle, historic architecture, and archaeology are complete.

ACTION ITEMS:

- NCTA will provide copies of the materials provided to the Review Board during the Concurrence Point 2 elevation process to the agencies.
- NCTA also will provide copies of the Alternatives Development and Analysis Report to the agencies, after internal NCTA reviews have been completed.
- The FHWA will submit the mussel survey report and protected plant species report to USFWS in early 2007. All correspondence with USFWS be routed through FHWA.
- Functional assessments for jurisdictional resources will be included with the NRTR.



Turnpike Environmental Agency Coordination (TEAC) Meeting - East

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- **Participating/Cooperating Agency Letters** – The NCTA anticipates mailing participating/cooperating agencies letters in February. Letters will be sent individual divisions of NCDENR.

Cape Fear Skyway Snapshot

- A brief update of the proposed Cape Fear River was provided.

Mid-Currituck Bridge Snapshot

- A brief update of the proposed Mid-Currituck Bridge was provided.

Q&A:

When will the purpose and need statement be finalized?

The NCTA plans to finalize the purpose and need statement in spring 2007. The purpose and need may include time savings and hurricane evacuation. Tolls may be included as part of the P&N statement. This project is listed in the NCDOT TIP as a toll project.

What happens if the existing upgrade alternative is selected?

If the upgrade existing roads alternative is selected, the NCTA would return the project to NCDOT. If the bridge alternative is selected with some minor upgrades to existing facilities, it will continue on as a toll project. Economic feasibility could be an issue if the required upgrades to existing facilities are extensive.

When is the traffic and revenue study expected to be completed?

The traffic and revenue study is scheduled for March 2007.

What is the current design year traffic?

The current design year traffic is 2025, with an eventual update to 2035.

Will the effect of sea level rise be accounted for in the design and the description of land use and socio-economic impacts?

East Carolina University is assisting in developing the indirect and cumulative impact section of the DEIS. As a part of that work, they will be charged with simulating reasonably foreseeable future conditions and determining sensitivities that would influence travel behavior, traffic trip generation, and the economic impact of this behavior.

How will the hurricane evacuation study be treated in the new DEIS?

The hurricane evacuation study will focus on clearance times required to evacuate the barrier island population during a major storm event under build and no build conditions. The State goal is 18 hours (from the time an evacuation is ordered until people reach a point of safety). Emergency Management Services goal is generally 24 hours.

Will tolls be suspended during emergency hurricane evacuation conditions?

More than likely the tolls will be taken out during evacuation situations.

Action Items for TEAC Members:

- The NCTA plans to finalize the Section 6002 Coordination Plan Template after the February TEAC meeting. Agencies to provide comments no later than the February TEAC meeting.

Resolutions:

- None

MEETING MINUTES

Date: January 17, 2007

9:00 am to 12:00 pm

NC Turnpike Authority Board Room

Projects: Cape Fear Skyway – TIP No. U-4738; FA No. STP-0017(53)
Mid-Currituck Bridge – TIP No. R-2576; FA No. BRNH-000S(419)
Triangle Parkway - TIP No. U-4763; FA No. NHS-54(7)
Western Wake Freeway – TIP NO. R-2635; FA No. NONE

Attendees:

Donnie Brew, FHWA
George Hoops, FHWA
Cathy Brittingham, NCDENR-DCM
Stephen Lane, NCDENR-DCM
Steve Solland, NCDENR-DCM
Rob Ridings, NCDENR-DWQ
David Wainwright, NCDENR-DWQ
Wally Bowman, NCDOT-Division 5
Tony Houser, NCDOT-Roadway Design
Dewayne Sykes, NCDOT-Roadway Design
Lonnie Brooks, NCDOT-Structure Design
Travis Wilson, NCDENR-WRC
Bill Biddlecome, USACE (via conference call)
Eric Alsmeyer, USACE
Kathy Matthews, USEPA
Gary Jordan, USFWS
Gail Grimes, NCTA
Jennifer Harris, NCTA
Jerry McCrain, EcoScience
Elizabeth Scherrer, EcoScience
Jeff Dayton, HNTB
Craig Deal, HNTB
Adin McCann, HNTB
Anne Redmond, HNTB
Tracy Roberts, HNTB
Christy Shumate, HNTB
Chris Lloyd, PB
John Page, PB
David Griffin, URS

Presentation Materials: (Posted on TEAC website)

- December 15, 2006 Draft TEAC meeting minutes
- Revised Draft Section 6002 Coordination Plan Template
- Draft Section 6002 Coordination Plan for Cape Fear Skyway
- Draft Section 6002 Coordination Plan for Mid-Currituck Bridge
- Cape Fear Skyway Status Report
- Mid-Currituck Bridge Status Report

General Topics:

- **Minutes** – December 2006 TEAC meeting minutes scheduled for approval at February 14, 2007 meeting.
- **Draft Section 6002 Coordination Plan Template** – The revised draft template includes the suggested changes from the December 2006 TEAC meeting. Detailed discussion will occur at the February TEAC meeting. The template is scheduled for adoption at the March TEAC meetings.
- **Draft Section 6002 Coordination Plans for NCTA Candidate Projects** – The revised draft plans for Cape Fear Skyway and Mid-Currituck Bridge include the revisions suggested at December 2006 TEAC meeting.

Turnpike Environmental Agency Coordination Meeting - East (1/17/07)

Turnpike Environmental Agency Coordination Meeting - East (1/17/07)

Triangle Parkway Spotlight:

Will the NCTA use natural channel design for those sections of stream that will be relocated, in particular the unnamed tributary to Burdens Creek?
Yes, the NCTA will use natural channel design for the sections of stream that will be relocated.

Additional Attendees:

Jay Bissett, Mulkey
Johnny Banks, Mulkey
Cindy Carr, Mulkey
Wendee Smith, Mulkey
Michelle Fishburne, Mulkey

Presentation Materials: (Posted on TEAC website)

- Year 2011 (opening year) and 2030 (design year) toll traffic forecasts to be used to determine environmental impacts and analyze traffic.
- Western Wake Parkway and Triangle Parkway project map showing location of proposed toll facilities.
- Conceptual Stream Relocation Plan
- List of advantages and disadvantages of stream relocation in the Triangle Parkway study area.
- Slides/Photographs of Burdens Creek and the unnamed tributary, and the stream in the median of NC 147.

General Discussion:

- *Toll traffic forecasts*
 - Approximately 30 percent fewer vehicles would use the toll facility than would use a non-toll facility.
- *Functional/Preliminary Design Plans*
 - The NCTA is evaluating the NC 147/I-40 interchange area and a portion of NC 147 from I-40 to Cornwallis Road to determine capacity improvements needed to accommodate Triangle Parkway traffic.
 - The NCTA evaluated two interchange configurations at Hopson Road/Davis Drive
 - The NCTA does not have a preferred alternative at this time.
- *Natural Resources*
 - The NCTA presented functional designs for Triangle Parkway in the area of Burdens Creek and the unnamed tributary to Burdens Creek.
 - Wetlands and streams along the project corridor have been delineated and approved by the Corp of Engineers (COE) and Division of Water Quality (DWQ).
 - On the southern end of the project, the stream will be relocated on one side of the proposed toll road to create one continuous stream rather than stream fragments on both sides of the roadway.
 - Avoidance and minimization of wetland impacts in the vicinity of the stream will be reviewed in more detail during preliminary design.
 - A stream located in the median of NC 147 was delineated as part of the Triangle Parkway natural systems survey and determined jurisdictional by the COE and DWQ.
 - The NCTA proposes to use the Ecosystem Enhancement Program's "in-lieu" fee program for mitigation of unavoidable wetland and stream impacts.
- *Environmental Document*
 - The NCTA anticipates approval of the Environmental Assessment (EA) in March 2007.

Q & A:

Does the impact table reflect the amount of stream impact (22,867 linear feet) for the entire project corridor?
The first row of numbers in the table are the wetland and stream impacts, both intermittent and perennial, for the entire 1,000 foot wide corridor between I-40 and I-540 (Corridor A). The second and third rows are the impacts associated with the functional designs for the two design options under consideration - a cloverleaf interchange design and a split diamond interchange design. The functional design is avoiding the majority of 22,867 linear feet of stream.

Do the impact calculations consider clearing work beyond the toe of slope?
No, the impact calculations do not consider clearing work beyond the toe of slope.

Will the NCTA use natural channel design for those sections of stream that will be relocated, in particular the unnamed tributary to Burdens Creek?
Yes, the NCTA will use natural channel design for the sections of stream that will be relocated.

Action Items for TEAC Members:

- Comments or concerns regarding wetland or stream impacts.
- Comments regarding a preferred alternative.
- DWQ to submit a list of their issues and concerns regarding use of the EEP "in-lieu" fee program for the Triangle Parkway.
- Recalculate the wetland and stream impacts table to quantify clearing limits that extend 10 feet beyond the toe of slope.
- Conduct additional studies to determine if stream relocation can be avoided; and if not, how much stream relocation is required.
- Prepare functional design for the proposed capacity improvements through the I-40/NC 174 interchange area and along NC 147.
- Conduct capacity analysis for the I-40/NC 147 interchange area based on the build toll forecast.
- Request the COE to place Triangle Parkway on public notice
- Transmit NRTR to appropriate agencies and post on TEAC website.

Resolutions:

- The COE, DCM, WRC, EPA and USFWS agreed that mitigation through EEP "in-lieu" fee program is appropriate for the Triangle Parkway. DWQ deferred comment at this time.
- The COE, DCM, WRC, EPA, USFWS, and DWQ agreed that the split diamond interchange configuration is the preferred alternative.

Western Wake Parkway Spotlight:**Additional Attendees:**

Felix Nwoko, DCHC MPO/Durham
 Len Hill, ARCADIS
 Kristina Miller, ARCADIS
 Martha Register, ARCADIS
 Wally Bowman, NCDOT-Division 5
 Marshall Clawson, NCDOT-Hydraulics
 Rachelle Beauregard, NCDOT-NEU
 Greg Price, NCDOT-NEU
 Brenda Moore, NCDOT-Roadway Design
 Tony Houser, NCDOT-Roadway Design
 Dewayne Sykes, NCDOT-Roadway Design
 Lonnie Brooks, NCDOT-Structure Design
 Clarence Coleman, FHWA
 David Chang, NCDOT-Hydraulics Unit
 Leilani Paugh, NCDOT-NEU
 Missy Dickens, NCDOT-PDEA
 Gary Lovring, NCDOT-Roadway Design

Presentation Materials: (Posted on TEAC website)

- 2030 Build Toll Alternative Traffic Forecast
- Wetland and stream impacts table for the toll and non-toll alternatives
- Toll Alternative key map showing location of toll plazas

General Discussion:

- Public involvement
 - A local officials' meeting will be held at 10 a.m. on February 8, 2007 at the Apex Town Hall, 2nd floor, Council Chambers, 73 Hunter Street, Apex, NC 27502.
 - A Citizens Informational Workshop will be held at the Apex High School Cafeteria, 1501 Laura Duncan Road, Apex, NC 27502, beginning at 5 p.m. and ending at 8:00 p.m.
 - A small group meeting will be held with the Felonsville Community at 6 p.m. on February 15, 2007 at 5836 Old Smithfield Road in Apex, located between NC 55 and NC 55 Bypass, just north of Holly Springs.
- Toll Traffic Forecast
 - Toll traffic forecasts for the Triangle Parkway and Western Wake Parkway differ because the two forecasts were based on different forecasting methodology. The Western Wake Parkway forecast was developed by applying a diversion factor of 30% to 2025 traffic forecasts presented in the FEIS.
- Functional/Preliminary Design
 - Toll plazas are designed to avoid and minimize impacts to natural resources.
 - Concurrence Point 4B is complete for Section C. Concurrence Point 4C is planned for April 2007
 - There are two new bridge sites proposed on Section C: Concurrence Point C (one at Jack's Branch and one at Panther Branch, both related to beaver impoundments). These new bridges will lower the wetland impact totals by approximately 5 acres. One bridge will be approximately 200 feet in length; the other will be approximately 260 feet in length. The bridges will not span the entire wetland area
- Natural Systems
 - The NCTANCDOT proposes a "No Effects" call for protected species.
 - Wetland and stream resurveys were reviewed by the USACE in the field on November 30, 2006. Corps provided verbal concurrence.
 - The estimated impacts to ponds, streams, and wetlands for the toll and non-toll alternatives are similar.
 - The NCTA is coordinating with EEP about providing off-site mitigation.

Q & A:***Do the plans include parking provisions at the toll plazas?***

Parking plans are at a conceptual stage. However, the design will address this need and will avoid and minimize impacts on natural resources to fullest extent practicable.

Are there any on-site mitigation opportunities for this project?

Since most streams are in wooded settings and follow the alignment in a perpendicular fashion; and due to the amount of development encroachment; no on-site opportunities are available.

Are there any on-site mitigation opportunities?

Most streams were in wooded settings and follow the alignment in a perpendicular fashion--and due to the amount of development encroachment--that no on-site opportunities were available.

Action Items for TEAC Members:

- Provide any comments on the wetland and stream impacts by the February TEAC meeting
- Coordinate with the USACE to identify public notice requirements for Western Wake Parkway.
- Provide a copy of the protected species survey report, especially as it relates to Michaux's Sumac, to the USFWS would like to receive a copy of the survey report.
- Incorporate the latest delineation base mapping onto the functional/preliminary design.
- Explain the reason for the large difference between the wetland and stream impacts presented in the FEIS and the findings from the resurvey.

Resolutions:

- The USFWS verbally supported a "no effect" call for Bald Eagle.
- The agencies agreed that the differences between the wetland and stream impacts for the toll and the non-toll alternatives are not significant.



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

NOTE: Minutes for the 4C Permit Drawing Review Meeting for the Western Wake Parkway will be posted separately to the TEAC website

Date: April 18, 2007
1:15 pm to 3:00 pm
NC Turnpike Authority Conference Room #G-13-A

Project: TIP R-2576 Mid-Currituck Bridge Study – BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

Donnie Brew, FHWA
George Hoops, FHWA
Bill Bidlecome, USACE
Kathy Matthews, USEPA
Gary Jordan, USFWS
Sarah McBride, NCDOT-SHPO
John Hennessy, NCDENR-DWQ
Travis Wilson, NCDENR-WRC
Cathy Brittingham, NCDENR-DCM
Steve Solland, NCDENR-DCM
Jennifer Harris, NCTA

Denise Cauley, NCTA
John Contorti, NCDOT-PDEA
Lonnie Brooks, NCDOT-Structure Design
Craig Deal, HNTB
Anne Redmond, HNTB
Christy Shumate, HNTB
Tracy Roberts, HNTB
Bill Malley, Akin Gump
John Page, PB
Chris Lloyd, PB

Presentation Materials: (Posted on TEAC website)

- Meeting Agenda
- Hurricane Evacuation Need, Handout 1
- Conceptual Alternatives, Handout 2
- Alternatives Screening Criteria, Handout 3

General Discussion:

- **Purpose** - The purpose of the meeting was threefold; first, to provide updates on the results of the hurricane evacuation as an element in the Mid-Currituck Bridge Statement of Purpose and Need, second, to present the conceptual alternatives and third, to provide the first and second tier of alternative screening criteria.
- **Presentation** – An overview of the recently completed PBS&J Hurricane Evacuation Study was provided. This study was discussed at the March 22 NCDOT Interagency Meeting. The results of the study indicate clearance times for evacuation of the Outer Banks along US 158/NC 168 and US 64 exceeded the 18-hour standard for a Category 3 storm with a 75% tourist occupancy rate for both year 2004 and year 2030 on the US 158/NC 168 route and year 2030 for the US 64 route. Conceptual alternatives initiating from the 1998 NCDOT DEIS, including No Build, Non – Highway, Bridge Build, NC 12 Build and US 158 Build

alternatives, were discussed. Logical combinations of the Build Bridge and Build NC 12/Build US 158 were presented. First Screening criteria to determine the ability of the alternatives to meet the Purpose and Need were provided. Finally, Second Screening criteria to evaluate alternative impacts upon natural, cultural and community resources were presented.

- **Hurricane Evacuation**
 - PBS&J completed a North Carolina coastal hurricane evacuation model and report for NCDOT. The model was used to develop evacuation clearance times for years 2004 and 2030. Clearance time begins with the issuance of the evacuation order and ends when all evacuees reach a point of safety prior to the arrival of gale-force winds. Clearance times were determined for three levels of storm intensity and four levels of tourist occupancy. The state standard as adopted by the North Carolina legislature is 18 hours for a Category 3 storm with a 75% tourist occupancy rate. As noted above, US 158/NC 168 falls to meet this standard in years 2004 and 2030, and US 64 falls in 2030. For US 64 the clearance time is 17.5 hours in 2004 and 26.4 hours in 2030.
 - Based on the results of this study, the Statement of Purpose and Need that will be presented at the May TEAC meeting will include a need for this project to facilitate coastal evacuation of the Northern Outer Banks.
 - PBS&J will assess the conceptual alternatives for clearance times under 35%, 50%, 75% and 95% tourist occupancy rates for Category 1/2, 3 and 4/5 storms.
- **Conceptual Alternatives**
 - Conceptual alternatives for the project include those previously analyzed in the 1998 DEIS (No-Build, Non-Highway Alternatives, Bridge Build Alternatives). In addition, widening alternatives will be considered for NC 12 and US 158 on the Outer Banks. These alternatives, as well as representative combinations of alternatives that could be considered, are shown in Handout 2 – Conceptual Alternatives.
- **Alternatives Screening Process**
 - A two-level screening process is being proposed. The First Screening will consider whether alternatives are able to meet the project purpose and need. PB is compiling prior traffic technical reports and assessing hurricane evacuation clearance time, level of service, capacity, speed, travel time, delay and congested conditions for existing and 2025 conditions for No Build and Build conditions to assist with this determination. This screening will be used to evaluate broad alternative concepts, not distinguish between options within concepts.
 - The Second Screening will be a quantitative screening of impacts upon natural, cultural and community resources.
- **Next Steps Towards DEIS**
 - Complete discussions on Statement of Purpose and Need.
 - Continue discussions on screening process and conceptual alternatives.
 - Begin discussions on preliminary alternatives.

Q&A:

- **NCDENR-DCM** questioned the integration of the USACE's Hurricane Evacuation efforts with the current study. PBS&J provided the technical analysis for both studies with the same technical staff coordinating the two models and reports. The USACE model is used to model current conditions, while the model developed for NCDOT is capable of modeling future conditions.
- **NCDENR-DWQ** and others asked for the geographic extent of the hurricane evacuation population. Related questions included the identity or evacuation origin and destinations, how much of mainland Currituck County was included, what if none of the alternatives can achieve a clearance of 18 hours, will the evacuation consider northbound movement across the NC/VA boundary into Chesapeake, VA. It was agreed that the PBS&J principal who managed the evacuation study would appear next month and address questions such as these.
- **USEPA** questioned the evaluation of Alternatives without closure on the Statement of Purpose & Need.

A complete Statement of Purpose and Need will be distributed before the May 23 TEAC meeting. The Purpose and Need elements of mobility and congestion were agreed upon during previous NCDOT studies. One revised need is hurricane evacuation. The latest data indicates the existing and 2030 transportation system fails to meet the state mandated standard. Widening alternatives will be evaluated.

NCDENR-DCM asked if an Environmental Features Map will be provided?
Yes, at the next meeting.

NCDENR-DCM requested that wetland impacts be broken down between coastal wetlands and other jurisdictional wetland systems and asked if SAVs will be considered.
Yes, those recommendations will be implemented into the screening process.

Concerns from NCDENR-DWQ, NCDENR-WRC, NCDENR-DCM and others were expressed regarding the tiered screening process and potential premature elimination of alternatives that only partially meet the Statement of Purpose and Need.

NCTA plans to present the qualitative and quantitative screening results at the next meeting. It is anticipated that only non-highway alternatives will be eliminated during the First Screening, and Second Screening impacts will be presented for all other alternatives.

What is planned for the next TEAC meeting?

Next month's TEAC meeting (May 23) is expected to be a spotlight for Currituck with a presentation of the results of purpose and need and the alternatives screening material. NCDENR-DCM, NCDENR-WRC, and USFWS indicated that they are not available to meet on May 23 and suggested the meeting be rescheduled.

Previous Action Items:

- None

New Action Items:

- NCTA to provide information packages for the project sufficiently early to allow TEAC members the opportunity to fully review the information before the May TEAC meeting.

Resolutions:

- The TEAC endorsed the inclusion of hurricane evacuation in the Statement of Purpose and Need.

Date: April 18, 2007
3:00 pm to 4:20 pm
NC Turnpike Authority Conference Room #G-13-A

Project: TIP R-3329 Monroe Connector – NHF-74(21)
TIP R-2559 Monroe Bypass – NHF-74(6)

Monroe Connector / Bypass Spotlight:

Additional Attendees:
Rob Ayers, FHWA
Steve Lund, USACE (via phone)
Marella Buncick, USFWS
Polly Lespinasse, NCDENR-DWQ (via phone)
Maria Chambers, NCDENR-WRC
Jill Gurak, PBS&J
Lauren Wolfe, PBS&J
Carl Gibliaro, PBS&J (via phone)

Presentation Materials: (Posted on TEAC website)

- Meeting Agenda
- Purpose and Need Handout (including Draft Responses to Agency Comments on Preliminary Purpose and Need Statement, Draft Preliminary Purpose and Need Statement, NCDENR-DWQ comments on Preliminary Purpose and Need Statement)
- Draft Screening Criteria

General Discussion:

- **Minutes** – No comments have been received on the March 22, 2007 minutes. Any comments on these minutes should be submitted as soon as possible, otherwise the minutes will be finalized and reposted to the TEAC website.
- **Purpose** - The purpose of the meeting was to complete discussions on purpose and need; have further discussions on the alternatives screening process; and introduce proposed conceptual alternatives.
- **Presentation** – No formal presentation was made. The meeting consisted of an open discussion of agency comments on the Preliminary Purpose and Need Statement and NCTA's responses and a continued discussion on alternative screening criteria.
- **Preliminary Purpose and Need Statement** – Comments on the Preliminary Purpose and Need Statement were received from NCDENR-DWQ in a letter dated April 5, 2007, and responses were prepared by NCTA. These comments and responses were included in the project meeting materials packet provided to the attendees. After some discussion, it was decided to discontinue the discussion until all agencies have a chance to review the information outside of the TEAC meeting. Points to consider when reviewing the responses include:
 - o Improving existing roadways will be considered as high speed roadways
 - o Improving existing roadways and combinations of improving existing / new location alternatives will be considered

There was a general discussion about including consistency with the Mecklenburg-Union Metropolitan Planning Organization's Long Range Transportation Plan (LRTP) in the Preliminary Purpose and Need Statement. There was concern that because the LRTP shows a specific alignment for the proposed facility, the terminology "consistent with" the LRTP would limit the project to that alignment. NCTA indicated that the consistency with the LRTP would be considered for facility type and purpose, particularly with regards to air quality conformity.

- **Alternative Screening Criteria** – Input from the agencies was requested as the alternatives screening criteria are developed and implemented. Screening will be a three phase process. The first phase will look at required alternative concepts and their ability to meet the Purpose and Need. Alternative concepts moving forward from this phase will proceed to the second phase and be preliminary study alternatives. Known constraints for these will be assessed before proceeding to the third phase or quantitative analysis.

The quantitative analysis will consist of evaluation criteria similar to what has been presented in the past as part of the merger process.

An overall concern regarding the first phase of the qualitative criteria was that there did not appear to be sufficient definition to determine if a concept "is consistent with state or local plans". Narratives describing how concepts meet or do not meet components of the Preliminary Purpose and Need Statement will be prepared by NCTA to provide additional information.

Q&A:

When will the Purpose and Need Statement Report be available?

The Purpose and Need Statement Report will be completed over the next several months as the traffic forecasts are ready. Given the extensive history on this project, NCTA feels comfortable moving forward with the Preliminary Purpose and Need Statement while detailed studies and data are gathered to further substantiate the statement.

Are you planning on holding public workshops before the Purpose and Need Statement Report is complete?
NCTA anticipates hosting public workshops in June in the project area. These workshops will be for public scoping. The study area, Preliminary Purpose and Need Statement, and conceptual alternatives will be presented.

What does NCTA expect from the agencies before the public workshops with respect to Preliminary Purpose and Need?
As noted by USFWS, this project has a long history and NCTA needs to demonstrate progress on the study. NCTA agrees with the USFWS.

How do you provide qualitative analyses on a broad alternative concept? Are there screening criteria that can be used to measure how well concepts meet purpose and need?
NCTA will prepare narrative discussions on the ability for each concept to meet each element of purpose and need. Alternative concepts that do not meet any of these elements will not be carried forward for further consideration; however, those that meet some of the elements will be evaluated in the second level screening. Purpose and need will only be used to screen alternative concepts (i.e. TDM, TSM, Mass Transit, etc.); it will not be used to screen alternate alignments or options within a concept.

Can the number of toll collection sites be incorporated into the screening?

Toll collection sites will not be unique to any one build alternative. They will likely be similar across all alternatives. Potential impacts from the toll collection site footprint will be included in quantitative analyses, and NCTA will consider adding a row for "Number of Toll Collection Sites" to the table of quantitative GIS analysis.

Previous Action Items:

- NCTA will add verbal comments received on the project study area and Preliminary Draft Purpose and Need Statement in the comment/response tables.
These comments were added and are reflected in the revised versions of these tables posted on the TEAC website for April 18.
- NCTA will distribute revised comment/response tables by April 4th.
- Revised tables were posted to the TEAC website on April 4th.
- Agencies provide comments on Draft Screening Process for Alternatives by April 13th.
- No comments on the Draft Screening Process were received prior to this meeting.

New Action Items:

- Agencies will review all new and revised responses to comments received on the Draft Preliminary Purpose and Need Statement by May 2, 2007 and provide comments to NCTA.
- Agencies will provide comments on Draft Screening Criteria by May 2, 2007.
- NCTA will present first and second level screening results at the May 17th TEAC meeting.

Resolutions:

- None.

Date: April 18, 2007
4:20 pm to 5:00 pm
NC Turnpike Authority Conference Room #G-13-A

Section 6002 Draft Coordination Plan Template:

Attendees:

Donnie Brew, FHWA
George Hoops, FHWA
Bill Biddlecome, USACE
Kathy Matthews, USEPA
Marella Bunick, USFWS
John Hennessy, NCDENR-DWQ
Cathy Brittingham, NCDENR-DCM
Steve Soldad, NCDENR-DCM
Maria Chambers, NCDENR-WRC

Travis Wilson, NCDENR-WRC
Bill Malley, Akin Gump
Jennifer Harris, NCTA
John Conforti, NCDOT-PDEA
Craig Deal, HNTB
Anne Redmond, HNTB
Tracy Roberts, HNTB
Christy Shumate, HNTB

Presentation Materials: (Posted on TEAC website)

- USACE Comments on Draft Coordination Plan (January 30, 2007)
- USEPA Comments on Draft Coordination Plan (February 13, 2007)
- NCDENR-DCM Comments on Draft Coordination Plan (March 1, 2007)
- NCDENR-WRC Comments on Draft Coordination Plan (March 1, 2007)
- NCDOT-SHO Comments on Draft Coordination Plan (February 21, 2007)
- NCTA Response to USACE comments on Draft Coordination Plan
- NCTA Response to other agency comments on Draft Coordination Plan
- Revised Draft Section 6002 Coordination Plan Template (changes highlighted)
- Revised Draft Section 6002 Coordination Plan Template (changes accepted)

General Discussion:

Four primary areas of the plan were discussed:

- Section 6.4 Issues of Concern**
The distinction between Issues of Concern and General Project Issues was provided. An issue of concern, as defined in SAFETEA-LU, would be an issue in the agency's opinion that could result in denial or significant delay in issuing a permit, while a general project issue is a routine comment that could be raised at any time. Issues of concern may be brought up by any agency at any point in the process but should be as early as practicable based on available information. In addition, NCTA may ask at any point that agencies identify issues of concern. Issues of concern should be documented in writing within 30 days of a request unless a longer time frame is agreed upon.

NCTA will maintain a list of general project issues and issues of concern and their status of whether they are resolved or pending (Section 6.5 Monitoring and Updating).

- Section 6.7 Resolving Issues of Concern**
If necessary, NCTA or the Governor may request a meeting to resolve issues of concern. This would only be used for "red flag" issues and resolution must be reached within 30 days of the meeting.
- Section 12.2 Comment Opportunities**
General project issues that have not been resolved during the TEAC meetings can be elevated to senior officials within an agency. Elevation can be invoked by any TEAC member. TEAC members are to identify senior officials within their agency who would be involved in the elevation process.
- Agencies are encouraged to provide comments on agency letterhead, especially when raising issues of concern. However, all written comments submitted by agencies, including comments submitted by email, will be accepted and considered in decision-making.

The coordination plan template will be revised to clarify that verbal comments submitted at TEAC meetings will also be accepted.

Section 5.4 Meeting Materials

- NCTA's goal is to post the agenda and materials at least two weeks in advance of TEAC meetings. In some cases, materials will be provided less than two weeks in advance, or will be circulated in the TEAC meeting. NCTA will not seek to resolve issues or obtain final agency comments on materials that the agencies received less than two weeks in advance of the meeting.

NCTA will provide paper copies of all materials at each TEAC meeting, in addition to posting materials on the TEAC website. Large documents that would be difficult for agencies to reproduce will also be made available in hard copy.

The Coordination Plan template is nearing completion, pending incorporation of any remaining comments received from the agencies by May 2, 2007. Both NCTA, and the agencies agreed that it is time to advance to the project-specific coordination plans.

Q&A:

Are NCTA and FHWA comfortable with the revised coordination plan?

Yes, NCTA and FHWA feel that the coordination plan addresses all major topics.

Previous Action Items:

- Agencies to provide comments on draft Section 6002 Coordination Plan template and project specific coordination plans by March 1, 2007.
- Comments were received from USACE, USEPA, NCDENR-DCM, NCDENR-WRC, and NCDOR-SHPO. NCTA will revise and circulate the revised Section 6002 Coordination Plan template via e-mail, based on the agencies' comments.
- The plan was revised and circulated via email for review following the February 14th TEAC meeting. Paper copies were distributed at the April 18th TEAC meeting.

New Action Items:

- NCTA will revise the Coordination Plan template to state that verbal comments made by TEAC members will also be accepted and considered by NCTA.
- Agencies to provide any remaining comments on the Coordination Plan template by May 2, 2007.

Resolutions:

- Agencies expressed general satisfaction with the plan.
- NCTA will move forward with development of the project-specific coordination plans in consultation with FHWA and the TEAC members.



Turnpike Environmental Agency Coordination (TEAC) Meeting – East

MEETING MINUTES

Date: May 23, 2007
9:00 am to Noon
NC Turnpike Authority Board Room

Project: TIP R-2576 Mid-Currituck Bridge Study - BRS-000S(95)

Mid-Currituck Bridge Spotlight:

Attendees:

- Rob Avers, FHWA
- George Hoops, FHWA
- Bill Biddecome, USACE
- Scott McLendon, USACE
- Kathy Matthews, USEPA
- Chris Millscher, USEPA
- John Hennessy, NCDWQ
- David Wainwright, NCDWQ
- Missy Dickens, NCDOT - PDEA
- Jennifer Harris, NCTA
- Denise Cauley, NCTA
- Craig Deal, HNTB
- Anne Redmond, HNTB
- Christy Shumate, HNTB
- John Page, PB
- Chris Lloyd, PB
- Mike Fendrick, PB
- Don Lewis, PBS&J
- Sam Cooper, CZR
- Jens Geratz, EcoScience

Presentation Materials: (Posted on TEAC website)

- Meeting Agenda
- Statement of Purpose & Need Handout
- Analysis of Conceptual Alternatives Handout
- Draft Section 6002 Project Coordination Plan Handout
- April 18, 2007 TEAC Meeting Minutes

General Discussion:

- **Purpose** – The purpose of the meeting was to discuss the statement of purpose and need, conceptual alternatives, and the analysis of conceptual alternatives.
- **Statement of Purpose & Need** – There are three elements of the Mid-Currituck Bridge Statement of Purpose and Need: 1) **improve traffic flow** on US 158 and NC 12; 2) **reduce travel time** for travel between the Currituck County mainland and the Currituck County Outer Banks; and 3) **facilitate coastal evacuation** for users of US 158 and NC 168.
 - o *Need to improve traffic flow on the project area's thoroughfares (US 158 and NC 12)*
There are two minor differences between the proposed statement of purpose and need and the statement the NCDOT Merger Team concurred upon in August 2003. These are the identification of US 158 and NC 12 as the project area's thoroughfares and eliminating the reference to the summer weekday peak travel periods, which reflects the desire not to disregard the summer weekend congestion when assessing alternatives. Deficiencies were presented in terms of level of service (LOS), volume to capacity ratios (V/C), and length of peak demand period. It was noted that LOS ratings of F dominate much of the NC 12 and US 158 roadway links in 2025 for weekday and weekend periods.
 - o *Need to reduce travel time for persons traveling between the Currituck County mainland and the Currituck County Outer Banks.*
This need statement has not been changed from the statement of purpose and need concurred upon in August 2003. However, additional travel time runs were completed and the effects of intersection delay were incorporated through application of the Synchro traffic simulation program. This information is now included in the statement of purpose and need report. Travel time for outbound trips (from Currituck County Outer Banks to Currituck County mainland) during the summer weekday will increase 48 percent, and inbound trips (from Currituck County mainland to Currituck County Outer Banks) will increase 68 percent by 2025. During the summer weekend condition, the same outbound and inbound trips will increase 130 percent and 138 percent respectively by 2025. The majority of the delay will occur in Dare County in the Duck and Southern Shores areas of NC 12.
 - o *Need to facilitate coastal evacuation for residents and visitors using US 158 and NC 168 as an evacuation route.*
This need statement was modified from that included in the 2003 statement by removing the caveat related to providing empirical evidence in support of the need, as the hurricane evacuation study completed by NCDOT demonstrates a clear need for improved emergency evacuation in this area. Additionally, for clarification, the statement was revised from "evacuation of the northern Outer Banks," to specify the evacuation routes (US 158 and NC 168). This change was made because there were questions regarding the extent of the hurricane evacuation need to be included in this project. The current clearance time for these routes for the 2030 No-Build condition, assuming a 75 percent rental occupancy rate, a category 3 storm, and that other area TIP projects are in place is just under 36 hours. The state legislature has set an 18 hour clearance time (defined as the length of time from the issuance of an evacuation order until all evacuees reach a point of safety) as the benchmark for safely evacuating the coastal areas. The assumed point of safety is I-95 for travelers evacuating on US 158. For those using NC 168 into Virginia, it is assumed that they will reach a point of safety in the same time as those using US 158. Enhancements to the US Army Corps of Engineers' statewide hurricane evacuation model for this project, including added current land use data, traffic detail at intersections, and results from permanent traffic count stations in the region.
- **Alternatives** – The contents of the analysis of conceptual alternatives handout were reviewed. Meeting participants were encouraged to review discussions related to the non-highway improvement alternatives (ferry service, transit, and shifting rental times) on their own and get back to the NCTA with comments or questions.

- Five highway improvement alternatives were developed that best represent the range of available alternatives for consideration to determine detailed study alternatives. Two of the five (ER1 and ER2) are non-bridge alternatives involving improvements to US 158 and NC 12. The difference between ER1 and ER2 is the 4-lane versus 3-lane improvements to NC 12 in Dare County. The remaining three alternatives (MCB1, MCB2, and MCB3) are various combinations of highway improvements to US 158 and NC 12 with a new 4-lane Mid-Currituck Bridge. The improve existing roadway components are the same for MCB1 and ER1, with the only difference being the inclusion of a bridge with MCB1. Likewise, MCB2 is the same as ER2 with the addition of the bridge. MCB3 is the bridge only with limited improvements to NC 12 and US 158. All alternatives include varying improvements to US 158 in Currituck County to facilitate hurricane evacuation.
- Six bridge corridor alternatives (C1 through C6) are being evaluated comprised of two termini on the Outer Banks and three termini on the mainland. The general area for the six bridge locations was determined in the studies for the 1998 DEIS. These corridors were refined for the current studies to account for current land use and development.
- **Section 6002 Project Coordination Plan** – The current template Draft Section 6002 Project Coordination Plan was updated to include project-specific information for the Mid-Currituck Bridge project. Agencies were asked to review the project-specific plan and provide comments. Once comments are received and addressed, the plan will be submitted to FHWA for approval.

Q&A:

- NCDENR-DWQ asked if evacuation times for the No-Build Alternative incorporated lane reversal (contraflow) on US 158.**
Reversible lanes were considered in the evaluation of highway improvement alternatives for the Build Alternative. They were not included in the No-Build Alternative clearance time because reversible lanes are not a current or planned component of an evacuation plan for this area. Implementation of contraflow would require at a minimum some operational actions.
- FHWA asked if a 4-lane bridge had similar characteristics to a 3-lane bridge.**
In terms of travel characteristics, a three-lane bridge would operate in a manner similar to a four-lane bridge on the summer weekend when the center lane could be reversed. A three-lane bridge would operate in a manner similar to a two-lane bridge on summer weekdays when the center lane would not be reversed because directional flows would be similar.
- USEPA asked how bridge termini were determined on the Outer Banks.**
The analysis was conducted in 1993 (NCDOT official map study selected the southern termini at Albacore Street) and 1995 (northern termini)—as a part of alternatives studies for the 1998 DEIS prepared by NCDOT). Environmentally, the termini were located based physical constraints such as wetlands, marsh islands, and communities.
- USACE asked if the designs for the widening on NC 12 was to one side of NC 12 in the 4-lane widening options or if the side of the road varied to reduce impacts.**
The widening was moved or shifted from one side of the road to the other to minimize impacts to the extent practical while meeting geometric design criteria.
- NCDENR-DWQ questioned the travel times for ER1 versus MCB1.**
In this case, travel time benefits are similar because congestion levels on NC 12 and US 158 are notably different between the two alternatives only on the summer weekend along US 158 in Currituck County. The most notable savings are for those using the Mid-Currituck Bridge. With MCB1, travel times using the Wright Memorial Bridge are decreased as some traffic is diverted to the new bridge.
- NCDENR-DWQ observed there was not a substantive difference in hurricane evacuation times for the MCB alternatives compared to the ER alternatives in Table 3.**
This is true. The controlling roadway segments for determining hurricane evacuation times are US 158 and NC 168 in Currituck County; therefore, improvements to NC 12 on the Outer Banks or addition of a Mid-

Currituck Bridge would not impact clearance times. Construction of a Mid-Currituck Bridge would reduce the length of improvements required to improve hurricane evacuation times on US 158 (from approximately 25 miles to 5 miles).

USEPA suggested enhanced ferry operations or a combination of ferry operations with improvements to existing roadways should be considered in lieu of a bridge.

The team agreed to provide additional information related to the ferry alternative prior to the next TEAC meeting.

USACE questioned the removal of the "summer weekday" from the first need statement in the purpose and need.

In traffic planning, projects are not designed to accommodate the worst case scenario. For example, the 30th highest hour of traffic volume is commonly used in urban areas as the "design hourly volume" or the future volumes for which one designs a road improvement. For this project, traffic studies revealed that the summer weekday peak period traffic volume most closely represents the typical design hourly volume. However, we have recognized throughout this project that there is a substantial congestion problem on the summer weekend that, based on current traffic findings, will last 10 to 14 hours per day. Thus, we have continued to generate traffic statistics for both the summer weekday and the summer weekend and continue to believe it is appropriate to consider both summer weekday and weekend travel benefits in our decision making. The change in the need statement affirms the relevance of the summer weekend data. Examining both allows us to perhaps make a decision that an alternative with notable reductions in both summer weekday and summer weekend congestion has as much merit as an alternative that eliminates summer weekday congestion while having only minimal reductions in summer weekend congestion.

USEPA observed that none of the build alternatives meet the 18 hour legislative hurricane clearance time goal. True, but all alternatives reduce the clearance time by 8.9 to 14.5 hours (25 percent to 40 percent) over the No-Build Alternative. The 18 hour clearance time set by the legislature is a goal rather than a policy.

USEPA and NCDENR-DWQ inquired about the criteria used to locate the interchange and toll booth at the bridge terminus on US 158, noting that it appears to have impacts to wetlands.

The functional designs for the US 158 interchange and toll collection plaza with the Mid-Currituck Bridge were developed to keep these improvements on upland as much as possible. The designs will be refined during preliminary design to further avoid and minimize impacts.

USEPA and NCDENR-DWQ asked if additional bridge locations north or south of the current corridors were considered.

The alternatives studies completed in 1995 considered corridors further north and further south. The results of these studies were summarized in the 1998 DEIS. Several factors limit placement of a bridge further north, including desire not to build a new high level bridge across the Intracoastal Waterway and NC 12's termination point on the Outer Banks. The location of marsh islands in the sound, potential neighborhood fragmentation, the presence of the Pine Island Wildlife Refuge, and the need to divert traffic from NC 12 limited placement options further south. NCTA will post the alternatives analysis from the earlier studies on the TEAC website and will discuss the elimination of additional bridge locations at the June TEAC meeting.

NCDENR-DWQ asked how permits would be handled if only the bridge can be built by the NCTA and the road improvements were funded later by the MCDOT or others?

The project is being proposed as one action. NCTA will coordinate with the NCDOT to ensure that project elements among and between the roadway and bridge components can be funded.

What about the next TEAC meeting?

Next month's TEAC meeting is expected to be a spotlight for Currituck to conclude discussion on the Statement of Purpose and Need and to decide which alternatives to advance into detailed studies.

Previous Action Items:

- NCTA to forward information packages on Currituck sufficiently early to allow TEAC members a full review. The Statement of Purpose and Need was distributed two weeks in advance of the TEAC members.

New Action Items:

- Agencies will provide comments on statement of purpose and need by June 6, 2007.
- Agencies will provide comments on conceptual alternatives and analysis of conceptual alternatives by June 6, 2007.
- Agencies will provide comments on project-specific Draft Section 6002 Project Coordination Plan by June 6, 2007.
- NCTA will provide additional information on the selection of the bridge corridor locations.
- NCTA will provide additional information on the ferry alternative.

Resolutions:

- None

**MEETING MINUTES
(Draft)**

Date: May 31, 2007
9:30 am to Noon
NC Turnpike Authority Board Room

Project: TIP R-2576 Mid-Currituck Bridge Study – BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

- Donnie Brew, FHWA
- George Hoops, FHWA
- Gary Jordan, USFWS
- Sarah McBride, NCDCCR-SHPO
- Travis Wilson, NCDENR-WRC
- Cathy Brittingham, NCDENR-DCM
- Jim Headley, NCDENR-DCM
- Jennifer Harris, NCTA
- Craig Deal, HNTB
- Anne Redmond, HNTB
- Christy Shumate, HNTB
- John Page, PB
- Mariena Everett, PB
- Mike Fendrick, PB
- Chris Lloyd, PB (via phone)

Presentation Materials: (Posted on TEAC website)

- Meeting Agenda
- Statement of Purpose & Need Handout
- Analysis of Conceptual Alternatives Handout
- Draft Section 6002 Project Coordination Plan Handout
- April 18, 2007 TEAC Meeting Minutes

General Discussion: This meeting was a repeat of the May 23 TEAC meeting to provide an opportunity for agency representatives that could not attend the May 23 meeting to discuss the Statement of Purpose and Need, conceptual alternatives, and analysis of conceptual alternatives. The presentation was the same as that described in the minutes of the May 23 TEAC meeting. Additional discussion and questions are noted below.

Q&A:

- NCDENR-DCM asked what is considered to be the point of safety for evacuees.*
I-95 is generally considered as the point of safety. This applies to people evacuating via US 158. For those evacuating via NC 168, the point of safety is a location in Virginia that would be reached in a similar amount of time.
- NCDCCR-SHPO asked if improvements to I-95 would be required, since I-95 is the designated point of safety.*
No improvements are proposed on I-95 in association with hurricane evacuation. I-95 is the point where it is assumed that evacuees are out of harms way and clearance is no longer an issue for transportation planning purposes.
- NCDCCR-SHPO questioned the study area related to hurricane evacuation.*
The study area for the model includes all the counties east of I-95. Improvements in the Mid-Currituck Bridge study area shown in the handouts will be effective in reducing hurricane clearance times via US 158 and NC 168. Additional improvements are not needed outside that area to improve clearance times for this route.

USFWS suggested a field inspection of the alternatives.
NCTA agreed and a field meeting is anticipated for July 10, 2007.

NCDENR-DCM asked why alternative bridge corridors further south are not being considered.
An alternative further south was assessed in the 1998 DEIS and not carried forward as a detailed study alternative. The 1998 DEIS includes the findings of that assessment. Bridge corridors in Dare County have never been considered. Reasons for this include community impacts in the heavily developed Dare County Outer Banks, the narrow NC 12 right-of-way (60 feet), and the project's definition as a bridge serving the Currituck County Outer Banks. NCTA will post the alternatives analysis from the earlier studies on the TEAC website and will discuss the elimination of additional bridge locations at the June TEAC meeting.

SHPO inquired about whether reversible lanes or contraflow was considered.
Reversible lanes are considered to improve hurricane clearance times as part of the highway improvement alternatives. Additionally, a reversible center lane on a three-lane Mid-Currituck Bridge is being considered. It would be effective on summer weekends when a distinct AM and PM directional split occurs.

USFWS asked how realistic it was to consider the alternative with four lanes on NC 12 in Dare County (ER1 and MCB1), especially with the high volume (180 displacements) of community/social impacts and how this alternative would affect the issue of congestion.
We are looking at congestion issues holistically, in terms of how much congestion we would leave in the system with each alternative. This very issue led to the consideration of alternatives ER2 and MCB2, which do not include four lanes in Dare County on NC 12.

NCDENR-DCM asked about the availability of water and sewer service in the project area.
In 1998, Currituck County conducted a study to identify how new water sources would be determined. They built a reverse osmosis plant, which will meet the need for water for planned Currituck County Outer Banks development. Sewer service is provided by package treatment plants.

USFWS asked if there is any colonial water bird usage of the marsh island crossed by bridge corridor C3.
NCTA and NCDWQ-WRC will both look into this issue and provide an answer at or before the next TEAC meeting.

NCDENR-WRC asked if all five highway improvement alternatives were acceptable based on purpose and need and cost, without considering the human/environmental impacts.
There is a large amount of data to consider and the NCTA is still in the process of analyzing the data.

NCDENR-WRC asked if it has been determined whether all of the alternatives are feasible from the perspective of affordability.
The NCTA is looking at alternatives for financing the project including revenue bond financing, TIFIA loans, or public/private partnerships. The bridge has the opportunity to be tolled. Alternatives that do not include a bridge cannot generate toll revenue because tolls can't be placed on existing facilities. With a public/private partnership, it could be possible to finance some NC 12 and US 158 improvements, as well as the bridge. Affordability will be considered during alternatives screening in the selection of detailed study alternatives.

NCDENR-WRC asked how permits would be handled if only the bridge can be built by the NCTA and the road improvements were funded later by the NCDOT.
The project is being proposed as one action. NCTA will coordinate with the NCDOT to ensure that project elements among and between the roadway and bridge components will be effectively programmed and phased.

NCDENR-DCM asked if NCTA is subject to the equity formula.
Money funded by NCDOT (that comes from the TIP) would be subjected to the equity formula. Financing from other sources, including revenue bonds, federal loans, or public/private partnerships, would not be subject to the equity formula.

FHWA inquired about how the wetland impacts in Table 6 of the handout were calculated.

The average wetland impacts of the six bridge corridors was used for the bridge corridor component.

NCDENR-DCM inquired how the bridge termini on the Outer Banks were selected. The analysis was conducted in 1993 (NCDOT official map study selected the southern termini at Albacore Street) and 1995 (northern termini)—as a part of alternatives studies for the 1998 DEIS prepared by NCDOT). Environmentally, the termini were selected based physical constraints such as wetlands, marsh island, and communities.

The question was raised about the travel times for the five highway improvement alternatives. For specific segment origins and destinations the differences are not dramatic, but on a system wide or network basis the collective travel time savings difference is notable.

NCDENR-DCM asked if SAV had been mapped in the project area and if NCDENR-DMF or NMFS had been coordinated with. USACE will be completing a bathymetric survey of the project area in June and will identify potential SAV locations in a report due this summer. NCDOT-Photogrammetry will provide aerial photography of the study area, and NCDOT-NEU will field check USACE and aerial maps. Based on recent studies completed by Elizabeth City State University, SAV in this area is concentrated along the shorelines. NCDENR-DMF and NMFS received copies of the Statement of Purpose and Need and the analysis of conceptual alternatives, and NCTA intends to contact representatives of those agencies directly to engage them in the study.

What about the next TEAC meeting?

Next month's TEAC meeting is expected to be a spotlight for Currituck to conclude discussion the Statement of Purpose and Need and to decide which highway improvement alternatives to advance into detailed studies. A decision on which bridge corridors to carry forward will not be finalized until after the field trip. Agencies requested that this project be discussed in the morning at the June 20 TEAC meeting.

Previous Action Items:

- NCTA to forward information packages on Currituck sufficiently early to allow TEAC members a full review. The Statement of Purpose and Need was distributed two weeks in advance of the TEAC members.

New Action Items:

- Agencies will provide comments on statement of purpose and need by June 13, 2007.
- Agencies will provide comments on conceptual alternatives and analysis of conceptual alternatives by June 13, 2007.
- Agencies will provide comments on project-specific Draft Section 6002 Project Coordination Plan by June 13, 2007.
- Agencies will provide availability and preferred dates for the field visit as soon as possible.
- NCTA will provide copies of the environmental constraints mapping for agency use in commenting on alternatives.
- NCTA will provide additional information on the selection of the bridge corridor locations.
- NCTA will provide additional information on the ferry alternative.
- NCTA and NCDENR-WRC will look into the use of marsh islands in Currituck Sound by colonial birds.
- NCTA will contact NCDENR-DMF and NMFS to update them on the project.

Resolutions:

- None



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: June 20, 2007
9:00 AM to Noon
NC Turnpike Authority Office Building Ground Floor Conference Room (G-13)

Project: TIP R-2576 Mid-Currituck Bridge - BRS-OOOS(35)

Mid-Currituck Bridge Spotlight:

Attendees:

Donnie Brew, FHWA
George Hoops, FHWA
Bill Biddlecome, USACE
Kathy Matthews, USEPA
Gary Jordon, USEFWS
Ron Sechler, NMFS
Cathy Brittingham, NCDENR-DCM
Jim Hoadley, NCDENR-DCM
David Wainwright, NCDENR-DWQ
Travis Wilson, NCDENR-WRC
Sarah McBride, NCDENR-HPO
Jennifer Harris, NCTA
Denise Cauley, NCTA
Dewayne Sykes, NCDOT
Craig Deal, HNTB
Anne Redmond, HNTB
Christy Shumate, HNTB
John Page, PB
Chris Lloyd, PB
Mike Fendrick, PB

Presentation Materials: (Posted on TEAC website)

- Meeting Agenda
- Handouts # 5 (Highway Improvement Alternatives Comparison), 6 (1985 Comparison of Bridge Alternatives), & 7 (Response to Agency Comments May 23 to June 12, 2007)
- Draft Section 6002 Project Coordination Plan
- July 10, 2007 Field Review Information

General Discussion:

- Purpose** - The purpose of the meeting was to address and finalize comments and concerns on project purpose and need, provide additional data and answer questions regarding alternatives, distribute another draft of the Section 6002 Project Coordination Plan, and to provide logistical and preparatory information regarding the July 10th field review.

- **Purpose & Need** – There are three elements of the Mid-Currituck Bridge Statement of Purpose and Need: **improve traffic flow** on US 158 and NC 12, **reduce travel time** for travel between the Currituck mainland and the Outer Banks and **facilitate coastal evacuation** for users of US 158 and NC 168. USACE expressed concern about the consideration of both summer weekday and summer weekend traffic flow conditions (see Handout #7, Meeting Comment #4). That concern related to whether or not such an assumption would automatically preclude road widening alternatives. The issue was left open until after the discussion of how traffic flow was addressed in the alternatives comparison. After the alternatives discussion, the USACE agreed with the wording as proposed by the NCTA.
- **Non-Highway Improvement Alternatives Follow up** – Additional information related to a ferry alternative was provided in Handout #7, including ferry service operational, environmental and capital cost comparisons to achieve a level of service comparable to the bridge alternatives. To serve similar amounts of traffic, approximately 40 ferries would be required. This, along with the environmental impacts and cost, make the option not feasible. In addition, ferry service would not benefit hurricane evacuation, as NCDOT shuts down ferry operations 12 hours before gale force winds arrive, thus eliminating the ability of ferry service to meet evacuation needs during part of the peak evacuation period. Therefore, improvements to US 158 would be required between the Wright Memorial Bridge and NC 168 at Barco. This analysis was based on traffic volumes projected to use a Mid-Currituck Bridge. NCDENR-WRC and NCDCCR-SHPO acknowledged and agreed that the ferry alternative is not feasible.
- No comments were received on the other non-highway improvement alternatives; therefore, NCTA is going to proceed with the conclusion that the non-highway improvement alternatives are not feasible. This will be fully documented in the DEIS.
- **Highway Improvement Alternatives** – Handout # 5 contains revisions to information provided during the prior May 23rd TEAC meeting in Handout #4, Table 6. Additions to the table included affordability factors, information from Handout #4, Table 3 related to environmental impacts, revised right of way cost estimates, and revised bond financing estimates.

The bridge corridors were not discussed; they will be reviewed in the field on July 10 and discussed further at the July 18 TEAC meeting.

- Several questions were generated:
- **NCDENR-DCM and USEPA** asked how the bond revenue and TIFIA funding was developed? The NCTA's financial advisor, PFM, developed the bond revenue forecast and the TIFIA loan amount. TIFIA will generally finance 1/3 of the construction cost.
 - **NCDENR-WRC** asked why the MCB3 alternative has the only alternative eligible for Public Private Partnership (PPP) funding? The MCB3 alternative has the smallest funding gap (\$51.2M) and as such is more attractive to the private sector as there would be less capital at risk. Also, the additional cost for MCB2 and MCB1 is all in widening existing roads, including US 158 east of the Wright Memorial Bridge. It is doubtful that any private partner would be willing to take the added risk of recovering from bridge tolls, a widening project 20 miles away.
 - **NCDCCR-HPO** inquired about the availability of PPP funding on the existing Wright Memorial Bridge. Current North Carolina law prohibits the placement of tolls on existing non-toll facilities.

The following observations and suggestions were made related to the Highway Improvement Alternatives:

- **ER1** - high capital cost and high displacements - suggest eliminating this alternative,
- **ER2** - low benefit travel benefits, suggest eliminating this alternative,
- **MCB1** - high displacements and high capital cost, suggest eliminating this alternative,
- **MCB2** - performs well in travel benefits, high capital cost, suggest eliminating this alternative, since MCB2 is a subset of MCB3 if funding is available from NCDOT at some time in the future, the part of MCB2 not in MCB3 could be built and is not precluded by MCB3, suggest eliminating this alternative,
- **MCB3** - smallest funding shortfall of all alternatives, achieves much of the travel benefits of MCB2, suggest considering this alternative further.

- **Meeting With Currituck County** – a recent meeting (June 8, 2007) with Currituck County officials (County Commissioner, County Manager and County Planner) highlighted the following points in the County's position on bridge corridor locations:
 - The County wants to reduce the number of bridge alternatives if possible. They are limiting development in the corridors as much as possible until a decision on a corridor is made.
 - The County prefers the C6 bridge alternative because the County Commissioners have committed to the community of Aydlett to advocate a low community impact alternative.
 - The County will ultimately support any of the six bridge alternatives.
 - The County clarified the extent of impact on a new subdivision that occupies the location of the northern Outer Banks terminus alternative (C1, C3, and C5).
 - The County prefers the southern Outer Banks Terminus alternative but did have concerns related to the functional design's approach to adjusting street and driveway access near the bridge/NC 12 intersection.

NCDENR-DCM pointed out that Currituck County has a recently-approved CAMA land use plan and that the bridge should be consistent with what is presented in the plan. This will be a consideration during permitting.

- **Section 6002 Project Coordination Plan** – a revised coordination plan was distributed. Additional comments should be provided by July 5, 2007. The coordination plan will be submitted to FHWA for approval.
- **Field Review July 10, 2007** – hotel accommodations were discussed, the itinerary for the 10th will be mapped out in advance, and will be discussed the evening of the 9th at the Hampton Inn in Elizabeth City at 8:00 PM. Transportation options during the field trip were discussed. Clothing and safety measures were suggested. A cell phone number will be provided to all field review participants the week before the event.

Q&A:

NCDENR-DCM would like to know the acres of CAMA wetlands bridged.
This will be prepared. CAMA wetlands are confined to the Outer Banks sound-side shoreline.

NCDENR-DCM also requested that SAV impacts be quantified and mapped.
Elizabeth City State University (ECSU) is developing a comparison of Submerged Aquatic Vegetation (SAV) in Currituck Sound under current conditions vs. 50 years ago. PB will get that data for use by the agencies prior to a decision on bridge corridors. Additional data will be provided as available from an ongoing USACE bathymetric survey and NCDOT aerial photography of the project study area. If later mapping reveals changes need to be made in corridor decisions, the NCTA is willing to consider such changes.

USFWS and NCDCCR-HPO inquired about status of Audubon Society property holdings both in terms of restrictive covenants and the USFWS compatibility determination.

USFWS clarified that the property is not a National Wildlife Refuge, and therefore will not require a compatibility determination. The Audubon Society property is also not a Section 4(f) resource.

NCDENR-DCM and USFWS initiated inquiries regarding the treatment of evacuation times among the Currituck alternatives and other NCDOT projects. The issue concerned consistency in application of the state legislative goal of 18 hours to achieve a safe evacuation. The project alternatives currently exhibit a range of 21 to 27 hours evacuation time. The US 64 project was cited as an example where a no-build 27 hour evacuation time was to be improved upon.

A meeting between the NCTA and NCDOT is currently scheduled to address this issue.

USFWS asked how directional contra flow lanes are to be managed and enforced.
Directional contra flow lanes will be evaluated for relevance, safety, and performance. It was also emphasized that evacuation times are not reduced without road improvements to US 158.

Based on a comment FHWA questioned the ability of MCB3 to meet the purpose and need as it relates to hurricane evacuation since the best time that can be achieved is 2b.2 versus 21.4 with the other alternatives.

The difference is that MCB3 does not include a third northbound/westbound lane on US 158 between the Wright Memorial Bridge and NC 12. The NCTA was agreeable to adding this component to MCB3 to create an MCB4 for further consideration.

There were common agency questions regarding the comparison of traffic volumes and Level of Service between ER2 and the bridge alternatives. PB observed that the traffic and travel demand evaluation for this project covered a broad geographic area, considering a wider network beyond the immediate bridge. This is similar to NCDOT thoroughfare planning. Vehicle-miles of travel is the metric used for measuring the performance of alternative systems or networks and thus is appropriate for the Mid-Currituck Bridge project.

NCDENR-WRC noted that secondary cumulative impact analysis was crucial as the bridge alternatives provide more direct access to the coast and will induce development, particularly in Currituck County. East Carolina University is under contract to help NCTA estimate changes in development patterns with the project alternatives, including the potential for a new bridge to bring in more day trips from Hampton Roads. One location for potential induced development is on the mainland near the bridge terminus.

Several agencies inquired about the traffic and travel demand update to 2035 and will that evoke a re-evaluation of all of the alternatives in light of new data? Horizon year decisions are currently under review by FHWA. The NCTA will revisit alternatives selection decisions if it appears warranted with the use of a later design year. However, the current data (2025) assumes full build out of the road-accessible Outer Banks, and NCTA does not anticipate that updating the information to a later design year would impact alternatives decisions.

NCWRC asked about the condemnation powers of the NCTA. NCTA does have condemnation authority. NCDOT will own any right-of-way purchased.

Previous Action Items:

- Agencies will provide comments on statement of purpose and need by June 6, 2007. [Comments were received from NCDENR-DWQ]
- Agencies will provide comments on conceptual alternatives and analysis of conceptual alternatives by June 6, 2007. [Comments were received from NCDENR-DWQ]
- Agencies will provide comments on project-specific Draft Section 6002 Project Coordination Plan by June 6, 2007. [No comments were received]
- NCTA will provide additional information on the selection of the bridge corridor locations. [The 1995 Alternatives Comparison report was posted to the TEAC site following the May meeting and is included in Handout 6]
- NCTA will provide additional information on the ferry alternative. [Handout 7 contains additional information on the ferry alternative]

New Action Items:

- NCTA and PB will continue to search for more state rate accommodations for the Field Review on July 10.
- NCTA, FHWA and PB will continue to address the merits of the project configuration and bridge location alternatives.
- Agencies provide comments or questions by July 17, 2007 on Highway Improvement Alternatives.
- Agencies provide any questions by July 17, 2007 on previous study findings on bridge corridor locations.
- NCTA and PB will provide acres of CAMA wetlands affected by bridge corridors C1 to C6.
- Conduct field visit of bridge corridors on July 10.

Resolutions:

- NCTA asked all agencies if there were any objections or further comments on the Statement of Purpose and Need as last presented and with the questions as addressed in this meeting and in the handouts. There were no further comments, concerns, questions, or objections. NCTA will proceed with the current Statement of Purpose and Need.
- Non-highway improvement alternatives will not be studied in detail, as they are not feasible. This will be discussed fully in the DEIS.

Date: June 20, 2007
1:30 pm to 3:00 pm
NC Turnpike Authority Office Building Ground Floor Conference Room (G-13)

Project: TIP R-3529 Monroe Connector – NHF-74(21)
TIP R-2559 Monroe Bypass – NHF-74(8)

Monroe Connector / Bypass Spotlight:

Attendees:
Donnie Brew, FHWA
George Hoops, FHWA
Marella Bunick, USFWS
Steve Lund, USACE (via phone)
Maria Chambers, NCDENR-WRC
Polly Lespinasse, NCDENR-DWQ
John Conforti, NCDOT
Dewayne Sykes, NCDOT
Jennifer Harris, NCTA
Denise Cauley, NCTA
Craig Deal, HNTB
Christy Shumate, HNTB
Anne Redmond, HNTB
Michael Gloden, EcoScience
Ross Andrews, EcoScience
Jill Gurak, PBS&J
Carl Gibliaro, PBS&J
Kiersten Giugno, PBS&J

Presentation Materials: (Posted on TEAC website)

- Meeting Agenda
- Project Newsletter
- Citizens Informational Workshop (CIW) PowerPoint Slide Presentation
- 1" = 1000' Project Mapping with preliminary corridors
- CIW Display Boards
- CIW Comment Form
- Preliminary Study Corridors Map

General Discussion:

- **Purpose** – Review materials for the Citizens Information Workshops (CIW) to be held on June 25 and 26, 2007.
- **Newsletter/Workshop Handout** – Approximately 27,000 copies of the newsletter were mailed to property owners and residents in the project study area. The workshop handout includes the same information as the newsletter; however, information about the dates and locations of the workshops was removed to allow space for a larger map.
- **Display Boards** – The display boards containing project information (study area, project purpose and need, project process, and project schedule) were presented and reviewed. USFWS suggested an additional board explaining what purpose and need is and why it is important.
- **Mapping** – Large-scale project maps (1" = 1,000') showing the preliminary study corridors were reviewed and discussed. Larger maps (1" = 500') will be shown at the workshops. The base map is the most current aerial photography, flown for this project in January 2007. The study corridors are generally 1,000 feet

wide with some enlarged areas where preliminary interchanges have been identified. The mapping shows historic districts, watershed drainage basins, neighborhoods, Development in the western portion of the project is denser than in the east, and schools, churches, and gold mines are shown. An important note was made that during final design geologic constraints may arise from the use of large equipment in areas previously mined.

- **Presentation** – A PowerPoint slideshow that will run continuously at both CIWs was presented and the script was reviewed.
- **CIW Comment Form** – FHWA suggested revising the comment form to include questions asking specifically about the project purpose and need to ensure that the public has the opportunity to comment on purpose and need, in compliance with Section 6002 requirements. The deadline for public comments will be July 27, 2007.
- **Workshop Format** -- NCTA, Mecklenburg-Union MPO (MUMPO), NCDOT, and project team members will be at various stations around the room. A PowerPoint presentation will run on a continuous loop for the public to view upon entering the workshop. NCTA staff will be available to answer general turnpike-related questions. MUMPO staff will be present to solicit input regarding tolling the Bypass section of the project. MUMPO intends to make a decision regarding tolling at their meeting in September 2007. NCDOT right-of-way staff will be available to discuss the acquisition process, which the group agreed would be a primary concern of many of the CIW attendees. It is anticipated that several questions regarding the previously purchased right of way in Sections B and C of the Monroe Bypass will arise at the CIW.

Large-scale maps (1" = 500') would be placed in the center of the room with adequate spacing between for people to circulate. A display board will be prepared showing a key to the areas covered by each sheet, as one set includes 7 sheets. This key will also be included on each map.

Local street maps will be brought to the CIW to assist the public in finding their respective properties. It was also noted that it is typical to get questions regarding other TIP projects in the area and that should such questions arise to direct them to the NCDOT staff. It was suggested that a map including other TIP projects in the project vicinity be included at the CIW.

Other Discussion:

Existing and 2030 No-Build traffic forecasts have been received and the Purpose and Need Report is being prepared for distribution and discussion at the next TEAC meeting. After the Purpose and Need Report has been prepared, work will continue on alternatives screening.

Meetings/conference calls are being scheduled with individual agencies to discuss the scope of work, study area, and methodologies for the indirect and cumulative effects (ICE) study. The first meeting will be with USFWS and NCDENR-WRC on June 29, 2007.

Q&A:

At last month's TEAC meeting, MUMPO expressed some concerns about preliminary corridors located south of US 74. What was the reaction from other local staff regarding these corridors?

Other local staff had similar concerns, particularly with preliminary corridors through the city of Monroe which contains several historic properties. Also, there were concerns about potential impacts to the Monroe Regional Airport.

It would be valuable to show watershed constraints on the project mapping. Are there any critical areas in addition to water supply watersheds?

No, there are no critical watershed areas.

How much do tolls usually cost?

Tolls for type of facility average between 10 cents and 15 cents per mile for a passenger car.

Previous Action Items:

- Agencies will provide comments on Draft Section 6002 Project Coordination Plan by June 1, 2007. *No comments were received.*
- Agencies will provide comments on additional constraints for consideration by June 1, 2007. *No comments were received.*
- NCTA will post copies of the land suitability mapping and PowerPoint presentation from the TEAC meeting on the TEAC website. *These items were posted to the TEAC website.*

New Action Items:

- NCTA will revise CIW presentation materials and comment form as suggested.
- NCTA to schedule meetings with individual agencies to discuss scope of work for ICE study.

Resolutions:

- None.

Date:

June 20, 2007
3:00 pm to 4:30 pm
NCTA Turnpike Authority Office Building Ground Floor Conference Room (G-13)

Project:

TIP U-3321 Gaston E-W Connector – STP-1213(6)

Gaston East-West Connector Spotlight:

Attendees:

George Hoops, FHWA
 Donnie Brew, FHWA
 Steve Lund, USACE-Asheville (via phone)
 Polly Lespinasse, NCDWQ
 Marla Chambers, NCWRC
 Marella Buncick, USFWS (via phone)
 Dewayne Sykes, NCDOT-Roadway Design
 Jennifer Harris, NCTA
 Ross Andrews, EcoScience Corp.
 Anne Redmond, HNTB
 Jeff Dayton, HNTB
 Jill Gurak, PBS&J
 Lou Raymond, PBS&J

Presentation Materials (Posted on TEAC Site):

- Meeting Agenda
- Presentation
- Table Handout
- Streams and Wetlands Map Segment 1
- Streams and Wetlands Map Segment 2
- Streams and Wetlands Map Segment 3

General Discussion:

- **Minutes** – The minutes from the May 17, 2007 meeting have been posted on the TEAC website.
- The purpose of the meeting was to provide further updates on recently completed/ongoing environmental and technical studies, field verification meetings, and next steps towards the DEIS. The NCTA requested comments, issues, and concerns from the agencies regarding environmental issues based on the recently completed studies.
- **Presentation** – A powerpoint presentation was used in the discussion. Issues covered in the presentation included the decision to study toll-only alternatives in the DEIS, recently completed Phase II historic resource surveys and the archaeological resource surveys, field verification meetings for wetlands, streams, and ponds, and other updates on special technical studies, engineering designs, community characteristics, and toll traffic forecasts were provided.

The presentation information is summarized below:

- **Toll Alternative**
 - In February 2007, a decision was made by both NCTA and NCDOT to proceed with only evaluating toll alternatives in the DEIS. This decision was based on consideration that the NCDOT does not have sufficient funding within the foreseeable future to implement the project as a non-toll facility.
- **Toll Collection**
 - No cash lanes are included in the design of the Gaston E-W Connector for the opening year of 2015. The designs at the interchanges will be based on accommodating electronic toll collection only.

- **Recently Completed Studies**
- Historic Architectural Resources
 - The Phase II report prepared by Mattson, Alexander and Associates (MA&A) was completed in May, 2007 and reviewed by NCDOT.
 - A meeting was held on June 12, 2007 with HPO, NCDOT and MA&A to review properties identified in the Phase II report. 152 of the 180 were determined not eligible and a concurrence form was signed for those properties. NCDOT and HPO indicated that the remaining properties require more information to be added to the Phase II report. After review of the additional information, the NCDOT will determine the eligibility for the National Register of these properties.
- Archaeological Resources
 - A Final Archaeological Assessment prepared by Coastal Carolina Research was submitted, reviewed, and approved by NCDOT. They will submit the report to the Office of State Archaeology (OSA).
- Natural Resources
 - Field verification meetings for wetlands, streams, and ponds were completed in Segment 1 (S&ME) and Segment 2 (JH Carter and Associates). Segment 3 (the Catena Group) will be completed June 25-26, 2007. EcoScience presented a detailed summary of the wetlands, streams, and ponds by Segment including the evaluation factors and biological features.
 - Earth Tech will assemble the final Natural Systems Report that summarizes all consultants' work upon receipt of the draft reports from each of the three subconsultants. The document is expected to be completed in early fall.
- Special Technical Studies
 - Within Segment K1D, the Allen Steam Station had a site suitability study performed for the dormant fly ash basin as a possible landfill site. The NCDOT Geotechnical Unit reviewed the study, and after considering several options, determined that bridging of the fly ash basin was the only reasonable and feasible option, if this segment were chosen. The possible bridging of the fly ash basin was further discussed with the NCDOT Structure Design Unit and they indicated they could provide cost estimates on this structure at a later time, if necessary.
- **Ongoing Studies**
 - Preliminary Engineering design and traffic operations analyses work are both proceeding concurrently with draft completion dates of October and June (this month), respectively.
 - Typical sections, mainline shifts based on field surveys, and interchange configurations were presented. Two examples of the mainline shifts were shown along with several examples of the interchange configuration changes (changes from the functional design) based on the recently completed historic and natural resource surveys.
 - Work on the Community Characteristics Report has begun and stakeholder interviews are in the process of being scheduled.
 - M/A/B is preparing toll traffic forecasts for the Detailed Study Alternatives (DSAs) and is on schedule for completion in August 2007. Their base year model work has been completed and they are starting on the 2030 model runs.
- **Next Steps Towards Draft Environmental Impact Statement (DEIS)**
 - Indirect and Cumulative Effects (ICE) studies are in the scoping process and will be starting soon.
 - After completion of the field verification meetings, additional progress on the preliminary designs, and determinations of eligibility by the HPO, it is believed that some of the DSA corridors may be candidates for elimination prior to inclusion in the DEIS. As this information becomes available, it will be presented to the environmental agencies. This information will likely be presented near the end of the year.
 - Toll traffic forecasts are on schedule to be complete in August 2007 and thereafter, toll traffic capacity analysis would be done.
 - NCTA described the Gaston MPO is resolutions to change the name of TIP Project U-3321 to the Garden Parkway. U-3321 is already named Garden Parkway in the STIP, but R-2608 is awaiting

change to the US 321 Bypass. When the name change is effective in the STIP, the name change would be adopted at that point forward by the NCTA.

- Field visits for natural resources and historic resources can be scheduled if there is interest from the resource agencies. NCTA solicited available dates from the agencies.

Q&A:

How will tolls be collected if there are no cash lanes?
 Cashless toll collection likely will use transponders and cameras at toll collection points on the mainline and on the interchange ramps. The cameras will capture license plates of vehicles that don't have transponders. The registered owners of those vehicles will be mailed notices. The footprint needed for this type of toll collection is not much different than a non-toll facility. Differences exist primarily on the ramps. On and off ramps require a certain length of tangent roadway section to provide sight distance for the toll collection cameras, which also includes loop ramps. Consideration for this is being incorporated into the preliminary engineering designs.

Have there been any discussions with EEP?

Yes, NCTA is actively coordinating with EEP. NCTA plans to submit a request for a phased approach to mitigation, with the first phase being from NC 279 to I-485. Due to the size of the project, a phased approach is practical, and EEP is receptive to planning mitigation in the same way.

What about the next TEAC meeting?

In the next couple of months, NCTA will be concentrating on completing field verification meetings and other ongoing studies. A spotlight meeting probably will not be held for a couple months.

New Action Items:

- NCTA and EcoScience will work on with the resource agencies on scheduling some natural resource field tours and will contact the HPO to gauge their interest in scheduling a field visit for historic resources.

Resolutions:

- None



Mid-Currituck Bridge

TIP No. R-2576

MEETING SUMMARY

July 10, 2007
Field Visit

Attendees:

George Hoops, FHWA
Bill Biddlecome, USACE
Ted Bisterfeld, USEPA
Kathy Matthews, USEPA
Chris Miltischer, USEPA
Gary Jordan, USFWS
Ron Sechler, NMFS
John Hennessy, NCDENR-DWQ
David Wainwright, NCDENR-DWQ
Jim Hoadley, NCDENR-DCM
Steve Lane, NCDENR-DCM
Sara Winslow, NCDENR-DMF
Travis Wilson, NCDENR-WRC

Sarah McBride, NCDCR-HPO
Jennifer Harris, NCTA
Anne Redmond, HNTB
Christy Shumate, HNTB
Jens Geratz, EcoScience
John Page, PB
Chris Loyd, PB
Bill Rice, PB
Roland Robinson, PB
Sam Cooper, CZR
Travis Brown, CZR

- o The Corolla Bay subdivision includes 30 lots, 10 of which are already sold. A house under construction during the field visit appeared to be in the path of the proposed corridor.
- o The bridge corridor alignment had been developed to avoid an existing pond south of the Corolla Bay subdivision; however, upon examination of the pond, agencies indicated that the pond was not ecologically important and given a choice of avoiding coastal wetlands or the pond, they would prefer that the coastal wetlands be avoided.
- o Agencies requested that the alignment be shifted southward to minimize impacts to coastal wetlands.
- o A preference for this alternative over the other proposed Outer Banks terminus was expressed by several agencies, including NMFS, NCDENR-DCM, NCDENR-DMF, NCDENR-WRC, and NCDENR-DWQ, because it affects less wetland area.
- Southern Outer Banks site (C2, C4, and C6) – the site is just north of the Timbuktu shopping plaza near Albacore Road. It is an official map site for the proposed bridge. A portion of the site had been purchased by NCDOT in the early 1990s to prevent it from being developed under the ground rules associated with an official map. The site includes a large pond, upland forest, red maple maritime swamp, and coastal wetland areas.
 - o Newly placed survey markers were observed at the site associated with a pending transfer of a portion of the property not in the official map site from the current owner to a utility company.
 - o Agencies observed this site to be more ecologically important than the Northern Outer Banks option.
 - o Agencies also commented that this site would have fewer opportunities for mitigation.
- Northern Mainland site (C1 and C2) – this corridor parallels an existing utility easement from US 158 to the Sound.
 - o The corridor is in proximity to a historic structure determined eligible for the National Register.
 - o Agencies had no specific concerns with this corridor, including the potential impact to the historic structure.
 - o A second historic structure is north of this corridor and was also observed during the field visit.
- Middle Mainland site (C3 and C4) – this corridor roughly parallels Aydlett Road from US 158 to near Currituck Sound and then passes through the community of Aydlett.
 - o Vans traveled along Aydlett Road after it turns south to parallel the Sound and observed the approximate location of the corridor along the Sound shore, as well as several houses that would be relocated if this corridor were selected.
 - o Vans then parked along Aydlett Road (where the corridor parallels the road), and agencies entered Maple Swamp.
 - o Maple Swamp contains some bay forest community. The density and quality of the bay forest higher at the southern corridor (C5/C6).
 - o Agencies suggested incorporating existing Aydlett Road into the bridge corridor. NCTA indicated that it may be difficult to provide access to remaining portions of the community of Aydlett if the existing road is replaced with a new structure.

Purpose: The purpose of the field meeting was to allow the environmental agencies the opportunity to review and comment on the six bridge corridors under consideration for the Mid-Currituck Bridge.

Summary of Pre-Field Visit Briefing (July 9, 2007 8:00PM at Hampton Inn, Elizabeth City)

Summary of Field Visit:

- Attendees met at 8:00AM at the Old Currituck County Courthouse and boarded vans provided by Currituck County. Bridge corridors were visited in the following order:
 - o Northern Outer Banks site (C1, C3, and C5)
 - o Southern Outer Banks site (C2, C4, and C6)
 - o Northern Mainland site (C1 and C2)
 - o Middle Mainland site (C3 and C4)/Southern Mainland site (C5 and C6)
 - o Wetlands west of US 158 (all corridors)
- Northern Outer Banks site (C1, C3, and C5) – the site crosses the Corolla Bay subdivision (currently under construction), as well as upland forest, red maple maritime swamp, and coastal wetland areas.



Turnpike Environmental Agency Coordination (TEAC) Meeting

- Southern Mainland site (C5 and C6) – this corridor is located approximately 2,900 feet south of the C3/C4 corridor in Maple Swamp. Agencies walked south through Maple Swamp from the Middle Mainland corridor to determine the quality of the bay forest community.
 - This corridor fragments a more contiguous tract of Maple Swamp (large blocks of uninterrupted forest are important habitat for wildlife, including bears, migratory birds, etc).
 - The corridor would impact a larger area of bay forest community, a significant natural heritage community. Agencies indicated this community is the most pristine of its type and contains the largest specimens of Loblolly bay they have encountered
 - NCDENR-DWQ indicated this option may not be permittable.
- Wetlands west of US 158 – areas of wetland west of US 158 would be affected with all corridors by an interchange between US 158 and the proposed bridge.
 - Agencies stressed that impacts to wetlands in this area should be minimized, and that impacts that could not be minimized would require justification.

Other discussion:

- Agencies suggested several potential mitigation options for impacts to Maple Swamp, including preservation of the bay forest community, improvements to the hydrologic flow across Aydlett Road.
- FHWA suggested that the C3/C4 and C5/C6 corridors on the mainland could be combined to develop a corridor that minimizes impact to the bay forest in Maple Swamp as well as minimizes impacts to the community of Aydlett.
- Agencies asked about funding relative to the Highway Improvement Alternatives. NCTA's Chief Financial Officer, Grady Rankin, will be invited to attend the July 18, 2007 TEAC meeting to answer questions.
- USACE requested that functional plans for all Highway Improvement Alternatives be reviewed at the July 18, 2007 TEAC meeting.

MEETING MINUTES

Date: July 18, 2007
9:00 AM to Noon
NC Turnpike Authority Board Room

Project: TIP R-2576 Mid-Currituck Bridge Study

Mid-Currituck Bridge Spotlight:

Attendees:
Rob Ayers, FHWA (via phone)
Donnie Brew, FHWA
George Hoops, FHWA
Bill Biddlecome, USACE
Kathy Matthews, USEPA
Chris Militscher, USEPA
Gary Joroon, USFWS
David Wainwright, NCDENR-DWQ
Cathy Brittingham, NCDENR-DCM
Jim Hoadley, NCDENR-DCM
Sarah Winslow, NCDENR-DMF
Travis Wilson, NCDENR-WRC
Sara McBride, NCDCR-HPO

Jennifer Harris, NCTA
Denise Cauley, NCTA
Dane Berglund, NCTA
Ted Devens, NCDOT
Brian Yamamoto, NCDOT
Dawn Rierson, NCDOT
Lonnie Brooks, NCDOT
Craig Deal, HNTB
Anne Redmond, HNTB
Christy Shumate, HNTB
John Page, PB
Chris Lloyd, PB
Roland Robinson, PB

Presentation Materials:

- Meeting agenda
- Comparison of Wetland Impacts
- General Assembly HB 253 with Statute 136-102.7 Hurricane Evacuation Standard
- USACE potential SAV locations mapping
- Draft Meeting Summary from July 10th field visit
- Functional design drawings and scroll maps of the bridge and roadway alternatives, including a CD of the functional designs

General Discussion:

- **Highway Improvement Alternatives** – An overview of previously discussed Highway Improvement Alternatives (ER1, ER2, MCB1, MCB2, and MCB3) was presented, highlighting characteristics and impacts of each alternative. In addition, based on discussion at the June TEAC meeting, NCTA has developed MCB4, which includes components of MCB3 (construction of a new bridge across Currituck Sound, some widening on NC 12 to accommodate traffic from the bridge to Currituck Club Drive, and an additional northbound lane on US 158 between the bridge and NC-168) plus an additional northbound lane on US 158 from NC 12 to the Wright Memorial Bridge. This alternative would achieve the maximum reduction in hurricane evacuation time possible with improvements within the project study area (21.4 hours).

- Summary of Highway Improvement Alternatives discussion:
- o ER2 would perform poorly in terms of traffic and congestion measures. NCTA proposes to eliminate this alternative.
 - o MCB1 and ER1 have major displacements of homes and businesses in Dare County. Based on the number of displacements, NCTA proposes to eliminate these alternatives.
 - o MCB2 performs well in terms of traffic and does not have the high level of displacements as MCB1 and ER1. However, MCB2 would result in a significant gap between cost and potential financing for the project. NCTA proposes to eliminate this alternative, noting that the selection of MCB3 or MCB4 would not preclude NCDOT from implementing other components of MCB2 at a future time when funding is available. These improvements would require a separate environmental document. USACE pointed out that the traffic benefits of this alternative exceed those on MCB3, and asked that the alternative not be eliminated based on funding alone.
 - o MCB3 and MCB4 are proposed by NCTA and FHWA for detailed studies. The widening of NC 12 to four lanes needed with a bridge would be needed the year of project opening from the C1/C3/C5 bridge terminus to Albacore Street. The widening of NC 12 from Albacore Street to Currituck Club Road with either Outer Banks terminus could be delayed to as late as 2018. This widening will be part of the proposed action but construction may be phased. A decision on phasing this construction will be made based on input from the county, toll traffic diversion estimates, and permitting considerations.
- **Bridge Corridors** – Six bridge corridors, comprised of three potential corridors on the Currituck County mainland and two potential corridors on the Currituck County Outer Banks, were reviewed during a field visit on July 10, 2007.
 - o The C5 and C6 bridge options would have the highest fragmentation impact to Maple Swamp. Based on comments from the agencies, including USFWS, NCDENR-DWQ, and NCDENR-WRC, NCTA proposed eliminating this corridor due to impacts to the bay forest community in Maple Swamp. Agencies, with the exception of USEPA, agreed with eliminating this corridor.
 - o The C3 and C4 bridge options would have the highest impact on the community of Aydlett, as well as impacts to Maple Swamp. NCTA proposed eliminating this corridor. Agencies suggested that NCTA should look at modifying this corridor to attempt to minimize impacts to Maple Swamp south of Aydlett Road, as well as to the community of Aydlett.
 - o The C1 and C2 bridge corridors will be studied in detail in the DEIS.
- NCTA proposed selection of MCB3 and MCB4 with Bridge Corridors C1 and C2 as the detailed study alternatives and asked if the agencies had concerns. Issues of concern should be provided in writing within 30 days per the Section 6002 Project Coordination Plan.
- **Review of Functional Design Plans** -- The roadway and bridge alternative drawings were reviewed to illustrate the extent and nature of the relocations along the ER1 and ER2 alternatives and to secure feedback on the US 158/Mid-Currituck Bridge interchange configurations.
 - **Finances** – A presentation was made by Dane Berglund, NCTA Senior Accountant, on the business decisions inherent in a revenue bond issue. The importance of cost estimates, ridership forecast, toll revenue forecasts and the impact upon toll bridge operations were broadly summarized. The amount that can be financed is based on the projected revenue and estimated project costs. The total amount to be financed includes interest, inflation, operating and maintenance costs, in addition to construction costs. With revenue bonds and TIFIA loans, the total cost of the project could not be financed, therefore leaving a gap between the funding and the cost of the project. For Highway Improvement Alternatives ER1, ER2, MCB1, and MCB2, there would be a significant amount of gap funding required. For MCB3 and MCB4, this gap would be less. Also, these two alternatives could be considered for a Public Private Partnership, in which a private entity would fund construction, operation, and maintenance of the project for an extended period.
 - **Hurricane Evacuation Statute** – A discussion ensued about Statute 136-102.7, which indicates "the hurricane evacuation standard to be used for any bridge or highway construction project pursuant to this Chapter shall be no more than 18 hours, as recommended by the State Emergency Management officials."

There was considerable debate regarding the legislative intent of the 18 hour evacuation standard (see Q&A section).

Q&A:

1. EPA suggested that FHWA consider a tiered EIS because of funding shortfalls, inability to fund some alternatives, the inability of the alternatives to meet the 18 hour evacuation standard and the implications of going outside the study area to meet the 18 hour standard. FHWA, NCTA and NCDOT will consider.
2. EPA said GS 136-89.183 seems to indicate that the Mid-Currituck Bridge Corridor should be at the Virginia State Line and the hurricane statute appears to require projects to meet the 18-hour clearance time. NCTA and NCDOT will look into the history and legislative intent of both statutes.
3. SHPO questioned how bonds are graded and the influence upon financial markets. Bonds are graded or rated by bond rating agencies. Bond ratings influence bond interest rates.
4. EPA inquired about accommodating toll increases in the future. Provisions are incorporated in the bond indentures allowing tolls to rise in step with the inflation of operating and maintenance costs.
5. It was noted that Division 1 and Currituck County may be considering building a paved road in the currently non-road accessible area of the Currituck County Outer Banks. NCTA will look into this.
6. EPA further asked about the toll revenues and how the demographics of the users are accommodated. The demographics/income level of the typical bridge user is considered in the Traffic and Revenue Study to determine the optimum toll rate. The Preliminary Traffic and Revenue Study (completed by Wilbur Smith Associates in January 2007) is available on the NCTA web site.
7. NCDENR-WRC requested NC 12 relocations be divided between those where the improvement takes the structure and those where the structure is assumed to be taken because enough lot is taken that the lot size becomes too small to meet county standards. It also was asked why exceptions to the Dare County ordinance related to minimum lot sizes could not be waived, particularly if septic systems were not involved in the loss of land. This information will be provided.
8. FHWA inquired about NCDOT acceptance of design exceptions in the three-lane and two-lane NC 12 improvement alternatives. It was felt that the design exceptions were minimal and within NCDOT's level of tolerance. This would be explored further and in more detail during preliminary and final design, if necessary.
9. EPA questioned the use of 17-foot medians in the four-lane NC 12 alternatives and suggested a narrower median. The median is as narrow as it can be to provide for left turn lanes. FHWA responded by questioning safety and driver expectations of a variable median width. Also, intersections are close enough together that as soon as the median narrowed, it would have to widen again for the next intersection's left turn lane.
10. EPA questioned the adequacy of the at grade "T" intersection proposed for NC 12 and the new bridge. It has been determined that this configuration will work as the volume of traffic from and to the north on NC 12 is not sufficient to warrant a larger or more complicated design.
11. NCDENR-WRC inquired about avoiding the CAMA wetlands on the northern terminus (C1/C3/C5) near NC 12. The alignment can be revised to avoid all CAMA wetlands. Some impacts to Section 404 wetlands would remain.

12. *NCDENR-WRC asked about an interchange with a smaller footprint at NC 12, including an urban-style interchange.*
The configuration shown on the drawing was developed with features that already reduce its footprint some (See the response to NCDENR-DWQ question 10 in Handout 7). Other configurations, such as an urban interchange with the ramps tight against the road will be examined during preliminary design.
13. *Multiple agencies noted the significance of the Bay Forest south of Aydlett Road. It is very unique, particularly because of the size of the trees. USFWS indicated that they had not seen anything like it was stated that because practicable alternatives exist, it was unlikely that a Section 404 Permit could be issued for a project in the C5/C6 corridor. The Bay Forest gets more narrow north towards Aydlett Road and the forest north of Aydlett Road is of a different character and quality. USFWS said the introduction of a road or bridge in the C5/C6 corridor in Maple Swamp would alter it by bringing in more sunlight and invasive species. The area should be protected and preserved.*
NCTA will determine if more information exists on the Bay Forest system. NCTA asked if it would be appropriate to drop the C3/C4 and C5/C6 corridors from further consideration and focus on the C1/C2 corridors. Another reason to drop the C3/C4 corridors is because they would pass through the middle and most developed part of Aydlett.
14. *EPA indicated that there was not enough information to drop any corridor at this time. EPA said for example that the NCTA had not done a full analysis of migratory bird impacts and it might prove that there were migratory birds in C1/C2 and for that reason C5/C6 might prove to be the better alternative. EPA did not consider the community impact with C3/C4 to be notable in that other NCDOT projects have much greater community impacts.*
15. *NCDENR-WRC indicated that C3/C4 and C5/C6 could be dropped at this time. USFWS said that with regards to migratory birds, C5/C6 would be the most likely location for this to be an issue. USFWS agrees with dropping C5/C6 at this time.*
NCTA said they could look at modifications to the C3/C4 corridor, including moving the corridor north of Aydlett Road.
16. *NCDENR-DCM asked if the bridge corridor could also serve local Aydlett Road traffic.*
This would not be feasible. Toll collection for the bridge will be near US 158, so an alternative free route would still need to be provided for accessing remaining portions of the community of Aydlett. For toll enforcement purposes, it is not possible to provide access from the bridge facility directly into the community of Aydlett.
17. *NCDENR-DCM indicated that just because they had not yet submitted comments in writing, NCTA should not assume they have no comments. They have not had time to prepare comments. NCDENR-DCM noted that new information is continuously being made available. EPA also said they had not had time to submit written comments.*
NCTA said that the new information posted was being provided at the request of the agencies. NCTA asked when they could expect written comments from NCDOT and EPA, who could not give a definite timeframe. Agencies requested that there not be a TEAC meeting for this project in August in order to allow time for them to review and comment on materials received to date. NCTA will consider this request.
18. *NCDENR-DMF indicated that the entire sound is potential SAV habitat even if SAVs are not currently present. The availability of SAV information from Elizabeth City University was noted.*
NCTA asked for guidance with regards to how to address direct SAV impacts and impacts to potential SAV habitat as the study progresses. For instance, is it practical to avoid direct impacts if SAV locations vary year to year. NCTA has been trying to contact Elizabeth City University about SAV information and will continue to do so.

Previous Action Items:

- NCTA and PB will continue to search for more state rate accommodations for the Field Review on July 10. [State rate accommodations were available at the Quality Inn in Elizabeth City.]
- NCTA, FHWA and PB will continue to address the merits of the project configuration and bridge location alternatives.

- [This information was discussed at the July 10, 2007 field visit and at the July 18, 2007 TEAC meeting.]
- Agencies provide comments or questions by July 17, 2007 on Highway Improvement Alternatives. [Verbal comments were received from USACE during the July 10, 2007 field visit, and written comments were received from USACE on July 17, 2007.]
 - Agencies provide any questions by July 17, 2007 on previous study findings on bridge corridor locations. [No questions or comments were received on previous studies related to the bridge corridor locations.]
 - NCTA and PB will provide acres of CAMA wetlands affected by bridge corridors C1 to C6. [This information was available on the TEAC site on July 17, 2007 and distributed at the TEAC meeting on July 18, 2007.]
 - Conduct field visit of bridge corridors on July 10, 2007. [The field visit was conducted on July 10, 2007. A draft meeting summary was distributed at the July 18, 2007 TEAC meeting.]
- New Action Items:**
- NCTA/NCDOT will investigate the legislative intent of 18-hour hurricane evacuation standard (GS 136-102.7)
 - FHWA/NCTA to look into legislative intent of the accelerated pilot toll bridge project (GS 136-89.183) with specific regard to the terminology "bordering the State of Virginia"
 - FHWA/NCTA to consider Tiered EIS recommendation
 - NCTA will ask Carolina Land for a breakdown of relocations from direct impacts and relocations from reduced lot size only
 - NCTA will check on minimum lot size ordinances, prevalence of individual septic systems, and relation of lot size to the CAMA land use plan
 - NCTA will check with Currituck County on potential extension of NC 12 north. NCTA will check with NCDOT Division 1
 - NCTA will consider alternative interchange configurations for the US 158/McI-Currituck Bridge interchange to the community of Aydlett
 - NCTA will evaluate modifying C3/C4 to minimize impacts to the bay forest (shift north of Aydlett Road) and NCTA will check with NCDENR-DNH on information on the bay forest system
 - NCTA will continue to pursue ECSU SAV study information
 - NCTA will consider whether to meet on the project in August
 - Agencies will provide comments and issues of concern on Highway Improvement Alternatives and bridge corridors (proposed Detailed Study Alternatives) within 30 days, as noted in the Section 6002 Project Coordination Plan.
 - Agencies will provide comments on the draft meeting summary from the July 10, 2007 field visit by August 15, 2007.

Date: July 18, 2007
1:30 PM to 2:00 PM
NC Turnpike Authority Board Room

Northern Wake Expressway Toll Plaza Spotlight:

Additional Attendees:

Eric Alsmeyer, USACE
Fleming El-Amin, Triangle Transit Authority
Ken Ivey, PE, NCDOT Traffic Engineering & Safety Systems Branch
Regina Page, PE, NCDOT Traffic Engineering & Safety Systems Branch
David Chang, PE, NCDOT Hydraulics Unit
Wally Bowman, PE, NCDOT, Division 5
Tracy Roberts, AICP, HNTB/NCTA GEC
Jim Cooper, EcoScience Corporation
Jim Buck, PE, Baker Engineering
Ken Gilliland, Baker Engineering

Presentation Materials: (Posted on TEAC website)

- Meeting Agenda
- Start of Study Letter
- Handout 1, Project Background, Purpose and Need, Schedule
- Figure 1, Northern Wake Expressway Toll Plaza - Vicinity Map
- Figure 2, Northern Wake Expressway Toll Plaza Aerial Photography
- Section 129 Agreement for Northern Wake Expressway, Western Wake Expressway, and Triangle Parkway
- NC General Assembly Authorization for Tolling the Northern Wake Expressway
- Northern Wake Expressway PowerPoint Scoping Presentation

General Discussion:

- **Purpose** – Conduct Start of Study and scoping meeting.
- **Project Vicinity/Study Area** – The proposed project is located in western Wake County just south of the Durham County line. The project study area is located along the Northern Wake Expressway (NWE) between the NC 55 and Triangle Parkway interchanges. The study corridor is approximately 700 feet wide and 7,120 feet long. Most of the study area is located within existing NCDOT right of way.
- **Project Purpose and Need** – The purpose of this project is to generate funding for proper operation and maintenance of the NWE between NC 55 and NC 54, and to implement legislative authorization to toll. The need for this project is that there is insufficient funding to cover the cost necessary for proper operation and maintenance of the NWE between NC 55 and NC 54, including reconstruction, resurfacing, restoration, and rehabilitation.
- **Project Description** – This project proposes to install a mainline toll plaza on the existing NWE between NC 55 and NC 54. This 2.8 mile long segment was recently completed by the NCDOT as State Transportation Improvement Program (STIP) Project Number R-2000 AA/AB. The proposed toll collection facility would be comprised of a free-flowing section on the mainline travel lanes in which toll fares would be gathered electronically. Vehicles would travel through this section at highway speeds. Additionally, there would be temporary "cash lanes" constructed at approximately the same location as the electronic collection point to allow tolling of vehicles not equipped for electronic tolling. The number of cash lanes has not been determined but will be based on traffic forecasts and operations. The cash lanes will be unmanned. Site features for the toll collection facility include a parking area, access lanes for cash toll islands, a building housing an emergency generator, an overhead gantry, and mast lighting.

NCTA, in consultation with FHWA, anticipates that the proposed action will be classified as a Categorical Exclusion.

- **Project Authorization** - The North Carolina General Assembly has authorized the tolling of the Northern Wake Expressway between I-40 and NC 55. Additionally, a Section 129 Agreement between the FHWA, NCTA, and NCDOT was executed on December 6, 2006, which allows for tolling of the facility.
- **Previous Studies** - In January 2007, EcoScience delineated streams and wetlands in the vicinity of the proposed toll plaza (Figure 2). Streams in the project area are unnamed tributaries to Kit Creek, therefore receiving the same water quality classification as Kit Creek, which is classified as water supply watershed IV and nutrient sensitive waters from a point 1.3 miles upstream from its intersection with NC 55 to Northeast Creek.
- According to the Section 404 permit, 1,002 acres of wetlands and 3,123 linear feet of stream were impacted by the construction of Section AA (I-540 (Raleigh Outer Loop) from NC 55 West of Morrisville to Research Triangle Park East Limits) of STIP R-2000.
- In the 1990 Final Environmental Impact Statement for STIP R-2000, Section AA had no noise or air quality, cultural resource, protected species, hazardous waste, or mineral resource impacts, and minimal community impacts.
- **Project Schedule** – Scoping comments were requested prior to August 1, 2007. Field work for the natural resource technical report (NTR), noise, and hydraulics reports will be carried out in August. The NTR is scheduled for completion in September. The Categorical Exclusion is scheduled to be signed in October 2007.

Other Discussion:

USACE indicated that a Nationwide 23 permit will likely be appropriate for the project.

Public input for the project will include the study team's availability to answer questions at the public hearing for Triangle Parkway (STIP U-4763B).

Q&A:

- **USEPA asked about the potential stream and wetland impacts of the construction of the toll plaza?**
Baker stated that inside the area previously delineated by EcoScience that there were approximately 934 feet of unimpacted (i.e., not culverted or filled by the existing roadway) streams and 0.85 acres of wetlands. It was noted that the project study area had been extended and that additional delineations would be necessary. Minimization steps would be taken to reduce the potential impacts to these resources.
- **NCDOT asked about the number of cash lanes and the traffic forecast methodology that will be implemented for this project.**
Baker stated that four cash lanes will be used as a base assumption. This assumption will be verified by VISSIM analysis. NCDOT agreed that VISSIM was an appropriate simulation analysis tool.
- **NCDOT stated reservations about the stop condition mandated by the cash lanes and the operational issues associated with the cash lanes.**
NCTA stated that they were aware of the issue and that the project design team was working on the weave issue associated with the construction of the NWE toll plaza between two nearby interchanges (NC 55 and Triangle Parkway).
- **NCDOT asked if changes to the existing travel lanes were envisioned.**
NCTA stated that at this time, no changes to existing travel lanes were envisioned.
- **TTA asked if special equipment would be needed on their buses if an agreement were reached that allowed free or reduced fares.**
NCTA stated that buses would have the opportunity to use transponders on the mainline and would not be required to stop to use cash lanes.



Turnpike Environmental Agency Coordination (TEAC) Meeting – East

USACE asked about the project schedule past October. NCTA answered that that construction of the NWE Toll Plaza is anticipated to be included in the design build contract for the Triangle Parkway. Construction activities may begin within the next year.

NC DOT asked if noise studies would be conducted in the vicinity of the Breckenridge development. NCTA stated that noise studies using TMM 2.5, including an evaluation of noise mitigation walls, would take place as part of the Categorical Exclusion. Ambient noise measurements would take place with NC-540 in place.

NC HPO asked if additional construction would be needed once the temporary cash lanes are removed? NCTA stated that there are no additional construction requirements envisioned through the design year for toll technology implementation. Five years from opening, the cash lanes will be removed and electronic toll collection will remain in place.

TTA asked about provisions for out-of-town travelers once the cash lanes are removed? NCTA stated that there would be signage to indicate that the toll facility was ahead. There are also northern and southern non-toll routes for those not wanting to use the toll facility. Also there would be video tolling and options to pre-register for those who lack transponders.

Previous Action Items:

- None

New Action Items:

- Agencies provide scoping comments (study area, purpose & need, environmental concerns, permitting, etc) to NCTA no later than August 1st, 2007.

Resolutions:

- None

MEETING MINUTES

Date: September 19, 2007
9:00 AM to Noon
NC Turnpike Authority Office Building Ground Floor Conference Room (G-13)

Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-OOOS(35)

Mid-Currituck Bridge Spotlight:

Attendees:

- | | |
|-------------------------------|----------------------------|
| Scott McLendon, USACE | Bruce Ellis, NCDOT-NEU |
| Bill Biddlecome, USACE | Elizabeth Lusk, NCDOT-NEU |
| Christopher Millscher, USEPA | Ted Devens, NCDOT-PDEA |
| Kathy Matthews, USEPA | Brian Yamamoto, NCDOT-PDEA |
| Gary Jordan, USFWS | Jennifer Harris, NCTA |
| Jim Headley, NCDENR-DCM | Christy Shumate, HNTB |
| Cathy Brittingham, NCDENR-DCM | Anne Redmond, HNTB |
| David Wainwright, NCDENR-DWC | Jens Geratz, EcoScience |
| Travis Wilson, NCWRC | John Page, PB |
| George Hoops, FHWA | Bill Rice, PB |
| Donnie Brew, FHWA | |

Presentation Materials: (Posted on the TEAC website)

- Meeting Agenda
- Handout 8 – Response to Agency Comments at the July 18, 2007 TEAC Meeting (updated Sept. 5, 2007)
- Handout 8 Attachment – Historic SAV Mapping
- Handout 9 – Response to Written TEAC Comments Requested in July 2007
- Handout 10 – Detailed Study Alternatives (updated September 19, 2007)
- Final Section 6002 Project Coordination Plan

General Discussion:

- Responses to agency comments at the July 18, 2007 TEAC meeting – Responses to agency comments made at the July 18, 2007 TEAC meeting are included in Handout 8. The comments and responses were reviewed.
- Responses to written comments received since the July 18, 2007 TEAC meeting – Written comments were received from USEPA, USACE, NCDENR-DWC, and NCDENR-DMF. Responses to these comments are included in Handout 9. Questions and discussion on this handout can be found in the Q&A section of these minutes.
 - o Ferries – Additional consideration and analysis has been completed for a ferry alternative. These alternatives are essentially the same as the bridge alternatives, but replace the bridge with ferry service.

- o USEPA noted that the I-73 DEIS prepared for SCDOT has good discussion of NEPA cross-cutting issues and recommended that NCTA obtain a copy to consider as a go-by.
- o NCDENR-DCM noted that they will be providing written comments on alternatives selection. These comments will be similar to those already submitted by other agencies.
- **Detailed Study Alternatives** – NCTA reiterated its selection of MCB3 and MCB4 with Bridge Corridors C1 and C2 as the detailed study alternatives with the following details:
 - o The C1/C2 mainland corridor will be expanded to extend from just south of Aydlett Road north to the powerline corridor to allow for more detailed field studies and shifting of the alignment to minimize impacts.
 - o Alternate configurations will be considered for the interchange at US 158. Intersections will also be assessed for feasibility.
 - o Results of ongoing SAV studies will be used to minimize SAV impacts when determining the bridge alignment.
 - o On the Outer Banks, wetland impacts will be minimized as much as possible.

Q&A:

1. *What is the source of the hurricane statistics used to respond to USEPA Purpose and Need Comment #3?*
The data was gathered from the National Hurricane Center, NOAA, NC Climate Center. A full report will be provided to agencies by NCDOT.
2. *Will the DEIS address stormwater runoff from a bridge, as well as additional impacts related to storing and treating stormwater (i.e. land for treatment areas, etc.)?*
These impacts will be disclosed in the DEIS and discussed with agencies at upcoming TEAC meetings. NCDENR-DCM recommended that NCTA coordinate with NCDENR-Stormwater Division early in the design process to ensure proper stormwater measures are included.
3. *NCDENR-DWQ asked if widening on NC 12 does not improve hurricane clearance times, why it is included in the alternatives.*
NC 12 is not a controlling link for hurricane evacuation; therefore improvements to NC 12 do not effect clearance times. However, improvements to NC 12 would improve daily traffic flow in the project area.
4. *NCDENR-DCM asked about potential issues with navigability related to the bridge. NCDENR-DCM added that CAMA requires maintenance of conditions comparable what exists currently.*
NCTA has coordinated with USCG regarding navigability of Currituck Sound. USCG is amenable to looking into who is using Currituck Sound and what their requirements would be in terms of navigation.
5. *NCDENR-DCM indicated that mitigation for the project should include SAV impacts, noting that shading of SAV could require mitigation.*
Studies are ongoing to determine the extent of SAV in the project area. NCTA will coordinate with NCDOT, NCDENR-DCM, NCDENR-DMF, and NMFS to identify appropriate mitigation for SAV impacts. NCDOT suggested that mitigation could include constructing oyster beds or funding research efforts or water quality monitoring.
6. *USFWS noted that there was discussion during the July 10, 2007 field visit about preserving Maple Swamp as part of the mitigation for the project and asked if that discussion had been documented.*
This discussion was documented in meeting minutes for the field visit, as well as in meeting minutes for the July 18, 2007 TEAC meeting. USEPA suggested that as a first step to determining the feasibility of this proposal, property owners would need to be contacted to gauge their willingness to sell and/or preserve the property. USFWS added that a local land trust may be able to assist in this effort. In addition, local land use regulations should be reviewed to determine if there may already be protections in place. NCTA will discuss this further with NCDOT and NCEEP. USEPA pointed out that FHWA and NCDOT have not historically mitigated for indirect and cumulative impacts, and suggested that a commitment for a more robust mitigation plan could help alleviate agency concerns about the alternatives selection. FHWA requirements do not require mitigation for indirect and cumulative impacts.

7. *NCWRC requested clarification that no non-bridge alternatives are proposed for detailed study and expressed concern that an adequate comparison of secondary and cumulative impacts could not be completed without a non-bridge alternative being studied in detail.*
Based on the results of the alternatives screening process, NCTA is proposing to assess only bridge alternatives in the DEIS. NCTA is working with East Carolina University (ECU) to assess secondary and cumulative impacts for the project and has asked that ECU consider a non-bridge scenario for comparison with bridge alternatives.
8. *USACE asked if FHWA is satisfied that requirements of Section 6002 have been met with respect to selection of detailed study alternatives.*
FHWA stated that based on the alternatives analysis and screening that has been completed, they are satisfied with the recommendation to study only bridge alternatives. FHWA pointed out also that there is state legislation mandating that this project be studied as a bridge based on the ability to toll a new facility. Funding needs to be considered – if this project is not a toll project it will not be built. Tolling could have been incorporated into the purpose and need for the project; however, NCTA elected to continue with the purpose and need developed by NCDOT with the agencies through the Merger 01 process.
9. *Has a Public Private Partnership been secured for this project?*
No commitment for a Public Private Partnership is in place at this point, though private entities have expressed interest in this project.
10. *Agencies responded that ability to obtain funding for the project is speculative, and USACE noted that they are not comfortable dropping alternatives based on funding without the funding already in place.*
MCB2 is the only alternative eliminated from further consideration due to lack of funding. Other alternatives were evaluated through the screening process included in Handout 3 (May 2007) based on their effectiveness at meeting the project purpose and need, traffic benefits, and potential impacts. ER1 and MCB1 were eliminated based on the high number of relocations required for widening NC 12 to four lanes in Dare County. ER2 was eliminated because it provides minimal traffic benefits. FHWA added that these results are based on an alternatives screening process and alternatives that are not be arbitrarily carried forward.
11. *USEPA noted that there should be a full range of alternatives considered in the DEIS, including a non-bridge alternative, so that impacts can be evaluated equally. Also, the public should be given an opportunity to comment on the range of alternatives, including upgrading the existing roads.*
Alternatives considered to this point, including non-bridge alternatives, have been evaluated through the alternatives screening process introduced at the May 2007 TEAC meeting. At each stage of screening, equivalent levels of data were used for all alternatives. The screening process was used to evaluate a range of alternatives and determine which alternatives should be studied in detail in the DEIS.

Public workshops will be held as soon as possible and the public will be invited to comment on all alternatives.
12. *NCDENR-DCM asked about the status of invitation letters for cooperating and participating agencies.*
These letters are being prepared and will be distributed before the next TEAC meeting.

Previous Action Items:

- NCTA/NCDOT will investigate the legislative intent of 18-hour hurricane evacuation standard (GS 136-102.7) [See Handout 8 for response.]
- FHWA/NCTA to look into legislative intent of the accelerated pilot toll bridge project (GS 136-89.183) with specific regard to the terminology "bordering the State of Virginia" [See Handout 8 for response.]
- FHWA/NCTA to consider Tiered EIS recommendation [See Handout 8 for response.]
- NCTA will ask Carolina Land for a breakdown of relocations from direct impacts and relocations from reduced lot size only [See Handout 8 for response.]



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- NCTA will check on minimum lot size ordinances, prevalence of individual septic systems, and relation of lot size to the CAMA land use plan
[See *Handout 8 for response.*]
- NCTA will check with Currituck County on potential extension of NC 12 north; NCTA will check with NCDOT Division 1
[See *Handout 8 for response.*]
- NCTA will consider alternative interchange configurations for the US 158/Mid-Currituck Bridge interchange
[See *Handout 8 for response.*]
- NCTA will evaluate modifying C3/C4 to minimize impacts to the bay forest (shift north of Aydlett Road) and to the community of Aydlett
[See *Handout 8 for response.*]
- NCTA will check with NCDENR-DNH on information on the bay forest system
[See *Handout 8 for response.*]
- NCTA will continue to pursue ECSU SAV study information
[See *Handout 8 for response.*]
- NCTA will consider whether to meet on the project in August
[The August meeting was cancelled.]
- Agencies will provide comments and issues of concern on Highway Improvement Alternatives, bridge corridors, and proposed Detailed Study Alternatives within 30 days, as noted in the Section 6002 Project Coordination Plan.
[Written comments were received from: USACE, USEPA, NCDENR-DMF, and NCDENR-DWQ. See *Handout 9 for responses to written comments.*]
- Agencies will provide comments on the draft meeting summary from the July 10, 2007 field visit by August 15, 2007.
[No comments were received.]

New Action Items:

- NCTA will complete and distribute a final alternatives screening report for agency review and comment
- Agencies will provide any additional written comments on the alternatives screening conclusions presented in Handout 10, which states that MCB3 and MCB4 alternatives with bridge corridors C1 and C2 will be evaluated in the DEIS, by October 19, 2007.
- NCTA will distribute invitation letters to cooperating and participating agencies.

MEETING MINUTES

Date: November 14, 2007
9:00 am to 10:30 am
NC Turnpike Authority Office Building Ground Floor Conference Room (G-13)

Project: STIP U-4763B Triangle Parkway

Triangle Parkway Spotlight:

Attendees:

- | | |
|------------------------------------|-----------------------------------|
| Eric Alsmeyer, USACE | Tony Houser, NCDOT–Roadway Design |
| Travis Wilson, NCWRC | Anne Redmond, HNTB |
| Kathy Matthews, EPA | Jim Cooper, EcoScience |
| Gary Jordan, USFWS | Richard Bollinger, Transile |
| Chris Miltischer, EPA | Jay Bissett, Mulkey |
| Rob Rodings, NCDENR-DWQ | Jeff Reck, Mulkey |
| Brian Wrenn, NCDENR-DWQ | David Bocker, Mulkey |
| Renee Gledhill-Early, HPO | Angela Parker, Mulkey |
| George Hoops, FHWA | Cindy Carr, Mulkey |
| Donnie Brew, FHWA | Johnny Banks, Mulkey |
| Jennifer Harris, NCTA | Bill Hood, Mulkey |
| Tim McFadden, NCDOT–Alt. Delivery | |
| Nicole Hacker, NCDOT–Alt. Delivery | |
| Nilesh Surti, NCDOT–Alt. Delivery | |

Presentation Materials: (All materials have been posted on the TEAC website)

- Meeting Agenda
- 30% Hydraulic Design Plans
- Half-size draft public hearing map
- Handout 1 from October 17, 2007 TEAC Meeting – Wetland and Stream Impact Table
- Handout 3 from October 17, 2007 TEAC Meeting – NC 540 Stream and Wetland Impact Table

Purpose:

The purpose of this meeting was to provide a brief project status update, discuss any comments received on avoidance and minimization, proposed widening of eastbound NC 540 and qualitative Indirect and Cumulative Effects (ICE) results, and review the 30% Hydraulic Plans.

General Discussion:

The following information was discussed during the meeting:

- Public Hearing Map Overview/Project Description** - Triangle Parkway is proposed as a six-lane tolled freeway facility with a 46 foot grassed median with 12-foot paved inside shoulders and 12-foot paved outside shoulders. Each of the proposed travel lanes is 12-foot wide. The project is located in southern

Durham County and western Wake County, predominately within RTP. The project includes the following improvements:

- Constructing a full control access road extending approximately 3.4 miles in length from NC 540 to I-40.
- Constructing a compressed split diamond interchange between Davis Drive and Hopson Road with one-way frontage roads connecting Davis Drive and Hopson Road.
- Constructing dual bridges over Burdens Creek.
- Constructing toll plazas on the interchange ramps at Hopson Road.
- Constructing toll plazas on the ramp between westbound NC 540 and northbound Triangle Parkway and the flyover ramp between southbound Triangle Parkway and eastbound NC 540.
- Widening approximately 0.8 miles in the median of northbound NC 147 from I-40 to Cornwallis Road.
- Widening the outside lane of eastbound NC 540 by one-lane (The total length of the widening along NC 540 is approximately 1.3 miles).
- Widening the two-lane flyover ramp from eastbound NC 540 to Triangle Parkway to three-lanes.
- Widening the existing bridges on NC 540 over Davis Drive, Cisco Access Road and proposed Louis Stephens Road.
- Constructing the Kit Creek Road connector. (The Kit Creek Road connector, which would provide additional connectivity between Davis Drive and Church Street, is currently included as part of the Preferred Alternative at the request of the Town of Morrisville. A final decision on the construction of the Kit Creek connector will be made after all comments are received on this environmental document and through the public hearing process.)

- **Project Status Update** – An update on the project status was provided to the meeting attendees. This update included the following information:
 - Qualitative Indirect and Cumulative Effects (ICE) presentation and Avoidance and Minimization – Comments, issues or concerns on the ICE presentation and the Avoidance and Minimization discussion were requested at the October 17, 2007 TEAC Meeting by November 9, 2007. The NCTA did not receive any comments. If there are any comments, issues or concerns, please submit them to Jennifer Harris as soon as possible. The draft ICE assessment is currently being reviewed by NCDOT and FHWA. The report should be finalized within the next few weeks and will be made available on the TEAC website.

- EPA questioned the review of hydraulic plans prior to the issuance of the Environmental Assessment (EA). The NCTA is using an expedited process to implement the project. FHWA and NCTA acknowledged that the team is proceeding at risk in order to meet an expedited schedule, and commented that if the plans changed based on the public hearing or comments received during the EA review period that those changes to the design plans would be revised and re-reviewed with the agencies. No approvals are final until the final NEPA document is completed and the 401 and 404 permits are issued. There will be additional opportunities for the environmental review agencies to provide comments prior to the submittal of the permit package. It should be noted this project has been screened out of the 404/NEPA Merger Process in July 2006.

- The NCTA is aware of the concerns raised by the employees at the EPA facility located adjacent to the project. The NCTA has had numerous meetings with both EPA and NIEHS management and the employee's union representatives throughout the planning process to discuss their concerns regarding access to the campus and air quality at the daycare. EPA recommended that a chronology of coordination with EPA / NIEHS during the planning process be disclosed in the EA.
- A quantitative Mobile Source Air Toxics (MSATs) Analysis is being prepared for the project and will be included in the EA. The preliminary Noise Report has determined that a noise wall is feasible and reasonable at the daycare facility located on the EPA property. A Design Noise Report will be prepared and completed prior to the Public Hearing to finalize the need for the noise wall. In addition, there is an environmental commitment in the EA and in the Design-Build scope of work to minimize the cutting of trees along the EPA property in the vicinity of the daycare.

- NCTA and NCDOT will continue to evaluate the access to EPA at Hopson Road with the NCDOT after comments are received on the EA and after the Public Hearing. The current design includes a left-over at this intersection based on the project-level traffic analysis and NCDOT Roadway Design

Manual and Median Crossover Spacing Guidelines, which recommends a 1,200-foot minimum intersection spacing for divided highways without full control of access and posted speeds of 45 mph and less. Hopson Road is a NCDOT state maintained facility. Therefore, any decisions on access must be approved by NCDOT. The NCTA will include the information relating to the coordination completed with the EPA and NIEHS in the EA. Once completed, the EA will be available on the NCTA website.

- The EPA commented that studies show the noise wall should help mitigate the MSATs at the daycare. MSAT effects vary according to the time of year and are more of an issue during cool winter days. MSATs tend to hydrolyze (mix in with air and humidity), and effects are felt immediately adjacent to the roadway (within 100 feet). The daycare is approximately 10 to 12 feet above the elevation of the proposed roadway.

Review of the 30% Hydraulic Plans – Jeff Reck proceeded with the review of the 30% hydraulic plans for the project. The following is a discussion of each wetland or stream site being impacted by the project:

General

- All waters within the project are Class 'C' nutrient sensitive waters.
- The project falls within the Cape Fear River Basin.
- Grass Swale treatment will occur in multiple locations throughout the project in ditches where flat slopes can be maintained.
- Pre-formed scour holes will also be utilized as treatment measures.
- Proposed culverts will be buried 1 ft to provide for fish passage.
- Cross pipes in jurisdictional perennial streams will be buried 1 foot.
- Cross pipes in jurisdictional intermittent streams will be buried 1 foot for culverts greater than 48 inches and 20% of the pipe diameter for culverts less than 48 inches in diameter.

(The cross pipe topic was clarified after the meeting with NCDENR-DWQ & NCDWRRC via email stating: Cross pipes in jurisdictional perennial and intermittent streams will be buried 1 foot for culverts greater than 48 inches and 20% of the pipe diameter for culverts less than 48 inches in diameter.)

Sheet 2-DET-1

- Details Sheet
 - All impacts shall be temporary.
 - Riprap at inlet of temporary culvert is proposed to provide positive drainage since the inlet is perched.
 - Stream NSL is considered permanent impacts currently, but needs to be changed to temporary stream impacts since culvert extensions will be removed and everything will be put back to existing conditions. The impacts table will also be revised to reflect this change.

Sheet 2-DET-2 (No Comments from Regulatory Agencies)

- No impacts
- Sheet 4
 - Culvert Crossing at Sta. 99+37 –L–
 - A single box culvert is proposed to match the channel shape
 - Riprap will be removed from channel bed per request.
 - Culvert Crossing at Sta. 11+28 –YSDR1–
 - Waiting on geotechnical information to determine if existing bottomless arch culvert can withstand additional fill
 - Current design shows proposed 9' x 6' box culvert to replace bottomless arch culvert (worst case scenario).
 - Base Ditch
 - At grade
 - Wetlands
 - Impacts at approx. Sta. 109+00 due to the roadway alignment.

General Comment: NCWRC noted not to put riprap in perennial channels for energy dissipation.

Sheet 5 (No Comments from Regulatory Agencies)

- Intermittent Stream
 - Approximately 200 ft of impacts at approx. Sta. 120+00

Sheet 6

- Culvert Crossing at Sta. 125+00 –L–
 - Can be built in the dry, without additional impacts to the stream.
 - 2 ft silt in culvert carrying "non" base flow.
 - Culvert is buried 1 ft
 - Request made to remove rip rap from channel bed
- Culvert Crossings at Sta. 142+53 –L– and Sta. 229+85 –Y1–
 - Can be built in the dry, without additional impacts to the stream.
 - 2 ft silt in culvert carrying "non" base flow.
 - Culvert is buried 1 ft
 - Grass-lined swales before direct discharge into culvert.
 - Concern about the channel between these two culverts
- USACE asked if the two culverts could be connected. NCTA stated that they could not because there would be too much direct discharge into the culverts, and the bridge limits the alignment options.
- At the request of USACE, NCTA plans to look at the detailed design for this channel prior to the next TEAC meeting in December to make sure the channel is stable. There is a lot of water flowing through the channel and there are two bends in the channel; these are both design concerns. The velocity of the channel at that site is 7.6 ft/s and the bed slope is 0.5%.
- There was a request by USACE to reinforce the channel as much as necessary, including adding riprap if needed.
- Wetlands
 - Assuming total takes for all wetlands
- Perennial Streams
 - There will be some perennial streams buried.
- Ponds
 - There was a question about impacts to the office park stormwater ponds shown on Sheet 6. NCTA stated that the current designs do not impact any of the stormwater ponds associated with the office parks on Sheet 6.
- General Comments
 - Remove "Drain Ditch" from the survey file throughout the entire project.
 - At approx. Sta. 241+00 –Y1– there is riprap in the jurisdictional stream that was permitted under TIP Project U-4026.

Sheet 7

- Perennial Stream
 - At match line for Sheet 6, approx. 75 ft of stream will be impacted. The stream turns to intermittent after that, and the whole area will be a total take.
 - Open channel flow with riprap will be added to the west side of the project to relocate the stream.
- Intermittent Streams at north side of Hopson Rd.
 - Adding a ditch to handle the flow. Ditch will be grass lined for the first half then rip rapped.

Sheet 8

- Intermittent Stream
 - From beginning of sheet to Sta. 185+00 –L– the intermittent stream will be a full take.
 - Relocating stream from the east side of the project to the west side.
- Perennial Streams
 - From Sta. 185+00 –L– to the end of the sheet the perennial stream will be a full take.
- Perennial Streams
 - Impacts up to Sta. 191+00 –L–, after that we will no longer be impacting it
 - Riprap will most likely be added to that stream (only showing on the banks currently) due to the high velocity of the water exiting the 72" cross-pipe.
- 72" Cross-pipe
 - Look at energy dissipaters besides riprap.
 - USACE asked if a bend be added. NCTA stated that a bend could not be added because the amount of discharge and the size of the culvert create concern of debris potential at the bend. The overall skew angle will be looked at and revised if feasible.
- Wetlands
 - Fill slope into wetlands at approx. Sta. 204+00 –L–.
 - A 5 ft berm will be provided at the base of slope.
- General
 - Comment that traffic flow arrows appear to be reversed on some sheets.
 - NCDOT inquired if the wall could be moved back further from guardrail.

Sheet 10

- Wetlands
 - Wetlands from Sta. 207+00 –L– to 211+00 –L– will be total take.
 - Wetlands from Sta. 218 –L– to next sheet will be total take.

Sheet 11

- Wetlands
 - Bridge over wetlands
- There is a bent located in the wetlands
- USACE asked how much will be impacted due to access for construction. NCTA responded that there will be temporary impacts for the access and construction; the bent will be a permanent impact.
- EPA requested that the 340' bridge over the FEMA-regulated stream be documented as avoidance and minimization.

Sheet 12

- Culvert Extension on –Y3–
 - Culvert dropped at outfall to match scour hole
 - NCDENR-DWQ requested the removal of the riprap from the channel and instead using the NCDOT energy dissipater cell.

Sheet 13

- Culvert Extension
 - Extending existing 8' x 6' culvert
 - No riprap in channel
- Jurisdictional Intermittent Stream impacts on –Y4RPC–
 - Relocating stream (diverting it)
 - Riprap will be put on embankment

Sheet 14 (No Comments from Regulatory Agencies)

- Widening existing road
 - Sheet Flow into existing stream, no impacts
- Floodplain may be created by excavating embankment

Sheet 15 (No Comments from Regulatory Agencies)

- Widening existing road
 - Sheet Flow into existing stream, no impacts
- Floodplain may be created by excavating embankment

Sheet 16 (No Comments from Regulatory Agencies)

- Widening existing road
 - Sheet Flow into existing stream, no impacts
- Culvert Extension
 - No impacts
- Floodplain may be created by excavating embankment

Sheet 17

- Retaining wall on -YRPA- needed due to toll plaza - (worst case scenario if there are cash collection facilities instead of all electronic toll collection)
 - Might require extension of two culverts
- Sta. 40+00 -YBFLY-- culvert extension (worst case scenario if there are cash collection facilities instead of all electronic toll collection)

Sheet 18 (No Comments from Regulatory Agencies)

- No proposed work
 - No impacts

Sheet 19 (No Comments from Regulatory Agencies)

- No proposed work
 - No impacts

Sheet 20 (No Comments from Regulatory Agencies)

- No impacts

Sheet 21 (No Comments from Regulatory Agencies)

- No impacts

Sheet 22 (No Comments from Regulatory Agencies)

- No impacts

Sheet 23 (No Comments from Regulatory Agencies)

- No impacts

Sheet 24 (No Comments from Regulatory Agencies)

- No impacts

Sheet 25 (No Comments from Regulatory Agencies)

- No impacts

Sheet 26 (No Comments from Regulatory Agencies)

- No impacts

Sheet 27 (No Comments from Regulatory Agencies)

- Permitted under U-4026

Sheet 28 (No Comments from Regulatory Agencies)

- No impacts

Sheet 29

- Intermittent Stream
 - 75 ft of stream will be buried
 - Existing 36" pipe at this location will be extended

Next Steps

- NCTA will review the draft permit drawing with the agencies

New Action Items:

- The NCTA will distribute the draft permit drawings to the agencies prior to the (December or January) TEAC meeting. At the meeting, the NCTA will review the permit drawings with the agencies. The hydraulic design engineers will be present at the meeting to review the drawings and discuss comments with the agencies. (Note: NCTA anticipates submitting the permit applications in February 2008.)
- Brian Wrenn will be representing NCDENR-DWQ from this point forward as Acting Supervisor since John Hennessy is no longer in this position.

Date: November 14, 2007
10:30 am to 12:30 pm
NC Turnpike Authority Office Building Ground Floor Conference Room (G-13)

Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-OOOS(35)

Mid-Currituck Bridge Spotlight:

Attendees:

Bill Biddlecome, USACE	George Hoops, FHWA
Christopher Miltischer, USEPA	Donnie Brew, FHWA
Kathy Matthews, USEPA	Bruce Ellis, NCDOT-NEU
Gary Jordan, USFWS	Ted Devens, NCDOT-PDEA
Ron Sechler, NMFS	Jennifer Harris, NCTA
Jim Hoadley, NCDENR-DCM	Christy Shumate, HNTB
Cathy Brittingham, NCDENR-DCM	Jens Geratz, EcoScience
David Wainwright, NCDENR-DWQ	John Page, PB
Brian Wrenn, NCDENR-DWQ	Mike Fendrick, PB
Travis Wilson, NCWRRC	Eric Misak, PB
Renee Gledhill-Early, NCDENR-HPO	Sam Cooper, CZR

Presentation Materials: (All materials have been posted on the TEAC website)

- Meeting Agenda
- Handout 11 – Conceptual Alternatives Refinement
- Bathymetric and SAV Data from USACE
- Compressed Y Interchange Concept (Sheets 1 and 2 of 2)
- Signalized Intersection Concept (Sheets 1 and 2 of 2)
- Trumpet Interchange Concept (Sheets 1 and 2 of 2)
- NC 12 Alternatives C1C and C1D
- NC 12 Alternatives C1A, C2A, and C1B
- USACE Currituck Sound Hydrographic and Submerged Aquatic Vegetation Survey (September 2007)
- NCDOT SAV Field Survey Summary (October 26, 2007)

Purpose:

The purpose of the meeting was to discuss results of environmental field studies, including submerged aquatic vegetation (SAV) mapping, wetland delineations, and tree surveys in Maple Swamp, and review conceptual interchange and alignment options for bridge corridors.

General Discussion:

The following information was discussed at the meeting:

- **Alternatives for Detailed Study** – NCTA is working to address written comments received from the agencies on the proposed alternatives for detailed study and to complete documentation of the alternatives analysis process. A draft alternatives study report will be circulated for agency and public comment once it is complete. NCTA is proceeding with environmental field studies for the MCB3 and MCB4 bridge alternatives in the C1 and C2 bridge corridors, as there has been general agreement that those alternatives should be studied in detail in the draft environmental impact statement (DEIS).
- **Environmental Field Studies** – Within the C1/C2 bridge corridors, environmental field studies are underway. This includes: SAV/bathymetry mapping studies conducted by USACE, wetland delineations, and tree surveys in Maple Swamp.
 - SAV - SAV and bathymetry surveys were conducted by USACE for the NCTA in June/July 2007. From the mapping, USACE was able to identify areas currently containing SAV as well as water depth (and potential SAV habitat) throughout the study area. The results of the USACE survey

were provided to and field checked by NCDOT-NEU in August 2007 and found to be accurate. On bathymetry mapping, areas shown in green are shallower than areas in blue. SAV habitat is considered to be areas with less than 5 feet of water depth. Potential impacts for the bridge alternatives will be calculated for both existing SAV and potential SAV habitat. NCTA has received a final report from USACE summarizing the results of their survey. Hard copies of the report were distributed at the meeting, and the report is available on the TEAC website.

- Wetland delineations - Wetland delineations are on-going in the C1 and C2 corridors. CZR used aerial photographs, soils mapping, and the North Carolina Natural Heritage database to identify potential wetland areas. Potential wetlands were mapped in the office and field checked. CZR is in the process of flagging wetland boundaries and has had one field meeting with the USACE representative (Outer Banks side). CZR noted that several isolated wetlands were located on the Outer Banks along NC 12 and will likely be subject to NCDENR-DWQ jurisdiction.
- The field checked wetland impacts were used in the comparison of interchange and intersection alternatives in the C1 and C2 corridors discussed below.
- Tree surveys in Maple Swamp - CZR conducted a tree survey in Maple Swamp to identify trees greater than 22 inches diameter at breast height (DBH). Trees with diameters larger than 22 inches represented less than 15 percent of the number of trees surveyed. Larger trees were concentrated south of Aydlett Road, where the largest trees would surpass the state's current Loblolly Bay "Champion Tree", which is 18 inches DBH. CZR also recorded density of trees greater than 10 inches DBH per acre, species composition, and habitat/community type. Some loblolly bay trees are found north of Aydlett Road, but the current C1/C2 alignment, which is north of and parallel to an existing powerline corridor, would avoid impacts to loblolly bays. Maps showing the results of this survey are included in Handout 11.

- **Work Plan for Completion of the Alternatives Studies** – NCTA is continuing work on the complete draft Alternatives Study Report, which will summarize the alternatives development and analysis process and document NCTA's recommended detailed study alternatives. The completed report will be distributed for agency and public review, likely early in January 2008. Citizens Informational Workshops will also be held in late January/early February 2008 to obtain public comment on the Statement of Purpose and Need and alternatives considered for the project. Dates have not yet been determined for the Citizens Informational Workshops but will be provided to agency representatives as soon as they are available. A summary of the public comments will be provided to the agencies.

- **US 158 Interchange Alternatives** – Based on agency comments received during the July 2007 field visit, multiple interchange configurations at US 158 and the proposed bridge were considered to minimize impacts to wetlands west of US 158. Three configurations were evaluated in detail using conceptual designs and field-checked wetland impact calculations. Toll collection and support facilities for the interchange options have been incorporated to minimize wetland impacts. These configurations all tie to a two-lane bridge at this time, as NCTA is evaluating 2035 traffic projections and lane requirements for the bridge.

- Trumpet interchange – the trumpet interchange configuration was originally proposed in the previous studies but would have impacts to wetlands west of US 158. This concept includes a single toll collection plaza, operations facilities, and a relocation of Aydlett Road to the south. This interchange configuration has the greatest wetland impacts and would relocate three residences and two businesses. The cost of this interchange is also relatively high due to the amount of bridging required to minimize wetland impacts.
- Compressed Y interchange – this interchange concept was developed to minimize wetland impacts west of US 158. It would use ramp toll collection plazas, which would not have any wetland impacts. This interchange configuration is preferred by NCTA because of lower potential wetland impacts, good traffic flow, and lower costs.
- Signalized intersection – this concept would use a signalized intersection to control southbound US 158 traffic onto the bridge and westbound bridge traffic onto US 158. The southbound lanes of US 158 would be shifted to allow for unimpeded southbound flow and create a storage area for cars turning onto the bridge. This concept would include a single toll plaza, which would result in some filled and bridged wetland impacts. This concept is also the most expensive and is not preferred by NCDOT or NCTA.



Turnpike Environmental Agency Coordination (TEAC) Meeting

USFWS, USACE, and NCDENR-DWQ agreed that the compressed Y interchange is preferred. USEPA suggested carrying both the trumpet and compressed Y interchanges forward at an equal level of detail for public input. All three interchange configurations and their analysis will be included in the draft Alternatives Study Report.

- **NC 12 Intersections** – NCTA originally presented two potential Outer Banks termini for the project – C1/C3/C5 termini near the Corolla Bay development north of Monterey Shores, and the C2/C4/C6 termini near the Timbukli shopping center. At the July 2007 field visit, agencies requested that NCTA evaluate shifting the C1/C3/C5 to the south to minimize impacts to coastal wetlands. In addition, in written comments dated October 22, 2007, NCDENR-DCM requested that NCTA consider an alternative alignment that would minimize direct impacts to current SAV beds. In response to these comments, several options were developed for each of the original termini within the existing study corridors.

- o C1 – original northern termini that impacts new Corolla Bay subdivision and coastal wetlands.
- o C1A – avoids direct impacts to existing SAV beds, but would have greater impacts to existing Monterey Shores subdivision.
- o C1B – ties in between Corolla Bay and Monterey Shores and would not directly impact existing residences in either development; minimizes impacts to coastal wetlands.
- o C1C and C1D – southward shifts of C1 within Corolla Bay to minimize coastal wetland impacts.
- o C2 – original southern termini at Timbukli shopping center; substantially impacts access to several commercial properties.
- o C2A – southward shift of C2 to minimize access changes to commercial properties.

Costs for these options are not a factor in decision-making as cost is more dependent on the length of widening required on NC 12 (approximately 2 miles for C2 options and approximately 4 miles for C1 options). NCTA proposes to eliminate Option C1A because of its community impacts, and although it would avoid current SAV beds, it would impact potential SAV habitat. NCTA will discuss Options C1, C1B, C1C, and C1D with Currituck County and present to the public. Likewise, NCTA will discuss Options C2 and C2A with the County and present to the public.

- **Invitations to Participating and Cooperating Agencies** – NCTA distributed invitation letters for state agencies to become participating agencies and requested responses by December 14, 2007. Invitation letters for federal agencies to become cooperating and/or participating agencies will be mailed to federal agency representatives from FHWA.

Previous Action Items:

- NCTA will complete and distribute a final draft alternatives screening report for agency review and comment.
[Preparation of this report is underway.]
- Agencies will provide any additional written comments on the alternatives screening conclusions presented in Handout 10, which states that MCB3 and MCB4 alternatives with bridge corridors C1 and C2 will be evaluated in the DEIS, by October 19, 2007.
[Written comments were received from USEPA (October 19, 2007 email), NCDENR-DWQ (October 12, 2007 letter), NCWRC (October 15, 2007 letter), NCDENR-DMF (October 18, 2007 letter), and NCDENR-DCM (October 22, 2007 letter).]
- NCTA will distribute invitation letters to cooperating and participating agencies.
[Invitation letters to participating state agencies were distributed at the November 14, 2007 TEAC meeting. Responses have been received from NCDENR-DWQ and NCDENR-DMF. Invitations to federal cooperating and participating agencies were distributed via mail by FHWA.]

New Action Items:

- NCTA will complete and distribute a final draft alternatives screening report for agency review and comment.
- NCTA will schedule Citizens Informational Workshops and notify agencies of the dates for these workshops.
- Agencies will provide comments on US 158 interchange alternatives and NC 12 intersection options.
- Agencies will respond to invitations to become cooperating and/or participating agencies.

MEETING MINUTES

Date: February 5, 2008
1:30 PM to 2:30 PM
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

Bill Biddlecome, USACE	George Hoops, FHWA
Christopher Millscher, USEPA	Donnie Brew, FHWA
Kathy Matthews, USEPA	Dewayne Sykes, NCDOT-Roadway
Gary Jordan, USEFWS	Sam St. Clair, NCDOT-Roadway
Ron Sechler, NMFS (via phone)	Jennifer Harris, NCTA
Cathy Brittingham, NCDENR-DCM	Christy Shumate, HNTB
Sara Wainwright, NCDENR-DWQ	Jens Geratz, EcoScience
David Winslow, NCDENR-DMF (via phone)	John Page, PB
Travis Wilson, NCWRC	Chris Lloyd, PB
Renee Gledhill-Earley, NCDCCR-HPO	

Presentation Materials: (All materials have been posted on the TEAC website)

- Meeting Agenda
- Mid-Currituck Workshop Postcard Notification (February 2008)

Purpose:

The purpose of the meeting was to prepare for distribution of the Alternatives Study Report and provide an overview of upcoming Citizens Informational Workshops.

General Discussion:

The following information was discussed at the meeting:

- **Statement of Purpose and Need and Alternatives Study Report Status** – The Statement of Purpose and Need is being updated to incorporate 2035 No-Build traffic forecast data to correspond to the design year used for the project.

NCTA is continuing work on the complete draft Alternatives Study Report, which will summarize the alternatives development and analysis process and document NCTA's recommended detailed study alternatives. The completed report will be distributed for agency and public review to obtain comment on the Statement of Purpose and Need and alternatives considered for the project. A

summary of the public comments will be provided to the agencies before the April 2008 TEAC meeting.

- **Two, Three, and Four Lane Bridge Discussion** – PB provided an overview of the differences between 2, 3 and 4 lane bridge scenarios for the Mid Currituck Bridge. Under the 2035 travel demand forecast, a two lane bridge operates at an acceptable Level of Service (LOS D) during the Summer Weekday. The four lane bridge scenario operates a better LOS but affords a travel time savings of just a few minutes over the two lane bridge. The four lane bridge will have a capital cost of approximately \$122 million more than the two lane bridge.

A three lane bridge scenario was evaluated but is subject to a series of operational issues that impact safety and costs. Three lane scenarios under a fixed lane overhead signal system were evaluated, but found to be problematic when dealing with seasonal users. This system works best under a commuter pattern where daily users have adjusted their driving behavior to accommodate the signals which control lane access. A movable barrier was considered as another three lane option but is costly to implement and has safety concerns for the operating staff and users.

The interchange with US 158, the intersection with NC 12, as well as the approaches to the bridge will be sized to accommodate summer weekend peak traffic to avoid back-ups entering and existing the bridge.

All 2, 3 and 4 lane bridge conditions assume a toll bridge.

- **Citizens Informational Workshops February 26th, 27th and 28th (4:00 to 8:00 PM)** – Citizens Informational Workshops have been scheduled for February 26, 27 and 28. The workshops (4:00 to 8:00 PM) will be informal with no presentation provided. The intent is to provide attendees the opportunity to review project information on the purpose and need, study area, and alternatives under consideration and solicit and respond to attendee comments and inquiries. Presentations to Currituck and Dare County officials will occur on February 26 (Currituck County) and 28 (Dare County) before the workshops. Approximately 12,000 postcards announcing the workshops will be mailed to property owners, officials and citizens who are on the mailing list. After the workshops a newsletter will be distributed.
- **East Carolina University** – NCTA provided an update on the progress of work being completed by East Carolina University (ECU). ECU received a SAFETEA-LU earmark to do research on the Mid-Currituck Bridge project, and are providing support for indirect and cumulative impacts assessment, socioeconomic analysis, and supplemental traffic operations evaluations.
- **Maple Swamp** – NCTA provided recent news regarding clear cut operations that have occurred on a 100-acre parcel just north of Aydlett Road. NCTA noted that ECU is looking into preservation opportunities for Maple Swamp as part of their work.

Q&A:

1. **USEPA** asked if hurricane evacuation times vary with 2, 3 and 4 lane bridge options. The number of lanes on the bridge does not affect hurricane evacuation time because the critical link to hurricane evacuation is US 158 between the Wright Memorial Bridge and NC 12.
2. **NCDCR-HPO** inquired if tolls would be collected for both directions of travel. NCTA currently plans to collect tolls for both directions of travel on the bridge. FHWA added that tolls would be suspended under emergency evacuation orders.
3. **NCDENR-DCM** asked how the C1/C2 touchdown point options will be addressed. NCTA assured that they will all be included in the DEIS as part of the alternatives assessment discussion. Additionally, public input will be collected at Citizens Informational Workshops in February, and agency input will be further assessed at the next TEAC meeting.

meeting, planned for April 2008. PB provided additional comments on the operational and land constraints that will influence the ultimate configuration of the C1 and C2 alignments.

PB also elaborated on the configurations of the interchanges under study at US 158. The interchange configuration will be influenced by the need to reduce wetland and high quality resource impacts balanced against the space constraints of fitting the toll plazas, offices, maintenance facilities and access roads into the interchange. All of these considerations will be provided in the Alternatives Study Report and DEIS. PB further asserted that all alternatives will be presented at the Citizens Informational Workshops, however, more emphasis will be placed on the ER and MCB build alternatives.

4. **USACE** inquired about the availability of revised Statement of Purpose & Need and Alternatives Study Report before the Citizens Informational Workshops. NCTA confirmed the intent is to have both documents available before the workshops. Hard copies will be distributed to the agencies, and the documents will be posted to the NCTA website for public review. USACE was pleased with the language used in the workshop postcard notification.

Previous Action Items:

- Obtain comments on conceptual interchange and alignment options for bridge corridors. [Comments were received from NCDENR-DCM (10/22/07) and USEPA (12/14/07) on conceptual interchange and alignment options for bridge corridors.]
- Distribute invitation letters to participating and cooperating agencies. [Responses to participating agency invitations were received from NCDENR-DCM, NCDENR-DMF, NCDENR-DWQ, NCWRC, and NCDCR-HPO. The USACE accepted the invitation to become a cooperating and participating agency.]

New Action Items:

- NCTA will distribute the Alternatives Study Report for agency and public comment.

Resolutions:

- None

MEETING MINUTES

Date: February 5, 2008
2:30 pm to 3:30 pm
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP R-3329 Monroe Connector – NHF-74(21)
STIP R-2559 Monroe Bypass – NHF-74(8)

Monroe Connector / Bypass Spotlight:

Attendees:
Donnie Brew, FHWA
George Hoops, FHWA
Kathy Matthews, USEPA
Chris Millscher, USEPA
Steve Lund, USACE
Marella Buncick, USFWS (by phone)
Renee Gledhill-Early, NCDOT-HPO
Maria Chambers, NCWRC (by phone)
Polly Lespinasse, NCDENR-DWQ (by phone)
Anne Gamber, NCDOT-Hydraulics
John Conforti, NCDOT-PDEA
Ryan White, NCDOT-PDEA
Dwayne Sykes, NCDOT-RDU
Bob Cook, MUMPO (by phone)
Steve DeWitt, NCTA
Jennifer Harris, NCTA
Christy Shumate, HNTB
Anne Redmond, HNTB
Carl Gibilaro, PBS&J
Kiersten Giugno, PBS&J
Jill Gurak, PBS&J
Michael Gloden, EcoScience

Presentation Materials: (all materials have been posted to the TEAC website)

- Meeting Agenda
- Draft TEAC Meeting Minutes (December 5, 2007)
- Summary of Public Comments and Summary of Agency Comments and Responses

Purpose:

The purpose of this meeting was to discuss agency and public comments on the Draft Alternatives Development and Analysis Report.

General Discussion:

- **Summary of Public Comments on Draft Alternatives Development and Analysis Report**
 - The Draft Alternatives Development and Analysis Report was distributed to the agencies and posted to the NCTA website in early November 2007. No comments on the analyses included in the report were received from the public. The vast majority of comments were regarding specific corridor segments. The following summary of public comments was provided:
 - Twenty-two inquiries about impacts to individual properties;
 - Two comments regarding improvements needed on US 601 between US 74 and the North Carolina/South Carolina border;
 - One comment to use NC 218 as the route for the Monroe Connector/Bypass;
 - Two emails supporting alternatives that include Corridor Segment 18A;
 - Sixty-seven emails opposing alternatives that include Corridor Segment 18A;
 - The Town of Stallings, Town of Matthews, and City of Monroe commented via letters and/or local resolutions in support of routes that do not include Corridor Segment 18A;
 - CPCC commented in opposition to Corridor Segment 18A;
 - Approximately 2,300 signatures, including 1,693 petitions and 609 copies of a form letter, were received in opposition to alternatives that include Corridor Segment 18A;
 - Village of Lake Park opposed alternatives that include upgrading existing US 74, including alternatives that include Corridor Segment 2.

- The Town of Indian Trail indicated that Corridor Segments 2 and 22A are inconsistent with local land use plans and expresses concern that Corridor Segment 2 would impact the Old Hickory Industrial Park.

- **Summary of Agency Comments on Draft Alternatives Development and Analysis Report** – Several agencies requested additional information on Alternative G, upgrading existing US 74, including potential indirect and cumulative impacts. Based on these comments, NCTA will carry Alternative G forward on an interim basis until additional information can be evaluated on traffic forecasts, direct community impacts, and potential indirect and cumulative impacts. Alternative G will be included in the qualitative indirect and cumulative impact analysis (ICI). NCTA still recommends Alternative G be eliminated from further consideration based on the information provided in the Draft Alternatives Development and Analysis Report. Once the additional analysis is complete, the data will be presented at a TEAC meeting for discussion.

Several agencies also commented on interchange locations for the project. At this time, interchanges for the detailed study alternatives will correspond to those in the Long Range Transportation Plan; however, due to potential natural resource impacts, NCTA will evaluate all alternatives with and without an interchange at Indian Trail Fairview Road. This will allow for an equal comparison of the alternatives.

NCWRC commented that impacts from Alternative G would likely make it impractical and suggested that Alternative E should also be considered further. It was noted that this alignment would substantially impact a residential area (Hamilton Place), which exhibited strong opposition when the alignment was presented previously as part of the Monroe Bypass project and more recently as part of this project, as well as two historic properties (Secret Farm and Hiram Secret House). NCWRC noted that if the study team is comfortable with studying essentially one build alternative for the project, then she would agree as well. USEPA commented that a full analysis of feasible alternatives should be conducted and warned that the narrower the range of alternatives will equate to an increase in litigation risk. USACE noted that for Section 404 compliance, alternatives can be considered and eliminated prior to detailed study as long as the process and decisions are documented either in a technical report or in the Draft EIS. FHWA noted that the comment to consider another alternative would be considered; however, FHWA is comfortable with the range of alternatives as presented in the screening document. Over many meetings in 2007, the screening process was presented to the agencies for comment.

- **Indirect and Cumulative Impacts** – HNTB is currently preparing a draft qualitative ICI, which is scheduled to be presented to the group for discussion in May 2008. Data collection has begun. The following approach will be used to complete the ICI analyses:
 - The growth impact study area has been identified and provided to FHWA for approval. The growth impact study area will be refined as the ICI moves forward and additional data is available.
 - The ICI will primarily look at growth around proposed interchange areas. The ICI will assume the same interchanges as presented in the Long Range Transportation Plan, but will analyze the project with and without a US 601 interchange.
 - Existing and new land use ordinances will be reviewed to determine existing and future land use. Applicable policies and regulations (e.g., stream buffers and water quality) will also be reviewed.
 - Indicators will be developed in coordination with appropriate agencies to assist in evaluating impacts.
 - Meetings with local planners will be coordinated between various team members.
 - A list of questions will be prepared and provided to the planners in advance of the meetings.
 - The ICI will assume the typical sections included in the Draft Alternatives Development and Analysis Report for new location and upgrade existing roadway segments.

Previous Action Items:

- Obtain agency input on quantitative third screening and recommended detailed study alternatives.
[Written comments received from USACE, USEPA, USEFWS, NCDENR-DWQ, NCDOR-HPO, and NCWRC.]

New Action Items:

- None.

Resolutions:

- Concluded discussion on detailed study alternatives – Alternatives A, B, C, D, A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2, and D3 will be evaluated as detailed study alternatives in the Draft Environmental Impact Statement.
- Alternative G (upgrading existing US 74) will be carried forward on an interim basis until such time as additional information can be developed and evaluated, including potential indirect and cumulative impacts.

Next Steps:

- No TEAC meeting in March 2008; next anticipated TEAC meeting is April 2008.
- Indirect and Cumulative Impact Assessment
- Community Impact Assessment
- Functional Designs
- Environmental Field Studies

MEETING MINUTES

Date: February 5, 2008
3:30 pm to 4:30 pm
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP U-3321 Gaston E-W Connector – STP-1213(6)

Gaston E-W Connector Spotlight:

Attendees:
George Hoops, FHWA
Donnie Brew, FHWA
Steve Lund, USACE
Kathy Matthews, EPA
Dewayne Sykes, NCDOT-Roadway Design
Kristina Solberg, NCDOT-PDEA
Anne Gamber, NCDOT-Hydraulics
Bill Barrett, NCDOT-PDEA

Steve DeWitt, NCTA
Jennifer Harris, NCTA
Michael Gloden, EcoScience Corp.
Jeff Dayton, HINTB
Jill Gurak, PBS&J
Carl Gibliaro, PBS&J

Via Telephone:

Marela Buncick, USFWS
Polly Lespinasse, NCDENR – DWQ
Marla Chambers, NCWRC

Presentation Materials (Posted on TEAC Website):

- Meeting Agenda
- Handout 1 - Proposed Approach to Bridging Decisions

Purpose:

The purpose of this meeting was to provide a project status update and to discuss the approach for bridging decisions for the Detailed Study Alternatives (Concurrence Point 2a).

General Discussion:

The following information was discussed during the meeting:

- **Planning Process to be Used on the Project** - To date, the project environmental review process has been following the Section 404 NEPA Merger Process for the Gaston East-West Connector project, although the NCTA is not a signatory to the merger process Memorandum of Understanding.
Concurrence Point 1 (CP1) (Purpose and Need) and CP 2 (Detailed Study Alternatives) have been obtained for the project, with abstentions from the USEPA, USFWS, and NCWRC on CP 2.
A formal decision has not been made on the environmental review process that will be used. The North Carolina Merger Process is not yet compliant with Section 6002 of SAFTEA-LU. However, Mr. Sykes noted that the proposed changes to make it compliant are close to being finalized and approved by the FHWA. At this time, the NCTA envisions to at least follow a process that mirrors the Merger Process.
A Coordination Plan as required by Section 6002 of SAFTEA-LU has not been completed for the project. The Coordination Plan and a decision on the environmental review process to follow for the project will be made after a Section 6002 compliant Merger Process is approved and NCTA has a chance to review it.

- **Updates to the Purpose and Need Statement** - The Purpose and Need Statement was finalized in August 2002. In preparation for producing the DEIS, the data in the Purpose and Need Statement needs to be refreshed. This includes updating the No-Build traffic forecasts from year 2025 forecasts to year 2030 forecasts. Since August 2002, transportation and land use plans have been updated and more recent socioeconomic data is available. Also since 2002, the Strategic Highway Corridor Program was adopted by NCDOT, and the project was designated a Strategic Highway Corridor.

An updated Purpose and Need Statement will be prepared. The updated Purpose and Need Statement will be made available to the resource agencies and the public. NCTA currently is in the process of developing the 2030 No-Build forecasts and it is anticipated the update will be completed in a few months.

- **Alternatives Development and Analysis Report Addendum** - An addendum to the Alternatives Development and Analysis Report is planned and will include the new information about Detailed Study Corridor Segment K1D and recommendation for elimination from detailed study, 2030 Build Toll traffic forecasts, and a discussion of the project now being studied as a toll facility. The Alternatives Development and Analysis Report Addendum will be made available to the resource agencies and the public.

- **Public Involvement** - The NCTA is planning on holding citizens informational workshops since the last workshops were held in 2006. The updated Purpose and Need Statement, the Alternatives Development and Analysis Report, and Alternatives Development and Analysis Report Addendum will be provided for public and agency comment in accordance with Section 6002 public involvement requirements.

- **Approach to Discussing Concurrence Point 2a (Bridging Decisions)** - Although the environmental review process has not been finalized, the NCTA envisions at this time to at least follow a process that mirrors the Merger Process.

The attendees agreed that it was acceptable to move forward with bridging decision discussions.

The term Concurrence Point 2a is being used in this meeting since the agencies are familiar with the term and the types of information presented and discussed at CP 2a meetings are the same types of information to be presented for the Gaston East-West Connector project. The NCTA wants input on bridging decisions for the project, regardless of the environmental review process ultimately adopted for the project.

The handout that describes the proposed approach for discussing bridging for the project was summarized by Ms. Gurak. She noted that the approach proposed in the handout is based on informal discussions held with representatives from USEPA and USACE during the site visits held December 17 and 18, 2007, where a desire was expressed to try to narrow down the numbers of crossings needing to be discussed in detail.

Currently, according to the final Preliminary Hydraulic Technical Memorandum, there are 129 crossings requiring a major structure (bridge, box culvert, or pipe 72 inches in diameter or greater) throughout the 12 Detailed Study Alternatives.

The proposed approach would include all crossings requiring a bridge for hydraulic purposes, all triple box culverts, all crossings of high quality wetlands, all crossings of 303a-listed streams, and those non-bridge major crossings where engineering judgment warrants a comparison of the costs of a bridge versus the recommended structure. Excluding the last screening item, this results in a minimum of 32 crossings to be discussed. The last screening item will result in more crossings, but it is not known at this time how many more.

USEPA stated they have some concerns about the screening based on high quality wetlands. She stated that many of the forested wetlands in the corridors that she would consider of high value are not scored high on the currently available rating forms. She would like information on all the

crossings in order to determine if she would like any additional ones discussed. She stated USEPA would like to talk with NCTA about using the NC WAM forms for the Least Environmentally Damaging Practicable Alternative (LEDPA). USEPA believes these forms provide a better picture of the value of wetlands. USEPA also noted they would be sending comments to NCTA on the December site visit summary.

NCWRC stated they thought more that 32 crossings would need to be discussed. They also would like more information on all the crossings before agreeing to a certain set to discuss.

The NCDOT-Hydraulics Unit asked if floodplain issues were considered. The final Preliminary Hydraulic Technical Memorandum was prepared to NCDOT standards. The report evaluated a 50-year storm event and used urban regression equations, as directed by NCDOT's Hydraulics Unit.

The Natural Resources Technical Report (NRTR) currently is available on the TEAC website, without impact calculations or discussion of Rapanos forms. The NRTR version that includes these items will be made available in February and hard copies will be sent to those who would like one. However, the new Figure 3 from the NRTR that shows the jurisdictional resources, corridor boundaries, and preliminary engineering designs, is available now and will be posted to the TEAC site in the next couple days.

The NCTA is open to suggestions on which crossings should be discussed and comments from the agencies are requested within a couple weeks. The USACE commented that this proposed approach was a good place to start with bridging decisions. Also noted by NCTA was that additional avoidance and minimization (including bridging) discussions can and will be discussed for the LEDPA.

Wrap-Up / Next Steps:

- NCTA will be updating the Purpose and Need Statement and preparing the Alternatives Development and Analysis Report Addendum.

Previous Action Items:

- None

New Action Items:

- NCTA will post updated Figure 3 from the NRTR to the TEAC website.
- NCTA will make a decision on an environmental review process for the project after a Section 6002 compliant Merger Process is approved and NCTA has a chance to review it.
- Agencies will provide input on which crossings should be discussed for potential bridging.
- USEPA will provide comments on the minutes from the December 17-18 field visit.



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: April 8, 2008
10:00 AM to 11:30 AM
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

- | | |
|---|--|
| Bill Bidlecome, USACE | George Hoops, FHWA |
| Christopher Militscher, USEPA | Donnie Brew, FHWA |
| Kathy Matthews, USEPA | Dewayne Sykes, NCDOT-Roadway Design |
| Gary Jordan, USFWS | Renee Roach, NCDOT-Traffic (via phone) |
| Cathy Brittingham, NCDENR-DCM | Beau Memory, NCTA |
| Jim Hoadley, NCDENR-DCM | Jennifer Harris, NCTA |
| David Wainwright, NCDENR-DWQ | Christy Shumate, HNTB |
| Sara Winslow, NCDENR-DMF (via phone) | Jens Geratz, EcoScience |
| Travis Wilson, NCWRC | John Page, PB |
| Renee Gledhill-Earley, NCDENR-HPO (via phone) | Dan Brown, PB |

Presentation Materials: (All materials have been posted on the TEAC website)

- Meeting Agenda
- Statement of Purpose and Need
- Alternatives Screening Report
- Handout 12 – February 2008 Citizens Informational Workshops Comments Summary

Purpose:

The purpose of the meeting was to distribute the revised Statement of Purpose and Need and Alternatives Screening Report and review public comments received from the February 2008 Citizens Informational Workshops.

General Discussion:

The following information was discussed at the meeting:

Statement of Purpose and Need – Minor revisions were made to the Statement of Purpose and Need since it was last discussed, as noted would be done at the February 2008 TEAC meeting. FHWA and NCTA incorporated these changes to better reflect changes that have occurred in state and local plans, legislation, and funding since the purpose and need was originally developed in 2003. On page 1-7, an additional need is identified that states, "The need to

improve system efficiency by providing an additional link between the Currituck County mainland and its Outer Banks." This need is based on the inefficiencies created by the "U-shaped" route to access the northern Outer Banks, which results in increased travel time and congestion in the project area, and has been addressed in state and local legislation and plans. This addition was presented to the public at the workshops in late February.

Also, traffic forecasts and hurricane evacuation analysis have been updated to design year 2035. While the individual numbers may differ from previous versions of the report, the results are the same. The new statistics did not change the needs for the project.

NCTA requested that agencies be prepared to discuss any comments on this report at the May 6, 2008 meeting.

- **Alternatives Screening Report** – The alternatives screening process has been discussed at TEAC meetings for several months, and NCTA has finally completed a report that documents that screening process and results with the recommended detailed study alternatives. The report incorporates comments received from the agencies at TEAC meetings and written comments on alternatives. Also, the report summarizes public comments received at and following citizens informational workshops in February 2008 relating to alternatives considered.

There have been changes in the data since it was previously presented to agencies, including analyses based on updated 2035 toll traffic forecasts and impacts for a two-lane Mid-Currituck Bridge.

NCTA requested agencies provide any additional comments on alternatives screening and recommended detailed study alternatives at or before the May 6, 2008 TEAC meeting.

- **February 2008 Citizens Informational Workshops Comments Summary** – Three citizens informational workshops were held in February in the project study area. Nearly 600 people participated over the three nights. At the workshops, NCTA presented the purposes and needs for the project and the alternatives considered in the screening process, as well as NCTA's recommended detailed study alternatives – MCB3 and MCB4 with C1 and C2 bridge corridors.

292 comments were received at the workshops or during the 30-day comment period following the workshops. Of these, 219 indicated a preference for an alternative on the project, 186 were in favor of the bridge, citing improved access and emergency evacuation, reduced congestion on NC 12 and potential economic benefits as reasons for favoring the bridge. The concerns raised regarding a bridge included habitat and natural resource impact concerns; visual concerns; historic and archaeological resource concerns (primarily to the north on the Outer Banks side); noise; and that the bridge would lead to increased access for criminals. Some raised concern over tolling the bridge, while others agreed that tolling was an acceptable way of funding the project.

With respect to alternative bridge locations on the Outer Banks, the C2 option just south of TimBuckll was the preferred option in many of the comments received from the public.

There were many resolutions and letters received from the local governments, tourism board, planning organizations, and business organizations. All were in favor of building the bridge. Several sent comment letters noting that resolutions supporting the bridge from years ago still hold true today.

Q&A:

1. USEPA asked how sea level rise would be discussed in the DEIS, noting a recent report on the impacts of sea level rise on infrastructure including roads and bridges. FHWA stated that there is currently no guidance for addressing sea level rise in FHWA NEPA documents. USEPA noted that based on the report, the Outer Banks termini under consideration may be inundated before the design year for this project. USEPA will provide the report and NCTA will review.

2. *USACE asked for a definition of the word "substantial" as used on page 5 of Handout 12. Substantial describes the number of comments receiving noting opposition to alternatives that included improvement of existing roads; 83 of the 219 comments expressing a preference noted specific opposition to widening existing roads in the project area.*

3. *USACE and NCDENR-DCM noted that according to the Section 6002 Project Coordination Plan for this project, the citizens informational workshops should have been held during the comment period for reviewing the Statement of Purpose and Need and Alternatives Screening Report, but NCTA held the workshops before the documents were available for review.*
NCTA had hoped to have the reports available prior to the workshops but was not able to do so. Therefore, NCTA will be distributing a postcard announcing the availability of the reports on the NCTA website for public review and comment and offering a second public comment period. The postcard will be distributed to everyone who attended the workshops as well as to the entire project mailing list of nearly 12,000 names. Agencies suggested that hard copies of the reports be made available at local government offices in the project area for those without access to computers. NCTA agreed and will do so. Agencies also asked if an addendum or note should be added to the Section 6002 Project Coordination Plan to explain the actual sequence of events. NCTA agreed and will draft some text.

4. *USEPA noted that the Alternatives Screening Report refers to "a single proposed project in the Raleigh area" (page 12) as an exception to the state law prohibiting tolls on existing roads and asked which project that referred to.*
A legislative exception was made to allow tolling on the portion of NC 540 between NC 54 and NC 55 to complete the Triangle Expressway. This section of road opened in 2007 as a non-tolled facility. USEPA asked about the status of the Yadkin River bridge replacement on I-85. NCTA responded that the project is not an official toll candidate project at this time, but if it were to become a candidate toll project, state legislation would be required to allow tolling on the existing route.

Previous Action Items:

- NCTA will distribute the Alternatives Screening Report for agency and public comment. [The report was not distributed. The Alternatives Screening Report and Statement of Purpose and Need were distributed to agencies at the April 8, 2008 TEAC meeting and made available for public comment on the NCTA website. In addition, a postcard announcement will be distributed the week of April 14 announcing the availability of the reports and requesting comments by May 15, 2008. Hard copies of the reports were mailed to local government offices to be made available to interested citizens.]

New Action Items:

- Agencies review revised Statement of Purpose and Need and Alternatives Screening Report for discussion at the May 6, 2008 TEAC meeting.

Resolutions:

- None

MEETING MINUTES

Date: April 8, 2008
1:30 pm to 3:00 pm
NC Turnpike Authority Office Board Room (Suite 400)
Project: STIP U-3321 Gaston E-W Connector – STP-1213(6)

Gaston E-W Connector Spotlight:

Attendees:
George Hoops, FHWA
Donnie Brew, FHWA
Steve Lund, USACE
Kathy Matthews, USEPA
Chris Miltscher, USEPA
Maria Chambers, NCVRC
Dewayne Sykes, NCDOT-Roadway Design

Kristina Solberg, NCDOT - PDEA
Dan Grissom, NCDOT-Division 12
Michael Gloden, EcoScience Corp.
Jennifer Harris, NCTA
Jill Gurak, PBS&J

Via Telephone:
Marella Buncick, USFWS
Polly Lespinasse, NCDENR - DWQ

Presentation Materials: (All materials have been posted on the TEAC website)

- Meeting Agenda
- Memo – Merger Process Concurrence Point 2a Bridging Decision Information – NCTA's Response to Agency Requests from the March 4, 2008 Meeting – This memo addresses action items from the March 4, 2008 TEAC meeting.

Purpose:

Discuss action items from the March 4, 2008 TEAC Meeting (Concurrence Point 2a meeting) in order to achieve agreement/concurrence on the bridging/alignment decisions for streams and wetlands crossed by the Detailed Study Alternatives (DSAs)

General Discussion:

Ms. Harris opened the meeting with introductions. The purpose of the meeting was to complete discussions regarding bridging and alignment decisions for the DSAs (CP2a). She noted that further discussions regarding bridging and permitting will be held again for the Preferred Alternative at CP4a. A general discussion took place prior to the discussions of the individual crossings. The questions and answers are summarized below.

Minutes from the March 4, 2008 Meeting. Ms. Harris asked if anyone had any comments or revisions to the March 4, 2008 meeting minutes. No one had any comments.

Other Issues. Mr. Miltscher stated he could not access the TEAC website, as it was not recognizing his username and password. Ms. Harris stated she would ask the website administrator to follow up with Mr. Miltscher.

Ms. Gurak began the discussion of the action items requested at the March 4, 2008 meeting that were summarized in the memo distributed for the April 8 TEAC meeting.

Wildlife Passage Structures

The NCTA agrees to study wildlife passage structures at the following crossings of Stream S156 during final design, if they are part of the Preferred Alternative. This will be included as a commitment in the DEIS.

- Crossing JD6 – crossing of Stream S156 on Detailed Study Alternative (DSA) Segment J1C (west of Robinson Road)
- Crossing JD19 – crossing of Stream S156 on DSA Segment JX1
- Crossing JD31 – crossing of Stream S156 on DSA Segment J2C

The resource agencies asked if this wildlife crossing was unique to any of the alternatives. All DSAs cross Stream 156 once, so all DSAs will include a wildlife passage structure at this stream.

The WRC stated there are numerous resources available to assist in designing wildlife passages. The WRC noted one method of sizing the crossing uses an "openness factor" that takes into account length/height/width of the crossing as well as the types of wildlife anticipated to use the crossing. The equation is metric based. The NCDOT has designed wildlife crossings for bears on the I-26 (A-10) project in western North Carolina. There have also been some successful crossings on projects in eastern North Carolina.

The NCDOT noted that Ted Devens (NCDOT) is working with Virginia Tech on wildlife crossing studies.

USFWS noted that the 2007 conference proceedings from ICDET (International Conference on Ecology and Transportation) would be a good resource for wildlife crossing information.

The WRC stated that during final design for the Preferred Alternative, the bridges at other crossings also should be designed to be wildlife friendly when feasible.

Bridging Beyond What is Required for Hydraulic Conveyance

At the March 4, 2008 meeting, the NCTA agreed to the following bridges to be included in the DSA designs.

- Crossing HD27 – DSA Segment H2A over Bessemer Branch. Change from triple box culvert to a bridge.
- Crossing HD32 – DSA Segment H2C over Stream S70 adjacent to Chapel Grove Road. Extend mainline bridges over Chapel Grove Road to span Stream S70.
- Crossing HD17 – DSA Segment HX2 over Stream S79 adjacent to Camp Rotary Road. Extend mainline bridges over Camp Rotary Road to span Stream S79.
- Crossing HD38 – DSA Segment H3 over Stream S135 (Blackwood Creek). Change from a triple box culvert to a bridge.

The NCTA also agreed to the following bridges to be included in the DSA designs, as requested at the March 4, 2008 TEAC meeting.

- Crossing JB2 – DSA Segment J3 over Crowders Creek. Extend mainline bridges over Crowders Creek to span Wetland 103.
- Crossing JD9 – DSA Segment J1C over Stream S178. Change from a triple box culvert to a bridge.
- Crossing KD3 – DSA Segment K3A over Stream S259 (Catawba Creek). Extend mainline bridges over Catawba Creek to span main body of Wetland W248.

- Crossing KD17 – DSA Segment K1B over Stream S259 (Catawba Creek). Extend mainline bridges over Catawba Creek to span main body of Wetland W248.

The resource agencies agreed to the additional bridges and had no further comments.

Cost Estimate for Bridge at Crossing HB1

At the March 4, 2008 meeting, the resource agencies requested a cost estimate for additional bridges at Crossing HB1 (DSA Segment H1A over Crowders Creek near the US 29-74 interchange). The additional bridges would include extending the mainline bridges over Crowders Creek to span Wetland 12, and constructing bridges over Wetland 12 for the WB Connector off ramp to US 29-74 and the WB Connector on ramp (loop) from US 29-74.

In 2007 dollars, the cost of all these additional bridges would be \$15.5 million. The original cost for the shorter mainline bridges was \$2.1 million. If the interchange is eliminated, the cost of the extended mainline bridges (no ramps) would be \$11.4 million.

The resource agencies requested information on the costs of the Crowders Creek ramp bridges to be included in these minutes. *The costs were calculated post meeting. These two bridges, off ramp from WB Connector to US 29-74 over Crowders Creek and on ramp from US 29-74 to WB Connector over Crowders Creek, would each be about 38 feet wide and 120 feet long. The total cost for the two ramp bridges would be approximately \$1 million.*

There was a question about whether the loop ramp could be extended to shift out of the wetland. If it was extended, it would encroach farther into the floodplain of Crowders Creek and nearer to the creek. It can not be shortened due to sight distance requirements for the toll collection equipment.

The resource agencies would prefer to eliminate the US 29-74 interchange. As discussed at the March 4, 2008 meeting, the NCTA will be considering eliminating the US 29-74 interchange (for all DSAs). The Gaston Urban Area MPO (GUAMPO) is also looking at this issue. The potential elimination of this interchange will be presented to the public for comment at Citizens Informational Workshops planned for this summer.

The resource and regulatory agencies agreed that extending the mainline bridges over Crowders Creek to also span Wetland 12 would not be cost effective. The USFWS pointed out that the area of the wetland crossed by the mainline bridges is forested. This vegetation would be cleared to construct the low bridges. Regrowth of vegetation under the bridges would not be the same as the existing conditions. It may be more effective to restore the eastern part of Wetland 12 and fill the western part.

The USEPA stated that since Crowders Creek is a 303d listed stream, BMP (Best Management Practices) measures such as basins also should be considered to ensure that Crowders Creek would not be impacted by roadside drainage.

In conclusion, it was decided to show the impacts of filling Wetland 12 in the DEIS, but to also discuss the potential elimination of the US 29-74 interchange. If this DSA Segment is part of the Preferred Alternative, mitigation and minimization measures will be revisited at Concurrence Point 4a. The agencies agreed that it was not cost effective to extend the mainline bridges to span Wetland 12.

Mainline Alignment Shift at Crossing HB3 to Avoid Wetland W51

A full discussion of the alignment shift investigation is included in Section 5a of the memo provided as part of the April 8, 2008 meeting. Crossing HB3 is located at Crowders Creek for DSA Segments H3 and H2A near the US 29-74 interchange. At the March 4, 2008 meeting, the resource and regulatory agencies requested that a shift in the Corridor H3 alignment be investigated to move the H3 alignment to the east so the US 29-74 interchange ramps would avoid Wetland 51.

The alignments in this location were placed to minimize relocations and impacts to the three junkyards in the vicinity.

DSA Segment H2A can not be shifted to the east within the corridor boundaries due to curve radii constraints.

The alignment in DSA Segment H3 would need to shift about 240 feet to the east to avoid Wetland 51. This would encroach directly on the Putnam Auto Body junkyard and would increase impacts to Stream S54 from 188 ft to about 575 ft.

The same discussion regarding eliminating the US 29-74 interchange was held for this location. The resource agencies would prefer to eliminate the US 29-74 interchange. As discussed at the March 4, 2008 meeting, the NCTA will be considering eliminating the US 29-74 interchange (for all DSAs). The GJAWPO is looking at this issue. The potential elimination of this interchange will be presented to the public for comment at Citizens Informational Workshops planned for this summer. The NCTA recommended not shifting the alignment at this location, particularly since the elimination of the interchange is being considered. The resource and regulatory agencies conditionally agreed.

The USEPA requested that a cost estimate be provided for bridging Wetland W51 for Corridor Segments H3 and H2A (this would involve bridges only on the ramps). The USEPA stated that they would provide information about potential costs for relocating the Putnam Auto Body junkyard. *The costs were calculated post meeting. For Corridor Segment H3, two bridges are proposed (one for the ramp and one for the loop ramp). These two bridges would be between 37 feet to 50 feet wide, and 470 feet to 560 feet long. The total cost for the two bridges would be approximately \$4.8 million. For Corridor Segment H2, three bridges are proposed (one for the loop ramp and two for the ramps). These three bridges would be between 37 feet to 50 feet wide, and 130 feet to 500 feet long. The total cost for the three bridges on Segment H2 are approximately \$3.3 million.*

Mainline Alignment Shift at Crossing JD17 to Avoid Parallel Impacts to Stream S146

A full discussion of the alignment shift investigation is included in Section 5b of the memo provided as part of the April 8, 2008 meeting.

The NCTA recommends not shifting this alignment. The resource agencies agreed.

Mainline Alignment Shift at Crossing KD17 to Avoid the Easternmost Finger of Wetland W248

A full discussion of the alignment shift investigation is included in Section 5c of the memo provided as part of the April 8, 2008 meeting.

The NCTA recommends not shifting this alignment. The resource agencies agreed.

Y-Line (Cross-Street) Alignment Shift at Crossing KD31 to Avoid Confluence of Beaverdam Creek and Legion Lake Stream

A full discussion of the alignment shift investigation is included in Section 5d of the memo provided as part of the April 8, 2008 meeting.

The NCTA recommends not shifting this alignment at this time. If this corridor is selected as the Preferred Alternative, this crossing will be revisited during final design when more refined mapping is available. The resource agencies agreed.

Conclusions

The resource agencies agreed that discussions for Concurrence Point 2a were complete. Below is an updated table summarizing the final decisions made as part of CP2a for the major hydraulic crossings.

Crossing	Decision	Cost Differential for Crossing
HD26	Revisit this area for minimization measures during CP4a	--
HD27	Change recommended structure from a culvert to a bridge	Savings of \$0.44 million
HB1	The potential elimination of the interchange will be presented for public comment at the next Citizens Informational Workshops. Eliminating the interchange will be evaluated for the Preferred Alternative.	N/A
HB2	The potential elimination of the interchange will be presented for public comment at the next Citizens Informational Workshops. Eliminating the interchange will be evaluated for the Preferred Alternative.	N/A
HB3	The potential elimination of the interchange will be presented for public comment at the next Citizens Informational Workshops. Eliminating the interchange will be evaluated for the Preferred Alternative.	N/A
HD29	No change in the recommended structure -- a culvert.	--
HD31	No change in the recommended structure -- a culvert.	--
HD59	No change in the recommended structure -- a bridge.	--
HD32	Change recommended structure from a culvert to a bridge since a culvert does not appear feasible from a design standpoint at this time.	Increase of \$0.96 million
HD10	No change in the recommended structure -- a culvert.	--
HD 17	Change recommended structure from a culvert to a bridge since a culvert does not appear feasible from a design standpoint at this time.	Increase of \$1.27 million
HD35	No change in the recommended structure -- a culvert.	--
HD48	Change recommended structure from a culvert to a bridge due to size of Blackwood Creek, floodplain, and proximity to Crowders Creek confluence.	Increase of \$1.75 million
JB2	Extend recommended bridge structure approximately 365 feet to span Wetland W103 in addition to Crowders Creek.	Increase of \$4.1 million
JB1	No change in the recommended structure -- a bridge.	--
JD29	No change in the recommended structure -- a bridge.	--
JD4	No change in the recommended structure -- a bridge.	--
JD17	No change in the recommended structure -- a bridge.	--
JD6, JD19 and JD31	No change in the recommended structure -- a culvert. However, an additional culvert or other measure will be considered for wildlife passage during final design.	Increase for wildlife passage structures unknown.
JD21	No change in the recommended structure -- a culvert.	--
JD9	Change recommended structure from a culvert to a bridge.	Increase of \$0.84 million
JD26	No change in recommended structure -- a pipe	--
KD54	No change in the recommended structure -- a culvert.	--
KD25	No change in the recommended structure -- a bridge.	--

Crossing	Decision	Cost Differential for Crossing
KD3	Extend recommended bridge structure about 395 ft to span Wetland W248 in addition to Catawba Creek.	Increase of \$4.0 million
KD17	Extend recommended bridge structure about 370 ft to span Wetland W248 in addition to Catawba Creek.	Increase of \$4.2 million
KD2	No change in the recommended structure – a culvert.	--
KB3, KB5, KB7	No change in the recommended structures – bridges over the South Fork Catawba River.	--
KB4, KB6	No change in the recommended structures – bridges over the Catawba River.	--
KD7, KD29, KD16	No change in the recommended structure – a culvert.	--
KD31	No change in the recommended structure – a culvert. If this crossing is part of the Preferred Alternative, during final design, NCTA will investigate the feasibility of shifting the alignment of Dixie River Road at this crossing to avoid the confluence of Beaverdam Creek and Legion Lake Stream.	--

Wrap-Up / Next Steps:

- Concurrence Point 2a bridging and alignment decisions are complete. NCTA will incorporate the conclusions of CP2a into the DEIS.

New Action Items

- The agencies requested information on the costs of the Crowders Creek ramp bridges for Corridor Segment H1A to be included in these minutes.
The cost for these ramp bridges is approximately \$ 1,000,000 (see detailed information in these minutes).
- The agencies requested information on the costs of bridging Wetland W51 along Corridor Segments H3 and H2B.
The cost for the bridges along Segment H3 is approximately \$4,800,000, and the proposed cost for the bridges along Segment H2B is approximately \$3,300,000 (see detailed information in these minutes).
- The USEPA stated they would provide information for a cost estimate for relocating the Putnam Auto Body junkyard located near the US 29-74 interchange for Corridor Segments H3 and H2C.

Previous Action Items:

- NCTA will prepare a cost estimate for Crossing HB1 for providing bridges over Crowders Creek for the mainline and WB off ramp to span Wetland 12.
Cost estimates provided as described in the response memo handed out at the April 8, 2008 TEAC meeting.
- NCTA to consider eliminating the Corridor Segment H1A/US 29-74 interchange ramp that provides access from US 29-74 to WB Connector. This ramp crosses over W12.
NCTA is considering eliminating the US 29-74 interchange for all DSAs. The GUAMPO is evaluating this option. The option will be presented to the public for comment at upcoming workshops this summer.

- NCTA will consider providing wildlife passage structures at JD6, JD19, and JD31.
NCTA agrees to study wildlife passages at JD6, JD19, or JD 31, whichever is included as part of the Preferred Alternative.
 - NCTA will consider the additional bridging recommendations made during the meeting. These include changing a culvert to a bridge for Crossing JD9 and extending the bridges at JB2, KD3/KD17 to span high value/high quality wetlands.
NCTA has included bridges for these crossings, as requested by the resource agencies.
 - NCTA will investigate the feasibility of shifting alignments at the following locations:
 - Mainline shift at HB3 east to avoid W51
 - Mainline shift at JD17 to avoid parallel impacts to S146
 - Mainline shift at KD3 to avoid the easternmost finger of W248
 - Y-line shift at KD31 to avoid confluence of Beaverdam Creek and Legion Lake Stream
- As detailed in the April 8, 2008 memo and these minutes, none of these alignment shifts will be implemented at this time. The Y-line alignment shift at KD31 will be reviewed during final design if it is part of the Preferred Alternative.*

Resolutions:

- This concludes the discussion on bridging and alignment decisions for the Gaston E-W Connector. NCTA, NCDOT, FHWA, and the agencies have reached agreement/concurrence on the proposed crossings.



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: May 6, 2008
9:30 AM to 11:30 AM
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

Bill Bidlecome, USACE	Dewayne Sykes, NCDOT-Roadway Design
Kathy Matthews, USEPA	David Joyner, NCTA
Gary Jordan, USFWS	Steve DeWitt, NCTA
Ron Sechler, NMFS (via phone)	Jennifer Harris, NCTA
Cathy Brittingham, NCDENR-DCM	Bill Malley, Perkins Coie
Brian Wienn, NCDENR-DWQ	Christy Shumate, HNTB
David Wainwright, NCDENR-DWQ	Spencer Franklin, HNTB
Travis Wilson, NCWRC	Michael Gloden, EcoScience
George Hoops, FHWA	John Page, PB
Donnie Brew, FHWA	Don Brown, PB

Presentation Materials: (All materials have been posted on the TEAC website)

- Meeting Agenda
- Section 6002 Project Coordination Plan (dated May 5, 2008)

Purpose:

The purpose of the meeting was to discuss agency comments on the revised Statement of Purpose and Need and Alternatives Screening Report.

General Discussion:

At the April 8, 2008 TEAC meeting, agencies were provided a revised Statement of Purpose and Need and the Alternatives Screening Report for review and comment. Written comments were received from USEPA and NCDENR-DWQ in advance of the May TEAC meeting.

The following information was discussed at the meeting:

- **Section 6002 Project Coordination Plan** – NCTA distributed a revised Project Coordination Plan. The plan has been revised to incorporate comments from FHWA, as well as to reflect actual project status on several items that have already been completed or for which assumptions have changed since the plan was drafted. Agencies are welcome to provide additional comments if they have any.

- **Predevelopment Agreement and Industry Forum** – NCTA is hosting and Industry Forum on May 7, 2008 to present the project to prospective developers, contractors, and financiers. NCTA will also be holding one-on-one meetings with these groups to discuss and obtain feedback on potential procurement methods for delivering this project, including use of a Predevelopment Agreement (PDA) or more traditional Public Private Partnership. Under a PDA procurement, NCTA would bring a private partner into the process early, likely later this year, to help develop the project concurrent with the NEPA process. At this time, NCTA is anticipating that the majority, if not all, of the project will be financed by the private partner. Agencies are invited to attend the Industry Forum if interested. NCTA has asked prospective partners not to contact agency representatives directly to discuss the project.

- **Statement of Purpose and Need and Alternatives Screening Report** – The Statement of Purpose and Need distributed in April 2008 includes an additional need from what was discussed with agencies in 2007. This new need states, "The need to improve system efficiency by providing an additional link between the Currituck County mainland and its Outer Banks". This need is based on the inefficiencies created by the "U-shaped" route to access the northern Outer Banks, which results in increased travel time and congestion in the project area, and has been addressed in state and local legislation and plans.

USACE commented that the inclusion of "provide a new transportation link" in the new project need precludes any alternative that does not include a bridge, and may be unduly limiting the range of alternatives and ultimately the selection of the least environmentally damaging practicable alternative. NCDENR-DCM commented that they would need to discuss the additional need statement internally and determine if it is consistent with their agency's direction on statements of purpose and need and specifically if the wording unnecessarily limits the location or design of the project. NCDENR-DCM noted that the elements included in this statement had been discussed during previous agency involvement in the project years ago and had not been included in the statement of purpose and need. NCDENR-DCM added that the addition of this need may be an "issue of concern" for their agency. NCWRC said that their concern was primarily with the "providing a new transportation link" terminology and they could be comfortable with the remainder of the need statement. USEPA agreed that this part of the need statement should be deleted. NCTA agreed to consider this comment.

USFWS noted they would not be taking a position on the Statement of Purpose and Need or recommended detailed study alternatives. USFWS noted that NCTA should discuss the North American Waterfowl Management Plan in the Draft EIS. John Stanton is the contact person for this program.

FHWA added that their legal advisors are comfortable with the addition of the new need statement as written because of the substantiation for adding it (i.e. the number of state and local plans that include the project). FHWA noted that even without the new need statement, the ER alternatives would be screened out as not practicable before detailed study due to economic feasibility considerations.

NCTA reminded agencies that all information presented in the Alternatives Screening Report will be included in the Draft EIS, including information on the ER alternatives. If additional studies are needed for the ER alternatives, the question becomes what level of detail is appropriate for further analyzing them.

NCDENR-DCM noted that SAV impacts and mitigation plans should be discussed in detail in the Draft EIS for all alternatives.

- **Public Comments on Statement of Purpose and Need and Alternatives Screening Report** – A postcard announcement was distributed to the project mailing list of nearly 12,000 addresses to announce the availability of the reports on NCTA's website and request comments. Hard copies of the reports were mailed to local government offices to be made available to interested citizens. Comments were requested by May 15, 2008. As of this meeting, only a few comments have been received. These will be considered along with

comments received at and following the February 2008 Citizens Informational Workshops related to project purpose and need and alternatives. Agencies will be provided a summary of additional comments received from the public prior to the next TEAC meeting.

Q&A:
1.

NCWRC and NCDENR-DCM pointed out that previous discussions between NCTA and agencies indicated that finances and tolling would not be considered during alternatives screening and NEPA analysis, but that NCTA would evaluate a range of alternatives and if NCTA could not implement the alternative that was ultimately selected, the project would revert to NCDOT for implementation. However, based on the Alternatives Screening Report, NCTA is now using financial feasibility as a reason for eliminating alternatives from further consideration, particularly the ER2 and MCB2 alternatives. NCTA may have indicated early in the project development process that lack of funding should not preclude alternatives from being considered; however, there is now a better understanding of the reality of the funding situation. NCDOT has no funding for this project, therefore it is not built as a toll project, it will not be built. Based on guidance from FHWA entitled "NEPA Analysis of Toll Roads", financial feasibility is a valid basis for eliminating non-toll alternatives.

2. *USACE asked how much of the non-tolled portions of the project a private partner could be expected to finance. NCTA anticipates that a private partner could cover the cost of either MCB3 or MCB4 alternatives, including non-tolled portions of these alternatives. NCTA does not expect that a private partner would be willing to finance additional improvements such as the additional length of NC 12 widening included in the MCB2 alternative. NCTA will discuss this issue further with potential private partners during the Industry Forum and One-on-One Meetings to be held May 7-8, 2008.*

Previous Action Items:

- Agencies to review the revised Statement of Purpose and Need and Alternatives Screening Report for discussion at the May 6, 2008 TEAC meeting.
[Written comments were received from NCDENR-DWQ (April 29, 2008) and USEPA (May 5, 2008) prior to the May 6, 2008 TEAC meeting.]

New Action Items:

- Agencies will provide any additional comments on the Statement of Purpose and Need and Alternatives Screening Report by May 16, 2008.
[Following the meeting, written comments were received from USACE (May 21, 2008), NCDENR-DCM (May 6, 2008), NCDENR-DMF (May 12, 2008), NCDOT-HPO (April 30, 2008), and NCWRC (May 13, 2008) and additional comments were received from NCDENR-DWQ (May 16, 2008).]
- Agencies will provide any additional comments on the revised Section 6002 Project Coordination Plan.
- NCTA will provide a link to the FHWA's "NEPA Analysis of Toll Roads" guidance document [http://www.environment.fhwa.dot.gov/guidebook/NEPA_tollroads.asp].
[NCTA provided this to agencies via email on May 6, 2008.]
- NCTA will provide an updated summary of public comments on the Statement of Purpose and Need and Alternatives Screening Report following the close of the public comment period on May 15, 2008.

Resolutions:

- None



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: July 8, 2008
10:00 AM to 12:00 PM
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

Bill Biddlecome, USACE
Kathy Matthews, USEPA
Gary Jordan, USFWS
Sara Winslow, NCDENR-DMF (via phone)
Cathy Brittingham, NCDENR-DCM
Jim Hoadley, NCDENR-DCM
David Wainwright, NCDENR-DWQ
Travis Wilson, NCWRC
George Hoops, FHWA
Donnie Brew, FHWA
Lomie Brooks, NCDOT-Structure Design
Renee Roach, NCDOT-Traffic (via phone)
BenJetta Johnson, NCDOT-Congestion Management (via phone)

Brian Yamamoto, NCDOT-PDEA
Ted Devens, NCDOT-PDEA
Dewayne Sykes, NCDOT-Roadway Design
David Joyner, NCTA
Steve DeWitt, NCTA
Jennifer Harris, NCTA
Reid Simons, NCTA
Bill Malley, Perkins Cole
Christy Shumate, HNTB
Spencer Franklin, HNTB
Michael Gloden, EcoScience
John Page, PB
Eric Misak, PB
Don Brown, PB

Presentation Materials:

- (All materials have been posted on the TEAC website)
- Meeting Agenda
 - Section 6002 Project Coordination Plan (dated July 2, 2008)
 - Letter from Jennifer Harris dated July 2, 2008 (with attachments) – Response to Agency Comments regarding Statement of Purpose and Need and Alternatives Screening Report
 - Letter from David Joyner dated July 2, 2008 – Decision on Advancing Existing Road Alternatives for Detailed Study
 - Handout 13 – May 2008 Citizens Purpose and Need and Alternatives Screening Report Comments Summary
 - Handout 14 – Summary of Agency Comments Received May 2008
 - Handout 15 – Scope for Evaluating ER2 and MCB2 as Detailed Study Alternatives in the DEIS

Purpose:

The purpose of the meeting was to discuss NCTA's response to agency comments on the Statement of Purpose and Need and Draft Alternatives Screening Report, as well as the scope of work for proceeding with detailed studies of the ER2 and MCB2 alternatives.

General Discussion:

The following information was discussed at the meeting:

- **Letter from Jennifer Harris dated July 2, 2008 – Response to Agency Comments regarding Statement of Purpose and Need and Alternatives Screening Report** – Agencies were emailed a copy of, and were provided a hard copy of, a letter from NCTA in response to agency comments received on the Statement of Purpose and Need (April 2008) and Alternatives Screening Report (April 2008). A copy of the letter was distributed to meeting attendees and the major points reviewed.
 - The newly added need statement (the 4th bullet) in the Statement of Purpose and Need (“The need to improve system efficiency by providing an additional link between the Currituck County mainland and its Outer Banks”) will be removed. Substantiating information for this need, such as inclusion of the Mid-Currituck Bridge in planning and legislative documents, will remain in the document. Agencies agreed.
 - NCTA will retain ER2, MCB2, and MCB4 alternatives for detailed study in the Draft EIS. ER1 and MCB1 will be eliminated from further study, as will other conceptual alternatives discussed in the Alternatives Screening Report, including transit, shifting rental times, transportation systems management, and ferry alternatives. There were no other suggestions for other alternatives to be considered. Agencies agreed.
 - MCB3 will also be eliminated from further study due to its similarity to MCB4. Agencies agreed.
 - Bridge corridors C1 and C2 will be evaluated in detail in the Draft EIS. Other corridors will not be considered further. Agencies agreed.
 - The 1995 Notice of Intent (NOI) for the project was rescinded and a new NOI was issued by FHWA in June. Copies of these notices are attached to the letter.
 - NCTA anticipates the additional studies for ER2 and MCB2 will take approximately 6 months to complete. Therefore, the revised project schedule is:
 - Draft EIS – January 2009
 - Final EIS – August 2009
 - Record of Decision – October 2009
 - Participating and cooperating agency invitation letters were distributed by NCTA and FHWA prior to issuing the new NOI. NCTA noted that these invitations and all responses received are still considered valid. Agencies agreed.

NCDENR-DCM noted appreciation for NCTA’s decision to evaluate ER2 as a detailed study alternative in the Draft EIS.

The Statement of Purpose and Need and Alternatives Screening Report will be revised to reflect these decisions and made available for agency review by August 10.

- **Letter from David Joyner dated July 2, 2008 – Decision on Advancing Existing Road Alternatives for Detailed Study** – The North Carolina General Assembly approved \$99 million of annual funding for Turnpike projects, including \$15 million per year for the Mid-Currituck Bridge project. This money is allowed to be used to assist in paying debt service for the toll revenue bonds used to finance the project. There is currently no money in the STIP to build roads in the project area.

Mr. Joyner suggested that the NCTA and the agencies continue to talk together over the next few months about project financing. He noted that by law, NCTA cannot toll an existing road; therefore, an alternative with existing road improvements only can not be funded with toll revenues and non-bridge components of a bridge alternative may not be able to be funded with

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toll revenues. NCTA issued a request for qualifications for private partners interested in developing, constructing, operating, maintaining, and financing the project, and statements of qualifications were received from four teams.

- **Handout 15 – Scope for Evaluating ER2 and MCB2 as Detailed Study Alternatives in the DEIS** – ER2 and MCB2 will be evaluated as detailed study alternatives to the same level as MCB4 has been. This will include detailed environmental studies – wetland/stream delineations, natural resource community mapping, historic resources, hazardous materials identification, and other information typically gathered. NCTA wants any suggestions for additional information the agencies would like to see included in the Draft EIS. Agencies offered the following:
 - NC DENR-DCM stated that NCTA should discuss submerged aquatic vegetation (SAV) impacts, SAV mitigation, sea level rise, and wetland mitigation. Specifically, impacts to SAV and SAV habitat should be calculated for areas of Currituck Sound less than 6 feet deep.
 - USEPA noted that wetland impacts on the Outer Banks may need to be mitigated for on the Outer Banks, as NC EEP may not be able to provide adequate compensatory mitigation for these impacts. USEPA will check on the status of a guidance document/interagency agreement discussing this issue.
 - NC DENR-DWQ requested that impacts for wetlands be presented by corridor and distinguished between the Outer Banks and the mainland. NCTA will include this information in the meeting minutes. (See “Table 2” and “Table 4” attached – these tables have been revised from the Alternatives Screening Report; also note that the impacts have been corrected from those presented in the April 2008 report to reflect the current preliminary design and bridge width.)
 - USFWS noted that NCTA should consider potential secondary effects of the ER2 and MCB2 alternatives in the non-road accessible areas north of Corolla, adding that widening NC-12 may make it easier to bring pre-fabricated homes into that area.
 - NC DENR-DWQ also noted that potential for development in the Aydlett area near the proposed bridge terminus should be fully evaluated.
 - NC DENR-DCM added that the permit application for Phase 2 of the Corolla Bay development near the C2 bridge corridor alternative is under review.

Studies for ER2 and MCB2 include advancing the functional designs to preliminary designs. Road drainage will have to be addressed. Currently, there are no outfalls in Southern Shores, and in Duck there are outfalls draining to Currituck Sound. USEPA offered to provide a recent document available on infiltration systems. NC DENR-DCM said that filter systems are being installed on ocean outfalls in Nags Head. NC DENR-DCM is not permitting any new ocean outfalls, but may permit rehabilitation of existing outfalls.

There is a one-mile section in Duck that is already three lanes and will not be altered for alternatives ER2 and MCB2. Left turn restrictions will be placed on some subdivision intersections to facilitate traffic movement. On US 158 between the Wright Memorial Bridge and NC 12, a superstreet typical section is being discussed with NCDOT in lieu of arterial widening. NCDOT’s US 158/NC 12 interchange project (STIP No. R-4457) will remain a separate project.

Q&A:

1. *USACE asked about documentation for eliminating bridge corridors further to the south.* Documentation for this decision is included in the April 2008 Alternatives Screening Report in Section 3.2. These corridors were generally eliminated from consideration due to impacts to the community of Poplar Branch on the mainland, a group of marsh islands in Currituck Sound (a Significant Natural Heritage Area), and the Pine Island Audubon Sanctuary (a Coastal Barrier Resources Act area), as well as due to traffic considerations – a bridge further south would have introduced additional congestion into already

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congested areas of Dare County and Duck and caused additional community disruption and displacement, particularly since the existing NC 12 right of way is only 60-feet wide in this area.

2. *USACE asked how much of the non-tolled portions of the project a private partner could be expected to finance.*
NCTA will be asking potential private partners to provide additional information on this topic during the procurement process for the predevelopment agreement to help answer this question, specifically with regards to improvements included in the MCB2 alternative.
3. *USACE requested information on the history of STIP funding for the project.*
NCTA will provide this information via email to agencies following the meeting.
4. *NCDENR-DCM asked how financial feasibility will be considered in the NEPA and permitting processes, noting that this differs from the NCDOT process where funding is almost never considered during project planning.*
This issue is something that NCTA is also learning. NCTA will work with FHWA and the agencies over the coming months to determine how best to incorporate financial feasibility into project decisions; however, it is NCTA's belief that it is an issue that must be considered in project planning and in determining if alternatives are reasonable and feasible.
5. *USEPA asked if construction phasing would be discussed in the Draft EIS.*
Construction phasing will likely be discussed in the Draft EIS, in terms of project financing, meeting traffic operational needs, and minimizing environmental impacts during initial construction.

Previous Action Items:

- Agencies will provide any additional comments on the Statement of Purpose and Need and Alternatives Screening Report by May 16, 2008.
[Written comments were received from *USACE (May 21, 2008)*, *USEPA (May 5, 2008)*, *NCDENR-DCM (May 6, 2008)*, *NCDENR-DMF (May 12, 2008)*, *NCDCR-HPO (April 30, 2008)*, and *NCWRC (May 13, 2008)* and *NCDENR-DWQ (April 29, 2008 and May 16, 2008)*.]
- Agencies will provide any additional comments on the revised Section 6002 Project Coordination Plan.
[No comments were received.]
- NCTA will provide a link to the FHWA's "NEPA Analysis of Toll Roads" guidance document [http://www.environment.fhwa.dot.gov/guidebook/NEPA_tollroads.asp].
- NCTA provided this to agencies via email on May 6, 2008.]
- NCTA will provide an updated summary of public comments on the Statement of Purpose and Need and Alternatives Screening Report following the close of the public comment period on May 15, 2008.
[Handout 13 is a summary of public comments on the Statement of Purpose and Need and Alternatives Screening Report.]

New Action Items:

- NCTA to revise and recirculate the Statement of Purpose and Need and Alternatives Screening Report based on decisions presented in Letter from Jennifer Harris dated July 2, 2008 by August 10, 2008.
- NCTA will provide history of STIP funding for R-2576.
[NCTA provided this to agencies via email on July 10, 2008.]
- USEPA will provide new guidance on infiltration basins and will check on guidance document/interagency agreement discussing wetland impacts and mitigation on the Outer Banks.
[Guidance on Class V UIC wells received on July 10, 2008.]
- Agencies will provide additional comments on topics and issues they would like to see addressed in the Draft EIS.
[Additional comments have been received via email from *USFWS* and *NCDENR-DCM* and are attached to these minutes. In response to questions from *NCDENR-DCM* regarding impacts to SAV habitat for areas of Currituck Sound 6 feet deep or less, please see "Table 6" attached – this

table has been revised from the April 2008 Alternatives Screening Report to include this information. Additionally, impacts have been corrected to reflect current preliminary designs.]

Resolutions:

- NCTA will evaluate ER2, MCB2, and MCB4 as detailed study alternatives in the Draft EIS.

MEETING MINUTES

Date: July 8, 2008
1:00 pm to 3:00 pm
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP R-3329 Monroe Connector – NHF-74(21)
STIP R-2559 Monroe Bypass – NHF-74(8)

Monroe Connector / Bypass Spotlight:

Attendees:
Donnie Brew, FHWA
George Hoops, FHWA
Kathy Matthews, USEPA
Steve Lund, USACE
Marella Buncick, USFWS
Maria Chambers, NCWRC (via phone)
Polly Lespinasse, NCDENR-DWQ
John Conforti, NCDOT-PDEA
Dwayne Sykes, NCDOT-Roadway Design
Steve DeWitt, NCTA
Jennifer Harris, NCTA

Reid Simons, NCTA
Bill Malley, Perkins Coie
Christy Shumate, HNTB
Donna Keener, HNTB
David Bass, PBS&J
Clint Morgan, PBS&J
Jill Gurak, PBS&J
Michael Gloden, EcoScience
Paul Pettigout, ESI

Presentation Materials: (all materials have been posted to the TEAC website)

- Meeting Agenda
- Map of project segments

Purpose:

The purpose of this meeting was to present an overview of the functional design plans under development and obtain agency feedback.

General Discussion:

The following information was discussed at the meeting:

- **Project Update** – The agencies last met in February 2008 to discuss this project. At that time, NCTA recommended 16 Detailed Study Alternatives extending from I-485 in Mecklenburg County to US 74 near Marsville. Since then, NCTA has been working on detailed studies for these alternatives, including traffic forecasts for design year 2035 with tolls (including scenarios with and without certain interchanges as requested by agency comments during alternatives development); traffic capacity analysis; and environmental field studies, including wetland and stream delineations. Field meetings to review delineated wetlands and streams were held with USACE and NCDENR-DWQ on May 28 and 29 and June 2. Qualitative indirect and cumulative impact studies and community impact assessments are also underway. Findings from the indirect and cumulative impact study will be presented at the August TEAC meeting.

Additionally, agencies had requested that additional information be provided for the upgrade existing US 74 alternative before agreeing to eliminate it as a detailed study alternative. NCTA has pursued this alternative further to determine the appropriate typical section, including obtaining additional traffic forecasts. This traffic data reflects that even more traffic than originally predicted would utilize the free frontage roads rather than the tolled freeway lanes; therefore, additional frontage road lanes would be needed, and the overall footprint of this alternative would be larger than assumed in the Alternatives Development and Analysis Report (April 2008). This information will be distributed to agencies prior to the August TEAC meeting and discussed at that meeting.

- **Overview of Functional Designs** – Functional designs were reviewed by project segment from west to east, noting interchange configurations, y-line improvements and crossings, natural

resource avoidance and minimization efforts implemented, and other constraints. Engineers also noted where designs had been altered from previous studies conducted by NCDOT. Segments discussed were 18A, 21, 30, 31, 36, 41, 43, 1, 1A, 2, 22A, 34, 40, and 42. Interchanges are proposed at I-485/Stallings Road (Segment 18A) or US 74 east of Stallings Road (Segment 1/1A/2), Indian Trail Fairview Road, Unionville Indian Trail Road, Rocky River Road, US 601, NC 200, Austin Chaney Road, Forest Hills School Road, and US 74.

When asked, USACE agreed that NCTA's efforts to avoid and minimize impacts to natural resources during the design process were evident. USFWS commented that NCTA should include a discussion of community impacts resulting from proposed road closures and aesthetics of the proposed project in the Draft EIS.

NCTA will have mapping of the functional designs available in August or September once reviews are completed by NCTA, NCDOT, and FHWA. Preliminary hydraulics analysis and bridging decisions will be presented and discussed in September and/or October with the agencies.

- **Project Schedule** – NCTA anticipates completing the Draft EIS for signature in December 2008 and circulating for agency and public review and comment in January 2009. NCTA is planning to recommend a preferred alternative in the Draft EIS. This would be subject to agency and public comment. The Final EIS is scheduled for release in August 2009, and the Record of Decision is scheduled for October 2009.

Q&A:

1. Has NCTA identified locations for toll collection facilities and the potential impacts from those?
The project will have all electronic toll collection.
2. Plans show an interchange at Rocky River Road for all alternatives, but the Alternatives Development and Analysis Report did not.
At this point, we are going to include all interchanges in designs for all alternatives for purposes of calculating and comparing impacts and costs in the Draft EIS; however, we may have further discussions about interchange locations as part of avoidance and minimization for the preferred alternative.

Previous Action Items:

- Conclude discussion on selection of detailed study alternatives.

New Action Items:

- NCTA to schedule August TEAC meeting for week of August 4 in Charlotte-Gastonia area. [This meeting has been scheduled for Thursday, August 7 at 9:00 AM. The meeting will be held at PBS&J's Charlotte Office (8200 77 Center Dr., Suite 500, Charlotte, NC 28217) or via video conference at PBS&J's Raleigh Office (1616 East Millbrook Road, Suite 310, Raleigh, NC 27609).]
- NCTA to provide information on additional studies of upgrade existing US 74 alternative.

Resolutions:

- None.

MEETING MINUTES

Date: July 8, 2008
3:00 pm to 5:00 pm
NC Turnpike Authority Board Room

Project: STIP U-3321 Gaston E-W Connector – STP-1213(6)

Gaston E-W Connector Spotlight:

Attendees:
George Hoops, FHWA
Donnie Brew, FHWA
Steve Lund, USACE
Kathy Matthews, USEPA
Marella Buncick, USEPA
Polly Lespinasse, NCDENR-DWQ
Maria Chambers, NCWRC (via phone)
Hank Graham, GUAMPO (via phone)
Randi Gates, GUAMPO (via phone)
Jennifer Harris, NCTA
Dewayne Sykes, NCDOT-Roadway Design

Tristram Ford, NCDOT-HEU
Bill Malley, Perkins Cole
Jeff Dayton, HNTB
Anne Redmond, HNTB
Michael Gloden, PBS&J
Jill Gurak, PBS&J
Scott Lane, Louis Berger Group
Julie Flesch-Pate, Louis Berger Group
Lisa Murphy, Louis Berger Group
Chris Walsh, Louis Berger Group

Presentation Materials: (all materials have been posted to the TEAC website)

- Meeting Agenda.
- Powerpoint presentations for the Draft Indirect and Cumulative Effects (ICE) Assessment Review, Updated Purpose & Need Statement and Alternatives Report Addendum.
- ICE Figures, including maps for growth potential with and without the Project.
- Updated Draft Purpose and Need Statement.

Purpose:

The purposes of the meeting were to discuss the analysis and results from the Draft ICE Assessment, present the Updated Draft Purpose and Need Statement, discuss the items updated and added in the Addendum to the Alternatives Development and Evaluation Report, provide an update on the status of the Section 6002 Coordination Plan for the project, and announce the upcoming Citizens Informational Workshops.

General Discussion:

The following information was discussed at the meeting:

- **Presentation on the ICE Study** - Scott Lane from Louis Berger group began the powerpoint presentation by providing an overview of the analysis methods, data, and results for the ICE study. He stated that scoping meetings were held in June and July 2007 with the resource agencies to discuss the ICE study and topics to include in the analysis. He noted that, as an example, the topic of habitat fragmentation, was suggested during the study scoping process.

Mr. Lane also described the various study areas used in the analysis and the stakeholder interview process. Over 36 interviews were conducted with project area stakeholders such as local planning staff, real estate agents, riverkeepers, and developers. The interviewee's responses were weighted based on the interviewee's knowledge of each study district.

Lisa Murphy described the data collected and its limitations, and how it was used in the spatial grid analysis. As an example, farmland and forested land information was collected from the National Land Cover database (2002). This 2002 database was corrected to 2006 using aerial photography.

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Julie Flesch-Pate reviewed the ICE study steps 4 and 5 relating to identifying effect-causing activities and identifying potential indirect and cumulative effects for further analysis.

- **Presentation on the Updated Purpose and Need Statement and the Addendum to the Alternatives Development and Evaluation Report** - Jill Gurak from PBS&J gave a brief powerpoint presentation. She began with a description of the major topics included in the Updated Draft Purpose and Need Statement. A description of major updates in the Addendum to the Alternatives Development and Evaluation Report included the incorporation of 2030 traffic forecasts, the inclusion of tolling, and the elimination of corridor segment K1D.
 - **Upcoming Citizens Informational Workshops** - The NCTA will be conducting Citizens Informational Workshop Series #3 this summer on the following dates:
 - o August 6 at Olympic High School in Charlotte
 - o August 7 at Southpoint High School in Belmont
 - o August 11 at the Gastonia Adult Recreation Center in Gastonia
- The purpose of the workshops is to present and ask for input on the Updated Draft Purpose and Need Statement, Addendum to the Alternatives Development and Evaluation Report (including the elimination of Corridor Segment K1D), and the potential elimination of the US 29-74 interchange. The tight of way limits for the preliminary engineering designs and the study corridor boundaries will also be presented on large-scale aerial photographs.
- **Section 6002 Coordination Plan Update** - The status of the project's Section 6002 Coordination Plan not changed much over the past few months. The plan will include early public involvement and state that a notification of project initiation letter from NCTA to FHWA will be prepared. The coordination plan also will state that the project will follow a process that will mirror the 6002 compliant merger process soon to be adopted by the NCDOT, FHWA, and resource agencies, even though the NCTA will not be a signatory to the Memorandum of Agreement.

The NCTA will be requesting that the resource agencies re-sign Concurrence Points 1 and 2 based on the Updated Draft Purpose and Need Statement and the Addendum to the Alternatives Development and Evaluation Report, once the agencies have a chance to review those reports and after the public has commented. After CP1 and CP2 are re-signed, the NCTA will request concurrence on CP2a.

The USFWS would like to see the public comments from the upcoming Citizens Informational Workshops and any resulting changes to these documents, before re-signing CP1 and CP2 and signing CP2a. Other resource agencies in attendance agreed.

The comment period on these items will likely extend through August, so a summary will be available in September.

Q&A:

1. **When will the ICE report be available for review?**
The report is under final review by the NCDOT. It is expected to be available for distribution in one to two weeks. Mr. Lund, Ms. Buncick, Ms. Chambers, and Mr. Miltischer will be provided hard copies of the report. Mr. Graham, Ms. Lespinasse, and Ms. Matthews requested a CD.
2. **Why is the potential for growth effects low in York County, SC? How well are they interviewed from York County stated they feel they are far enough away to not be substantially affected by the proposed project. One issue of concern they did mention was the potential for increased school attendance resulting from increased growth.**
Overall, interviewees felt that the growth trends are already occurring and they are not directly in anticipation of the proposed project.

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Table 2. Evaluation of Existing Road (ER) and Mid-Currituck Bridge (MCB) Alternatives

Components	Highway Improvement Alternatives					
	ER1	ER2	MCB1	MCB2	MCB3	MCB4
• Bridge	NA	NA	2-lane bridge	2-lane bridge	2-lane bridge	2-lane bridge
• US 158 (Wright Memorial Bridge to NC 12)	8 lanes	8 lanes	6 lanes (8 lanes in NC 12 area)	6 lanes (8 lanes in NC 12 area)	5 lanes	5 lanes
• NC 12 (Dare County north of US 158)	4 lanes	3 lanes	4 lanes	3 lanes	2 lanes	2 lanes
• NC 12 (Currituck County)	4 lanes	4 lanes	4 lanes	4 lanes	2 lanes (4 near bridge)	2 lanes (4 near bridge)
• Location of US 158 Contraflow or Third Northbound Lane for Hurricane Evacuation	Wright Memorial Bridge to NC 168 (24.5 miles)	Wright Memorial Bridge to NC 168 (24.5 miles)	Mid-Currituck Bridge to NC 168 (5 miles)			Same as MCB3 plus Wright Memorial Bridge NC 12 (1.5 miles)
Economic Feasibility						
Capital Cost (in millions)						
• Two-Lane Mid-Currituck Bridge (average of six potential corridors)	NA	NA	\$385	\$385	\$385	\$385
• NC 12	\$550	\$207	\$550	\$207	\$72	\$72
• US 158 in Dare County	\$41	\$41	\$27	\$27	\$0	\$7
• US 158 in Currituck County (third northbound lane)	\$67	\$67	\$16	\$16	\$16	\$16
TOTAL CAPITAL COST WITH A TWO-LANE BRIDGE	\$658	\$315	\$978	\$635	\$473	\$480
Available Capital Funding (in millions)						
• Potential Total Revenue Bond Financing	\$0	\$0	\$284	\$284	\$284	\$284
• Potential Transportation Infrastructure Finance and Innovation Act (TIFIA) Financing	\$0	\$0	\$128	\$128	\$128	\$128
• Potential Capital Funding Shortfall (Surplus) (total cost minus available funding)	\$658	\$315	\$566	\$223	\$61	\$68

3. In the results table, why is Gaston County shown as having a high potential for growth acceleration due to the project, but shown as having a moderate cumulative effect? The growth trends are already there and the potential for cumulative effect can also depend on how well an area follows their land use plans. Mr. Lane stated that, in their research, the project area jurisdictions were found to be generally following their plans.
4. Were connections between Natural Heritage Areas taken into account, or did you just consider them as point locations (blobs)? Connections between Natural Heritage Areas were considered on a 1 square mile grid basis. GIS layering allowed the report preparers to consider both the location and reported occurrences of Natural Heritage elements. Additionally, composites or areas having the potential for future land use change were considered in the vicinity of the Natural Heritage Areas to determine the potential for wildlife corridor fragmentation. The analysis was qualitative in nature and focused on wildlife corridors not necessarily particular species. The assessment of Threatened and Endangered Species looked at the habitat requirements of particular species.

Previous Action Items:

- Conclude discussion on Concurrence Point 2a.

New Action Items:

- NCTA to provide a copy of the Draft Indirect and Cumulative Effects Assessment and the Addendum to the Alternatives Development and Evaluation Report once the NCDOT reviews are complete.
- NCTA to provide the public comments from the August workshops after the comment period has passed.
- Agencies will provide any comments on the Updated Draft Purpose and Need Statement, Addendum to the Alternatives Development and Evaluation Report, and the Draft ICE by the end of August.

Resolutions:

- None.

Table 2 (continued). Evaluation of Existing Road (ER) and Mid-Currituck Bridge (MCB) Alternatives

	Highway Improvement Alternatives					
	ER1	ER2	MCB1	MCB2	MCB3	MCB4
2035 Hurricane Evacuation Benefit						
Clearance Time With US 158 Northbound Contraflow Lane in Currituck County	27.4 hrs	27.4 hrs	27.4 hrs	27.4 hrs	27.4 hrs	27.4 hrs
• Percent of a Reduction from 36.3 hours to 18 hours	49%	49%	49%	49%	49%	49%
• Amount Above 18-hour Goal	8.9 hrs	8.9 hrs	8.9 hrs	8.9 hrs	8.9 hrs	8.9 hrs
Clearance Time With US 158 Third Northbound Lane in Currituck County	21.8 hrs	21.8 hrs	21.8 hrs	21.8 hrs	26.6 hrs	21.8 hrs
• Percent of a Reduction from 36.3 hours to 18 hours	79%	79%	79%	79%	53%	79%
• Amount Above 18-hour Goal	3.8 hrs	3.8 hrs	3.8 hrs	3.8 hrs	8.6 hrs	3.8 hrs
System Linkage and Efficiency Benefit						
Percent Reduction in Total Annual Millions of Vehicle Miles Traveled (VMT)	0%	0%	13%	13%	13%	13%
Consistent with Strategic Highway Corridor Vision Plan	No	No	Yes ²	Yes ²	Yes	Yes
Consistent with Intrastate System Designations	No	No	Yes ²	Yes ²	Yes	Yes
Impact Potential						
Displacement						
• Mid-Currituck Bridge (average of C1 to C6)	0	0	5	5	5	5
• NC 12	195	15	195	15	5	5
• US 158 in Dare County	0	0	0	0	0	0
• US 158 in Currituck County (third northbound lane)	32	32	1	1	1	1
TOTAL DISPLACEMENT	227	47	201	21	11	11

Table 2 (continued). Evaluation of Existing Road (ER) and Mid-Currituck Bridge (MCB) Alternatives

	Highway Improvement Alternatives					
	ER1	ER2	MCB1	MCB2	MCB3	MCB4
Potential for Public-Private Partnership to cover shortfall	No	No	No	No	Yes	Yes
Travel Benefits¹						
2035 Traffic Flow Benefits						
Percent Reduction in Congested Annual Millions of VMT						
• At LOS E or F	55%	22%	64%	50%	37%	37%
• At LOS F	51%	27%	91%	91%	71%	71%
• At a poor LOS F	100%	44%	100%	100%	69%	69%
Percent Reduction in Miles of Road Operating at LOS F						
• Summer Weekday (SWD)	100%	60%	100%	100%	61%	61%
• Summer Weekend (SWE)	37%	10%	89%	89%	73%	73%
• Weighted Average of SWD & SWE	66%	33%	94%	94%	68%	68%
Percent Reduction in Miles of Road Operating at a Poor LOS F						
• Summer Weekday (SWD)	100%	35%	100%	100%	86%	86%
• Summer Weekend (SWE)	100%	25%	100%	100%	75%	75%
• Weighted Average of SWD & SWE	100%	32%	100%	100%	83%	83%
2035 Travel Time Benefits (Aydlett Rd to Albacore St)						
• Percent Reduction in Summer Travel Time via Wright Memorial Bridge (weighted average of SWD & SWE)	48%	19%	53%	44%	31%	31%
• Percent Reduction in Summer Travel Time via Currituck Sound Crossing (weighted average of SWD & SWE)	NA	NA	93%	93%	93%	93%

Table 4. Comparison of Bridge Corridors C1 Through C6

	C1	C2	C3	C4	C5	C6
Major Utility Conflicts (yes or no)	No	No	No	No	No	No
Railroad Crossings (number)	0	0	0	0	0	0
Displacements (number)						
• Residences	6	6	7	7	0	0
• Businesses	0	1	0	1	1	0
• Cemeteries (all or part)	1	1	1	1	0	0
• Recorded Historic Sites	0	0	0	0	0	0
Rural Community Fragmentation on Mainland	Passes through Aydllett north of its center		Passes through center of Aydllett		At southern end of Aydllett	
Beach Community Fragmentation on Outer Banks	Passes between 2 subdivisions taking southern end of one	None, in commercial area	Passes between 2 subdivisions taking southern end of one	None, in commercial area	Passes between 2 subdivisions taking southern end of one	None, in commercial area
Greenway Crossings (number)	0	0	0	0	0	0
Low Income or Minority Populations (yes or no)	No	No	No	No	No	No
Potential Section 4(f) Impacts (yes or no)	No	No	No	No	No	No
Hazardous Materials Sites (number completely or partially used)	0	0	0	0	0	0

Table 2 (concluded). Evaluation of Existing Road (ER) and Mid-Currituck Bridge (MCB) Alternatives

	Highway Improvement Alternatives					
	ER1	ER2	MCB1	MCB2	MCB3	MCB4
Rural/Beach Community Fragmentation	Four through lanes crossed by beach users, shoppers, or hotel guests in Dare County.	New turn lane crossed by beach users or hotel guests in Dare County.	Same as ER1 plus Mid-Currituck Bridge passes through Aydllett (C3 and C4 through center) and C1, C3, and C5 pass through middle of new subdivision.	New turn lane crossed by beach users or hotel guests in Dare County, plus Mid-Currituck Bridge passes through Aydllett (C3 and C4 through center) and C1, C3, and C5 pass through middle of new subdivision.	Mid-Currituck Bridge passes through Aydllett (C3 and C4 through center) and C1, C3, and C5 pass through middle of new subdivision.	Mid-Currituck Bridge passes through Aydllett (C3 and C4 through center) and C1, C3, and C5 pass through middle of new subdivision.
Habitat Fragmentation	None	None	Associated with Mid-Currituck Bridge crossing of Maple Swamp and loss of swamp forest and hardwood forest; C1 to C4 in vicinity of an existing forest edge; C5 and C6 create a new edge and also use bay forest.			
Wetland Filled/Bridged (Acres)						
• Mid-Currituck Bridge on Mainland (average of C1 to C6, see Table 4 for acres by corridor)	0.0/0.0	0.0/0.0	14.2/6.5	14.2/6.5	14.2/6.5	14.2/6.5
• Mid-Currituck Bridge on Outer Banks (average of C1 to C6, see Table 4 for acres by corridor)	0.0/0.0	0.0/0.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0
• NC 12	10.9/0.0	10.4/0.0	10.9/0.0	10.4/0.0	6.3/0.0	6.3/0.0
• US 158 in Dare County	4.2/0.0	4.2/0.0	3.4/0.0	3.4/0.0	0.0/0.0	0.0/0.0
• US 158 in Currituck County (third northbound lane)	12.4/0.0	12.4/0.0	10.8/0.0	10.8/0.0	10.8/0.0	10.8/0.0
TOTAL WETLANDS FILLED/BRIDGED	27.5/0.0	27.0/0.0	39.3/8.5	38.3/8.5	30.8/8.5	30.8/8.5
High Quality Resources Filled/Bridged (Acres)						
• Mid-Currituck Bridge (average of C1 to C6, see Table 4 for acres by corridor)	0.0/0.0	0.0/0.0	4.8/6.6	4.8/6.6	4.8/6.6	4.8/6.6
• NC 12	17.8/0.0	16.8/0.0	17.8/0.0	16.8/0.0	0.0/0.0	0.0/0.0
• US 158 in Dare County	0.2/0.0	0.2/0.0	0.0/0.0	0.0/0.0	0.0/0.0	0.0/0.0
• US 158 in Currituck County (third northbound lane)	1.4/0.0	1.4/0.0	1.4/0.0	1.4/0.0	1.4/0.0	1.4/0.0
TOTAL HIGH QUALITY RESOURCES FILLED/BRIDGED	19.4/0.0	18.4/0.0	24.0/6.6	23.0/6.6	6.2/6.6	6.2/6.6

¹The absolute numbers associated with the percents shown are included in Table 7 in the Appendix. Several charts showing these findings in a graphical form also are included in the Appendix.

²Consistent because it includes a Mid-Currituck Bridge, however, these plans do not call for the improvement of NC 12, which is a component of these alternatives.

Shumate, Christy

Harris, Jennifer
 Tuesday, July 08, 2008 5:12 PM
From: 'Gary_Jordan@fws.gov'
Sent: Shumate, Christy; pagej,
To: Re: Mid-Currituck
Cc:
Subject:

Thank you Gary.

----- Original Message -----
From: Gary_Jordan@fws.gov <Gary_Jordan@fws.gov>
To: Harris, Jennifer
Cc: travis.wilson@wildlife.org <travis.wilson@wildlife.org>; mlitscher.chris@panaia.epa.gov <mlitscher.chris@panaia.epa.gov>; jim.hoadley@ncmail.net <jim.hoadley@ncmail.net>; george.hoops@fwha.dot.gov <george.hoops@fwha.dot.gov>; william.j.biddellecome@usace.army.mil <william.j.biddellecome@usace.army.mil>; Cathy.brittingham@ncmail.net <Cathy.brittingham@ncmail.net>; david.wainwright@ncmail.net <david.wainwright@ncmail.net>; matthews.kathy@epa.gov <matthews.kathy@epa.gov>
Sent: Tue Jul 08 16:39:02 2008
Subject: Mid-Currituck

Jennifer,

I have a few questions and comments for consideration in the development of the DEIS for R-2576.

- 1) Will the bridge be lighted? If so, the effects of bridge lighting on night migrating birds needs to be addressed in the document. The USFWS would strongly prefer that the bridge not be lighted, but if that is proposed, there needs to be measures implemented which would reduce the lighting and minimize impacts on migratory birds. I understand that in the state of New York, there was a significant lawsuit regarding the effects of a lighted bridge on migratory birds.
- 2) Regardless of whether the bridge is lighted or not, the effects to migratory birds needs to be addressed in the DEIS. Sec. 3(e)(1) of Federal Executive Order 13186 states each agency shall "support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions."
- 3) The old US 64 bridge across Croatan Sound has had a very bad problem of attracting migrating purple martins. They temporarily roost underneath the bridge and then fly in the path of cars. During a period of about two months out of each year, thousands of purple martins are killed by traffic. There is something about the design of the bridge which attracts them there to roost. The new US 64 bridge does not attract them. NCTA needs to avoid any design that would attract roosting purple martins or any other species.

Please note that I did not cc anyone from PB because I did not have their email addresses.

Gary Jordan
 US Fish and Wildlife Service
 PO Box 33726
 Raleigh, NC 27636-3726
 Phone (919) 856-4520 ext. 32
 Fax (919) 856-4556
 gary_jordan@fws.gov

Table 4. Comparison of Bridge Corridors C1 Through C6

	C1	C2	C3	C4	C5	C6
Known Federally-Listed Species Habitat (Natural Heritage Program) (number of areas affected)	0	0	0	0	0	0
100-Year Floodplain Impacts (yes or no)	Yes	Yes	Yes	Yes	Yes	Yes
Habitat Fragmentation (Maple Swamp Bridged on Mainland)	Bridge corridor parallel to power line corridor; swamp forest lost; in vicinity of existing edge		Bridge corridor parallel to Aydlett Road ; swamp forest lost; in vicinity of existing edge		Bridge corridor is a new crossing ; swamp and bay forest lost; new edge created	
Wetland Impacts						
• Crossings (number)	3	3	4	4	4	4
• Total Area on Mainland (acres; bridged is width of bridge times length)	7.6 (fill) 7.4 (bridged)	7.6 (fill) 7.4 (bridged)	15.9 (fill) 6.6 (bridged)	15.9 (fill) 6.6 (bridged)	19.0 (fill) 5.5 (bridged)	19.0 (fill) 5.5 (bridged)
• Total Area on Outer Banks (acres; bridged is width of bridge times length)	1.5 (bridged)	2.5 (bridged)	1.5 (bridged)	2.5 (bridged)	1.5 (bridged)	2.5 (bridged)
• Coastal (CAMA) wetland area on Outer Banks (acres; bridged is width of bridge times length)	1.2 (bridged)	1.0 (bridged)	1.2 (bridged)	1.1 (bridged)	1.2 (bridged)	1.0 (bridged)
Stream Impacts						
• Crossings (number)	0	0	0	0	0	0
• Length in feet (within design construction limits)	0	0	0	0	0	0
Potential Riparian Buffer Impacts (yes or no)	No	No	No	No	No	No
Water Supply Critical Areas (yes or no)	No	No	No	No	No	No
High Quality Resources	Maple Swamp; Gordonia Forest	Maple Swamp; Gordonia Forest	Maple Swamp; Gordonia Forest; North River/ Great Swamp	Maple Swamp; Gordonia Forest; North River/ Great Swamp	Maple Swamp; Gordonia Forest	Maple Swamp; Gordonia Forest
	Forest is different character and quality than C3 to C6. and while of value is not as unique		Bay forest exists but is thinner and smaller than C5 and C6.		Passes though a bay forest unique primarily because of the large size of the trees.	
• Crossings (number)	2	2	2	2	2	2
• Area (acres)	0.85 (fill) 7.8 (bridged)	0.85 (fill) 7.8 (bridged)	6.44 (fill) 6.5 (bridged)	6.44 (fill) 6.5 (bridged)	7.23 (fill) 5.5 (bridged)	7.23 (fill) 5.5 (bridged)

Shumate, Christy

From: Cathy Brittingham [Cathy.Brittingham@ncmail.net]
Sent: Friday, July 11, 2008 2:50 PM
To: Bill Biddercome; David Wainwright; Chris Miltscher; Kathy Matthews; Gary Jordan; George Hoops; Harris Jennifer; Shumate, Christy; Amy Simes; Jim Hoadley; Yamamoto, Brian F.; Ron Sechler; Donnie Brew; Sara Winslow; Travis Wilson; Renee Gedhill-Earley; Devens, Thomas E.; pagej.; Sykes, Dewayne L; Jethro
Subject: R-2576 DEIS, NC 12 Intersection Alternatives & Hurricane Evacuation
Attachments: The Virginia Pilot June 2008 article hurricane evacuation.doc

Hi Jennifer,

I have two additional comments at this time regarding the DEIS for R-2576:

1. Has NCTA determined which of the NC 12 Intersection Alternatives it plans to study in detail in the DEIS? I was unable to find this information in the documents distributed at the TEAC meeting this week. As stated in the DCM letters dated 5/6/08 and October 22, 2007, DCM will provide our comments on the seven NC 12 intersection alternatives after we receive additional information from NCTA regarding SAV impacts. This information could be provided in the DEIS if NCTA plans to carry forward all seven NC 12 Intersection Alternatives in the DEIS. However, if NCTA plans to eliminate any of the NC 12 Intersection Alternatives from further study before the DEIS is finalized, then DCM recommends that this be added as a discussion topic at a future TEAC meeting when the additional information regarding SAV impacts is available.

2. NCDOT has provided the NEPA/404 Merger Team for R-2544 & R-2545 with the attached newspaper article from the Virginia Pilot regarding the possibility that access could be cut off through NC 168 to Virginia during a hurricane evacuation. If I remember correctly, the hurricane evacuation analysis for R-2576 assumes that a certain percentage of the evacuees will travel north to Virginia on NC 168. How does NCTA plan to address the possible scenario as described in the attached newspaper article? How does this effect the hurricane evacuation analysis that has been done for R-2576? DCM recommends that this be discussed in the DEIS, as well as at a future TEAC meeting.

Sincerely,

Cathy

<!--[if !supportEmptyParas]--> <!--[endif]-->

--
Cathy Brittingham
Transportation Project Coordinator
N.C. Division of Coastal Management
1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733-2293 x238 telephone
(919) 733-1495 FAX



State officials concerned about traffic along evacuation route

CURRITUCK COUNTY, N.C.

If a large hurricane approaches, tourists and residents from the Outer Banks and Currituck County may be turned away from Hampton Roads.

Emergency planners want to close N.C. 168 in Barco and divert traffic west on U.S. 158. But U.S. 158 shrinks from five lanes to two there and could create a major traffic jam. "It could be a mess," Currituck County manager Dan Scanton said.

The so-called Barco diversionary plan was debated June 12 when emergency officials from both states met in Currituck County. Officials are expected to reconvene in July, said Mike Sprayberry, deputy director and operations chief for the North Carolina Division of Emergency Management.

With a large hurricane approaching, it would take 30 hours to get 95 percent of the traffic to safety through the Barco intersection, according to a 2005 study by the state highway department.

"It's going to be tough," said Sandy Casey, chief deputy for the Currituck County Sheriff's Office. "I'd say it would take not hours, but days."

Between 200,000 and 300,000 people may need to evacuate the Outer Banks, while Virginia could have to move two or three times as many people.

It would not make sense to allow the Outer Banks traffic into Hampton Roads during an evacuation, said Bob Spieldenner, spokesman for the Virginia Department of Emergency Management.

"The goal is to get them west," Spieldenner said.

But most Outer Banks tourists would be from Virginia, countered Ron Wall, natural hazards program manager for the N. C. Division of Emergency Management.

"The people coming there will be people from Virginia and they'll probably want to go back that way," Wall said. "I would argue with the Virginia plan. I can't see them closing the road to Virginia residents."

The Barco diversionary plan calls for traffic to follow U.S. 158 by turning west from the

Table 6. Comparison of NC 12 Intersection Alternatives

		Original C1	C1A	C1B	C1C	C1D	Original C2	C2A
SAV Bridged (in acres)		3.2	0.0	4.4	4.5	4.3	6.0	5.5
Potential SAV Habitat Bridged (over areas of sound less than 4 feet deep in acres)		6.5	7.9	8.5	8.1	7.7	14.2	12.6
Potential SAV Habitat Bridged (over areas of sound less than 6 feet deep in acres)		13.3	16.1	15.3	14.9	14.5	20.6	17.9
Coastal Wetlands Bridged / Filled (in acres)		2.1 / 0	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	1.4 / 0.0	0.8 / 0.0
Non-Coastal Wetlands Bridged/Filled (in acres)		0.8 / 0.7	0.3 / 0.4	0.0 / 0.9	0.3 / 1.4	0.6 / 1.5	1.8 / 0.2	1.4 / 0.0
Displacements		<ul style="list-style-type: none"> • 1 home • 13 vacant residential parcels 	<ul style="list-style-type: none"> • 9 homes • 11 vacant residential parcels 	<ul style="list-style-type: none"> • 2 homes • 1 vacant residential parcels 	<ul style="list-style-type: none"> • 6 homes • 4 vacant residential parcels 	13 vacant residential parcels	1 business	None
Community Impacts		Bisects a developing subdivision	Bisects existing subdivision; separates approximately ¾ of homes from community center; substantial change in internal traffic movement.	Passes between two sections of a subdivision but both have independent access to NC 12; pond filled	At edge of a developing subdivision; pond partially filled	Bisects a developing subdivision but more towards its southern boundary than original C1	None, except those related to NC 12 access	None
Changes Required in Local Road and Driveway Access (Currituck Clubhouse Road to Virgin Gordo Crescent)	NC 12 Widening to 4 Lanes (in miles)	4.2	3.2	3.7	3.8	4.1	2.5	2.1
	Total NC 12 Access Points	27	19	24	26	26	17	10
	Access Points with Revised Access	13	10	12	12	13	10	3
	• Right In – Right Out (RIRO) Only	10	8	10	8	10	8	3
	• Proposed Leftovers (no left turns from access point)	3	2	2	3	3	2	0
	• Road Closure	0	0	0	1	0	0	0
Proximity to Marsh Islands (closest point in feet)		Beyond 1,000 feet					900 feet	575 feet

Mid-Currituck Bridge Study

7/4

Alternatives Screening Report

five-lane highway onto Shortcut Road, a two-lane stretch of U.S. 158. Traffic would continue into Camden County and turn right onto N.C. 343, also a two-lane road, and pass through South Mills and briefly turn onto U.S. 17 before returning to U.S. 158 toward Gates County.

Another option would be to send traffic through Elizabeth City to southbound U.S. 17, a five-lane highway. But the route would pass through low-lying areas that have flooded in past hurricanes.

The nearest shelter would be in Rocky Mount, Scamlon said. Dare County might have to alter evacuation plans and direct more people west on U.S. 64, a four-lane highway through Columbia, he said.

North Carolina and Virginia officials will communicate closely through the emergency, Sprayberry said.

"We're moving into something like this as well ordered as possible," Sprayberry said. "No matter how well you plan and coordinate some of this, it's still going to be ugly."

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Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: October 7, 2008
9:00 AM to 12:30 PM
NC Turnpike Authority Office Board Room (Suite 400)
Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

- Donnie Brew, FHWA
- George Hoops, FHWA
- Bill Biddecome, USACE
- Christopher Militscher, USEPA
- Kathy Matthews, USEPA
- Gary Jordan, USFWS
- Ron Seehler, NMFIS (via phone)
- Cathy Brittingham, NCDENR-DCM
- David Wainwright, NCDENR-DWQ
- David Chang, NCDOT-Hydraulics
- Ben-Jetta Johnson, NCDOT-Traffic Engineering (via phone)
- Brian Yamamoto, NCDOT-PDEA
- Ted Devens, NCDOT-PDEA
- John Wadsworth, NCDOT-Alternative Delivery Unit
- Steve DeWitt, NCTA
- Jennifer Harris, NCTA
- Christy Shumate, HNTB
- Tracy Roberts, HNTB
- Jens Geratz, PBS&J
- John Page, PB
- Marlena Everrett, PB
- Bill Rice, PB
- Eric Misak, PB
- James Kleckley, ECU
- Dan Marucci, ECU
- Kate Christenbury, ECU
- Conor Harrison, ECU
- Jill Brent, ECU

Presentation Materials:

- (All materials have been posted on the TEAC website)
- Meeting Agenda
- Detailed Study Alternatives Map
- Mid-Currituck Bridge Study Indirect and Cumulative Effects PowerPoint slides
- Handout 16 – ER2 and MCBZ Detailed Studies
- Statement of Purpose and Need (October 2008)

Purpose:

The purpose of the meeting was to present East Carolina University's work on the indirect and cumulative effects assessment and discuss design concepts for detailed studies of the MCBZ and ERZ alternatives.

General Discussion:

The following information was discussed at the meeting:

- **Indirect and Cumulative Effects Assessment** – Dan Marucci and James Kleckley from East Carolina University (ECU) presented ongoing work related to the assessment of potential indirect and cumulative effects associated with the detailed study alternatives for the project. The ICE study area spatial boundaries include all of Currituck and Dare Counties, as well as portions of surrounding counties and part of the Hampton Roads, Virginia area. Both Currituck and Dare

Counties have Coastal Area Management Act (CAMA) Land Use Plans, as do the towns in Dare County. The Town of Southern Shores is currently updating its CAMA plan. It was also noted that Carova is included in the Growth Service Area (GSA) because of its recreational use.

ECU reviewed the activities that would potentially cause indirect and cumulative effects. USEPA added that invasive species should be considered, as they might spread during construction of the project as well as any induced development. Chemical treatment (eradication) in combating these species is not adequately reflected in the general types of impact-causing activities table shown in the PowerPoint slides. USEPA said that open and disturbed areas, as well as construction equipment use spreads invasive species (i.e., kudzu). In the project area, invasive species are currently along US 158 but not in Maple Swamp. USEPA cited an example where North Carolina Department of Environment and Natural Resources (NCDENR) have worked to eradicate phragmites from a mitigation site for more than 5 years. The indirect potential for invasive species should be taken into account.

ECU discussed the potential induced activities and development related to the project, such as: changes in the number of day visitors, changes in the number of permanent residents, changes in development on the mainland, changes in development on the NC 12-accessible Outer Banks, and changes in development on the non-NC 12-accessible Outer Banks in Currituck County.

ECU also discussed the potential indirect and cumulative impact types to be considered and explained how the Currituck County calculated their future land use in their CAMA Land Use Plan with respect to urban use. NCDENR-DCM cautioned that the CAMA Land Use Plans are not static and that they are updated every 5 years.

ECU noted that within the Carova area there is a hotel proposed for development. The proposed plan is scheduled to be considered by the county commissioners at their November 17 meeting and county planners have not recommended the hotel in Carova. [Note: it was later found that this is the same development rejected months ago by the county planning board. The developer is only now appealing the decision to the county commissioners.] It was noted that in the past, Currituck County and persons in the Carova area have opposed even minor improvements to the existing sand road and a proposed commercial development. Thus, there is current resistance to changing the status quo in the Carova area. These are trends that are considered when evaluating the potential for indirect impacts as a result of this project.

USFWS questioned how one should interpret where the land suitability map from the Currituck County Land Use Plan that shows land suitable for development within part of a wildlife refuge. No one knew the answer, the county will be asked. USEPA asked what is the criteria being used by the CAMA plans to determine suitability for development. John Page answered by pointing out on the map which areas are the least suitable for development, which tend to be the area's extensive swamps and other wetlands. USEPA stated the CAMA plans do not consider all of the items that could restrict land use. NCDENR-DCM suggested that she can invite the CAMA land use planner, Charlene Owens, to join the next TEAC meeting. Charlene is located in the Elizabeth City office. ECU noted that essentially land suitability can be defined as "can we physically build it?" USEPA questioned whether Currituck County took into account prime and unique farmland soils when considering whether land is suitable for development. FHWA stated impacts on prime and unique farmland only would be required for direct impacts.

ECU discussed the key considerations in addressing how the project could change development. A recent economic development study being done for the county by staff at the University of North Carolina at Chapel Hill was mentioned. It was explained that this area has unique structures and a unique population. Other factors besides transportation tend to dominate development trends, unlike traditional development where access to work is an important factor.

USFWS asked whether the analysis takes into account changes in local politics, e.g. large homes in non-road areas and demand for a paved road in Carova. ECU answered that there is a lot of redevelopment in Dare County in the road-accessible areas and that there are multiple factors to

resist any demand for a paved road to the Carova area. A paved road in Carova appears unlikely to happen.

ECU said the impact analysis would consider current and planned availability of visitor services, past preferences of visitors, beach driving regulations, and competing recreation and development opportunities (i.e., Virginia Beaches in association with day visitors). Keeping characteristics of what is there now on the Outer Banks is key for a service based economy. The drivers of the economic analysis are employment, income, tax revenue, tourists and residents. The Outer Banks is a unique economy. The next step for the economic analysis is completing the determination of induced activities.

USEPA stated that there could be some redevelopment issues because the FEMA flood insurance expired on September 30, 2008 and that this issue should be considered in the study. NCTA should consider the extent to which Dare and Currituck counties allow placing structures in floodplains. USEPA said the floodplain should be compared with potential development and redevelopment areas.

USEPA asked if infrastructure adequacy will be studied. ECU answered infrastructure is being reviewed based on the CAMA Land Use Plan. USEPA questioned if there are current plans for upgrading or increasing capacity to serve development that is projected and that long term water supply and treatment needs to be considered.

ECU noted the next steps for the impact analysis will be to complete the determination of induced activities or actions, assess indirect and cumulative impacts, and complete documentation. NCTA anticipates completing the ICE assessment by the end of the year.

- **ER2 and MCB2 Detailed Studies** – The functional designs prepared and used for calculating impacts for the Alternatives Screening Report assumed a curb and gutter typical section along NC 12 for ER2 and MCB2; however, discussions with NCDOT and more detailed studies of the area have revealed that this typical section will not work on the Outer Banks because the water table is very high and there are no outfalls in the study area. Within the project area there are no streams or outlets for runoff, dunes create a ridge and NC 12 is often within a low lying area. Several drainage studies have been recently completed along NC 12 and were reviewed for use in development of the preliminary design along NC 12 (see Handout 16). Based on this, drainage on NC 12 was evaluated in four zones:
 - o Zone 1 (from Skyline Drive to Ocean Boulevard) – NC 12 is the low point and receives drainage from surrounding development. Infiltration ditches would be designed to accommodate drainage from NC 12 and development. USEPA suggested checking if the infiltrative trench would contact the groundwater. PB answered that the presumption is the infiltration ditches will be shallow enough not to come in contact with the groundwater so they generally remain dry.
 - o Zone 2 (from Ocean Boulevard to Plover Drive) could use best management practices (BMP's) such as wet ponds and infiltration basins. USEPA stated a preference for the infiltration basins, because of the fecal coliform can thrive in wet ponds. PB said that is the study team's preference as well.

[There is a gap between Zones 2 and 3 where no improvements are proposed. This is the existing 3-lane section of NC 12 in Duck.]

- o Zone 3 (from Cook Drive to Hunt Club Drive) could use sheet flow or BMP's. At a meeting with NCDENR-DWQ Storm Water Management, they indicated they would prefer BMP's.
- o Zone 4 (from Hunt Club Drive to the end of widening) – a 4-foot wide infiltration ditch could be used. In this area, drainage patterns are such that we only need

to account for the infiltration of road drainage and not development drainage. This design would be used for all alternatives, including ER2, MCB2 and MCB4.

NCDENR-DWQ noted that property owners should be contacted if there will be impacts to existing stormwater ponds and their permits could require modifications.

Along NC 12 the speed limit is 45 mph except when it is 35 mph in the summer (within Duck it is 25 mph). The current design of NC 12 is for 35 mph. NCDOT agreed that the design speed for the widened NC 12 could be 35 mph to minimize impacts to surrounding land use.

For widening on US 158 between the Wright Memorial Bridge and NC 12 included in ER2 and MCB2 NCDOT requested a superstreet design rather than standard arterial widening. A graphic depicting this concept is included in Handout 16. It was indicated that traffic volumes were great enough to require dual U-turn lanes in the Wal-Mart area.

Q&A:

1. *USEPA asked why a 4-lane section is needed on NC 12 in Currituck County in all of the alternatives.*
In the case of ER2, there would be sufficient traffic in Currituck County to warrant four lanes as far north as Albacore Street and four lanes could be accommodated in the existing right of way in this area. Four lanes are not included in Dare County with this alternative, though the traffic would warrant four lanes, due to the high number of displacements, which all agreed were unacceptable (ER1 alternative). With the Mid-Currituck Bridge, four lanes would be needed on NC 12 so that back-ups at traffic signals would not back up onto the bridge. A future traffic signal is planned for Currituck Clubhouse Drive and is the southern extent of four-laning required.
2. *USEPA asked if sea level rise will be documented in the environmental document.*
Sea level rise will be documented in the environmental document in a similar manner to how it was addressed in the Bonner Bridge (B-2500) Final EIS.
3. *USEPA asked if a quantitative analysis will be completed for potential indirect effects to water quality.*
At this time, a qualitative analysis is being completed for potential impacts to the habitat and water quality based on the different alternative scenarios. A quantitative analysis may be completed later during the permitting process.
4. *USFWS asked where the Rural Planning Organization (RPO) stands in the updating of the comprehensive transportation plan within their jurisdiction.*
ECU answered that all current plans have been reviewed and they are not aware of planned updates for Currituck County but will look into it.
5. *NCDENR-DCM asked if ECU and NCTA were looking into ICE mitigation.*
ICE mitigation will be forthcoming during step 8 of the assessment. Research is underway. NCDENR-DCM noted that on some projects mitigation commitments are required of local communities. ECU stated that Currituck County has solid land use controls already in place.
6. *USEPA noted that the cost of NCDOT projects has been increasing 2 percent per month. Is this something that has been factored into project finance planning?*
NCTA updates project costs months and future cost estimates will be presented as a range. FHWA also advocates for presenting cost estimates as a range.
7. *USEPA asked about the status of the Public Private Partnership?*
NCTA is continuing to pursue a Pre-Development Agreement Partner for this project. Three teams of contractors, developers, engineers, and financiers, have been shortlisted and issued a Request for Proposals. Their proposals are due October 27 and NCTA hopes to select a partner by mid-November. The RFP specifically asks the three teams

how they would handle a variety of environmental issues, including runoff from the bridge, mitigation, permitting, etc. NCTA will make the RFP available on the TEAC website.

Previous Action Items:

- NCTA to revise and circulate the Statement of Purpose and Need and Alternatives Screening Report based on decisions presented in Letter from Jennifer Harris dated July 2, 2008. [A revised Statement of Purpose and Need dated October 2008 was distributed at the October 7, 2008 meeting and is posted to the TEAC website. The Alternatives Screening Report is being updated to reflect discussions with NCDOT regarding the No-Build Alternative.]
- NCTA will provide history of STIP funding for R-2576.
- [NCTA provided this to agencies via email on July 10, 2008.]
- USEPA will provide new guidance on infiltration basins and will check on guidance document/interagency agreement discussing wetland impacts and mitigation on the Outer Banks. [Guidance on Class V UIC wells received on July 10, 2008.]
- Agencies will provide additional comments on topics and issues they would like to see addressed in the Draft EIS. [Additional comments were received via email from USFWS and NCDENR-DCM and attached to the July 8, 2008 TEAC meeting minutes.]

New Action Items:

- NCTA will post the Pre-Development Agreement Request for Proposals to the TEAC website. [The RFP and RFP attachments were posted to the TEAC website on October 8, 2008.]
- Agencies will provide additional comments or questions related to the NC 12 widening, typical section, and drainage options.
- NCTA will work with NCDOT to schedule TEAC meetings for 2009. If agencies have comments about dates, they should provide those to Jennifer Harris.

Resolutions:

- Agencies agreed with the approach for detailed studies of NC 12 for ER2 and MCB2.
- Agencies agreed with work done on the Indirect and Cumulative Effects Assessment thus far.

MEETING MINUTES

Date: October 7, 2008
1:00 pm to 3:30 pm
NCTA Board Room

Project: STIP R-3329 Monroe Connector – NHF-74(21)
STIP R-2559 Monroe Bypass – NHF-74(6)

Monroe Connector / Bypass Spotlight:

Attendees:	Jennifer Harris, NCTA
Donnie Brew, FHWA	Christy Shumate, HNTB
George Hoops, FHWA	Carl Gibliaro, PBS&J
Steve Lund, USACE	Clint Morgan, PBS&J
Kathy Matthews, USEPA	Bryan Lambeth, PBS&J
Marela Buncick, USFWS (via phone)	Michael Gloden, PBS&J
Maria Chambers, NCWRC	Phillip Rogers, HNTB
Polly Lespinasse, NCDENR-DWQ	James Byrd, HNTB
John Wadsworth, NCDOT	
Steve DeWitt, NCTA	

Presentation Materials: (Posted to the TEAC website)

- Meeting Agenda
- Draft TEAC Meeting Minutes (September 23, 2007)
- Proposed Drainage Structure Maps
- Selection Criteria Handout
- Recommended Preliminary Crossing Size and Bridge Lengths (Table 4)
- Spotlighted Bridges Data Sheets
- Spotlighted Culverts Data Sheets
- Spotlighted Structures Data Sheets

Purpose: Discuss information in order to achieve agreement on the bridging decisions for streams and wetlands crossed by the detailed study alternatives.

General Discussion:

- **Selection Criteria** – The selection criteria (see Selection Criteria Handout) for identifying major drainage crossings matched what was previously used with endorsement from the agencies for the Gaston East West Connector. Crossings of 303(d) streams, streams which have a triple box culvert, and streams which drain 30 or more acres were identified. Of the fifty-six total drainage crossings on the project, fourteen crossings (nine proposed bridge crossings and five proposed culverts) were discussed in detail (see Spotlighted Bridges Data Sheets and Spotlighted Culverts Data Sheets).
- **Proposed Major Bridge Crossings** – Bridge lengths identified in the Spotlighted Bridges Data Sheets were not based on FEMA criteria or profiles. The bridge lengths were based on minimum NCDOT design criteria, which identify 10' offsets from the top of bank and then project a 2:1 slope to intersect with the proposed roadway profile. Also, it was noted that estimated bridge costs do not include annual maintenance costs. The bridge lengths do not account for FEMA requirements related to flood requirements. These studies will be done during final designs and bridge lengths will be adjusted accordingly. Agencies also requested that bridge widths and clearance be maximized to allow for possible inclusion of animal crossings at these locations or that floodplain pipes, which could also be used for small animal crossings, be considered in the fill slopes.

The following bridges were proposed based on hydraulic analysis:

- **Proposed Major Culvert Crossings**

- Culverts were recommended at the following locations based on hydraulic analysis:
 - **Culvert Crossing #3** – 3-(7'x10') culvert proposed for S008A on the mainline (Corridor Segment 18A). Agencies requested a bridge be considered due to the 303(d) status of the stream and because bridges are proposed or existing on upstream and downstream crossings. NCTA agreed to dual 250' bridges to bridge Stream S008A, however, equalization pipes will be utilized to maintain hydraulic connectivity for Wetland W004 rather than extending the bridge.
 - **Culvert Crossing #6** – 3-(11'x10') culvert proposed for S008C on the mainline (Corridor Segment 18A). USEPA and NCWRC requested that this location be bridged. The drainage area for this location is very small and does not meet NCDOT criteria for inclusion of a bridge. The USEPA representative noted that all other 303(d) streams are bridged so this one should be bridged also. NCTA will consider changing this location from a culvert to a bridge.
 - **Culvert Crossing #27** – 3-(7'x12') culvert proposed for S076 on the mainline (Corridor Segment 31). Concern was expressed that the culvert at this location could split the stream. NCTA will consider a 2 barrel culvert, which would be sufficient hydraulically. It was noted that structures up and downstream would need to be considered in the selection process. It was agreed that this location will be a culvert.
 - **Culvert Crossing #46** – 3-(9'x12') culvert proposed for S152 on the mainline (Corridor Segment 34). The drainage area at this location is well below the NCDOT requirements for consideration of a bridge. Agencies requested a field review of this crossing before making a decision.
 - **Culvert Crossing #47** – 3-(9'x12') culvert proposed for S152 on the mainline (Corridor Segment 36). A bridge was proposed at this location in NCDOT's R-2559 plans. USACE requested a field review for this crossing, as well as crossing #46 before finalizing a decision.
- **Changes to Recommendations** - NCTA agreed to make the following changes to its initial recommendations:
 - **Culvert Crossing #3** – Change from a culvert to a 250' bridge to bridge Stream S008A.
 - **Bridge Crossing #22A** – Extend bridge from 165' to 230' to bridge Wetland W044.
 - **Bridge Crossing #39** – Agreed to keep bridge at current proposed length (375') but to discuss possible lengthening during further avoidance and minimization discussions on the preferred alternative.
 - **Bridge Crossings #46 & 47** – Have a field review for these locations.
 - **Culvert Crossings #6** – This is the only 303(d) crossing without a bridge. NCTA will reevaluate this location for potential bridging.

Q&A:

1. *Why weren't crossings 1, 53 and 54 analyzed even though they appear to meet the selection criteria?*
All three of these crossings are existing culvert crossings under existing US 74 and would be replaced with appropriate culvert structures.
2. *Were future build-out and developments considered when sizing the crossings?*
The USGS formula was used which takes into account future land-use changes.
3. *How was the avoided length of stream distance determined?*
This was the distance measured along the stream to points 40' outside the slopestakes.
4. *Can all of Stream 115B be bridged at Bridge Crossing #39?*
S115B was only partially bridged because it is a lateral stream impact and to completely bridge it would be extremely costly. This options bridges S115B until its closest point to the edge of the proposed fill and from there on the stream will be rerouted to the edge of fill. This was done to best balance the stream impacts and the cost of the structure.

- 5. *Can the alignment at Bridge Crossing #39 be shifted to minimize impacts?*

If that crossing is shifted, it will affect other crossings. However, the alignments and grades have not yet been optimized. That will be evaluated further once a preferred alternative is selected.

Previous Action Items:

- NCTA to provide additional statistics on upgrade existing US 74 alternative. [NCTA and FHWA have determined that this information will be provided in the Draft EIS for agency review.]
- NCTA to continue development of Qualitative ICE Assessment and present findings at upcoming meetings.

New Action Items:

- NCTA will reevaluate Crossing #6 to determine if a bridge or culvert should be recommended.
- NCTA will schedule a field review meeting. Agencies will provide available dates. [The field review meeting was scheduled for October 21, 2008.]

Resolutions:

- Bridges will be included at the following locations:
 - Crossing 3/Stream S008A – 2-(250'x48') Corridor Segment 18A
 - Crossing 5A/Stream S008B – 50'x40' Corridor Segment 18A
 - Crossing 19/Stream S047 – 2-(150'x48') Corridor Segment 30
 - Crossing 20/Stream S047 – 75'x64' Corridor Segment 30
 - Crossing 21/Stream S047 – 2-(110'x56') Corridor Segment 22A
 - Crossing 22A/Stream S047 & Wetland W044 – 2-(230'x32') Corridor Segment 22A
 - Crossing 30/Stream S082 – 2-(240'x48') Corridor Segment 34
 - Crossing 37/Stream S111 – 2-(320'x48') Corridor Segment 36
 - Crossing 38/Stream S112 – 2-(280'x48') Corridor Segment 36
 - Crossing 39/Stream S111 – 2-(375'x48') Corridor Segment 34
- Culverts will be included at the following locations:
 - Crossing 27
- The following locations will be reevaluated:
 - Crossing 6
 - Crossing 46
 - Crossing 47

MEETING MINUTES

Date: October 7, 2008
3:30 pm to 5:00 pm
NC Turnpike Authority Board Room

Project: STIP U-3321 Gaston E-W Connector – STP-1213(6)

Gaston E-W Connector Spotlight:

Attendees:
George Hoops, FHWA
Donnie Brew, FHWA
Kathy Matthews, USEPA
Polly Lespinasse, NCDWQ
Maria Chambers, NCWRC
Steve Lund, USACE
Marella Bunick, USFWS (via phone)

John Wadsworth, NCDOT
Jennifer Harris, NCTA
Jeff Dayton, HNTB
Jill Gurak, PBS&J
Michael Gloden, PBS&J
Kiersien Giugno, PBS&J
Joanna Harrington, URS

Presentation Materials: (Posted to the TEAC website)

- Meeting Agenda
 - Draft TEAC Meeting Minutes (September 23, 2008)
 - Draft Section 6002 Coordination Plan (dated October 7, 2008)
 - Signature Form for Concurrence Points 1, 2, and 2a (dated October 7, 2008)
- [The final signature form will be posted once all signatures have been collected]

Purpose:

Discuss agency comments on the Draft Updated Purpose and Need Statement and Draft Addendum to the Final Alternatives Development and Analysis Report; discuss agency comments on the Indirect and Cumulative Effects Assessment; and discuss the Section 6002/Merger 01 Process and Section 6002 Coordination Plan.

General Discussion:

Ms. Harris opened the meeting with introductions and a review of the agenda.

- **Updated Purpose and Need Statement** – Ms. Harris requested comments from the team. NCWRC noted that the two Catawba River crossings are more like arms of Lake Wylie, and this should be clarified in the Purpose and Need Statement. USEPA suggested that growth in the southeast portion of the project area is due to the lure of lakeside living rather than proximity to Charlotte. USEPA believes that after talking with the Gaston Urban Area MPO, the MPO seems to be primarily focused on the Catawba River crossing more than anything else. Traffic forecasts for non-toll scenarios are approximately 106,000 vehicles per day, and traffic forecasts for the toll scenario show approximately 60,000 vehicles per day using the eastern end of the project. This type of demand can only be accommodated with a high-speed controlled-access facility. This project is unique in that there are only a few existing crossings of the Catawba River, and the forecasts show that there is a large demand for more capacity between Gaston and Mecklenburg Counties. Ms. Gurak noted that I-85 is already expanded to eight lanes across the Catawba River and is projected to operate at levels of service F in 2030. Mr. Militscher was not able to attend the meeting but communicated via e-mail with the team that he did not have any environmental objections on the Updated Purpose and Need Statement. Ms. Harris asked the team if there were any outstanding issues with the Updated Purpose and Need Statement. The team agreed there were none. USACE indicated the team could adopt the Purpose and Need Statement. The rest of the team agreed.

- **Addendum to the Final Alternatives Development and Evaluation Report** – Ms. Harris requested comments from team. NCWRC stated the forecasts seem to show that both the New Location Alternative and improving existing I-85 are both needed. NCWRC asked that, given the mixed comments regarding support for the project received at the August 2008 Citizens

Informational Workshops, would it be appropriate to do a survey of Gaston County residents regarding the need for the project. There were approximately 50-60 comments received that specifically stated support or opposition to the project or the need for the project out of the 200+ written comments received. Mr. Brew stated that the Long Range Transportation Plan (LRTP) process is in place to identify needed projects in the MPO's jurisdiction. For the Gaston East-West Connector, there were several public meetings held in the 1990s so that the MPO could identify their preferred alternative. The project has been a top priority since it was first included in the local transportation plans in the early 1990s. There is no improved existing I-85 project proposed in the MPO's LRTP or in the NCDOT STIP. NCDWQ had a question pertaining to the network wide statistics. Ms. Gurak explained the background of the statistics and why they seem counterintuitive. Braess's Paradox is the term for this phenomenon, recognized in complex networks where increasing capacity on specific links can, in certain instances, increase congestion overall. Mr. Militscher was not able to attend the meeting but communicated via e-mail with the team that he did not have any environmental objections on the Addendum to the Final Alternatives Development and Evaluation Report. Ms. Harris asked the team if there were any outstanding issues with the Addendum to the Final Alternatives Development and Evaluation Report. The team agreed there were none. USACE indicated the team could adopt the Addendum to the Final Alternatives Development and Evaluation Report. The rest of the team agreed.

- **Indirect and Cumulative Effects Assessment** - Ms. Harris asked if anyone had any comments or questions on the ICE Assessment. NCDWQ observed there were several references to "lack of stormwater ordinances" that need to be clarified since the area's jurisdictions do have stormwater ordinances. Ms. Gurak stated the intent of that phrase was to note that the effects being described would occur if there were no stormwater ordinances in place. However, it was acknowledged that clarification was needed. NCDWQ mentioned that the State of South Carolina was suing the State of North Carolina for water quality issues in the Catawba River basin. This is an important issue for NCDWQ. The attendees needed additional time to review the report and will provide written comments to NCTA. It was determined that it may be beneficial to provide the Indirect and Cumulative Effects chapter of the DEIS to the agencies for review.

- **Section 6002 Coordination Plan** - NCTA's intent for the environmental reviews is to follow a merger-like process for the Gaston East-West Connector project. Since NCTA is not a signatory to the NEPA/404 Merger Agreement, the process used can't officially be Merger 01. The process also needs to be compliant with Section 6002 of SAFETEA-LU. A Section 6002 Coordination Plan was distributed on September 23, 2008, and has since been revised to include comments from that meeting. The dispute resolution process is proposed to be the same as for the Monroe Connector/Bypass project. The team discussed including a section regarding abstenions in the plan. Ms. Harris clarified that inclusion of an abstenion process is not necessary since the plan includes the Merger 01 process by reference and such a provision is included in that process. As such, the Merger 01 abstenion process is included in the plan. The attendees agreed with the Section 6002 Coordination Plan as currently drafted. The NCTA also discussed the need for invitation letters to be sent to each of the agencies. The agencies confirmed that they did not need an invitation letter and understood that by making this determination, they accepted status as participating agencies. The responsibilities associated with this status can be found in the Gaston Section 6002 Project Coordination Plan.

- **Concurrence Points 1 (Purpose & Need), 2 (Range of Alternatives), and 2a (Bridging Decisions)** - With Mr. Militscher absent, the question of USEPA responsibilities was raised. Ms. Matthews clarified that Mr. Militscher is responsible for NEPA compliance and she is responsible for permitting issues. As such, signing Concurrence Point forms is Mr. Militscher's responsibility. Ms. Harris asked the team if there were any outstanding issues with the Concurrence Points. The team agreed there were none. USACE indicated the team could sign the Concurrence Forms. The rest of the team agreed. The project team, including Mr. Militscher via email and Ms. Bunick via telephone, identified that they were ready to sign off on Concurrence Points 1, 2, and 2a. The form for Concurrence Points 1, 2, and 2a was passed around for each member to sign. The agencies who signed the form include FHWA, USACE, NCDWQ, and NCWRC. The signed form was scanned and copied for each member.

In conclusion, Ms. Harris noted that NCTA is using the documents discussed at today's meeting to prepare the Draft EIS. Although the team has concurred with the content of the documents, should any additional issues arise, Ms. Harris stressed the importance of NCTA's timely receipt of any further comments, particularly on the ICEA, so that the project schedule can be maintained. No TEAC meeting is expected in November.

Q&A:

1. *NCWRC asked why the report uses forecasts for Improve Existing Roadways Scenario 4+4a for comparison to the No-Build Alternative and the New Location Alternative, and not Scenario 8. NCDWQ also posed a question regarding the region-wide statistics. Scenario 4+4a was the best model to represent the full range of Improve Existing Roadways Alternatives. If Improve Existing Roadways Alternative Scenario 8 were modeled, the congested VMT totals would be expected to improve over Scenarios 4+4a, but likely not enough to show the same improvements in congested VMT achieved by the New Location Alternatives (Non-Toll or Toll Scenarios). Widening north-south feeder roads under Scenario 8 would just allow more traffic to be delivered to the same bottlenecks faster. Due to the volumes of traffic, these bottlenecks would still occur even with widened roadways. Travelers would have wider crossroads/feeder roads to sit on while waiting to get onto I-85. The effects would be to have shorter queues and higher levels of services for other trips on the crossroads/feeder roads, but this would not be enough improvements to congestion to compete with any of the New Location Alternatives.*
2. *Are there any plans to widen I-85?*
Ms. Harris stated there are no projects in the Long Range Transportation Plan or Thoroughfare Plan to widen I-85 in the project area. I-85 already is widened to eight lanes over the Catawba River. Widening I-85 would require a long period of construction, as documented in the Alternatives Addendum, and currently there is no other controlled-access alternate route.
3. *Is NCTA planning on submitted a merger application for the Section 404 permit?*
The NCTA is intending to submit a merger application.

Previous Action Items:

- Agencies will provide comments on the Updated Purpose and Need Statement, Draft Addendum to the Final Alternatives Development and Evaluation Report, and the Indirect and Cumulative Effects Assessment by October 7, 2008.
[The agencies provided comments on the Updated Purpose and Need Statement and the Alternatives Addendum and discussions of these reports are closed. The agencies requested additional time to review the ICE Assessment.]
- Agencies to provide comments on the Section 6002 Coordination Plan. NCTA will provide a revised Draft Coordination Plan based on comments from the September 23, 2008 meeting.
[The attendees agreed at the October 7, 2008 meeting that the Draft Coordination Plan presented was acceptable.]
- Obtain agency comments and signatures on Concurrence Points 1, 2, and 2a at the October 7, 2008 TEAC meeting.
[All agencies agreed to sign Concurrence Points 1, 2, and 2a at the October 7 meeting.]

New Action Items:

- The resource agencies agreed that Concurrence Points 1, 2, and 2a are final. NCTA will obtain all concurrence signatures for Concurrence Points 1, 2, and 2a and will distribute a copy of the completed signed form.

Resolutions:

- The agencies signed Concurrence Points 1, 2, and 2a.



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: June 10, 2009
10:30 AM to 12:00 PM
NC Turnpike Authority Office Board Room (Suite 400)

Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-000S(35)

Mid-Currituck Bridge Spotlight:

Attendees:

- | | |
|---|-------------------------------|
| Bill Biddlecome, USACE | George Hoops, FHWA |
| Christopher Millsfischer, USEPA | Jennifer Harris, NCTA |
| Gary Jordan, USFWS | Christy Shumate, HNTB |
| Cathy Brittingham, NCDENR-DCM | John Page, PB |
| David Wainwright, NCDENR-DWQ | Don Brown, PB |
| Travis Wilson, NCWRC | Jeff Dayton, HNTB |
| Renee Giedhill-Earley, NCDCR-HPO
(via phone) | Jose Luque, CDG-ACSID |
| Steve DeWitt, NCTA | Benjeta Johnson, NCDOT-TMS |
| Jerry McCain, PBS&J/ECO Science | Kristin Maseaman, CDG-Lochner |
| Lonnie Brooks, NCDOT-SDU | Dewayne Sykes, NCDOT-RDU |
| Amy Simes, NCDENR | Elizabeth Lusk, NCDOT-NEU |
| Missy Pair, NCDOT-PDEA | Shannon Sweitzer, NCTA |
| Roy Bruce, CDG-Lochner MMM LLP | Spencer Franklin, HNTB |
| John Wadsworth, NCDOT-TPM Unit | Steve Browde, CDG-Lochner |
| Ted Devens, NCDOT-PDEA | |
| Brian Eason, CDG-Lochner | |

Persons Who Were Provided Materials but Were Unable to Attend:

- Ron Sechler, NMF
Sara Winslow, NCDENR-DMF

Presentation Materials: (All materials posted on the TEAC website)

- Meeting Agenda
- Detailed Study Alternatives figure
- DEIS Outline, Technical Reports, and Schedule (Handout 17)
- MCB2 & MCB4 Mainland Corridor Design Options (Handout 18)
- Graphic – Option B with T3

Purpose:

The purpose of the meeting was to provide an update on Draft Environmental Impact Statement (DEIS) preparation; and to discuss the potential for inclusion of an additional Mid-Currituck Bridge design option in the detailed study alternatives being evaluated in the upcoming DEIS.

General Discussion:

The following information was discussed at the meeting:

- **Selection of Private Partner** – Since the last TEAC meeting in October 2008, NCTA has selected the Currituck Development Group (CDG) as the private partner for the Mid-Currituck Bridge project. HW Lochner is the partner's engineer. However, these firms are not responsible for the NEPA process. NCTA and PB will continue to guide the project through the NEPA process. (The NCTA will follow the processes outlined in 23 CFR 636.109.)
- **DEIS and Technical Reports Discussion** – NCTA (Jennifer Harris) stated that NCTA and PB are working on the DEIS and the technical reports. Handout 17 was presented and the way the DEIS is being structured was described. Based on coordination with FHWA, the DEIS is being prepared differently than traditional DEIS documents. It will be a smaller document that is more reader friendly to the public. Detail will be presented in technical reports. In addition to the usual technical reports (such as Air, Noise, and Natural Resources), other technical reports will be produced as well, including a technical report for Other Physical Features that would include topics such as energy, sea level rise, visual quality, hazardous materials, and floodplains. A hard copy of the DEIS will be provided to TEAC members, along with a CD containing the technical reports. Hard copies of technical reports also will be provided upon request.

Q&A:

1. *USEPA stated that there are CEO regulations for the preparation of NEPA documents and if we deviate from this, we would have to provide compelling reasons. CEO likes to see a clear distinction between Affected Environment and Environmental Consequences. Cross-cutting issues need to be noted, e.g. noise is also a community issue.*

NCTA noted that the standard material will be provided using the customary headings. The key difference is the focus on key findings in the main body of the DEIS and the details will be in technical reports.

2. *USEPA stated that they would require five hard copies of all the technical reports in addition to five copies of the DEIS.*
3. *NCDENR-DCM asked how much review time would be allotted for the DEIS review by the agencies.*
4. *NCDENR-DCM asked if the DEIS distribution for state agencies would be through the state clearinghouse.*

Yes.

- **MCB2 & MCB4 Mainland Corridor Design Options** – NCTA (Jennifer Harris) reviewed the three detailed study alternatives (ER2, MCB2, MCB4) and the two bridge corridors (C1 and C2) that have been previously agreed to be studied in the DEIS. Both bridge corridors include a bridge on the Currituck County mainland through Maple Swamp between US 158 and Currituck Sound. Handout 18 was presented, which described a new, second option for the C1 and C2 corridors on the mainland between US 158 and Currituck Sound. For the purposes of the meeting, the original design option (bridging through Maple Swamp) was called Option A, while the new design option (filling through Maple Swamp) was called Option B. This new option (Option B) would involve removing Aydlett Road, restoring Maple Swamp in the Aydlett Road right-of-way, placing Aydlett Road traffic on the access road for the Mid-Currituck Bridge, passing through Maple Swamp on fill (with provisions for maintaining the swamp's hydrology and wildlife passage), and providing access to Aydlett from the bridge access road. With Option B, there would be approximately 600 acres within Maple Swamp that would be "landlocked" (would not have access). NCTA would seek to buy,

preserve and restore timbered land within this 600 acres.

An additional toll plaza location option was presented for consideration. The current location being studied is a toll plaza west of Maple Swamp. This option works with alignment Option A (bridging Maple Swamp). An additional toll plaza location option is east of Maple Swamp and uses the uplands east of Maple Swamp and west of Currituck Sound near Aydlett. This option could be considered with either of the design options (Options A and B) described above.

It was noted that the tolls would be collected electronically, but there would still be provision of cash lanes for approximately 10 years because of the large number of out of state travelers.

NCTA anticipates there to be comments and concerns with this new option from the residents of Aydlett. NCTA has informed a County Commissioner and the County Manager that NCTA is considering this design option.

The reason for adding this design option is related to cost. Option B would save the project \$60 million, even after accounting for purchasing and preserving the approximately 600 acres in Maple Swamp.

Q&A:

1. *USEPA asked if the 600 acres of property would be turned over to a third party.*

Yes.

2. *NCDENR-DCM asked how much of the property has been timbered. Timbered property would not be of as high a quality.*

NCTA noted that much of the land north of Aydlett Road has been timbered.

USFWS noted that if the decision is made to implement Option B, the rest of the land would likely be timbered. NCWRC noted that this situation occurred with another bridge project (Second Bridge to Oak Island). Based on the Second Bridge experience most landowners will want access to the bridge access road. The land will be highly sought for development. NCWRC stated that purchasing land for preservation was a good idea, but this concept could evolve over time into something that was not originally intended with the land preserved being in fragmented small areas.

NCTA noted that with the purchase of the approximately 600 acres, they would purchase the right-of-access for all properties along its facility from US 158 to Currituck Sound.

3. *NCTA asked if there were recommendations from any TEAC members as to how to prevent the situation described in Question 2 above.*

USFWS noted that even timbered, the land has biological value. The wetlands would remain and the forest would grow back over time. USFWS suggested that NCTA talk with non-profit agencies in land conservation. They can move much faster to protect the quality.

NCTA indicated that they have talked to the North Carolina Coastal Land Trust and they are interested in preserving land in this area.

4. *USEPA asked how many lanes would be provided with the new road replacing Aydlett Road, and how would local traffic be separated from the tolled traffic using the bridge.*

The toll plaza would be two lanes. NCTA explained that one of the reasons for the toll plaza location option east of Maple Swamp was to allow local Aydlett traffic to use the new facility without paying the toll for the bridge since Aydlett Road would be removed.

5. USEPA asked how much right of way would be required for this two lane road.

The NCTA plans to acquire 200 feet of right of way.

6. USEPA asked for more information on the functionality of the wildlife crossings given the project width.

NCWRC noted that it was too early in the process for that information.

7. NCWRC asked if it was possible to provide a free pass for residents of Aydlett to allow for placing the toll plaza out of the environmentally sensitive areas.

NCTA noted that the toll plaza location with Option B east of Maple Swamp is not in wetlands.

8. NCTA noted that along with the introduction of Option B, nothing previously agreed to be studied in detail was being suggested to be eliminated from consideration in the DEIS. Option B is being added to the mix of already existing alternatives and design options for those alternatives. The impacts of Option B are not yet known. It will be studied further. It would be assessed in full in all technical reports, as well as the DEIS, and NCTA would coordinate with the NC-HPO regarding the potential effect on the Daniel Saunders House.

9. NCTA asked if the TEAC wanted to meet again next month to discuss this option further or wait until after the DEIS is released that assesses it.

USEPA requested that a follow up meeting occur prior to submission of the DEIS. NCDENR-DCM suggested that the TEAC may want to have someone from the Natural Heritage Program come to the next meeting to talk about Maple Swamp.

10. USEPA noted that this new option appears to be a reasonable alternative and it would be good to carry it forward in the DEIS. USEPA cautioned how Option B is presented from a Section 404 perspective. The purchase of the 600 acres could not be considered during selection of the LEDPA.

11. NCWRC asked why the removal of Aydlett Road would not be part of the design option including a bridge over Maple Swamp were provided.

NCTA explained that it had to do with cost. NCWRC noted that this gets into the mitigation issue that was dealt with on Second Bridge to Oak Island. NCTA added that the goal is to try to find a cost effective solution that can enhance the environment.

12. USFWS requested that the DEIS include the most up-to-date information on how much of the land within Maple Swamp that has been timbered. The area south of Aydlett Road is the most valuable forest. In addition, consideration should be given to how practical it would be to restore the land if it has been timbered.

13. USACE noted that one cannot buy down wetland loss by preserving habitat. USEPA noted that impacts associated with other issues can allow for the selection of a preferred alternative with higher wetland impacts than other alternatives. NCDENR-DCM stated that they do not see the harm in studying this new option. It is a surprise, however, and NCDENR-DCM will have to discuss it internally. It was requested that NCTA coordinate with the Natural Heritage Program.

14. USEPA asked where the proposed facility for Option B was in relation to the power lines.

NCTA said it is directly adjacent to the power lines.

15. USEPA asked what the adjacent properties would do because the facility would feature full control of access.

PB said that adjacent properties would either have access to another road and the right-of-access to the Mid-Currituck Bridge facility purchased from adjoining land owners or if there is no alternate access, the entire property would be purchased.

16. NCWRC asked who would own the right-of-way and have the authority to grant access if someone requests access.

NCTA stated that NCDOT would maintain the power to grant, or not grant, access. NCWRC added that some language needs to be added to right-of-way agreements so that it is clear that developers will not have a right of direct access to the facility west of the toll plaza and that a "red flag" is raised if such access is requested. USEPA agreed that controlled access needs to be stated. USEPA suggested that NCTA consult with attorneys now to develop such language.

17. NCDENR-DCM asked about the status of the ICE Report.

NCTA stated that it is being reviewed, but this new design option would need to be added to the report. NCDENR-DCM requested that the consistency of the ICE Report with area CAMA plans be discussed with their staff. USFWS reminded NCTA that CAMA plan maps showed development in a USFWS refuge, which would not be allowed.

18. USFWS asked about the status of a proposed hotel in Carova.

PB stated that it was denied by the County Commissioners.

Resolutions:

- It was resolved by the TEAC that NCTA could add Option B (fill on new alignment in the C1/C2 corridor on the mainland with removal of Aydlett Road) as a design option with the detailed study alternatives being analyzed in the DEIS and associated technical reports.

Next Steps:

- The need for a follow up TEAC meeting was discussed. USEPA requested that a follow up meeting occur prior to submission of the DEIS. NCDENR-DCM suggested that the TEAC may want to have someone from the Natural Heritage Program come to the next meeting to talk about Maple Swamp. Charlan Owens (District Planner with NCDENR-DCM in Elizabeth City) would be good to have at the meeting to discuss the CAMA land use plan as it relates to ICE.



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: March 9, 2010
10:00 AM to 12:00 PM
NC Turnpike Authority Office Board Room (Suite 400)
Project: STIP R-2576 Mid-Currituck Bridge Study – BR-STP-000S(494)

Mid-Currituck Bridge Spotlight:

Attendees:

- | | |
|---|--|
| Bill Biddlecome, USACE | Richard Palmer, CDG-Weeks Marine, Inc. |
| Christopher Militscher, USEPA (via phone) | Jose M. de Iturriaga, CDG-Dragados USA, Inc. |
| Gary Jordan, USFWS | Bernardo Palicio, CDG-Dragados USA, Inc. |
| Cathy Brittingham, NCDENR-DCM | Ron Ferrell, CDG-PBS&J |
| David Wainwright, NCDENR-DWQ | Jim Hoadley, NCDENR-DCM |
| Travis Wilson, NCWRC | Steve Gurganus, NCDOT-PDEA, HEU |
| Missy Pair, NCDOT-PDEA | BenJetta Johnson, NCDOT-CM (via phone) |
| Roy Bruce, CDG-Lochner MMM LLP | Kevin Hart, NCDENR-DMF (via phone) |
| Ted Devens, NCDOT-PDEA | Sara Winslow, NCDENR-DMF (via phone) |
| Jennifer Harris, NCTA | Ron Sechler, NMFIS (via phone) |
| Don Brown, PB | Jens Geratz, CDG-PBS&J |
| Jose Luque, CDG-ACS Infrastructure | |
| Dewayne Sykes, NCDOT-RDU | |
| Spencer Franklin, HNTB | |
| Tracy Roberts, HNTB | |
| Steve Browde, CDG-Lochner MMM LLP | |

*CDG: Currituck Development Group (CDG) is the PDA (Pre-Development Agreement) partner of the NCTA formed by ACSID, Dragados USA, Inc. and Lochner MMM LLP

Presentation Materials:

- Meeting Agenda
- Slides for presentation
- DEIS Comparison of Key Impacts (based on March 5, 2010 preliminary DEIS) (Handout 19)
- Construction Methods in Currituck Sound Handout

Purpose:

The purpose of the meeting was to provide an overview of Draft Environmental Impact Statement (DEIS) (the last TEAC meeting was in June 2009) and explain what the DEIS would look like (reader-friendly format); and to discuss the potential construction methods in Currituck Sound should a Mid-Currituck Bridge be selected as the Preferred Alternative. The purpose of the meeting was also to discuss construction

Turnpike Environmental Agency Coordination Meeting 3/9/10

moratorium applicability in Currituck Sound and to discuss recent and future public involvement activities and schedule.

General Discussion:
The following information was discussed at the meeting:

- **DEIS and Technical Reports Discussion** – PB (John Page) summarized the agenda and then discussed some of the similarities and differences readers would see in the reader-friendly format of this DEIS as compared to other DEISs. The Mid-Currituck Bridge DEIS would be approximately 0.5 inch thick and would be focused on the key findings of the analysis. The details of the analysis would be in the approximately 7 inches of supporting technical reports. The DEIS would include a CD with all of the technical reports and public hearing maps. There would be eight public review locations for the DEIS – three on the mainland and five on the Outer Banks. All material would be posted on the NCTA's project website also.

PB (John Page) summarized the detailed study alternatives being analyzed in the DEIS and described Handout 19. Mitigation for Design Options A and B was also discussed. MCB4 will be presented in the DEIS as the Recommended Alternative because of its capability of being financed, the minimization of community impacts, the overwhelming preference for it by the public, among other reasons. No recommendation will be made in the DEIS related to bridge corridor C1 versus C2, Option A versus Option B, and the two hurricane evacuation alternatives.

Q&A:

1. **USFWS (Gary Jordan)** stated that the timber on hundreds of acres on the south side of Aydtlett Road in Maple Swamp had been cut down. *NCWRC (Travis Wilson) described what had been done and how the land now looks.*

NCTA (Jennifer Harris) and others noted that this was new since the last time the study team had been to the project site.

2. **NCDENR-DCM (Cathy Brittingham)** asked how many public hearings would take place, when they would occur, and how long the comment period would be.

PB (John Page) responded that there would be three (3) public hearings that would occur probably in late April or early May. NCTA (Jennifer Harris) added that the comment period would last a minimum of 45 days from the publication of DEIS availability in the Federal Register. *Update post meeting. The public hearing dates will be May 18, 19 and 20. The DEIS comment period will extend through June 7.*

3. **USEPA (Chris Militscher)** requested hard copies of the technical reports in addition to the CD that will be provided with the DEIS.

NCTA (Jennifer Harris) responded that coordination with EPA would be done after this meeting to verify what was needed by EPA. *Update post meeting: NCTA will provide five printed copies of the DEIS and technical reports to EPA headquarters in Washington DC, one printed copy of the DEIS and technical reports to the EPA Region IV office in Atlanta and one printed copy of the DEIS with the technical reports on a CD to the EPA office in Raleigh.*

- **Construction Methods in Currituck Sound** – CDG-Lochner (Roy Bruce) presented the idea that the objective of the NCTA is to find the best solution that could make the project real and financeable with tolls. He presented the construction methods, based on conditions as they are currently understood, that could be utilized in construction of one of the two bridge corridors (C1 and C2). It was stressed that there are no pre-conceived assumptions that a bridge would be built. The goal of presenting this material early in the decision making process is not to get a decision, but to begin a dialogue with the participating and cooperating agencies (agencies).

Three construction methods were presented – conventional, top down, and temporary trestle. If a bridge is part of the Preferred Alternative, some combination of these three methods of construction

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would likely need to be made. Advantages and disadvantages of each type were explained. Some of the challenges that are present in Currituck Sound, such as erratic and shallow water depths, were discussed. Time savings and cost savings with the different construction methods were presented.

CDG-PBS&J (Ron Ferrell) presented information about the potential for a construction moratorium in Currituck Sound. The purpose of a construction moratorium is to decrease the potential negative effects of construction on aquatic resources. Avoidance and minimization options were also discussed. NCTA (Jennifer Harris) noted that the team had researched what had been done on other recent coastal bridge construction projects as well. CDG-PBS&J (Ron Ferrell) noted that construction of the Virginia Dare Bridge did not have a moratorium for in-water work. CDG-Lochner (Roy Bruce) added that the use of jetties would probably not be necessary with construction of a bridge in Currituck Sound. NCTA (Jennifer Harris) also noted that this is early in the process for these details to be discussed, but it is necessary on this project to make sure that any alternative that may be selected is financially feasible and can be permitted by the agencies.

Q&A:

1. *USACE (Bill Biddlecome) asked what the longest span lengths would likely be.*
Span length is a work in progress that will be refined as more information becomes available. Presently, it is estimated that there would be approximately 100 feet spans with conventional construction and 50 feet spans with top down or trestle construction. This is based on current knowledge and is not final.
2. *USACE (Bill Biddlecome) asked about the timeframe of construction.*
It was noted that with this project being partly financed privately, the banks would be anxious to start repayment on their investment quickly, so there is motivation to complete construction as quick as possible. There was discussion of what the general timeframe might be. NCTA (Jennifer Harris) noted that once all the pieces of the analysis are completed, NCTA will be able to better answer this question.
3. *USEPA (Chris Militscher) asked USACE (Bill Biddlecome) if they thought dredging was a practical alternative. If the project cannot be funded without dredging, the agencies would need to know this.*
USACE (Bill Biddlecome) stated that it was unknown at this time. NCTA (Jennifer Harris) added that the agencies are meeting today in part so the information could be provided, and a discussion can ensue.
4. *USEPA (Chris Militscher) asked how a LEDPA could be chosen if the costs are not known.*
FHWA (George Hoops) added that cost information would be available when the selection of the Preferred Alternative is made. NCTA (Jennifer Harris) stated that the information on construction options and their timing is being discussed for this project at an early stage to generate discussion that is needed when considering the financing of this project.
5. *USEPA (Chris Militscher) asked how there could be a recommended alternative.*
NCTA (Jennifer Harris) stated that a bridge corridor has not been selected. CDG-Lochner (Roy Bruce) added that these construction methods apply to all bridge alternatives.

6. *NCWRC (Travis Wilson) asked if the bridge could be constructed from both sides.*
CDG-Lochner (Roy Bruce) stated that there were more constraints on the east side of Currituck Sound, but that it was physically possible to do. Based on current information, it also is possible to start from the west side of the SAV area near the Outer Banks and build east from there. There are opportunities to construct from both sides, but the issue would need to be further examined. How construction would occur if a bridge was selected has not yet been decided.
7. *NCWRC (Travis Wilson) asked if six feet would be what was needed for dredging.*
Yes, to a water depth of six feet. The discussion of depth fluctuation has just begun. NCTA added that this type of information is what would be needed from the agencies.
8. *NCDENR-DWQ (David Wainwright) asked how wide the dredged area would have to be.*
The dredged area would need to be approximately 150 feet wide. The bridge would be approximately 50 feet wide, which would provide room for barge maneuverability around the bridge during construction.
9. *NCDENR-DWQ (David Wainwright) asked about the presence of SAV within the proposed dredging area.*
NCTA (Jennifer Harris) and CDG-Lochner (Roy Bruce) stated that another SAV study would be done before construction. NCDENR-DMF (Sara Winslow) noted that there is more SAV presence now than there was when the last study was conducted by the USACE in 2007.
10. *NCDENR-DMF (Sara Winslow) raised concern over the migration corridor for fish spawning. The comment was in response to the statement in the presentation that there were no anadromous fish spawning and migration areas within the two bridge corridors. NCDENR-DMF (Sara Winslow) noted that anadromous fish did migrate through this area to reach Tullis Creek to the north. The comment concerning the Big Narrows was in response to NCDENR-DMF's (Sara Winslow's) question on how construction materials would be delivered to the site.*
CDG-Lochner (Roy Bruce) stated that Big Narrows area of Currituck Sound was far too shallow to be able to use for construction purposes. Construction materials would be delivered by road because of the shallow water in the Big Narrows. Discussion ensued about the way SAV areas are determined. It was noted that SAV would be identified at the time of construction.
11. *NCDENR-DCM (Cathy Brittingham) stated that there is an NCSU research project on SAV in Currituck Sound being funded by NCDOT that is underway in this area at the present time.*
NCTA (Jennifer Harris) and CDG-Lochner (Roy Bruce) stated that the team would look into this as it was not known by most of the agencies. Update post meeting: NCDENR-DCM (Cathy Brittingham) provided additional details on the SAV study to the agencies via email on March 9. The NCDOT-funded study is being conducted by NCSU regarding SAV's in Currituck Sound. The title of the study is "Satellite Remote Sensing of Submerged Aquatic Vegetation Distribution and Status in Currituck Sound." The Principal Investigator is Stacy Nelson, Ph.D., Associate Professor at the NCSU Center for Earth Observation Department of Forestry and Environmental Resources. The Chairperson of the Steering and Implementation Committee is Bruce Ellis of NCDOT. There may be field sampling in the Currituck area planned for summer 2010.

12. *NCWRC (Travis Wilson) noted that with joint waters in Currituck Sound, the NCWRC needed to be included on correspondence. There have been occasions where NCWRC has been left off the contact list.*

Noted.

13. *NCDENR-DCM (Cathy Brittingham) asked what would happen to the dredged areas after the project.*

NCTA (Jennifer Harris) noted that page 9 of the "Construction Methods in Currituck Sound" handout described five options. NCTA is looking for feedback from the agencies on what they would consider the best option. CDG-Lochner (Roy Bruce) added that NCTA is not presenting a plan at this time, but instead is requesting feedback from the agencies.

14. *NCDENR-DCM (Cathy Brittingham) noted that to be able to determine if the project would be able to receive a permit, the agencies would need to know if the dredged areas would be restored.*

CDG-Lochner (Roy Bruce) noted that any option being presented that could not receive a permit would not be a feasible option. NCTA (Jennifer Harris) would need to know that so they could carry forward only feasible options.

15. *NCDENR-DCM (Cathy Brittingham) noted that there were additional issues that would need to be investigated by NCDENR-DCM. More questions may be presented by NCDENR-DCM in the future.*

NCTA (Jennifer Harris) noted that these issues are important to have on the table because some of these could make or break the project. It was noted that cost reductions associated with construction would not be a benefit to the PDA partner (CDG). The cost savings could make the project feasible or not. NCDENR-DCM (Cathy Brittingham) added that the environmental impact of dredging has to be balanced against public benefit.

16. *NCDENR-DCM (Cathy Brittingham) asked about stormwater management.*

PB (John Page) explained the stormwater management options that are presented in the DEIS.

- **Public Involvement Discussion** – NCTA (Jennifer Harris) discussed the material on public involvement that was presented on slide 35 in the presentation.

Q&A:

1. *USFWS (Gary Jordan) and NCWRC (Travis Wilson) discussed the timbering of Maple Swamp. The question was asked whether the timbering of Maple Swamp would change the DEIS at all.*

PB (John Page) stated that the opportunity to preserve Maple Swamp still remains in association with the purchase of land locked parcels, despite that it has recently been timbered. It had been timbered before and it could happen again. Preserving it would prevent any future timbering and allow timbered areas to recover.

USFWS (Gary Jordan) and NCWRC (Travis Wilson) noted that the Maple Swamp hydrology had been altered by timbering. There is now strong flow coming through the culverts on Aydlett Road.

- **Schedule** – NCTA (Jennifer Harris) presented the schedule for the DEIS, LEDPA, FEIS, ROD, Concession Agreement, and when the project would be open to traffic as shown on slide 35 of the presentation.

Q&A:

1. *NCDENR-DCM (Cathy Brittingham) asked when the Preferred Alternative Report would fit into this schedule.*

NCTA (Jennifer Harris) noted that it would be after the release of the DEIS and end of the comment period.

Next Steps:

- NCTA (Jennifer Harris) added that May 2010 would be too early for the TEAC to meet, so the next TEAC meeting would likely be held in June.



Turnpike Environmental Agency Coordination (TEAC) Meeting

made to the Project Coordination Plan for the Cape Fear Skyway project. NCTA distributed invitation letters to representatives of State agencies, asking for the agencies to become participating agencies under the Project Coordination Plan. FHWA will distribute a similar letter to representatives of federal agencies. Agencies are requested to submit to NCTA any final comments on the Project Coordination Plan before the next TEAC meeting on September 8, 2010.

- Purpose and Need:** Lochner summarized the three key elements of the project need: the need for improved mobility in the project, underscored in the Capital Area Metropolitan Planning Organization (CAMPO) Long Range Transportation Plan (LRTP); the limited transportation options for efficient local and through travel in the region due to increasing congestion on existing freeways and a lack of alternative routes and travel modes; and existing and projected poor levels of service (LOS) on major roadways in the project area. Lochner summarized the project purpose as improving transportation mobility to enhance connectivity in the area and to provide additional high-speed, efficient regional transportation infrastructure for local and regional traffic. Other desirable outcomes include system linkage and support for federal sustainability and livability goals.

NCDENR-DWQ asked how a reduction in congested vehicle miles traveled (one of the measures of effectiveness listed in the Draft Purpose and Need Report for meeting project purpose) would differ from improvement in LOS. HNTB explained that measuring changes in congested vehicle miles traveled provides information on congestion levels throughout the local transportation network. LOS only provides information on congestion levels for a specific link in that network.

NCDENR-DWQ asked whether the study area for traffic analysis is different from the study area for alternatives development. NCTA explained that the limits of the study area for traffic analysis are broader than those for alternatives development because the former must consider more of the regional transportation network outside the immediate project area. NCDENR-DWQ stated that this discrepancy between the two study areas is confusing in the Draft Purpose and Need Report and suggested that this issue be clarified in the report.

FHWA suggested that more information be provided about potential thresholds for meeting the project purpose under each of the measures of effectiveness listed in the Draft Purpose and Need Report. NCTA explained that it could be difficult to set thresholds that do not arbitrarily eliminate otherwise reasonable alternatives. CAMPO indicated that their LRTP includes measures of effectiveness but does not identify minimum requirements for meeting them.

USEPA asked why information about US 401 is not included in the traffic figures in the Draft Purpose and Need Statement. HNTB explained that traffic data for existing conditions and no-build scenarios are available for US 401. HNTB will include this information in the figures.

NCDENR-DWQ questioned the appropriateness of including the NC Strategic Highway Corridor vision as part of the need for the project. NCTA explained that this was included as supporting information to explain that current and projected LOS do not support that vision. NCTA will more closely examine this issue and consider revising the report text to clarify.

FHWA asked how public involvement will be incorporated into purpose and need development. Lochner explained that public workshops to present this information, along with information about alternatives development, will be held in late September. Project purpose and need will be finalized after considering all public and agency comments received. NCTA explained that agency comments received will also be considered in finalizing the project purpose and need. The Draft Purpose and Need Statement will be posted to the project website.

- Alternatives Screening:** NCTA summarized the methodology used for screening alternative concepts and preliminary alternative corridors and then provided an overview of the results of screening alternative concepts (Qualitative First Tier Screening). NCTA stressed that improve

MEETING MINUTES

Date: August 10, 2010
10:00 a.m. to 11:30 a.m.
NCTA Board Room

Project: STIP R-2721, R-2828, and R-2929 – Triangle Expressway Southeast Extension

Triangle Expressway Extension Spotlight:

Attendees:

Rob Ayers, FHWA	Jason Moore, NCDOT-Roadway Design Unit
Christopher Mitscher, USEPA	BenJetta Johnson, NCDOT-TMSD
Eric Alsmeyer, USACE	Chris Lukasina, CAMPO
Scott McLendon, USACE	Jennifer Harris, NCTA
Gary Jordan, USFWS	Christy Shumate, HNTB
Brian Wrenn, NCDENR-DWQ	Spencer Franklin, HNTB
Travis Wilson, NCWRC	Gail Tyner, ESI
Amy Simes, NCDENR (via telephone)	Joanna Rocco, URS
Renee Giedhill-Earley, NCDCCR-HPO (via telephone)	Roy Bruce, Lochner
Missy Pair, NCDOT-PDEA	Brian Eason, Lochner
Herman Huang, NCDOT-PDEA, HEU	Krisim Maseman, Lochner
Doug Taylor, NCDOT-Roadway Design Unit	Karin Ertl, Lochner
Sam St. Clair, NCDOT-Roadway Design Unit	Steve Browde, Lochner
Tony Houser, NCDOT-Roadway Design Unit	Wendee Smith, Mulkey

Presentation Materials (Posted on TEAC website):

- Agenda
- Final Meeting Minutes – 2/16/10 TEAC Meeting
- Revised Section 6002 Draft Project Coordination Plan
- Draft Purpose and Need Statement
- Handout 1 – Alternatives Screening Methodology Summary
- Handout 2 – Qualitative First Tier Screening of Alternative Concepts
- Handout 3 – Quantitative Second Tier Screening of Alternative Concepts

Purpose:

Discuss purpose and need statement and alternatives screening process.

General Discussion:

The following information was discussed at the meeting:

- Project Coordination Plan:** NCTA stated that a revised version of the Draft Project Coordination Plan has been posted to Constructware. The revisions were based on similar edits that were

existing and hybrid new location/improve existing concepts may prove to be worthy of more consideration for this project than for past NCTA projects.

NCTA explained that for the first screening, alternative concepts were qualitatively compared to the no-build alternative. USEPA asked whether combinations of concepts could be considered as such combinations may be better able to meet elements of project purpose and need than each concept alone. USEPA also stated that "maybe" could be a more accurate answer than "yes" or "no" in qualitatively assessing whether each alternative concept meets each element of purpose and need.

NCDOT-PDEA asked if CAMPO has done any modeling to see how much transit ridership is needed to achieve quantitative improvements in, for example, area commute times. CAMPO indicated that in its traffic model the Southeast Extension is assumed to be a multimodal facility, with mass transit using the roadway along with cars and trucks. CAMPO expects that the Southeast Extension will be developed so that it is consistent with the L RTP.

FHWA asked why the measures of effectiveness for meeting the project purpose were not used to screen alternative concepts. NCTA responded that it would be difficult to quantify the ability of each alternative concept to meet the measures of effectiveness for the project purpose. Lochner added that the first tier screening of alternative concepts is meant to determine whether each concept would be able to fulfill the main points of the project and purpose and need; those that meet those points will then be subject to the quantifiable measures of effectiveness. Several agencies suggested that NCTA consider qualitatively screening the alternative concepts according to the measures of effectiveness. NCDENR-DWG and NCWRC also suggested the NCTA consider eliminating the following two elements of the first tier screening: consistency with the NC Strategic Highway Corridor program and ability to improve system linkage. Several agencies also suggested that NCTA more clearly explain the first tier screening process.

FHWA asked whether CAMPO has any documentation of how mode choices for specific areas are made for the L RTP. CAMPO stated that regardless of mode, there is no east-west corridor in southern and eastern Wake County that can handle projected traffic volumes. CAMPO views the 540 Outer Loop as the backbone of the transportation network in this area.

Lochner presented preliminary alternative corridors currently under consideration. These include several new location alternatives, as well as improving existing facilities alternatives and hybrid new location/improve existing facilities alternatives. Lochner described preliminary impact estimates for these alternatives. NCTA recommended several alternatives for elimination based on magnitude of impacts on relocations and jurisdictional resources. USEFWS asked that NCTA not eliminate Alternative O from further consideration at this point because, while it would require a large number of relocations and would directly impact the Swift Creek Watershed Critical Area, it is the only new location alternative that would avoid dwarf wedgemussel habitat. The agencies agreed to eliminate Alternatives B, D, F, H, K, and M from further consideration. These alternatives each use Segment 38, rather than Segment 9, at the eastern project terminus. In all cases, alternatives using Segment 38 would have greater impacts to jurisdictional resources and would require more relocations than similar alternatives using Segment 9. The agencies also agreed to eliminate Improve Existing Alternative #2 and Hybrid Alternative #2 (each includes upgrading and widening NC 55 and NC 42) due to the large number of relocations each would require. NCTA and Lochner will complete the third tier qualitative screening on the remaining alternatives.

Previous Action Items:

- Agencies to review scoping handout and constraints mapping and provide to NCTA information about additional environmental issues and constraints.
- (Scoping responses were received from USEPA, USEFWS, NCDGR-HPO, NCDENR-DWG, NCWRC, NCDENR-MHP, NCDENR-DEH, NC Floodplain Mapping Program, and NCDACS (NC Department of Agriculture and Consumer Services), as well as CAMPO, Cary, and Holly Springs.)

- NCTAFHWA to review process for agency coordination. *[After additional discussion, the NCTA and FHWA have determined that the Section 6002 Project Coordination Plan process will be followed for this project.]*
- Lochner will add STIP project R-2609 (US 401) to the list of other projects in the study area. *[Completed]*
- Lochner will contact NCDOT Office of Civil Rights to coordinate on LEP and EJ considerations and analysis for the project. *[Completed]*
- NCTALochner will coordinate with County Soil and Water Conservation Districts. *[Completed]*
- NCTA will place completed traffic forecast and analysis reports to Constructware. *[Posted under 2010-02-16 folder.]*
- Lochner will collect information on study area wastewater treatment plants. *[This information has been added to study area environmental constraints mapping.]*

New Action Items:

- FHWA to distribute letters inviting federal agencies to become cooperating/participating agencies under the Project Coordination Plan. *[Distributed on August 17, 2010.]*
- Agencies to provide final comments to NCTA on Project Coordination Plan by September 8, 2010.
- NCTALochner to clarify distinction between traffic study area and project study area for alternatives development in Purpose and Need Report.
- HNTB to review existing and projected traffic for US 401 and add this information to traffic figures in the Purpose and Need Report.
- Agencies to provide comments on Draft Purpose and Need Statement by September 8, 2010.
- NCTALochner to consider revising first tier qualitative screening of alternative concepts to clarify the link between this screening and the measures of effectiveness for project purpose.
- NCTALochner to complete third tier qualitative screening of alternatives and present results at September TEAC meeting.
- Agencies to provide comments on alternatives screening methodology and draft alternative concepts by September 8, 2010.

Resolutions:

- None

Next Steps:

- TEAC meeting – September 8, 2010.
- Public workshops scheduled for September 21, 22, and 23, 2010.
- Revise Purpose and Need Statement following review of agency and public comments.
- Complete third tier quantitative screening for preliminary alternative corridors.

The matrix will be updated for the FEIS, as needed, as public and agency comments are addressed. John asked if there were any comments on the matrix. NCTA also asked if further review of Handouts 20 to 22 was needed. There were no further comments at this point.

John discussed the "Responses to Substantive Comments on the DEIS that Relate to the Selection of the Preferred Alternative" section of Handout 23 (starting on page 9). He pointed out that there were two decisions that need to be made, as shown at the top of page 9: 1) Selection of the Least Environmentally Damaging Practicable Alternative; and 2) Selection of practicable design and construction avoidance, minimization, and mitigation strategies for the LEDPA. He said that the decision on the LEDPA would be between the alternatives listed at the bottom of page 9 (i.e., ER2, MCB2, and MCB4), but also noted that the No-Build Alternative should also have been listed. He said that, as indicated in the DEIS, NCTA's recommendation for the Preferred Alternative is MCB4, but NCTA has not made a recommendation on the other components of the project (i.e., bridge corridor, Maple Swamp corridor, or hurricane evacuation option).

John said that, as indicated in Handout 23, the substantive public and agency comments related to the practicability of ER2, MCB2, and MCB4 relate to availability of funding and alternative preferences.

Handout 24 – David Miller with PFM discussed the financial feasibility of the proposed project (Handout 24), using a PowerPoint presentation (available on the TEAC website). With respect to the potential sources of funding for the proposed project (slides 5 to 8), David said that TIFA funds are not likely available for the Mid-Currituck Bridge (TIFA funds were available for the Triangle Expressway). Private equity is being considered for this project. He added that the source of the private equity is at a "risk" position (i.e., they receive profit only after all other costs have been covered). ER2 is not included in this analysis because there is no funding for improvements associated with ER2 in the current STIP and it cannot be paid for with toll revenues.

USACE asked about the availability of future STIP funds for improvements associated with ER2. NCDENR-DCM asked if there was the possibility of special Legislative Appropriations for improvements such as with ER2 since the Legislature often makes these types of appropriations. NCTA noted that it is doubtful NCDOT would program money for these improvements in the future because there is no local political or public will for improvements associated with ER2 to be implemented with or without a bridge.

USACE asked about the possible shortfall in funding indicated on slide 10. NCTA responded that the different components that could be selected for each alternative lead to the range in costs as shown. With MCB4, if the most expensive combination of components are chosen, we could end up with a project that is not fundable. As shown on the slide, approximately \$600 to \$700 million is the range of funding available to finance the project. However, interest rates are an unknown variable that could impact the funding of the project if they were to rise substantially in the near future.

NCTA said that hopefully David's presentation helps to address past agency questions on project funding. Steve asked if NCTA had adequately explained the funding of the proposed project. USACE asked about the use of toll revenues chart on slide 9. David explained in more detail the meaning of the blue, green, and red graphs shown on the chart. In response to a question from NCDENR-DCM, it was explained that the large red "spike" in operations and maintenance costs in about 2050 was because the bridge is expected to need a major deck rehabilitation around that time. The shorter red increments represent routine maintenance on the bridge, whereas the higher red increments represent "major" rehabilitation projects.

USACE asked about the increase in the blue in relationship to the red by the later years in the chart. It is the result of the expected increase in the toll rate, as well as the expected increase in ADT using the bridge. It was asked why this difference does not "level out" around 2035 when the Outer Banks is expected to be built-out. It is because of the continued toll increase that is

MEETING MINUTES

Date: August 10, 2010
1:00 PM to 3:00 PM
NC Turnpike Authority Office Board Room (Suite 400)
Project: STIP R-2576 Mid-Currituck Bridge Study - BRS-0005(35)

Mid-Currituck Bridge Spotlight:

Attendees:

- | | |
|---|-------------------------------------|
| Bill Biddlecome, USACE | Missy Pair, NCDOT-PDEA |
| Scott McLendon, USACE | Brian Yamamoto, NCDOT-PDEA |
| Chris Millscher, USEPA | Ted Devens, NCDOT-PDEA |
| Gary Jordan, USFWS | Anne Gamber, NCDOT-Hydraulics Unit |
| Ron Sechler, NMFS (by phone) | BenJetta Johnson, NCDOT-TMS |
| Amy Simes, NCDENR (by phone) | Doug Taylor, NCDOT-Roadway Design |
| Cathy Brittingham, NCDENR-DCM | Sam St. Clair, NCDOT-Roadway Design |
| Stephen Lane, NCDENR-DCM (by phone) | Herman Huang, NCDOT-HEU |
| Kevin Hart, NCDENR-DMF (by phone) | Scott Slusser, NCDOT-HEU |
| Brian Vrenn, NCDENR-DWQ | David Miller, PFM |
| David Wainwright, NCDENR-DWQ | Jose Luque, CDG-ACSID |
| Travis Wilson, NCWRC | Steve Browde, CDG-Lochner |
| Renee Gledhill-Earley, NCDOT-HPO (by phone) | Roy Bruce, CDG-Lochner |
| Steve Lambert, Albemarle Commission | Krisim Maseman, CDG-Lochner |
| (by phone) | Spencer Franklin, HNTB |
| Steve DeWitt, NCTA | Christy Shumate, HNTB |
| Reid Simons, NCTA (by phone) | Jerry McCain, PBS&J |
| Jennifer Harris, NCTA | Roy Ferrell, PBS&J |
| Lonnie Brooks, NCDOT-SDU | John Page, PB |
| | Bobby Norburn, PB |

Presentation Materials: (All materials posted on the TEAC website)

- Meeting Agenda
- Handout 20 - Summary of Agency Comments on the Draft Environmental Impact Statement
- Handout 21 - Summary of Public Participation and Comment
- Handout 22 - Summary of Positions and Additional Needs Derived from DEIS Comments
- Handout 23 - Preferred Alternative Identification Information Package
- Handout 24 - Financial Feasibility Assessment of the Mid-Currituck Bridge Project
- Financial Feasibility Assessment Presentation PowerPoint Slides
- Final Meeting Minutes for March 9, 2010, TEAC Meeting

Purpose:

The purpose of the meeting was to discuss the Preferred Alternative Identification Package and discuss "practicable" as it relates to project funding and selection of the LEDPA/Preferred Alternative. NCTA (Jennifer Harris) stated that NCTA hoped that the agencies could agree with a LEDPA/Preferred Alternative by the conclusion of the meeting.

General Discussion:

The following information was discussed at the meeting:

- **Handout 23** – John Page (PB) gave a brief description of the other handouts and their purpose, and then started going through Handout 23 in detail. He indicated that the Impacts Comparison Matrix in Handout 23 is directly from the DEIS, with only minor edits as discussed in the handout.

built into the forecasting model. USACE asked about the current estimated for the toll rate. NCTA responded that the current estimated toll rate varies by time of day and time of year, and that these assumptions are all included in the model.

NCDENR-DCM asked where the state appropriation for the project of \$28 million comes from. NCTA discussed the various funding sources (i.e., the mobility, gap, and general funds).

NCDENR-DCM asked when bonds get issued for the project. David responded that bonds are issued once the project is known to be feasible. NCTA added that risk issues, such as obtaining permits, must be resolved before bonds are issued.

- **Handout 23 (continued)** – PB discussed the alternative preferences section of the handout starting on page 10, including NCTA's recommendation for MCB4 as part of the LEDPA (page 11). USACE asked what the summary of public comments in Handout 21 revealed with respect to this decision. PB went through the statistics in Handout 21 related to public preferences for the detailed study alternatives. He noted that MCB4 had the highest stated public preference of the detailed study alternatives. He also said that the summary of public preferences shown in Handout 21 is based on the questions asked on the handout that was distributed at the public hearings.

Bridge Corridor – C1 vs. C2: PB reviewed the section starting on page 11 related to the decision between bridge corridors C1 and C2, noting that in response to public concern expressed at the hearings related to the business displacements identified in the DEIS at TimBuck II with C2, the C2 corridor had been re-designed to avoid these businesses. Therefore, these business displacements are no longer a factor in the decision between the two bridge corridors. Based on the factors discussed in the handout related to the two bridge corridors, NCTA recommends that C1 be chosen as part of the LEDPA (see bottom of page 11). This recommendation means that MCB4/C1 is NCTA's recommendation for the LEDPA.

Hurricane Evacuation Options: PB discussed the hurricane evacuation strategy section of Handout 23 starting on page 12. A meeting was scheduled for August 19, 2010, with Dare and Currituck County emergency management officials to get input on the strategies discussed in the DEIS because the local officials did not provide any comments during the public comment period. John said that his impression from previous meetings with these officials was that they preferred the operational solution, as opposed to building new lanes for hurricane evacuation. In addition, there were comments from the public expressing concern about the cost of building new lanes for hurricane evacuation. Based on these factors, NCTA is leaning towards recommending an operational solution, but will withhold giving an official recommendation at least until after the meeting with local officials. NCTA will supply information on the results of the meeting with local officials to the agencies.

Design Considerations – Option A vs. Option B: PB reviewed the selection of practicable design and construction avoidance, minimization, and mitigation strategies section at the bottom of page 12 of the handout and the crossing Maple Swamp on bridge or fill section on page 13. USFWS asked about public preference related to access with Options A and B. PB responded that the public was very opposed to the access provided to Aydlett with Option B. NCTA said that the bottom line is that the public does not want any additional access to be provided to Aydlett with the proposed project – they want to stay as isolated as possible. The public wants to keep their current access via Aydlett Road, as well as to save money by building the project across the swamp on fill. Public perception is that because Aydlett Road was repaved this summer, it would be wasteful to remove it. PB noted that given the limited funding sources discussed earlier that are available to build the project, and that approximately \$80 million would be saved by building the project on fill across the swamp, we have to carefully weigh the design components of Option A and/or Option B that will be included. We also have to weigh public concerns versus agency concerns, which are opposite with respect to the design components of Options A and B. PB asked if there were possibly other better options to mitigate impacts to Maple Swamp than building a bridge across the swamp. For example, would preserving other areas of the swamp be a better solution? He also mentioned that the possibility of reducing the length of NC 12 that

would be improved with MCB4, while still adequately serving forecast traffic demand, was being considered as a potential way to decrease the cost of the project. NCTA will provide additional information about the impacts of these two options, as well as investigate other possible options.

Preferred Alternative Discussion: NCTA noted that before continuing with discussion of specific construction techniques, it would be beneficial to consider eliminating some of the alternatives from consideration. NCTA would like to be able to document agency agreement on the Preferred Alternative, but the agencies will not be asked to sign a formal agreement. Agencies did not feel comfortable selecting a Preferred Alternative or LEDPA without additional information on construction techniques and impacts of the bridge alternatives, particularly as they compare to ER2. NCDENR-DCM and USACE noted that without information about potential impacts from construction, including dredging, they can not be sure that a bridge alternative is the LEDPA or is permittable.

All agencies agreed to eliminate MCB2 from further consideration. MCB2 has the most impacts, does not have any public support, and can not be funded at this time. NCDENR-DCM and NCWRC also indicated a preference for the C1 bridge corridor. All agencies present and on the phone agreed with this recommendation, and C2 was eliminated from further consideration. Agencies requested that ER2 be retained for additional comparison with MCB4. Agencies requested additional information on construction techniques, including filling versus bridging in Maple Swamp, dredging in the Sound, and stormwater management; avoidance and minimization; and funding for MCB4. Agencies agreed that no additional information is needed for ER2 at this time. NCTA requested that if agencies require additional information on ER2, to let NCTA know as soon as possible. NCTA will plan to present detailed impacts on MCB4/C1 at the September 2010 TEAC meeting.

NCDENR-DCM pointed out that page 5 of the impacts matrix has a possible mistake. It appears that some of the impact acreages are either switched or shifted to the right by one column. NCDENR-DCM also said that she wants to further discuss CAMA AEC impacts at some time.

USEPA asked about stormwater management issues with a bridge alternative, noting that trying to resolve this issue has caused delays for other recent coastal projects. USEPA indicated that they would like more than just a stormwater management plan because long-term stormwater impact to the sound is a major USEPA concern. USEPA believes that the cumulative stormwater impact to the sound over an extended period is a significant issue, as the sound has already experienced degradation in water quality from the cumulative impact of pollutants in stormwater runoff over time. NCTA said that Matt Lauffer, NCDOT Stormwater Program, would be at the September TEAC meeting to discuss the results of the NCDOT-sponsored stormwater study, which show that it does not appear that collecting stormwater runoff over the entire length of the bridge is practicable (i.e., the benefit for the cost is not good according to the study).

USACE asked for clarification as to the outcome of today's meeting. NCTA summarized that the team had agreed to eliminate MCB2 and C2 as components of the LEDPA/Preferred Alternative, and to retain MCB4/C1 and ER2 because the agencies want more information on components of MCB4 so that we can better compare the impacts of these alternatives.

USACE cautioned about discussing mitigation (in terms of preservation of Maple Swamp) as part of the LEDPA selection. NCTA recognizes that it is not proper to discuss the cost and benefits of the money spent to build the bridge versus mitigation. Avoidance, followed by minimization, and finally mitigation is the proper sequence for these discussions.

Previous Action Items:

- None.

New Action Items:

- NCTA will provide additional information on MCB4/C1 construction options and impacts and discuss at the September 2010 TEAC meeting.

- NCTA will supply information on the results of the meeting with local governments regarding hurricane evacuation options to the agencies.
- Agencies provide comments on Handout 23, and other handouts, in accordance with the Project Coordination Plan.
- Agencies will let NCTA know if they require additional information on ER2 as soon as possible.

Resolutions:

- MCB2 was eliminated from further consideration as part of the LEDPA/Preferred Alternative.
- The C2 bridge corridor was eliminated from further consideration as part of the LEDPA/Preferred Alternative.

Next Steps:

- TEAC meeting – September 8, 2010

MEETING MINUTES

Date: August 10, 2010
3:30 PM to 5:00 PM
NCTA Board Room

Project: STIP R-3329/R-2559 Monroe Connector/Bypass – STP-NHF-74(90)

Monroe Connector/Bypass Spotlight:

Attendees:

Chris Millitscher, USEPA
 Scott McLendon, USACE
 Marella Buncick, USFWS (via phone)
 Brian Wrenn, NCDENR-DWQ
 Maria Chambers, NCWRC (via phone)
 Polly Lespinasse, NCDENR-DWQ
 Jennifer Harris, NCTA
 Missy Pair, NCDOT PDEA
 Colin Mellor, NCDOT NEU (via phone)

Herman Huang, NCDOT HEU
 Anne Gamber, NCDOT-Hydraulics Unit
 Doug Taylor, NCDOT-Roadway Design Unit
 Christy Shumate, HNTB
 James Byrd, HNTB
 Kersten Giugno, PBS&J
 Ron Ferrell, PBS&J
 Jerry McCrain, PBS&J
 Steve Browde, Lochner

Presentation Materials (posted to TEAC website):

- Agenda
- Handout including Biological Assessment Update, Permitting History and Strategy, and Mitigation

Purpose:

Discuss permitting and mitigation.

General Discussion:

The following information was discussed at the meeting:

- **Biological Assessment Update:** The following biological conclusions were outlined in the Biological Assessment submitted to USFWS in March 2010:
 - Carolina heelsplitter and its designated Critical Habitat – May Affect, Not Likely to Adversely Affect
 - Schweinitz’s sunflower – May Affect, Not Likely to Adversely Affect
 - Michaux’s sumac – No Effect
 - Smooth coneflower – No Effect

It was noted that the USFWS requested additional information regarding the 2035 No-Build and Build growth assumptions in the Quantitative ICE (Baker Engineering, April 2010). Supplemental information was prepared and summarized in memos dated June 28 and July 26, 2010 which are both available on the TEAC Constructware website. Based upon a review of the supplemental information, USFWS issued a letter of concurrence with the biological conclusions dated July 29, 2010.

- **Permitting History and Strategy:** A 401 water quality certification issued by NCDENR-DWQ for the Monroe Bypass (R-2559C and R-2559B) on October 2, 2002 expired in November 2008. NCTA prepared functional level design plans for DSAs evaluated in the Draft EIS, March 2009. The designs for the Preferred Alternative were refined based on agency and public comments on the Draft EIS and presented in the Final EIS in May 2010. Because the project will use a design-build procurement, the level of designs were not further advanced for the Preferred Alternative.

The schedule for obtaining a permit is critical. It is essential that NCTA obtain a permit this fall in order to assure financing entities that we are seeking financial close on a project that has cleared most or all approvals to construct the project in a timely manner.



Turnpike Environmental Agency Coordination (TEAC) Meeting

NCTA intends to submit a permit application package toward the end of August 2010 to NCDENR-DWQ and USACE, depending upon issuance of the ROD. The permit application will include final design and hydraulic plans and impacts based on the previous Monroe Bypass project's final approved design plans for R-2559C (Austin Chaney Road to US 74 at the eastern end of the project) and functional designs for the remainder of the project. NCTA anticipates two permit modifications by the design-build team (one for R-3329 and one for R-2559).

- **Mitigation:** NCTA received and distributed an acceptance letter from NCEEP, dated June 24, 2010. Impacts were included for both perennial and intermittent streams and were based on functional design of the Preferred Alternative (in the Final EIS) plus a 40-foot buffer. Impacts will decrease as design progresses and additional refinements such as reduced median widths are incorporated.

NCEEP has sufficient mitigation sites that are completed and have been monitored for two years which meet the project's mitigation requirements. USEPA and NCRWC noted that mitigation within the impacted watershed is preferred. Colin Mellor, NCDOT HEU, commented that four onsite opportunities were found and each represent approximately 1,000 linear feet and potentially longer. He noted that these sites may be good opportunities for enhancement. Property owners have not been contacted to determine whether or not they have any interest in selling their land.

NCTA will pursue these sites further to determine if they are viable. The latest status of this effort will be included in the permit application.

Q&A:

Q: When will you be addressing comments made on the Final EIS?

- A. Responses to comments made on the Final EIS will be included in the ROD, which is currently under internal review by FHWA.

Previous Action Items:

- None.

New Action Items:

- Agencies provide input on permitting and mitigation.
- NCTA proceed with investigating four onsite stream enhancement opportunities further.

Resolutions:

- None.

Next Steps:

- TEAC meeting – September 8, 2010 to include discussions with the three shortlisted design-build teams
- NCTA submit permit application.

MEETING MINUTES

Date: September 8, 2010
8:30 a.m. To 9:00 a.m.
NCTA Board Room

Project: STIP R-2721, R-2828, and R-2929 – Triangle Expressway Extension (Raleigh Outer Loop)

Triangle Expressway Extension Spotlight:

Attendees:

- George Hoops, FHWA
- Eric Alsmeyer, USACE
- Gay Jordan, USFWS
- Travis Wilson, NCRWC
- Deloris Hall, NCDOT (via telephone)
- Doug Taylor, NCDOT-Roadway Design Unit
- Jennifer Harris, NCTA
- Christy Shumate, HNTB
- John Burris, HNTB
- Joanna Rocco, URS
- David Griffin, URS
- Roy Bruce, Lochner
- Brian Eason, Lochner
- Kristin Maseman, Lochner
- Wendee Smith, Mulkey

Presentation Materials (Posted on TEAC website):

- Agenda
- Draft Meeting Minutes – 8/10/10 TEAC Meeting
- Handout 4 – Alternatives Screening, Quantitative Third Tier Screening of Alternative Concepts
- Newsletter #2

Purpose:

Continue discussion on purpose and need statement and alternatives screening.

General Discussion:

The following information was discussed at the meeting:

- **Purpose and Need and Alternatives Screening Methodology:** NCTA has received comments on the draft Purpose and Need Report from NCDENR-DWQ. Comments on both purpose and need and the alternatives screening methodology will be accepted until after the September public workshops. A revised Purpose and Need Report and a draft Alternatives Report will then be completed and made available to agencies, local governments and the public for comments. Other agencies indicated they do not plan to submit written comments and will defer to NCDENR-DWQ's comments.
- **Alternatives Screening:** Lochner summarized the results of the quantitative third tier screening of alternatives carried forward from the second tier screening, which included nine new location alternatives, two improve existing facilities alternatives, and two hybrid new location/improve alternatives.

existing facilities alternatives. This round of screening included more evaluation criteria and a more detailed examination of impacts than the second round of screening.

USFWS and NCWRC stated that National Heritage Program (NHP) occurrences should not be used in the impacts summary table in Handout 4 because the NHP GIS database is too general to provide useful comparative information. Instead, they suggested that federal and state listed species occurrences would provide more useful comparative information.

The agencies agreed to eliminate Improve Existing Alternative #3 and Hybrid Alternative #3 (each includes upgrading and widening Ten-Ten Road) because each of these would require much larger numbers of relocations than all other alternatives without providing clear advantages. In addition, because Improve Existing Alternative #1 and Hybrid Alternative #1 remain under consideration, viable alternatives are not limited to new location options at this point.

NCTA will discuss with NCDOT Roadway Design staff the nine new location alternatives. Improve Existing Alternative #1, and Hybrid Alternative #1 to identify geometric constraints and other design considerations influencing the further development of these alternatives. After presenting these alternatives to the public at the September workshops, NCTA expects to select Detailed Study Alternatives (DSAs) by November of this year.

- **Section 6002 Cooperating Agency Invitation:** USACE has received the FHWA letter inviting it to be a cooperating agency under the Project Coordination Plan and will sign and return it to FHWA soon.

Previous Action Items:

- FHWA to distribute letters inviting federal agencies to become cooperating/participating agencies under the Project Coordination Plan.
[Letters were distributed on August 17, 2010.]
- Agencies to provide final comments to NCTA on Project Coordination Plan.
[No additional comments were received.]
- NCTA/Lochner to clarify distinction between traffic study area and project study area for alternatives development in Purpose and Need Report.
[Clarification will be included in revised Purpose and Need Report, available by mid-October, after the public workshops.]
- HNTB to review existing and projected traffic for US 401 and consider adding this information to traffic figures in the Purpose and Need Report.
[This information was not included on the initial traffic figures because only segments that experienced more than 10 percent change in traffic between the No-Build and Build scenarios were modeled; however, this traffic information for US 401 will be added for information.]
- Agencies to provide comments on Draft Purpose and Need Report.
[Written comments were received from NCDENR-DWQ. Other agencies indicated that they will not provide additional written comments.]
- NCTA/Lochner to consider revising first tier qualitative screening of alternative concepts to clarify the link between this screening and the measures of effectiveness for project purpose.
[Clarification will be included in draft Alternatives Report, available by mid-October, after the public workshops.]
- NCTA/Lochner to complete third tier qualitative screening of alternatives and present results at September TEAC meeting.
[Handout 4 presented at the September TEAC meeting includes the results of the third tier qualitative screening.]
- Agencies to provide comments on alternatives screening methodology and draft alternative concepts.
[A draft Alternatives Report will be prepared following public workshops in late September and made available for agency and public review and comment.]

New Action Items:

- Lochner to revise alternatives impact table to replace Natural Heritage Program Occurrences as an evaluation criterion with separate breakdowns of federal and state protected species.

Resolutions:

- None

Next Steps:

- Public workshops on September 21, 22, and 23, 2010.
- Revise Purpose and Need Report according to agency and public comments.
- Prepare draft Alternatives Report and circulate for agency and public review and comment.

MEETING MINUTES

Date: September 8, 2010
9:45 A.M. To 11:15 A.M.
NCTA Board Room

Project: STIP U-4738 – Cape Fear Skyway

Cape Fear Skyway Spotlight:

Attendees:

George Hoops, FHWA	Mike Kozlosky, WMPO
Scott McLendon, USACE	Stephanie Ayers, NCSA
Brad Shaver, USACE	Doug Taylor, NCDOT
Fritz Rohde, NMFS (via telephone)	Jennifer Harris, NCTA
Gary Jordan, USFWS	Christy Shumate, HNTB
David Wainwright, NCDENR-DWQ	John Burris, HNTB
Brian Wrenn, NCDENR-DWQ	David Griffin, URS
Travis Wilson, NCWRC	Peter Trencansky, URS
Steve Solland, NCDOT	Joanna Rocco, URS

Presentation Materials (Posted on TEAC website):

- Agenda
- Project PowerPoint Presentation
- Draft Purpose and Need Statement
- Draft Alternatives Screening Summaries
- Agency comments and responses to Purpose and Need Statement and Alternatives Screening Summaries

Purpose:

The purpose of the meeting was to discuss comments received from the agencies on the draft Purpose and Need Statement and the first and second tier alternative screening summaries, and to solicit comments and/or Issues of Concern from Participating Agencies in this regard.

General Discussion:

The following information was discussed at the meeting.

- URS reviewed the comments received thus far on the draft Purpose and Need Statement. Printed copies of the responses to these comments by NCTA were provided to meeting attendees. Highlights of the discussion are as follows:
 - o NCWRC inquired about the truck traffic and if it is now underestimated since the North Carolina International Terminal (NCIT) in Southport, NC is not being built. Stephanie Ayers explained that traffic will probably only increase now that there are no plans for the NCIT. The Port of Wilmington will continue to expand at its existing location, and preliminary studies are currently taking place by the NCSA regarding traffic projections.
 - o NCDENR-DCM inquired about his previous comment regarding the Cape Fear Memorial Bridge and how its replacement could affect traffic movements in the area. URS explained that there will be a number of alternatives for the project, including upgrade existing alternatives that either replace the existing Cape Fear Memorial Bridge, or supplement the existing bridge by providing a new location bridge within close proximity to the existing bridge. If the selected alternative does not involve the replacement of the existing Cape Fear Memorial Bridge (for example the No Build or new location alternative), the NCDOT would need to determine if a replacement bridge would be necessary at some point in the future.

- o A discussion was held regarding whether or not consistency with the Strategic Highway Corridor Initiative (and other transportation plans) should be included as part of the purpose statement of the project. It was agreed that this should be a secondary benefit of the project, and will be revised in the Purpose and Need Statement. Mike Kozlosky stressed that the Wilmington Urban Area Metropolitan Planning Organization's (WUMPO) Long Range Transportation Plan (LRTP) is supported by the community, and any alternative chosen for detailed study should be consistent with this plan. URS noted that if the parameter to meet the goals of the SHC, Intrastate System and LRTP are moved to secondary needs it will be important to develop performance measures that capture the intent of these plans, because improving traffic flow and providing for better freight movements would need to be explained further such that the alternatives meet the local vision and goals for this corridor.
- o It was agreed that the Purpose and Need Statement was ready to be presented to the public.

- URS reviewed the comments received thus far on the draft alternatives screening. Printed copies of the responses to these comments by NCTA were provided to meeting attendees. Highlights of the discussion are as follows:
 - o NCSA inquired whether improvements on the eastern side of the project would be included in designs. David Griffin explained that studies would include an evaluation of the transportation network on the eastern side of the project and associated impacts. If appropriate, identified improvements will be incorporated into functional designs for the Detailed Study Alternatives.
 - o USACE suggested that LIDAR data be used as a means to identify wetlands within the corridors studied in the alternatives screening. URS will look into using this information to provide more accurate results regarding wetland impacts during alternative screening.

Previous Action Items:

- Agencies to send comments on the Draft Purpose and Need Statement and alternative screening methodology and concepts by 05/04/10.
[Comments received from USEPA, USACE, NCSA, NCDENR-DCM, and NCDENR-DWQ]

New Action Items:

- Agency members to send remaining comments on alternative screening methodology and concepts to NCTA.

Resolutions:

- Agreement was reached on the Purpose and Need Statement for the project.

Next Steps:

- Revise Purpose and Need Report according to agency comments.
- Continue alternatives screening process.

MEETING MINUTES

Date: September 8, 2010
12:30 PM to 1:50 PM
NCTA Board Room

Project: STIP R-2576 Mid-Currituck Bridge Study

Mid-Currituck Bridge Spotlight:**Attendees:**

Bill Biddlecome, USACE	Elizabeth Lusk, NCDOT-NEU
Scott McLendon, USACE	Bruce Ellis, NCDOT-NEU
Brad Shaver, USACE	Kathy Herring, NCDOT-NEU
Gary Jordan, USEWS	Logan Williams, NCDOT-NEU
Ron Sechler, NIMFS (by phone)	Matt Lauffer, NCDOT-Hydraulics Unit
George Hoops, FHWA	Jose Luque, CDG-AGSID
Cathy Brittingham, NCDENR-DCM	Bernardo Palicio, CDG-Dragados USA
Kevin Hart, NCDENR-DMF (by phone)	Roy Bruce, CDG-Lochner
Brian Wrenn, NCDENR-DWQ	Brian Eason, CDG-Lochner
David Wainwright, NCDENR-DWQ	Ron Ferrell, CDG-PBS&J
Travis Wilson, NCWRC	John Page, PB
Jennifer Harris, NCTA	Don Brown, PB
Lionie Brooks, NCDOT-Structure Design	Tracy Roberts, HNTB
Anne Gamber, NCDOT-Hydraulics Unit	Max Price, CDG-Wetherill Engineering
Doug Taylor, NCDOT-Roadway Design	Neal Williams, CDG-Weeks Marine
Scott Slusser, NCDOT	Mark Redderodi, CDG-Weeks Marine

Persons Who Were Provided Materials but Were Unable to Attend:

Christopher Militscher, USEPA
Sara Winslow, NCDENR-DMF

Presentation Materials: (All materials posted on the TEAC website)

- Meeting Agenda
- Reasons for a Determination that ER2 is Not a Practicable Alternative to a Bridge Across Currituck Sound (Handout 25)
- Mid-Currituck Bridge Stormwater Management (Handout 26)
- Construction Methodologies for Mid-Currituck Bridge (Handout 27)
- PowerPoint slides
- E/ign Sweeper Guide

Purpose:

Discuss agency comments on materials distributed at the August 10 meeting, as well as bridge stormwater management, bridge construction, and the practicability of ER2.

General Discussion:

The following information was discussed at the meeting:

- **Big Picture** – PB (John Page) gave a brief description of the steps NCTA is following to provide information needed for selection of a Preferred Alternative. He indicated that in August, funding was discussed, the focus on bridge corridors was narrowed to C1 only, and it was decided MCB2 could not be the Preferred Alternative or Least Environmentally Damaging Practicable Alternative (LEDPA) because its impacts are greater than MCB4, it lacks public support and it could not be funded at this time.

NCTA met with the emergency management officials on August 19th. At this meeting, it was

decided to identify reversing a center turn lane as the preferred hurricane clearance strategy, which is consistent with the comments received during the DEIS comment period on hurricane evacuation from the public and USEPA. Today's meeting addressed stormwater management and construction techniques for a Mid-Currituck Bridge. Next month's meeting will address issues related to Maple Swamp. With regard to avoiding and minimizing NC 12 impacts, NCTA is pursuing an alternative design, which would reduce the amount of four lanes by two-thirds, which has been agreed to by NCDOT Congestion Management, NCDOT Division 1, NCDOT Roadway Design, and emergency management representatives. The change would reduce community impacts and project cost. Groundwater and surface water studies for Maple Swamp are underway. Maple Swamp crossing options will be considered and discussed at the October TEAC meeting. By the October meeting, all the information needed to make a preferred alternative decision should be available.

- **August Meeting Comments** – PB (John Page) noted no written comments on the August 10th meeting have been received. The floor was opened to anyone who had comments they wanted to make regarding that meeting. NCDENR-DCM (Cathy Brittingham) commented on Handout 22, page 3, asking about the status of Currituck County's request for a water pipe under the bridge. NCTA (Jennifer Harris) responded that the county had inquired about the possibility of putting a water pipe on the bridge, but this issue has not progressed beyond the initial inquiry. NCTA cannot fund this and have not agreed to place a water pipe on the bridge. PB (John Page) added that the cost of the bridge would increase just for the added support structure necessary for the water pipe. He also noted that the county indicated that a pipe on the bridge would give them more flexibility in water distribution to respond to drought situations or other emergencies. Water supplies are adequate on the Outer Banks. NCTA (Jennifer Harris) said that the TEAC members would be kept apprised if anything changes with this. NCDENR-DCM (Cathy Brittingham) asked if this would be discussed in the FEIS. NCTA (Jennifer Harris) stated that Currituck County only indicated that it would be useful to have the water pipe on the bridge, but they have not asked again nor given any more information than their initial inquiry.

Other comments were solicited but none were provided. NCDENR-DCM (Cathy Brittingham) said that they had some technical comments on Handout 23 but that she would discuss outside of the meeting.

- **Stormwater on Bridges** – NCDOT (Matt Lauffer) described the *Stormwater Runoff from Bridges* report completed by NCDOT, US Geologic Survey, NC Division of Water Quality, NC State University and others on stormwater runoff considerations on bridges throughout North Carolina. NCDOT (Matt Lauffer) requested the agencies provide to him any preferred focus areas for the study team's planned presentation at the September 23 interagency meeting. The report is available on the NCDOT website (<http://ncdot.org/doh/preconstruct/highway/hydro/BMP/default.html>). NCDOT (Matt Lauffer) indicated that he could send a copy of the report via e-mail if anyone needed it. Contact him at mslauffer@ncdot.gov.
- **Handout 26** – CDG-Lochner (Roy Bruce) presented a strategy for Mid-Currituck Bridge stormwater management. Research into best practices resulted in finding that frequent bridge deck cleaning with state-of-the-art technology removes most of the pollutants. In the past 10-15 years, vacuum sweepers have improved and do a much better job than they once did. A video was shown of one particular manufacturer of a vacuum sweeper (though no manufacturing company is preferred). The manufacturer says that 90 to 97 percent of pollutants are picked up. The vacuum sweeper meets both PM10 and PM2.5 standards. Based upon the research done, CDG-Lochner (Roy Bruce) believes this vacuum sweeper could be an effective tool, with frequent sweeping (weekly during the 13-week peak season), for the Mid-Currituck Bridge. CDG-Lochner (Roy Bruce) added that where the bridge crosses wetlands on the Outer Banks shoreline, the runoff would be captured and treated. Sweepers allowing direct discharge would be used along the remainder of the bridge. The Virginia Dare Bridge over the Croatan Sound uses the same approach.

The capital cost of this two-fold strategy would be approximately \$1 million. The equipment would be replaced every 10 years. The operating cost of this vacuum sweeper is substantially lower than other options. In addition to being cost-effective, the vacuum sweeper meets the needs and is consistent with the stormwater on bridges report (described earlier by NCDOT [Matt Lauffel]).

NCDENR-DWQ (David Wainwright) asked if the vacuum sweepers lose efficiency over time. The manufacturer claims that as long as the equipment is maintained, they do not lose efficiency. NCTA through a contract with CDG would ensure the equipment is properly maintained and that sweeping occurs on schedule. NCDENR-DWQ (David Wainwright) asked if any debris would be pushed into the culppers by the vacuum sweeper. CDG-Lochner (Roy Bruce) stated that the manufacturer claims that they do not; the brushes when properly aligned would sweep the debris under the vehicle which would then vacuum up the debris and filter the air so that pollutants are not released into the air. NCDENR-DWQ (David Wainwright) asked if there was any research that was not from the manufacturer. CDG-Lochner (Roy Bruce) indicated he had studies from Seattle, MnDOT, and others. All of the research, however, has been done on city streets where, unlike a bridge, much of the runoff comes from adjoining land use rather than vehicles. NCDENR-DWQ (David Wainwright) raised the concern that whatever is not picked up by the vacuum sweeper goes into the sound. There are other things that affect turbidity and other sensitive natural systems. CDG-Lochner (Roy Bruce) said that research on the water quality effects would be needed. NCTA would be amenable to research opportunities with universities and the agencies. NCDENR-DMF (Kevin Hart) asked about the nature of the three percent of pollutants that would not be picked up by the vacuum sweeper. CDG-Lochner (Roy Bruce) responded that he wasn't sure what those pollutants were but that the frequency of sweeping could be adjusted more or less depending on its effectiveness to maximize what is picked up. He added that the vacuum sweeper would be stored on site at an NCTA facility, so it would be available 24 hours per day to be used by trained professionals so that it could be used at times such as traffic crashes, in advance of storms, etc.

NCDENR-DWQ (David Wainwright) stated that stormwater rules are more stringent now than they were when the other coastal bridges were built. The Currituck Sound is a very sensitive area and is very susceptible to turbidity. The first 1.5 inches of rain water on new built upon area must be retained and treated. NCDENR-DWQ (Brian Wrenn) added that he was familiar with the NCDOT study and that there still would be pollutants left after sweeping that need to be treated. Reading the letter of the law, all of the pollutants should be treated, not just the sensitive wetland areas on the east end of the bridge. He added that the sweeping is a great tool, but there would still be pollutants that would need to be treated.

NCDENR-DWQ (David Wainwright) also stated that water would need to be piped off the bridge on the east and west ends except over open water. There was discussion regarding what was meant by "open water." NCDENR-DWQ (Brian Wrenn) noted that maps would need to be studied to determine where the SAVs are located. NCDENR-DWQ (David Wainwright) stated that bridge piping would need to be extended beyond the coastal marsh and include the SAVs. NCDENR-DWQ (Brian Wrenn) said that while he was in agreement with the concept of partial capture and treatment, the details of what additional piping might be needed still need to be worked out. NCDENR-DWQ will provide comments.

USACE (Scott McClendon) asked if it was required for the pollutants to be collected and treated. NCDENR-DWQ (David Wainwright and Brian Wrenn) answered that it was. NCTA responded that they would be capturing and treating the runoff on the east end of the bridge. NCDENR-DWQ (David Wainwright) asked for clarification on the environmental requirements mentioned on page 6, fourth paragraph of Handout 26. CDG-Lochner (Roy Bruce) explained that with sweeping, it would not be necessary to treat those pollutants since they would be captured prior to being suspended in rainwater and released into the sound. NMF5 (Ron Sechler) added that the NCDENR-DWQ comments reflect their concerns as well.

- **Handout 27** – CDG-Lochner (Roy Bruce) presented the construction techniques discussed in Handout 27. The three types of potential construction techniques are barge based, temporary construction trestle, and top down construction. Barge based can only be done in water depths 6 feet or greater. Where there is less than 6 feet of water depth, either temporary construction trestle or top down construction would need to be utilized, or the area would need to be dredged to 6 feet. Pile setup considerations were discussed, and each of the seven options/combinations of construction techniques were presented. Pile setup time heavily influences construction time if top-down construction is used. As each set of piles is placed one must wait 2 to 30 days before the weight of caps and superstructure can be added. With barge and trestle construction, multiple sets of piles can be placed before the cap and superstructure is added. With top down, the foundations must be built in sequence so construction essentially stops during the set-up time, lengthening the construction period.

NMF5 (Ron Sechler) asked where the disposal sites would be for dredging spoil. CDG-Lochner (Roy Bruce) stated that there were five options currently being examined for potential disposal sites, but nothing has been decided. Some of the options include using the dredged material to raise the elevation of the Currituck Sound bottom near SAVs to encourage more SAV growth, refilling the dredged areas, using spoil as top dressing, or placing it in an old borrow site on US 158. However, more study would need to be done to determine what would be the best option.

NCDENR-DCM (Cathy Brittingham) stated she had many questions, but because the meeting was nearing its end, she would submit these at a later date so that we could move to the discussion of the practicability of ER2. She did ask if the SAV locations mapped were from the 2007 USACE survey. CDG-Lochner (Roy Bruce) stated that they were. NCDENR-DCM (Cathy Brittingham) wanted the more recent 2010 NCDOT SAV survey to be used. CDG-Lochner (Roy Bruce) noted that the data from the 2010 survey would be folded in once available.

NCDOT NEU (Bruce Ellis) indicated that the SAV field work has been completed. He noted that the SAV study was not being done specifically for the Mid-Currituck Bridge project and its corridor.

NCDOT (Lonnice Brooks) asked if there were any pile alternatives were considered besides steel piles. CDG-Lochner (Roy Bruce) answered that concrete was examined, but NCTA was leaning toward using the steel piles; no final decision on pile type will be made until completion of ongoing geotechnical studies. NCDENR-DWQ (David Wainwright) asked what the cost difference was between the two. CDG-Weeks Marine (Neal Williams) answered that steel is cheaper and the equipment to install it is smaller. CDG-Lochner (Roy Bruce) added that it was easier to transfer steel to the site.

- **Handout 25** – PB (John Page) presented information on why NCTA believes ER2 is not a practicable alternative. In NCTA's opinion ER2 is logistically unavailable and incapable of being implemented for four reasons (see details in PowerPoint slide). More detail is presented in the handout. PB (John Page) asked the TEAC members to provide comments within the next 30 days.

- **Wrap up/Next Steps** – NCTA (Tracy Roberts) presented the next steps in the process. USACE (Scott McClendon) stated that USACE was struggling with the issue of funding and the state legislature defining project locations. PB (John Page) noted that the project has a long history being planned as a toll project. It was listed as being funded by other sources in the State Transportation Improvement Program in effect with the 1998 Draft Environmental Impact Statement was released. The General Assembly authorized NCDOT to charge tolls on the bridge in that same period. There are system wide effects that need to be taken into account. NCDENR-DCM (Cathy Brittingham) noted that early in the current study, NCDOT was taking a systemwide approach to project planning. PB (John Page) stated that this is what was done in developing and assessing alternatives in the DEIS. The only road improvement for the project area in the State Transportation Improvement Program is a NC 12/US 158 interchange. It is funded for planning only.

NCTA (Tracy Roberts) thanked the attendees for their participation and adjourned the meeting at 1:50 PM.

MEETING MINUTES

Date: September 8, 2010
2:00 PM to 5:00 PM
NCTA Board Room

Project: STIP R-3329/R-2559 Monroe Connector/Bypass – STP-NHF-74(90)

Monroe Connector/Bypass Spotlight:

Short-listed design-build teams were each allowed 45 minutes to present information, ask questions, and get feedback from agency representatives. To protect the confidentiality of the design-build process, minutes will not be provided for these sessions.



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: November 2, 2010
9:30 a.m. To 11:30 a.m.
NCTA Board Room

Project: STIP R-2721, R-2828, and R-2929 – Triangle Expressway Southeast Extension (Raleigh Outer Loop)

Triangle Expressway Extension Spotlight:

Attendees:

George Hoops, FHWA
 Christopher Miltischer, USEPA
 Eric Alsmeyer, USACE
 Gary Jordan, USFWS
 David Wainwright, NCDENR-DWQ
 Travis Wilson, NCIWRC
 Amy Simes, NCDENR
 Dolores Hall, OSA (via telephone)
 Regina Page, NCDOT Congestion Management (via telephone)
 Deanna Riffe, NCDOT-Natural Environment Unit
 Steve Gurganus, NCDOT-Human Environment Unit
 Derrick Weaver, NCDOT-PDEA
 Doug Taylor, NCDOT-Roadway Design Unit
 Tony Houser, NCDOT-Roadway Design Unit

Chris Lukasina, CAMPO
 Gerald Daniel, CAMPO
 Steve DeWitt, NCTA
 Jennifer Harris, NCTA
 Christy Shumate, HNTB
 John Burris, HNTB
 Kevin Markham, ESI
 Joanna Rocco, URS
 Roy Bruce, Lochner
 Kristin Maseman, Lochner
 Doug Wheatley, Lochner
 Steve Browde, Lochner
 Wendee Smith, Mulkey
 Tim Savidge, Catena Group
 Mike Wood, Catena Group

Presentation Materials (Posted on TEAC website):

- Agenda
- Draft Meeting Minutes – 9/8/10 TEAC Meeting
- Handout 5 – Public Informational Meetings (Sept. 2010), Summary and Comment Analysis
- Handout 6 – Preliminary Alternative Corridors, Major Constraints/Issues
- Impact Table – Southeastern Extension Preliminary Alternative Corridors by Phase, Summary of Potential Impacts

Purpose: Discuss revisions to purpose and need statement, summary of public comments and alternatives screening discussion.

Turnpike Environmental Agency Coordination Meeting 11/02/10

General Discussion:

The following information was discussed at the meeting:

- **Purpose and Need Update:** NCTA stated that the revised version of Purpose and Need is on Constructware. The revisions address comments from earlier TEAC meetings and written comments from NCDENR-DWQ. Also, written responses to NCDENR-DWQ comments are posted to Constructware.
- **Alternatives Screening:** The Alternatives Development and Analysis Report is being prepared and should be distributed prior to next month's TEAC meeting.
- **Summary of Public Comments (Handout 5):** Lochner presented the summary of public responses to date, indicating that over 1,000 people attended the September Public Informational Meetings. To date over 2,000 comments have been received. Several neighborhood petitions have also been received with nearly 1,000 signatures. Most comments express support for the project located in the protected corridor and dismy over other new location alternatives. Some comments related to the perceived "fairness issue" of tolling only a portion of this loop facility.

Lochner stated that the public comments are helpful in evaluating alternative corridors as they should be distributed details relative to human and natural environment impacts.

Several local governments have passed resolutions regarding the project. Most indicate support for the project located in the project corridor. The Wake County Board of Commissioners resolution states opposition to the blue, purple, red, and pink corridors. The City of Garner resolution states opposition to the red corridor.

NCTA explained that public involvement activities have included significant effort to educate the public on the project development process. That included explaining to citizens the role of the protected corridor in the study process.

- **Alternatives Screening Discussion (Handout 6):** Lochner summarized the major constraints and relative advantage of each corridor in the Phase I and Phase II areas, mentioning a few new constraints that have emerged since the Public Informational Meetings. There is a proposed mixed-use development (Randleigh Farm property) planned jointly by Wake County and City of Raleigh and purchased using open space funds. The green corridor in Phase II would bisect this property. Adjacent to Randleigh Farm is a potential historic site known to include remnants of a nineteenth century mill and with anecdotal evidence of Civil War significance. OSA suggested meeting with NCTA staff to review the known facts related to the historic significance of this property. To avoid or minimize impacts to the Randleigh Farm and the adjacent potential historic sites, two other corridor alternatives in the Phase II area were reintroduced. The tan corridor would impact Randleigh Farm along its eastern edge, reducing the amount of direct impacts to the site relative to the green corridor. The grey corridor would completely avoid the Randleigh Farm area, including an eastern swing into Johnston County.

USACE asked whether there have been traffic projections for the various alternative corridors. HNTB stated that preliminary traffic projections are similar for the protected corridor (orange) and the blue and purple corridors to the south. The red corridor to the north is projected to serve smaller traffic volumes than the others. USEPA requested that traffic data be made available to TEAC members and NCTA agreed.

NCTA asked for agency feedback on eliminating some of the preliminary alternative corridors from further consideration. In considering the red corridor, discussion turned to dwarf wedgemussel habitat in the Swift Creek watershed. USFWS indicated that the red corridor may be the only alternative with a chance for a "no adverse effect" determination for the species. The Catena Group has found fairly young dwarf wedgemussel individuals in Swift Creek in the vicinity of the Wake- Johnston County line, near the protected corridor. They have not yet surveyed the area between Lake Wheeler and Lake Benson, and there have been limited past surveys in this area. State listed

Turnpike Environmental Agency Coordination Meeting 11/02/10

mussel species have been found in this area, and it is possible that dwarf wedgemussel could be found there. However, since there would be no genetic connection between a potential population above the Lake Benson dam and the known population below the dam, impacts above the dam could minimize direct effects on the downstream population and its habitat. Any population between Lake Benson and Lake Wheeler would be isolated from other area populations. The population near the County line is a priority for conservation efforts and the habitat in this area is severely impacted by sedimentation from area development activity.

According to the USFWS, under the Endangered Species Act the agency can not mandate that NCTA study the red corridor as a Detailed Study Alternative (DSA). But, their best professional judgment is that the red alternative is the only build avoidance/minimization option and likely the only option that has the potential for a "no adverse effect" call. Any other build or upgrade options will almost certainly receive an "adverse effect" call, but not necessarily a "jeopardy call".

Stressing the complexity of the Section 7 consultation process as it has been applied to dwarf wedgemussel impacts in Swift Creek, USFWS explained that the consultation for the recent Clayton Bypass project included more than 40 meetings. Numerous local ordinances were developed or changed to deal with the impacts.

Per NCTA, Catena will survey Swift Creek above Lake Benson for mussels. Catena will also survey Mahler's Creek, a tributary to the downstream portion of Swift Creek, as the red corridor crosses this area. Catena will also survey White Oak Creek and Little Creek as these areas could contain dwarf wedgemussels and are likely to contain rare mussel species which may be federally listed before this project is complete.

Relative to Phase I (south side): The group agreed with NCTA recommendations to eliminate the yellow, blue, purple, and white (west of NC 55 Bypass) alternative corridors. All other corridors remain under consideration. USEPA stated that by reporting impacts per mile, NCTA could more effectively compare the improve existing roadways option to the new location alternatives. In general, the group will accept elimination of the improve existing roadways option as long as NCTA provides a more robust explanation for its elimination in the Alternatives Report.

Relative to Phase II (east side): Only the green alternative was presented at the Public Informational Meetings. The tan and grey alternatives were later added based on coordination with Wake County and the City of Raleigh regarding the Randolph Farm property. The tan alternative minimizes impact to the Randolph Farm property by following an alignment along the property's eastern boundary and is acceptable to the City of Raleigh and Wake County. The grey alternative avoids the Randolph Farm and potential historic site completely, but based on a number of considerations, the group agreed to drop this corridor. The grey corridor is about four miles longer than the other options and at about \$50 million per mile, its cost would be significantly higher. It would also have much more stream and wetland impacts and could result in greater indirect and cumulative effects.

The group concurred to further consider the following corridors only:

- Orange to red to green
- Orange to green
- Orange to tan to green
- Orange to pink to red to green
- Orange to red (along I-40) to green – is a new corridor to possibly consider

Previous Action Items:

- Lochner to revise alternatives impact table to replace Natural Heritage Program Occurrences as an evaluation criterion with separate breakouts of federal and state protected species. (*Completed*)

New Action Items:

- NCTA will follow up with Delores Hall regarding Randolph Farm property and adjacent potential historic site
- NCTA will survey Swift Creek above Lake Benson Dam and Mahler's Creek and review existing survey data for White Oak Creek and Little Creek.
- NCTA will eliminate the following corridors: blue, purple, yellow, grey, and options west of NC 55 Bypass (white).
- NCTA will make traffic analysis for improve existing and hybrid options available to TEAC members.
- NCTA will provide draft alternatives report for agency review and comment.

Resolutions:

- Eliminate purple, blue, and yellow corridors from further consideration.
- Eliminate proposed grey corridor from further consideration.
- Eliminate improve existing roadways alternative from further consideration.
- Eliminate hybrid alternative from further consideration.

Next Steps:

- Complete draft Alternatives Report and circulate for agency review and comment.

MEETING MINUTES

Date: November 2, 2010
1:00 PM to 3:00 PM
NC Turnpike Authority Board Room (Suite 400)

Project: STIP R-2576 Mid-Currituck Bridge Study

Mid-Currituck Bridge Spotlight:**Attendees:**

Bill Biddlecome, USACE
Scott McLendon, USACE
Gary Jordan, USFWS
Ron Sechler, USEPA
George Hoops, FHWA
Amy Simes, NCDENR
Cathy Brittingham, NCDENR-DCM
Kevin Hart, NCDENR-DMF (by phone)
David Wainwright, NCDENR-DWQ
Travis Wilson, NCWRC
Jennifer Harris, NCTA
Ted Devens, NCDOT-PDEA
Brian Yamamoto, NCDOT-PDEA

Doug Taylor, NCDOT-Roadway Design
Tony Houser, NCDOT-Roadway Design
Jose Luque, CDG-ACSID
Bernardo Fallico, CDG-Dragados USA
James Hinda, CDG-Dragados USA
Roy Bruce, CDG-Lochner
Steve Browde, CDG-Lochner
Ron Ferrell, CDG-PBS&J
Tracy Roberts, HNTB
John Burris, HNTB
Spencer Franklin, HNTB
Neal Williams, CDG-Weeks Marine
John Page, PB
Bobby Norburn, PB

Persons Who Were Provided Materials but Were Unable to Attend:

Steve Lambert, Albemarle Commission
Bill Brazier, USCG
Ted Bisterfield, USEPA
Jim Hoadley, NCDENR-DCM
Sara Winslow, NCDENR-DMF
Brian Wrenn, NCDENR-DWQ
Peter Sandbeck, NCDOR-HPO
Renee Gledhill-Early, NCDOR-HPO

Presentation Materials: (All materials posted on the TEAC website)

- Meeting Agenda
- Preferred Alternative Report (including previous and new handouts)
- Assessment of Maple Swamp Groundwater System (Handout 28)
- Supplemental Assessment of Mid-Currituck Bridge Impacts to Flood Elevations in Maple Swamp (Handout 29)
- PowerPoint slides

Purpose:

Discuss new studies of groundwater and surface water hydrology in Maple Swamp and FHWA/NCTA's Preferred Alternative.

General Discussion:

The following information was discussed at the meeting:

- **Introduction and Previous Meeting Comments** – Tracy Roberts opened the meeting by noting meeting handouts and asking the attendees to introduce themselves. He also reviewed the meeting agenda.

John Page started the slide presentation and asked if there were any comments on the September 8 meeting handouts. Kevin Hart and Ron Sechler said they are going to send written comments on the September 8 and November 2 meeting handouts. Bill Biddlecome also said that he already sent NCTA his comments on the September 8 handouts, but NCTA has not received them yet. (Bill had a copy of his comments and copies were made and distributed to the meeting attendees.) Travis Wilson and Cathy Brittingham also will be providing comments on the September 8 meeting handouts.

The October 1, 2010 meeting between NCTA and NCDENR-DWQ to discuss stormwater management strategy was briefly discussed. David Wainwright asked about storm water collection over Maple Swamp and NCTA's proposal for direct discharge. He wants more information on why the first 1.5 inches of storm water over Maple Swamp cannot be treated (i.e., why treatment would be impractical or a hardship) before he supplies comments.

Chris Miltischer said that USEPA would provide comments once his agency receives the FEIS.

- **Handout 28** – John went through the slide for Handout 28. He said that he would be brief unless there were specific questions. He said that existing groundwater levels likely show only minimal elevation changes. In addition, groundwater flows are quite small. The bottom line is that with a Maple Swamp crossing design that maintains surface water hydrology, groundwater flows and levels would not be affected by fill. In response to a question, he noted the amount of soil that would be mucked out for fill sections in the swamp would range from 2 to 5 feet. John asked if there were any questions on Handout 28 – there were none.
- **Handout 29** – John went through the slide for Handout 29. He said that in response to agency comments, NCTA conducted revised Maple Swamp floodplain studies based on a more detailed location survey, recent logging in the swamp, and a range of bridge and fill length alternatives. The results of the revised studies indicated that a minimum 2,500-foot bridge in the central to eastern part of Maple Swamp would result in no impact on floodwater elevation. John asked if there were any questions on Handout 29 – there were none.

- **Preferred Alternative Report** – John addressed the Preferred Alternative Report. He indicated that NCTA's recommended Preferred Alternative is MCB4/C1 with refinements to respond to agency and public comments on the DEIS alternatives, as well as to avoid and minimize impacts. He reviewed the components of the recommended Preferred Alternative, including: reversing center turn lane along US 158 for hurricane evacuation between the bridge interchange and NC 168; the addition of approximately 1,600 feet of third outbound lane for hurricane evacuation on US 158 on the Outer Banks to the west of NC 12; the use of Option B's more compact US 158/Mid-Currituck Bridge interchange; a median acceleration lane for left turns at the US158/Waterlily Road intersection; a 2,640-foot-long bridge in Maple Swamp (the Option A bridge was 7,913 feet and Option B was 360 feet); a linear toll plaza on fill in Maple Swamp to the west of the Maple Swamp bridge; a 2-lane road on fill between the Maple Swamp bridge and the sound bridge; the retention of Ayldett Road in its current location; a straight Mid-Currituck Bridge that avoids coastal marsh and reduces SAV impact at its eastern terminus at NC 12; provisions for bicycles and pedestrians on the bridge; roundabouts on NC 12 at the intersections with the bridge and Currituck Clubhouse Drive; less 4-lane widening on NC 12; and marked pedestrian crossings on NC 12. In response to a question about wildlife underpasses in Maple Swamp, John said that additional wildlife underpasses are being considered. John showed a slide that

compared the refined C1 terminus on the Outer Banks to the DEIS C1 terminus. He discussed that the realigned terminus using the roundabout avoids wetlands in the bridge terminus area, which reduced wetland impacts on the Outer Banks by 4 acres to about 1 acre. The refined alignment also avoids the already developed portion of the Corolla Bay subdivision.

Roy Bruce discussed the three slides related to Mid-Currituck Bridge construction procedures with the recommended Preferred Alternative. He discussed that, as shown on the slides, dredged areas have been reduced on the east with the refined alignment for the recommended Preferred Alternative. He discussed the slide showing the quantities of dredging needed with the DEIS and refined C1 alignments, as well as the proposed supply dock. As shown on the slide, the refined C1 alignment has substantially less dredging impacts than the DEIS C1 alignment. However, although the design of the supply dock has not been revised yet, the anticipated dredging impacts for the supply dock are up based on a new bathymetric survey that NCTA recently completed. Roy said that NCTA is looking at options to refine the design of the supply operation based on the new survey data to reduce dredging impacts, so this issue will be further discussed with the agencies at a future meeting. Several agencies commented on the extent of the supply dock dredging impacts, so Roy reiterated that NCTA will attempt to refine the plan and reduce these impacts.

John noted the benefits of the recommended Preferred Alternative (MCB4/C1 with refinements), as follows: substantial congestion reduction and travel time benefits; components avoid and minimize natural resource and community impacts; bridge conforms to area land use plans; and can be financed. He then discussed the natural resources benefits and impacts of the recommended Preferred Alternative as shown on 4 slides (see attached). Jennifer Harris asked John to explain in more detail the pictures on two of the slides showing logged areas in Maple Swamp. John said these are August 2010 pictures showing the extensive logging that has recently occurred in the swamp.

John discussed the slide summarizing community impacts with the recommended Preferred Alternative (see attached), as well as the slide discussing historic resources impacts (see attached) and navigation span length in Currituck Sound (i.e., a single 35-foot-long navigation span in the deepest part of Currituck Sound). Bill Biddlecome asked about the navigation span length and whether NCTA has talked to the USACE navigation section. It was discussed that NCTA has coordinated with the US Coast Guard about navigation span issues, but not USACE. It was noted that there is no maintained channel in the sound to the north of the proposed bridge. Bill will provide NCTA with a contact at USACE to coordinate with on navigation issues – it will be the same contact at USACE that NCDOT coordinated with during the Bonner Bridge replacement project development.

- **General Discussion** – Chris Militscher noted a difference in the dredging volumes shown in the Preferred Alternative Report (page 7) versus what is shown on the slides. Roy responded that the slides are correct and that they reflect new numbers based on new survey data received after preparation of the Preferred Alternative Report.

Chris Militscher asked for more details on the supply dock. Roy explained that the supply dock location is independent of the design and location of the C1 alignment and that NCTA is looking at different options for its location. The impacts shown on the slide are likely the worst-case impacts of the supply dock. He said that NCTA realizes that the currently calculated impacts for the supply dock are substantial, so different alternatives are being considered to minimize or avoid these impacts. Chris summarized the worst-case impacts with the supply dock as presented during the slideshow. Jennifer Harris noted that the refined C1 alignment reduces impacts, including dredging. Ron Sechtler asked to see the slide again showing the location of the supply dock. As shown on the slide, it was discussed that it is only on the mainland (i.e., a supply dock is not needed on the Outer Banks side) in an area of vacant land, but Roy reiterated that NCTA is looking at other location options and designs to reduce impacts further.

Chris Militscher asked if NCTA had talked to the NCDOT Natural Environment Unit about the dredging spoil disposal site mentioned on page 20 of the report (i.e., the existing borrow pit east of US 158 and north of Aydtlett Road in Coinjock). Jennifer Harris responded not yet. Chris asked where the borrow for the fill in the swamp is coming from. Roy Bruce responded that there are some possible upland sites that NCTA is considering, but nothing definitive yet.

Kevin Hart asked about the type of construction barge that would be used. Roy described the currently anticipated barge type. Kevin asked about the amount of displacement for these barges. Neal Williams responded that the barges need approximately 1.5 feet of draft when empty and 3 to 4 feet when loaded.

Kevin Hart asked about SAV impacts with the refined C1 alignment. Roy responded that the bridge is shorter over SAV with the refined alignment, but NCTA needs to review the recently updated SAV survey prepared by East Carolina University to determine the exact impacts. It was discussed that there could potentially be new SAV on the west side of the sound at the proposed supply dock location. In addition, SAV on the east side of the sound could possibly have temporarily receded at the bridge terminus. Kevin said that any areas of the sound with temporarily receded SAV would still be considered habitat, even if SAV is not currently present. John Page discussed the location of the refined alignment in relationship to known SAV habitat and the depth of the sound. He said that there is less shallow water along the refined C1 alignment and less known SAV. In addition, we are bridging the known areas of SAV on the east side of the sound. Therefore, NCTA thinks there is now less SAV impact than with the DEIS C1 alignment.

Travis Wilson asked about the survey dates for the SAV and bathymetric data shown on the slides. Roy said the bathymetric survey data shown on the slides is the current data from Fall 2010, but the SAV data is based on the 2007 USACE SAV surveys. It was discussed that dredging is being proposed only where it is needed to provide 6 feet of depth and where there is no SAV present. Jennifer Harris said one way to picture the relatively limited extent of the proposed dredging is that it is intended to smooth out some bumps on the sound bottom, but will not be widespread.

Cathy Brittingham read to the group from the NC Marine Fisheries Commission (MFC) rules on dredging. She asked Kevin Hart for clarification of the DMF rules related to dredging in or near SAV beds. Kevin said he will find these rules and provide them to the group. It was discussed that both the MFC and DMF rules apply to the proposed project.

Gary Jordan referenced the text on page 31 of the Preferred Alternative Report that discusses avoiding and minimizing wetland fill impacts as an important consideration to take into account when making design revisions. He asked specifically what is the amount of wetland impacts savings between the DEIS alternatives and the recommended Preferred Alternative. He noted that the wetland impacts savings between Option B and Option C (i.e., the recommended Preferred Alternative) did not seem to add up based on the Option C Maple Swamp bridge length of 2,640 feet. It was discussed that the net reduction in impacted wetland in Maple Swamp with the recommended Preferred Alternative is smaller than expected because of the presence of the linear toll plaza in the swamp.

Bill Biddlecome asked how the wetland impact acreages on page 18 of the Preferred Alternative Report were calculated. John Page said the impacts were determined based on the slope-stake line plus an additional 25-foot buffer. John said that Table 3-9 of the DEIS (page 3-44) confirms the wetland impact acreages shown on page 18 of the Preferred Alternative Report. The bottom row of Table 3-9 shows "Wetland within Slope-Stake Line, plus Additional 25-foot buffer." The definition of and reason for using "slope-stakes plus 25'" was discussed. Gary Jordan said he

would like to see an explanation of the reason for using "slope-stakes plus 25" to calculate wetland impacts included in DEIS Table 3-9, as well as in the Preferred Alternative Report.

Bill Biddlecome asked how much would using MCB4/A/C1 with the design refinements made for the recommended Preferred Alternative reduce the wetland impacts. It was noted that the reduction on the Outer Banks with the NC 12 refinements was 4 acres, but the Waterlily Road safety feature would add about 0.5 acre. Thus, with these changes, the MCB4/A/C1 impacts would be about 3.5 acres less than the 10.6 acres in the DEIS or 7.1 acres.

The issue of providing cost savings by making further refinements to the alternatives was discussed. It was noted that the costs in the Preferred Alternative Report are not for the revised alternatives. Roy Bruce said he thinks the cost difference between revised MCB4/A/C1 and the recommended Preferred Alternative is about \$50 million. The recommended Preferred Alternative saves about \$50 million, but impacts approximately 20 acres more of wetland, all in Maple Swamp. Roy said that using dredging provides another roughly \$30 million in savings. Jennifer and Roy further discussed the cost savings provided by dredging, but also noted that NCTA is interested in pursuing other possible construction methods that would save money while also reducing dredging. Cathy Brittingham asked if it would be possible to use sunken barges. It was discussed that this is not possible because the type of barge that could be sunk would have to be brought into place from the intracoastal Waterway, which would add dredging impacts.

Chris Militscher asked about the typical section of the proposed road on fill through Maple Swamp. It was discussed that the typical section for the Option B road on fill (not including the toll plaza) through Maple Swamp would include two 12-foot lanes with 10-foot outside shoulders and no median. However, subsequent to the meeting, further review of the typical section for the road on fill through the swamp as shown on the Public Hearing Maps indicated that the outside shoulder width to the start of the fill slope is 11 feet, with 8 feet between the edge of the travel lane and the face of the guardrail (including a 6-foot paved shoulder), so the total section width is 46 feet plus the fill slope.

Gary Jordan asked about the vertical clearance of the Option C bridge through Maple Swamp. Roy Bruce responded that the vertical clearance is about 10 feet from the ground to the bottom of the structure.

Kevin Hart asked if there will be other openings under the proposed project in the swamp. It was discussed that there will be hydraulic equalizer pipes through fill sections to maintain surface water flow, but they have not been designed yet.

Jennifer Harris asked if the discussions today helped to address some of the comments in the USACE letter. It was indicated that today's discussions helped to address some of the USACE comments, but additional information is still needed to answer some comments. It was again noted that unfortunately NCTA did not receive the mailed copy of the letter prior to today's meeting. Bill Biddlecome said that the letter is based in part on their initial review of the Preferred Alternative Report.

Cathy Brittingham asked what the vertical clearance of the new sound bridge would be outside of the navigation span. Roy Bruce responded that there would be about 16 feet of clearance from the water level to the bottom of the girders. It was discussed that DCM requires the maintenance of existing navigation uses of the sound. Roy said the proposed bridge would be higher than the typical clearance height for the Wright Memorial Bridge. It was also noted that it is difficult to navigate north-south in Currituck Sound because it is so shallow in some areas in the middle of the sound (only 1 to 2 feet deep).

Bill Biddlecome asked if NCTA was going to revise the Preferred Alternative Report. Jennifer Harris responded yes based on comments made by the agencies and the need to update the

dredging impact information. Jennifer stated that NCTA will continue avoidance and minimization efforts to make the recommended Preferred Alternative more competitive with ER2 from a wetland impacts perspective to address agency concerns, and noted that resolving this issue also could lead to further revisions to the report. Scott McLendon said to not keep revising the report if the Preferred Alternative is still a moving target. Jennifer agreed that revisions would not be made to the recommended Preferred Alternative until comments were received on the current report and discussed.

Travis Wilson and Cathy Brittingham would like to have the report updated to reflect the updated dredging information for the revised C1 alignment presented in the slide show and to be provided with at least the updated pages (i.e., something more user friendly than the slides). It was agreed that the Word file would be updated using track changes and posted on the TEAC web site.

- **Next Steps** – Cathy Brittingham asked about the date for the next TEAC meeting. Scott McLendon said he thought we were still far enough apart on the selection of the Preferred Alternative that another meeting is not needed until NCTA answers USACE's funding concerns. Jennifer said she would rather answer all agency comments at once before the next meeting, so comments are needed from the other agencies.

Scott McLendon asked if there were any looming financing issues that required a quick decision on the Preferred Alternative (similar to the Monroe Bypass project). Jennifer responded that there were none but that a decision should be made as quickly as possible. She added that NCTA would continue to refine the Preferred Alternative to try to minimize impacts, as well as continue to attempt to explain ER2 funding problems to answer the USACE concerns.

It was discussed that the agencies will provide comments within 30 days, so there will probably not be a December TEAC meeting (i.e., not enough time for NCTA to digest and respond to comments before the meeting). The agencies agreed to provide comments by December 3. Scott said he thinks we are getting close to either agreeing on a Preferred Alternative, or not being able to agree.

The meeting concluded at 2:55 PM.



Turnpike Environmental Agency Coordination (TEAC) Meeting

MEETING MINUTES

Date: January 20, 2011
10:00 AM to 12:00 PM
NC Turnpike Authority Board Room
Project: STIP R-2576 Mid-Currituck Bridge Study

Mid-Currituck Bridge Spotlight:

Attendees:

Bill Biddlecome, USACE	Tracy Roberts, HNTB
Scott McLendon, USACE	John Burris, HNTB
Brad Shaver, USACE	Kiersten Giugno, HNTB
Gary Jordan, USFWS	Spencer Franklin, HNTB
Chris Miltscher, USEPA	John Page, PB
Ron Sechler, NIMFS	Don Brown, PB
George Hoops, FHWA (by phone)	Michael Bright, NCDOT-Utilities
Amy Simes, NCDENR	Lonnie Brooks, NCDOT-SDU
Cathy Brittingham, NCDENR-DCM	Steve Mitchell, NCDOT-PDEA
Kevin Hart, NCDENR-DMF (by phone)	Chris Underwood, NCDOT-PDEA
David Wainwright, NCDENR-DMQ	Brian Wrenn, NCDENR-NCDWQ
Travis Wilson, NCDENR-NCWRC	Mehdi Zanganeh, CDG-Lochner (by phone)
Jennifer Harris, NCTA	Stephen Lane, NCDENR-DCM (by phone)
Brian Yamamoto, NCDOT-PDEA	Bruce Ellis, NCDOT-NEU (by phone)
Herman Huang, NCDOT-HEU	Benjeta Johnson, NCDOT-CM (by phone)
Doug Taylor, NCDOT-RDU	Jerry McCrain, CDG-PBS&J
Jose Luque, CDG-ACSID	Andrew Hochburn, CDG-Lochner (by phone)
Bernardo Palicio, CDG-Dragados USA	Charlan Owens, NCDENR-DCM (by phone)
James Hinda, CDG-Dragados USA	Greg Hebler, CDG-Golder (by phone)
Roy Bruce, CDG-Lochner	David Joyner, NCTA
Steve Browde, CDG-Lochner	
Ron Ferrell, CDG-PBS&J	
Neal Williams, CDG-Weeks Marine	

Persons Who Were Provided Materials (Electronically) but Were Unable to Attend:

Steve Lambert, Albemarle Commission
 Bill Brazier, USCG
 Ted Bisterfield, USEPA
 Sara Winslow, NCDENR-DMF
 Peter Sandbeck, NCDOR-HPO
 Renee Gledhill-Early, NCDOR-HPO
 Scott Slusser, NCDOD

Presentation Materials: (All materials posted on the TEAC website)

- Meeting Agenda
- January 2011 Preferred Alternative Report (including Handout 23 through Handout 30)
- Response to Written Comments on the October 2010 Preferred Alternative Report (Handout 30 included in the Appendix of the January 2011 Preferred Alternative Report)
- PowerPoint slides

Purpose:

Affirm the Preferred Alternative and establish it as the LEDPA (Least Environmentally Damaging Practicable Alternative). Discuss responses to comments on the October 2010 Preferred Alternative Report (as presented in Handout 30 and reflected in the changes to the Preferred Alternative presented in the January 2011 Preferred Alternative Report).

General Discussion:

The following information was discussed at the meeting:

- **Introduction** – Tracy Roberts opened the meeting by noting meeting handouts and asking the attendees to introduce themselves. He also reviewed the meeting agenda.
- **Preferred Alternative Report** – John Page reminded the meeting attendees that the Preferred Alternative Report was provided to the agencies two weeks ago. He emphasized that the purpose of this meeting was to seek affirmation on the Preferred Alternative and to establish it as the LEDPA. John summarized that FHWA and NCTA's recommended Preferred Alternative is MCB4/A/C1 with refinements to respond to agency and public comments on the Draft Environmental Impact Statement (DEIS) alternatives, as well as to avoid and minimize impacts. He reviewed the components of the recommended Preferred Alternative and the refinements, including the Option A bridging of Maple Swamp, the addition of a median acceleration lane at Waterfly Road, hurricane evacuation measures (operational and physical), a straighter bridge across Currituck Sound, roundabouts and less four-laning on NC 12, striped pedestrian crossings on NC 12, and a revised bridge terminus on NC 12 (resulting from the straighter bridge) which reduced the wetland impact. John also went over some of the impacts that were reduced as a result of the refinements to the Preferred Alternative, including natural resource impacts, community impacts, and other impacts such as historic (which were reduced by not adding the third outbound lane for hurricane evacuation on US 158). John then opened the meeting to questions and comments.

General Discussion – Bill Biddlecome had a question about dredging. He indicated he was confused by what was presented on page 22 of the Preferred Alternative Report, where the length and acreage of dredging has been substantially reduced, yet the cubic yardage was only slightly lower. Roy Bruce explained that although the length of proposed dredging is now shorter and the acreage is less, the water depth of the area proposed for dredging is shallower, so the dredging required in this area (westside of Currituck Sound) would have to be dredged deeper than the areas on the eastside of Currituck Sound where dredging has been eliminated. Thus a smaller amount of bottom area dredged would require more cubic yardage of dredged materials. Page B-76 in the Preferred Alternative Report shows the only remaining area proposed for dredging.

David Wainwright asked what kind of construction would be used, where dredging was now proposed, and how long the temporary bridge would be. Roy Bruce stated that construction would be from barges for much of the sound, and that dredging is now proposed to be done on the west side of the sound only. The temporary bridge would be about 4,000 feet long on the east side of the sound. Kevin Hart added that DMF would prefer top down construction in SAV areas (habitat and existing) to reduce those impacts. Jennifer Harris stated that additional construction details would be discussed with the agencies as they are known.

David Wainwright asked what the cost would be for the recommended Preferred Alternative. Roy Bruce indicated that the cost would be approximately \$660 million. Jennifer Harris added that whatever the final cost was (including construction techniques), NCTA would need to assess if the project was financially feasible. Jennifer reminded the agencies that the addition of Option A (bridging Maple Swamp) added \$90M to the cost of the project and that this was a major concession

to address agency concerns regarding wetland impacts. Jennifer also noted that NCTA has discussed and addressed many construction-related concerns earlier in the environmental process than is usual. Jennifer requested that the agencies separate the Preferred Alternative/LEDPA decision from permit related issues like stormwater management and construction techniques. This level of information is not typically known at this point in the NEPA process (even during Concurrence Point [CP] 3 [LEDPA] of the Merger Process).

Cathy Brittingham noted that this is the first project that she has worked on with NCTA. Typically, when the LEDPA is signed (CP 3 in Merger), the agencies are reasonably sure that it is a permittable project. Cathy asked NCTA what was needed at this point from the agencies. Jennifer Harris stated that NCTA wants to know if there are any red flags, significant objections or issues of concern that the agencies see that might prevent or substantially delay NCTA from obtaining the necessary permits. NCTA understands that there are unknowns (such as construction techniques, SAV mitigation, and stormwater management), but wants to know if there are any issues that would prevent NCTA from developing the Preferred Alternative further and obtaining permits in the future. George Hoops stated that based on the feedback he has heard from the agencies, they believe that the Preferred Alternative could be permittable if the issues of construction techniques, stormwater management, and SAV mitigation could be resolved. Bill Biddlecome stated that NCTA is moving in the right direction with the Preferred Alternative being MCB4/AC1 in terms of reducing wetland impacts, but there are still concerns regarding dredging and stormwater impacts on the aquatic ecosystem.

Jennifer Harris asked the agencies if they have known these details (such as SAV mitigation, construction techniques, and stormwater management) at this stage on other projects. Scott McLendon stated that he thought the Washington Bypass project was proposed to be constructed using a top-down construction methodology and that this was known at CP 3 (LEDPA). Lonnie Brooks stated that the project was design-build (so a specific construction methodology wouldn't have been known at CP 3) and that the permit drawings for the Washington Bypass proposed a work bridge. Travis Wilson stated that he could not think of a comparable project to the Mid-Currituck Bridge and that is why the agencies want more information than is typically requested at this point. Travis stated that he did not think it was possible for NCTA to get a response from the agencies at this meeting that the project as presented and with what is known would definitely be permittable.

Ron Sechler noted that impacts to seagrass (SAV) are important on this project. He stated that it is difficult to deal with, but the technology is there to mitigate impacts.

Jennifer Harris noted that it sounded as if a LEDPA would not be able to be agreed upon at this meeting, but she asked if there was something on which agreement could be reached. Jennifer wanted to know if NCTA could get agreement on the current components of the Preferred Alternative, and then NCTA could address the remaining issues in future agency coordination on avoidance, minimization, and mitigation, as well as during the permitting process. Jennifer asked if anyone had a better idea and asked for input on how the project could be advanced at this point. Scott McLendon added that there is agreement that NCTA is on the right track, but that a LEDPA cannot be agreed to at this meeting because of unresolved resource concerns regarding stormwater management, in-water construction impacts, and SAV impacts/mitigation. It is not known if the project can obtain permits and constructability still needs to be examined. The agencies are satisfied that NCTA will be bridging Maple Swamp, but they cannot say at this point that Alternative ER2 is off the table. The agencies agreed that it was NCTA's choice to continue to advance its Preferred Alternative. However, the agencies are not asking NCTA to do any more analysis or provide additional information on ER2. Cathy Brittingham reiterated that nobody is asking for more work on ER2.

Cathy Brittingham noted the following potential issues of concern: 1) stormwater management; 2) dredging; 3) shading and pile impacts on SAV resulting from the permanent and temporary bridges; and 4) in-water work restrictions (including dredging and pile installation) during the fisheries moratorium. Cathy stated that unsatisfactory resolution of any of these issues could lead to a permit being denied. Cathy later clarified that one of the concerns with pile driving was the noise and

vibration impact on migratory fish. Travis Wilson added that pile installation even with a vibratory hammer was still an aquatic impact.

Kevin Hart added that the fisheries moratorium applies only to SAV (existing and habitat).

Jennifer Harris briefly summarized what was heard so far. No agency wants more information on ER2, there is no objection on the components of the Preferred Alternative, and she re-iterated Cathy's list of potential issues of concern. NCTA and FHWA intend to move forward with MCB4/AC1 as the Preferred Alternative. Jennifer added that NCTA will announce to the public the Preferred Alternative (via a newsletter and press release), while acknowledging there are issues that need to be resolved to the agencies' satisfaction prior to permitting.

Gary Jordan raised a concern with the potential for migratory birds and vehicle collisions on long coastal bridges. He noted Executive Order (EO) 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds" signed by President Clinton on January 10, 2001 to protect migratory birds. Gary noted that this EO is not mentioned often, but it is important on this project because of the bridge's length and coastal location. He showed a picture of bird fencing (attached) that is used on a bridge in California to reduce bird kills and wants NCTA to look into using a similar device. This issue was a US Fish and Wildlife Service comment on the DEIS.

Roy Bruce asked if dredging was the most important of Cathy's four potential issues of concern. Cathy said it was not necessarily the most important. Impacts to SAV may be more of a concern, but the issues are not in any particular order of priority.

Chris Millschler gave his ranking of the most important issues in order of importance: bridging Maple Swamp, dredging, stormwater management, and impacts to SAVs.

- Construction Techniques, Stormwater Management, and Other Issues** – Roy Bruce briefly presented the currently proposed construction techniques. Chris Millschler asked if viable disposal sites for dredged material had been located yet. Roy Bruce stated that potential sites have been identified, but there are no specific proposals at this time. Roy Bruce presented the stormwater management approach, which would include frequent bridge deck cleaning, water quality monitoring, energy dissipation measures from scupper discharge (as needed), capture and treatment of storm water at the bridge ends, and other features. John Page asked if there were other responses to the agency comments on the Preferred Alternative Report and related handouts that anyone would like to discuss. None were raised.
- Next Steps** – It was noted that NCTA would announce its decision to move forward with the Preferred Alternative, continue discussion with the agencies on the remaining project details (particularly the four potential issues of concern), and FHWA and NCTA would continue preparing the FEIS. It is understood that there is no agreement at this time on the LEDPA; however, the agencies agree that NCTA is heading in the right direction with the development of MCB4/AC1 as the Preferred Alternative. *Update: NCTA announced its Preferred Alternative on February 7, 2011. The press release making the announcement is attached.*
- SAV** – East Carolina University completed a survey of SAV in October 2010, focusing on the revised C1 bridge corridor. John Page presented a description of the survey and its findings. John also showed a map with locations identified as including SAVs from surveys in the last 10 years and other criteria related to the NC Marine Fisheries Commission criteria for SAV habitat. David Wainwright asked if he could get a large map so that he could see the data better. NCTA said it would provide the map to agency representatives (attached).

Jennifer Harris wanted clarification on the moratorium and if the moratorium applied to SAV habitat. Travis Wilson stated that the moratorium could be applied to bottom disturbing activity in SAV habitat, for example driving piles, for the NCWRC and NCDMF recommended dates of February 15th through September 30th. Jennifer Harris reiterated her understanding of the moratorium, noted it was primarily on the eastside of Currituck Sound (since that is where SAV beds and SAV habitat are located), and indicated that this issue would be considered in future construction planning.

Travis also noted that the water temperature (a factor in determining moratorium dates) may vary from season to season and, therefore, the time-frame for the moratorium could be flexible on a real time, season by season basis. If the temperature conditions after February 15th are not yet conducive to fish activity, then it is conceivable that NCTA would be allowed to continue constructing in the area beyond February 15th. This would have to be determined at that time. Travis confirmed that above water work, as well as in-water work that does not disturb the bottom, could be done at any time. Travis also clarified that push barges with spuds (the type anticipated to be used to build the bridge) are allowed during the moratorium.

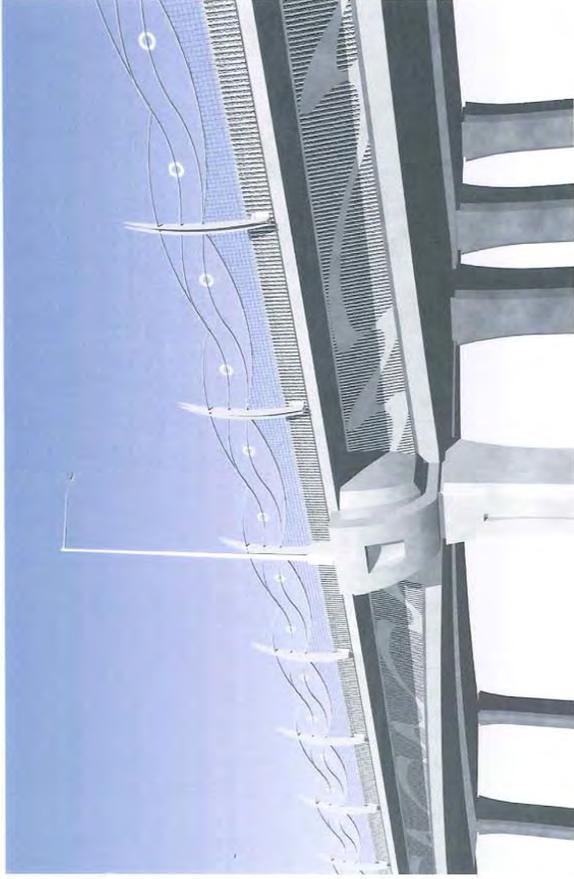
- **Summary** – Jennifer Harris summarized what was stated at the meeting:
 - There are no additional studies or information necessary or being requested by the agencies for Alternative ER2.
 - NCTA will focus additional design efforts, impact assessments, and FEIS preparation based on the Preferred Alternative (MCB4/A/C1), as discussed.
 - NCTA will continue to discuss with the agencies suitable measures for addressing dredging, construction techniques, stormwater management, and the fisheries moratorium (for bottom disturbing activities in SAV beds and SAV habitat).
 - NCTA will announce to the public that MCB4/A/C1 is the Preferred Alternative and that additional coordination is on-going with the agencies related to the items mentioned in the previous bullet.

Cathy Brittingham asked when the next TEAC meeting would take place. Jennifer Harris said that it would depend upon how soon NCTA could prepare additional information to address the potential issues of concern as discussed during the meeting.

Bill Biddlecome asked if the agencies needed to follow up with letters with any comments they may have on the revised Preferred Alternative. Jennifer responded that they did not need to unless they had additional comments that weren't discussed during the meeting. Jennifer asked that the meeting attendees pay particularly close attention to these meeting minutes to be sure NCTA documented their positions correctly.

The meeting was adjourned at 11:40 AM.

Although not discussed during the meeting, Travis Wilson requested that the minutes reflect that the moratorium discussion was based on comments from the agencies requesting an in-water work moratorium that would be in addition to NCTA's commitment to a dredging moratorium.



MAIN BRIDGE CLOSE-UP VIEW

SCHUYLER HEIM BRIDGE

2/14/10

Prepared by: DES, Bridge Architecture and Aesthetics



Caltrans



STATE OF NORTH CAROLINA
TURNPIKE AUTHORITY

BEVERLY EAVES PERDUE 1578 MAIL SERVICE CENTER, RALEIGH, N.C. 27699-1578
GOVERNOR

DAVID W. JOYNER
EXECUTIVE DIRECTOR

FOR IMMEDIATE RELEASE
February 7, 2011

Contact: Jennifer Harris, PE (919) 571-3000

**TURNPIKE AUTHORITY CONFIRMS PREFERRED ALTERNATIVE FOR
MID-CURRITUCK BRIDGE PROJECT**

RALEIGH — The North Carolina Turnpike Authority, in conjunction with the Federal Highway Administration, has confirmed the Preferred Alternative for the proposed Mid-Currituck Bridge in Currituck County. The Preferred Alternative, MCB4/C1 with Design Option A, was selected based on numerous factors including: cost and design considerations, travel benefits, minimization of impacts to natural resources and the surrounding community, comments and suggestions from environmental regulatory and resource agencies, and input from the public.

The Preferred Alternative will be documented in the project's Final Environmental Impact Statement (EIS), which is anticipated for release by summer 2011. FHWA is expected to sign its Record of Decision by fall 2011, signifying final federal approval of the project.

MCB4 was identified as the Recommended Alternative in the project's Draft EIS, which was released in March 2010. Based on public comments received on the Draft EIS and in coordination with environmental regulatory and resource agencies, Alternative MCB4 was revised to further avoid and reduce environmental and community impacts. NCTA is now working to address several additional environmental issues that must be resolved before it can be issued the permits needed to construct the project.

The proposed Mid-Currituck Bridge is a seven-mile, two-lane, toll project that would cross Currituck Sound and connect the mainland at U.S. 158 near Aydlett with N.C. 12 on the Outer Banks south of Corolla. The bridge is expected to reduce travel time and traffic congestion as well as provide an alternate hurricane evacuation route for the northern Outer Banks.

The Preferred Alternative calls for a straight bridge over Currituck Sound that would intersect N.C. 12 between the first phase of the Corolla Bay subdivision and the northern end of the Monterey Shores subdivision. The bridge approach road would be at least 300 feet away from the homes and lots located west of N.C. 12. It also includes a toll plaza at the U.S. 158 interchange and a two-lane bridge over Maple Swamp between the interchange and the community of Aydlett. In Aydlett, an approach road to the Currituck Sound bridge crossing would continue on fill. Aydlett Road will remain open to local traffic. Current left turn movements will be maintained at Waterlily Road and U.S. 158; a median acceleration lane would be provided for safety at this location.

Under the current plan, only certain portions of N.C. 12 would be widened to four lanes, including stretches running along the bridge landing, the Food Lion and TimBuck II Shopping Center area and Currituck Clubhouse Drive. Left turn lanes would also be added at two-lane intersections between the bridge landing and Currituck Clubhouse Drive, and roundabouts would be constructed at the bridge landing and Currituck Clubhouse Drive.

Plans also include several improvements to aid in hurricane evacuations. On the mainland, the center turn lane on U.S. 158 between the Mid-Currituck Bridge and N.C. 168 could be reversed to accommodate more traffic. On the

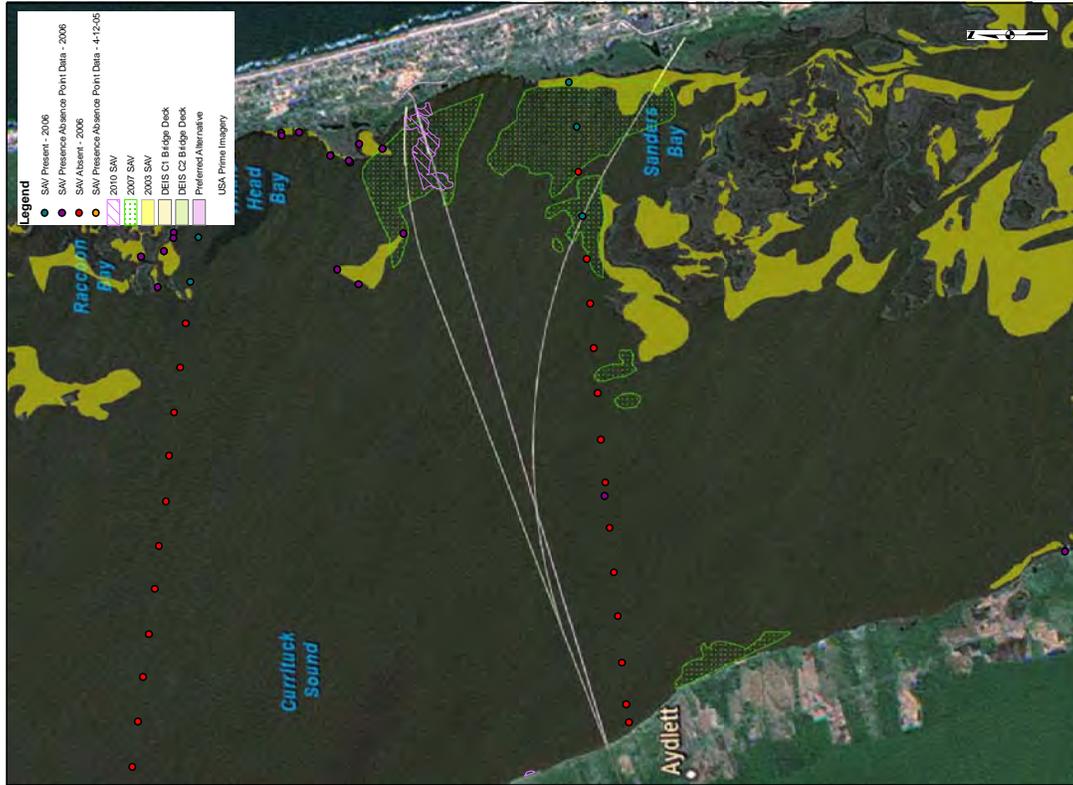
Outer Banks, three westbound lanes would be provided on U.S. 158 from N.C. 12 to just west of Duck Woods Drive.

Preliminary project costs are estimated at \$660 million, with final costs to be determined during design. It is anticipated that project costs would be financed through a combination of state appropriation bonds, toll revenue bonds and private equity obtained through a public-private partnership. The project is scheduled to open to traffic in 2016.

For more information, visit www.ncturnpike.org/projects/Mid_Currituck, email midcurrituck@ncturnpike.org or call 1-800-961-5465 toll free. A graphic depicting the Preferred Alternative is available online at www.ncturnpike.org/projects/Mid_Currituck.

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SAV Data from 2003, 2006, 2007, and 2010



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 1st Avenue South
St. Petersburg, Florida 33701-5505
(727) 824-5317; FAX (727) 824-5300
<http://sero.nmfs.noaa.gov/>

June 4, 2010 F/SER4: RS/pw

(Sent via electronic mail)

Ms. Jennifer H. Harris, P.E.
North Carolina Turnpike Authority
1578 Mail Service Center
Raleigh, North Carolina 27699-1578

Dear Ms. Harris:

NOAA's National Marine Fisheries Service (NMFS) reviewed the Draft Environmental Impact Statement (DEIS) dated March 2010 and titled "Mid-Currituck Bridge Study" that examines potential transportation improvements in the Currituck Sound area with a focus on consideration of a new Mid-Currituck Bridge over Currituck Sound, Currituck County. The North Carolina Turnpike Authority (NCTA) and Federal Highway Administration (FHWA) prepared the DEIS, which includes an assessment of impacts to essential fish habitat (EFH). The initial determination by NCTA and FHWA in the DEIS is that the transportation options under consideration would not have a substantial adverse impact on EFH or federally managed fishery species. In contrast, the U.S. Army Corps of Engineers Wilmington District, which is a cooperating agency in development of the DEIS and has released their own public notice for the project (Action ID SA W-1995-02242 dated April 21, 2010), has made an initial determination in the public notice that the project may adversely impact EFH or associated fisheries. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the following comments and recommendations are provided pursuant to authorities of the National Environmental Policy Act, Fish and Wildlife Coordination Act, and Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Project Description

The project area encompasses US 158 between its intersection with NC 168 and its intersection with NC 12, and NC 12 from its intersection with US 158 north to where it terminates in the community of Corolla. The purpose of the projects would be to: improve traffic flow on NC 12 and US 158, reduce travel time for persons traveling between the Currituck County mainland and the Currituck County Outer Banks, and reduce hurricane clearance time for residents and visitors who use US 158 and NC 168 during a coastal evacuation.

The DEIS describes "five" alternatives each with several variations, so the number of potential plans under consideration is much higher than five. Rather than examining each potential project combination, the DEIS focuses on four decisions that result in the various combinations:

- *Is a new bridge across Currituck Sound required?* The DEIS examines a set of alternatives (referred to as "ER2," which stands for "existing roads 2") that do not require a new bridge and several sets of alternatives (referred to as "MCB2" and "MCB4," which respectively stand for "Mid-Currituck Bridge 2" and "Mid-Currituck Bridge 4") that do require a new bridge. MCB2 and MCB4 differ in the amount of improvement to US 158 and NC 12, not to differences in bridge location or design.



- *For alternatives that include a new bridge, where would the bridge be located? On the Outer Banks, both MCB2 and MCB4 consider two locations ("C1" and "C2") for the bridge terminus: C1 would connect with NC 12 at an intersection approximately 2 miles north of the Albacore Street retail area, and C2 would connect with NC 12 approximately 0.5 miles south of this area. These alternative termini result in different bridge corridors for the eastern portion of the crossing of Currituck Sound. On the mainland for both MCB2 and MCB4, two design options also are under consideration: for the approach to the new bridge (between US 158 and Currituck Sound), referred to as "Option A" and "Option B" in the DEIS. The design options differ in regards to the location of the toll plaza, whether drivers traveling between US 158 and the community of Aydlett would use the existing Aydlett Road or the bridge approach road, but most significantly, Option A and Option B differ in whether Maple Swamp is crossed by a bridge (Option A) or fill (Option B). While the DEIS does not consider the differences between Option A and Option B to warrant classification as different alternatives, they nonetheless result in eight combinations for consideration.*
- *How will existing roads be improved to substantially reduce hurricane clearance time? Two hurricane evacuation options are under consideration for all of the ER2, MCB2, and MCB4 variations. The first hurricane evacuation option is to add a third outbound lane to US 158 for evacuation use only. The second hurricane evacuation option is to reverse the existing center turn lane on US 158 to create a third outbound lane during an evacuation. When a third outbound lane is needed on the Wright Memorial Bridge or Knapp (Intracoastal Waterway) Bridge, one existing inbound lane would be reversed.*
- *What methods will be used to construct the project? Construction strategies need to be considered when evaluating overall impacts from the proposed project. For example, strategies that require dredging access channels or barges that would frequently contact the sea bottom may result in more impacts to EFH than would occur from the bridge structure itself and associated access ways.*

NCTA and FHWA recommend in the DEIS that a new bridge be constructed across Currituck Sound (i.e., while NCTA and FHWA do not support Alternative ER2, they also have not chosen between MCB2 and MCB4). Further, NCTA and FHWA neither recommend in DEIS any termini for the new bridge, an option for reducing hurricane clearance times, nor preferred construction methods. NCTA and FHWA intend to make these selections when a preferred alternative is chosen later in the NEPA process. The benefit to NCTA and FHWA from delaying key decisions until later in the NEPA process is those decisions can be made based on formal input from resource agencies and the public, rather than relying on input received during the extensive scoping process and several rounds of interagency meetings. The downside to delaying key decisions until later during the NEPA process is NCTA, FHWA, and resource agencies would have less time to address issues and unresolved issues may lead to referrals of the project to higher authorities.

Comments on the DEIS

A list of specific comments tied to particular sections of the DEIS is attached to this letter. Below, our approach to examining the impacts to coastal habitats follows the same approach used by NCTA and FHWA in laying out the various forms the project could take.

Regarding the need for a new bridge across Currituck Sound, pursuit of Alternative ER2 would damage less coastal habitat than any of the alternatives that require construction of a new bridge. Alternative ER2 uses improvements to existing roads to address the purpose and need for the project rather than relying upon a new bridge over the Sound. Alternative ER2 would have the least adverse impact to EFH and other NOAA trust resources. A new bridge should be considered only if it is determined that improvements to existing highways would not meet the purpose and need for the project.

If a new bridge is required and without taking construction methods into consideration, MCB4/A/C1 would damage less coastal habitat than other alternatives requiring a bridge. Alternative MCB4/A/C1

would require construction of a new section of US 158 on the mainland and use of a new bridge across Maple Swamp rather than filling wetlands. Maple Swamp is an important wetland hydrologically connected to Currituck Sound and contributes to maintenance of water quality and the estuarine food web. Bridging Maple Swamp should be a component of any bridge alternative chosen. Also, in view of the value of Maple Swamp, NMFS recommends that NCTA and FHWA develop a plan for preserving the remaining un-impacted areas of Maple Swamp, and NMFS would support appropriate inclusion of such preservation in the project's compensatory mitigation plan.

Taking construction methods into consideration, it is not clear if MCB4/A/C1 or MCB4/A/C2 would have the lesser impact on EFH. The DEIS describes four different techniques for constructing a new bridge across Currituck Sound. Of these, three would require temporary structures to facilitate construction but would only require limited dredging. However, the fourth technique involves using shallow-draft barges during construction. Minimizing disturbances to the sea bottom should be a priority; this cannot be accomplished if barges are used for construction in the manner described in the DEIS or if large amounts of dredging would be required. NCTA and FHWA estimate that the C1 alignment would require dredging 25 acres of unvegetated estuarine bottom; the C2 alignment would require dredging 17 acres of unvegetated estuarine bottom. While the C2 alignment has 8 acres less impact to the estuarine bottom from construction activities, the tradeoff of this damage versus the damage that might result from the larger footprint of the C2 alignment over SAV habitat is not clear and not discussed in the DEIS. Adverse impacts to EFH, even if temporary, require compensatory mitigation because of the diminution of ecological services to fishery resources.

Impacts to EFH

The actual extent of impacts to EFH will vary based on various decisions related to bridge design and construction techniques. From section 2.4 and tables 3-5, 3-6, 3-7, 3-8, and 3-12, the amount of EFH that could be impacted (permanently or temporarily) is on the order of 55 acres (adding the permanent impacts listed in Table 3-12 and to the construction impacts listed in section 2.4). The DEIS acknowledges the amount of SAV within these acres is not clear, but appears to a minimum of 4.3 (C1 alternatives) to 5.5 (C2 alternatives) acres. Additional study is needed of the areas the DEIS describes as probable SAV, potential SAV, and unlikely SAV to determine exact acreages based on a current survey suited to the area of the proposed bridge. Detailed surveys for SAV also should include the areas where dredging may occur and barges may impact the sea bottom.

Regardless of whether the impacts to EFH are permanent or temporary, including the impacts from shading, compensatory mitigation is required. We recommend the amount of the mitigation be based on a functional assessment. As noted elsewhere in this letter, NMFS would accept improvements to water quality as a portion of the migration strategy for offsetting impacts to estuarine habitats.

The DEIS should more thoroughly discuss the indirect and cumulative effects of the proposed highway improvements so they may be adequately addressed during the permitting process. The DEIS acknowledges that a new bridge is likely to increase the rate of development on both the mainland and barrier island. NMFS is concerned that this result would further degrade water quality, including water clarity in Currituck Sound. Changes in the Sound over the past 20 years have increased salinity resulting in expanded use of the sound as habitat for estuarine dependent fish and invertebrates. However, during this time period, overall water quality in Currituck Sound has degraded due to alterations in historical water flow patterns, increased development and associated storm water runoff from heavily populated areas in southeastern Virginia, and rapid development of Currituck County beaches. Further degradation of water quality and its associated impacts to SAV should not be accepted.

Information Needed for NMFS to Complete the EFH Consultation

The EFH Assessment provided by NCTA and FHWA, which is dated November 2009 and summarized in the DEIS, provides an adequate identification of the EFH within the project area and fishery species that utilize those habitats. The EFH Assessment, however, does not provide a sufficient discussion of the impacts to EFH from the various alternatives considered.

NMFS is unable to complete the EFH consultation based on the information provided in the DEIS. To complete our evaluation of the project, please provide an assessment of the degree to which the function of SAV and shallow-water habitat within the shadow of the proposed bridge would be impaired. NMFS recommends this assessment begin by estimating any changes in the area of SAV and the aboveground biomass of SAV within the shadow. This assessment should be done for both the C1 and C2 alternatives. NMFS also requires an evaluation of the rate that benthic communities are expected to recover from the dredging and other impacts to the sea bottom from the construction process. This assessment also should be done for both the C1 and C2 alternatives taking into account sediment textures, landscape position, and other factors that might differently affect recovery rates between the C1 and C2 alignments. This information is needed so that NMFS can assess the impacts expected from both sources and formulate a recommended terminus for the bridge on the Outer Banks.

Conservation Recommendation

While additional information is needed for NMFS to complete the EFH consultation, based on the information provided thus far, NMFS concludes that the project would result in substantial adverse impacts to EFH. Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH conservation recommendations when an activity is expected to adversely impact EFH. Based on this requirement, NMFS provides the following:

1. The Final EIS shall provide additional justification as to why alternatives based on the ER2 strategy are not sufficient for meeting the project's purpose and need. The DEIS focuses on economic arguments to dismiss ER2, and given the low cost of this alternative the economic arguments seem addressable via changes in NCTA policy or priorities.
2. The plan selected in the Final EIS shall use bridges, rather than fill, to cross Maple Swamp.
3. A plan for compensatory mitigation shall be provided that offsets all permanent and temporary impacts to EFH, including impacts from shading and from bottom disturbances from the construction process. The plan for the compensatory mitigation shall include a functional assessment that demonstrates the amounts of mitigation proposed would fully offset the impacts expected. Given the difficulty of forecasting shading impacts to SAV and recovery rates of benthic communities, the plan also shall include a monitoring program that will assess whether forecasted impacts are in line with actual impacts and whether additional compensatory mitigation is necessary if impacts prove larger than expected or mitigation proves less effective than expected. NMFS is likely to look favorably upon mitigation plans that include preservation of Maple Swamp for impacts to forested wetlands and treatment of existing stormwater runoff into Currituck Sound for impacts to estuarine habitats. The mitigation plans shall be provided to NMFS for review and approval before the project is authorized.
4. Authorization of the project shall be held in abeyance until the additional information required by NMFS to complete the EFH consultation is provided and reviewed. Please note that based on review of the requested information, NMFS may be obligated to provide additional EFH conservation recommendations, which may include recommendation for a seasonal moratorium for in-water work.

Section 305(b)(4)(B) of the Magnuson-Stevens Act and its implementing regulations at 50 CFR 600.920(k), requires your office to provide a written response to our EFH recommendations within 30 days of receipt. If it is not possible to provide a substantive response within 30 days, an interim response should be provided to NMFS. A detail response must then be provided prior to final approval of the action. Your detailed response must include a description of measures proposed by your agency to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH conservation recommendations, you must provide a substantive discussion justifying the reasons for not following the recommendation. The detailed response should be received by the NMFS at least ten days prior to final approval of the action.

These comments do not satisfy your consultation responsibilities under section 7 of the Endangered Species Act of 1973, as amended. If any activity "may effect" listed sea turtles and marine mammals and their habitats under NMFS purview, consultation should be initiated with our Protected Species Division at the letterhead address.

Thank you for the opportunity to provide these comments. Related questions or comments should be directed to the attention of Mr. Ronald Seehler at our Beaufort Field Office, 101 Pivers Island Road, Beaufort, North Carolina 28516-9722, or at (252) 728-5090.

Sincerely,



/ for

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

Attachment: Comments by DEIS section

cc:

- NCTA, Jennifer.Harris@ncturnpike.org
- FWHA, John.Sullivan@fhwa.dot.gov
- COE, William.J.Biddlecome@usace.army.mil
- USFWS, Howard.Hall@fws.gov
- NCDCM, Doug.Huggett@ncmail.net
- EPA, Fox.Rebecca@epa.gov
- SAFMC, Roger.Pugliese@safmc.net
- NOAA PPI, PPI.Nepa@noaa.gov
- F, nmfs.hq.nepa@noaa.gov
- F/SER, nmfs.ser.eis@noaa.gov
- F/SER47, Ron.Sechler@noaa.gov

Specific Comments from NMFS on Mid-Currituck Bridge Study, Administrative Action Draft Environmental Impact Statement

Section 2.1.7, Pages 2-24 to 2-27, What road and bridge drainage provisions would be included in the detailed study alternatives?

This section address management of stormwater runoff associated with improvements proposed for NC 12 or the proposed bridge alternatives. Discharge of additional stormwater into Currituck Sound would further degraded water quality. Regardless of which alternative is selected, NMFS recommends that a stormwater management plan be a high priority in the project design. Further, a comprehensive stormwater management plan may afford additional avenues for compensatory mitigation that NMFS might support. A comprehensive stormwater management plan would have to provide additional treatment to a portion of the existing runoff into the Sound as well as full treatment of all new runoff from the proposed highway improvements.

Section 2.4, Pages 2-38 and 2-39, Explain how each alternative will be built
This section addresses four alternative techniques for constructing a new bridge across Currituck Sound. NMFS recommends that NCTA and FHWA use a construction approach that does not require dredging in Currituck Sound. If NCTA and FHWA determine this is not feasible and dredging is done to accommodate shallow-draft barges, this dredging may have substantial adverse impact to NOAA trust resources. The C1 alignment would require dredging 25 acres of unvegetated estuarine bottom; the C2 alignment would require dredging 17 acres of unvegetated estuarine bottom. The assumption in the DEIS is that unvegetated areas of estuarine bottom are of less importance to fishery resources than areas vegetated with SAV is incorrect. Estuarine benthic habitats, including sandy and muddy bottoms are designated as EFH. Recovery rates of the benthic communities that would be impacted require evaluation and compensatory mitigation for the temporal loss of ecological services.

Section 3.3.1.2, Page 3-28, Classification of Water Resources
Important nursery habitats, such as SAV, shallow estuarine bottom, and emergent marsh, occur in the Sound and, more specifically, the project area. Accordingly, the South Atlantic Fishery Management Council designates SAV, shallow estuarine bottom, and emergent marsh as EFH for penaeid shrimp and estuarine species within the snapper/grouper complex. The project area also functions as an important secondary nursery area for diadromous species that utilize these waters, and this fact should be noted in the Final EIS. A seasonal restriction on in-water work may be required if extensive dredging is planned within Currituck Sound.

Section 3.3.1.3, Page 3-28, Quality of Water Resource
This section addresses the substantial degradation of water quality that has occurred in Currituck Sound over the last 10 to 20 years and provides strong justification for fully incorporating measures to avoid, minimize, and mitigate the project's impacts to water quality. Likewise water quality enhancement measures should be considered at every opportunity in the project design.

Section 3.3.1.4, Pages 3-29 to 3-30, Impacts to Water Quality
This section addresses the predictable degradation of water quality that would occur if dredging is a major component of project construction. It also notes that management of runoff from a new bridge or other upland improvement is an important project component. The DEIS should initiate a concerted effort to address this issue. We recommend consultation with the U.S. Army Corps of Engineers Wilmington District regarding their on-going study of Currituck Sound, which was authorized in 1998 and is examining the significant loss of SAV and declines in water quality that impact freshwater fisheries and waterfowl populations. This study may suggest measures that could be incorporated by NCTA and FHWA to reduce the impact to the Sound of a new bridge and other highway improvements.

Section 3.3.2.4, Page 3-32 to 3-38, Impacts to Biotic Communities
Measures to avoid, minimize and mitigate the less conspicuous impact versus Maple Swamp are lacking.

Section 3.3.4.3, Page 3-41, Water Habitat Impacts
This section notes that shading from bridge foundations would have the adverse impacts to SAV. Impacts to SAV from shading must be mitigated.

Section 3.3.4.4, Page 3-42, Impacts from Noise, Turbidity, and Siltation
NMFS will work cooperatively with the NCTA, FHWA, and NC Division of water Quality to develop specific recommendations on how to mitigate these chronic impacts. For example, upon completion of the project, NCTA and FHWA should conduct an as-built survey of major habitats impacted by the project (e.g., SAV re-mapping). This post-construction survey would be conducted annually for at least 5 years to determine if sufficient mitigation has been provided to offset project impacts to EFH.

Section 3.3.6, Pages 3-43 to 3-48, What Impacts Would Occur to Waters under the Jurisdiction of the US Army Corps of Engineers?

NCTA and FHWA should pursue an alternative that involves bridging rather than filling Maple Swamp (Option A). Also, alternatives that involve construction of a new bridge across Currituck Sound would have direct and indirect impacts to SAV. Selection of the exact alignment should be done in a manner that results in the least adverse impacts to SAV and wetlands.

Section 3.3.6.4, Pages 3-46 and 3-48, Wetland and Stream Mitigation, Avoidance and Minimization
If an alternative that involves bridging of Maple Swamp is selected, the DEIS indicates that only a right-of-way (263 acres) through the swamp will be purchased. However, if the selected alternative allows fill in this section of the highway alignment, NCTA and FHWA would purchase the entire 612 acres of Maple Swamp. In this case, all remaining un-impacted areas would be set aside and protected in perpetuity as a forested wetlands mitigative measure. The value of this large tract of forested wetlands is likely high. Option A (using a bridge to cross the swamp, rather than fill) should be required as an appropriate avoidance and minimization measure. Preserving the remaining portion of the swamp should be a component of offsetting the unavoidable impacts from using a bridge to cross the swamp.

This section also addresses provision of compensatory mitigation through the Ecosystem Enhancement Program (EEP) of the NC Department of Environment and Natural Resources. NMFS agrees that replacement of unavoidable losses of emergent and forested wetlands should be provided through EEP. However, all bridge alternatives would directly or indirectly impact SAV habitat by shading. At this time the EEP does not provide an SAV mitigation option; therefore, mitigation to offset unavoidable losses of SAV habitat must be addressed independently from other wetland losses. NMFS can work with the NCTA, FHWA, and EEP to address this issue.

Section 3.3.7, Page 3-48 to 3-52, Would Coastal Area Management Act Areas of Environmental Concern or Essential Fish Habitat be affected?

This section notes that the NC Division of Coastal Management has no permit jurisdiction over shading and therefore, no mitigation for shading of SAV is proposed by NCTA and FHWA. While this approach may be consistent with state rules; it is not consistent with federal guidance. The DEIS should be revised to reflect the need to mitigate for impacts to SAV habitat from shading.

NMFS does not agree with NCTA's and FHWA's determination that all options considered in the DEIS would not have a substantial, long-term adverse impact on EFH or managed species. This paragraph does not accurately reflect the high value accorded SAV as important habitat for managed species. Evaluation of the impact is not based on the amount of similar habitat within the Sound but on the severity and duration of the impacts within the project footprints.



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CONTACT REPORT

CZR personnel: Lorrie Laliberte Boswell
Person contacted: Gary Jordan
Title/agency: US Fish and Wildlife Service
Contact info: (919) 856-4520 ext. 32 Gary_Jordan@fws.gov
DATE: 4 November 2010
RE: USFWS Biological Conclusion for piping plover for the Mid-Currituck Bridge Study

Summary:

Jordan replied to an email asking for his concurrence on the biological conclusion for the piping plover. He replied: "I do not believe formal consultation is needed for the piping plover. I believe that the "may affect, not likely to adversely affect" biological conclusion is appropriate, and we would concur with it."

Section 3.6, Table 3-17, Notable Ecosystem Features
NMFS recommends that unconsolidated estuarine bottom (a category of EFH) be added to this table.
Section 3.6.3, Pages 3-97 to 3-99, What are the substantial indirect and cumulative effects and could they be minimized?
NMFS is committed to development of a project that would address the transportation need of Currituck County while avoiding and minimizing short- and long-term impacts to waters and wetlands that support NOAA trust resources.



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5 November 2010

consultation. If proposed species or critical habitat are included, state whether the project is likely to result in jeopardy to proposed species, or the destruction or adverse modification of proposed critical habitat. If the critical habitat is divided into units, specify which critical habitat unit(s) will be affected. Attached to Cover Letter: Biological Assessment or Biological Evaluation document, broken down as follows:

Title: E.g., BA (or BE) for "Project X"; date prepared, and by whom.

A. Project Description - Describe the proposed action and the action area. Be specific and quantify whenever possible.

For Each Species:

1. Description of affected environment (quantify whenever possible)
2. Description of species biology
3. Describe current conditions for each species
 - a. Range-wide
 - b. In project area
 - c. Cumulative effects of State and private actions in project area
 - d. Other consultations of Federal action agency in area to date
4. Describe critical habitat (if applicable)
5. Fully describe effects of proposed action on each species and/or critical habitat.
 - a. Direct effects
 - b. Indirect effects
 - c. Interrelated and interdependent actions
 - d. Potential incidental take resulting from project activities (moratoriums)
6. Conservation Measures (protective measures to minimize effects for each species, including moratoriums)
7. Conclusions (effects determination for each species)
8. Literature Cited
9. Lists of Contacts Made/Preparers
10. Maps/Photographs

CONTACT REPORT

CZR personnel: Lorrie Laliberte Boswell
Person contacted: Eric Hawk
Title/agency: Fisheries biologist, Protected Resources Division of NOAA Fisheries Service, Southeast Regional Office
Contact info: eric.hawk@noaa.gov (727-551-5773)
DATE: 5 November 2010
RE: Biological Assessment for the Mid-Currituck Bridge Study

C-94

Summary:

The process for completing a biological assessment was discussed. Hawk said no formal application is needed but a long "letter" with pertinent information (listed below), proposed biological conclusions, and a request for concurrence on the biological conclusions is needed. Hawk said we should go ahead and list the short nose sturgeon with the turtles. He said manatees are under USFWS jurisdiction.

If FHWA sends the Protected Species Division this letter, this is all they send until asked for more by a NMFS biologist. If NCDOT sends this letter, they also need to send a letter from FHWA designating NCDOT as their representative to handle this task and giving NMFS permission to coordinate with them. If CZR sends the letter, we need to include FHWA's letter to NCDOT and a similar letter from NCDOT authorizing CZR to act on their behalf. Once the letter is received, the project will be assigned to a biologist, which should take about 2 weeks. If the letter contains all the information needed by the biologist and there are no questions, a concurrence will be reached within two months. They have no problem with the FEIS being published during that time but a Record of Decision cannot be made until a concurrence has been issued. The letter(s) can be submitted via email to this address: teletha.mincey@noaa.gov and cc Eric Hawk eric.hawk@noaa.gov (727-551-5773).

OUTLINE EXAMPLE FOR A BIOLOGICAL ASSESSMENT OR BIOLOGICAL EVALUATION

Cover Letter - **VERY IMPORTANT** - Include purpose of consultation, project title, and consultation number (if available). A determination needs to be made for each species. You have three options: 1) a "no effect" determination; 2) request concurrence with an "is not likely to adversely affect" determination; 3) make a "may affect, is likely to adversely affect" determination, and request "formal"



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CONTACT REPORT

CZR personnel: Lorrie Laliberte Boswell
Person contacted: Gary Jordan
Title/agency: US Fish and Wildlife Service
Contact info: (919) 856-4520 ext. 32 Gary_Jordan@fw.s.gov
DATE: 8 November 2010
RE: USFWS Biological Conclusion for manatee for the Mid-Currituck Bridge Study

Summary:

Jordan replied to an email asking for his concurrence on the biological conclusion for the West Indian manatee. He replied: "For the West Indian manatee, we would concur with a "May Affect, Not Likely to Adversely Affect" biological conclusion so long as there is a commitment to implement the *Guidelines* referenced below."

The guidelines he was referring to are the ones cited in the Natural Resources Report: USFWS's *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Water*.



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CONTACT REPORT

CZR personnel: Katharine Braly
Person contacted: Gary Jordan
Title/agency: Fish and Wildlife Biologist USFWS
Contact info (office/phone/e-mail): 919-856-4520
DATE: 3/30/11
RE: Confirming ESA species status for beach area in preparation for Action Area expansion to include indirect effects

Summary: Gary indicated beach driving has been a concern but the area is already very disturbed by current off-road driving. He was not aware of any current sea turtle nesting in the area. I told him Karen Clark was sending me data and he asked this be passed along to him.

Told him we were now evaluating the indirect effects of the Mid-Currituck Bridge and that included increased day trips and beach driving. He said he had not considered the increased beach driving aspect but didn't think we would need any formal consultation. He did request an unofficial draft (via email) of the BA or of sections directly pertaining to him.

Gary didn't have any info to offer on the status of the Red knot, just that it can occur in all coastal counties.

Also wasn't sure about turtle nests being moved or marked in the area we are concerned with.



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CONTACT REPORT

CZR personnel: Katharine Braly
Person contacted: Gary Jordan
Title/agency: Fish and Wildlife Biologist, USFWS
Contact info (office/phone/e-mail): 919-856-4520
DATE: 21 April 2011

RE: Confirming a determination of May Affect Not Likely to Adversely Affect for loggerhead sea turtle as it pertains to the Mid-Currituck Bridge Project.

C-96

Summary: I spoke with Gary Jordan on the phone 21 April 2011, he indicated that he would concur with the determination of May Affect Not Likely to Adversely Affect for the loggerhead sea turtle as it pertains to the Mid-Currituck Bridge Project. Gary mentioned the validity of John Page's comments pertaining to the possibility of increased beach driving (see these comments below). Gary also stressed the text to support this decision would need to be strong and he requested to see a draft version of this text.

John Page's comments (via e-mail 18 April 2011):

Katherine,

The interesting thing is nobody knows how much beach driving there is today, making it more difficult to know how much more that might occur. Another factor to consider is where beach driving is currently occurring and whether any increase in beach driving would expand that area of disturbance and whether the expanded area is where protected species occur. Since one car running over a turtle nest destroys the eggs, I would wonder if additional driving is a concern only if it expands the area disturbed.

John



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CONTACT REPORT

CZR personnel: Katharine Braly
Person contacted: Gary Jordan
Title/agency: Fish and Wildlife Biologist, USFWS
Contact info (office/phone/e-mail): 919-856-4520
DATE: 5 May 2011

RE: Gary's comments on draft text for loggerhead sea turtle biological conclusion

Summary: Gary Jordan's comments on draft text of species conclusions in the Mid-Currituck Biological Assessment for species under US Fish and Wildlife Jurisdiction.

His response via email on 5 May 2011:

Katherine,

This looks good to me. I only have one minor comment. Under your treatment of the loggerhead sea turtle, I would avoid the use of the word "jeopardy". That word has a specific legal meaning under the Endangered Species Act, and you were using it in a more generic sense. I would just replace the word with another such as "adverse effect". Thanks for the opportunity to review this.

*Gary Jordan
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US Fish and Wildlife Service
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