FHWA-NJ-EA-10—01
Federal Highway Administration
Region1

Federal Project No. MG-0019 (III)

Route 72 Manahawkin Bay Bridges

Township of Stafford & Borough of Ship Bottom
Ocean County, New Jersey

ENVIRONMENTAL ASSESSMENT

U.S. Department of Transportation
Federal Highway Administration
& New Jersey Department of Transportation

Submitted Pursuant To 42 U.S.C. 4332 (2) (c),
16 U.S.C. 470 (f), 49 U.S.C. 303 and 23 U.S.C. 138

July 2011

FHWA-NJ-EA-10—01
Federal Highway Administration
Region1

Federal Project No. MG-0019 (III)

Route 72 Manahawkin Bay Bridges

Township of Stafford & Borough of Ship Bottom
Ocean County, New Jersey

ENVIRONMENTAL ASSESSMENT

U.S. Department of Transportation
Federal Highway Administration
& New Jersey Department of Transportation

4/15/11

For New Jersey Department of Transportation **Date**

7/7/11

For Federal Highway Administration **Date**

The following persons may be contacted for information concerning this document:

New Jersey Department of Transportation
Mr. Richard Hammer, Assistant Commissioner
Capital Program Management
P.O. Box 600
Trenton, New Jersey 08625

Federal Highway Administration
Mr. Ernie Blais, NJ Division Administrator
840 Bear Tavern Road (Suite 310)
West Trenton, New Jersey 08628

TABLE OF CONTENTS

Appendices

Attachments

List of Figures

List of Tables

Acronyms

ACRONYM	DEFINITION
ADA	Americans with Disabilities Act
CAA	Clean Air Act
CED	Categorical Exclusion Document
CEQ	Council on Environmental Quality
dBA	Decibels
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
ICWW	Intracoastal Waterway
ITS	Intelligent Transportation Systems
LOS	Level of Service
mph	Miles Per Hour
N.J.A.C.	New Jersey Administrative Code
N.J.S.A.	New Jersey Statutes Annotated
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
NJFWPA	New Jersey Freshwater Wetlands Protection Act
NJTPA	North Jersey Transportation Planning Authority
NMFS	National Marine Fisheries Service
SAV	Submerged Aquatic Vegetation
SHPO	State Historic Preservation Officer
STIP	Statewide Transportation Improvement Program
T&E	Threatened and Endangered
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service

1 Executive Summary

Where is the project?

The Route 72 Manahawkin Bay Bridges project is located in Ocean County, New Jersey (Figure 1.1). It begins in Stafford Township, traverses three bay islands in Manahawkin Bay, and ends in the Borough of Ship Bottom, a municipality located on Long Beach Island. The project is divided into three primary segments (Figure 1.2): the Mainland, the Causeway, and the Barrier Island. The Mainland segment encompasses the roadway improvements on the mainland, including improvements to the Marsha Drive intersection. The Causeway segment consists of the rehabilitation of three trestle bridges—one each over Hilliard's Thorofare, West Thorofare, and East Thorofare—and the rehabilitation and replacement of a large, steel bridge (the Bay Bridge) that carries traffic over the intracoastal waterway (ICWW). The project ends with the Barrier Island segment, which includes intersection and drainage improvements on Long Beach Island.

Should the Causeway be closed for any reason, there is no other way to get on or off the island; therefore, the New Jersey Department of Transportation (NJDOT) must keep it working efficiently to maintain not only the safety and security of residents and visitors but also to access the vital assets of the Long Beach Island economy.

The Causeway crosses Manahawkin Bay, which is part of the larger Barnegat Bay National Estuary watershed. Additionally, the roadway abuts the Edwin B. Forsythe National Wildlife Refuge, portions of which are found on the two bay island areas.

Why do we need the project?

The most pressing project need is to address the poor condition of the four bridges that make up the Causeway segment. Three of these bridges are shorter, lower bridges that cross the narrow thorofares, and are called trestle bridges because they are supported on timber piles. The fourth, longer, and most visible bridge is the Bay Bridge. The four bridges were built more than 50 years ago and are suffering from age and the corrosive effects of the marine environment. They are structurally deficient and functionally obsolete. Deficiencies include:

- Cracking pier caps on the underside of the trestle bridges – Pier caps are the parts of the bridge that hold up the beams and in turn support the roadway surface.
- Significant pack rust on the Bay Bridge main girders crossing over the ICWW – Pack rust builds up between pieces of steel that are riveted together to make up the big girders. The rust builds layer upon layer between the connected parts and becomes thick enough to force apart the pieces of steel and can break off the rivets.
- Fatigue cracking of the Bay Bridge steel floor beams caused by effects of frequent, heavy traffic loads – The roadway is built on a lattice of smaller steel floor beams connected to the girders. These floor beams are cracking from traffic vibrations, and if the cracks get big enough, they can cause the bridge deck to fail.
- Vulnerable soil surrounding the foundation – The abutments of the Bay Bridge are in scour critical condition, meaning the soil surrounding the foundation is vulnerable to erosion and the foundation will fail under design high flows or waves.

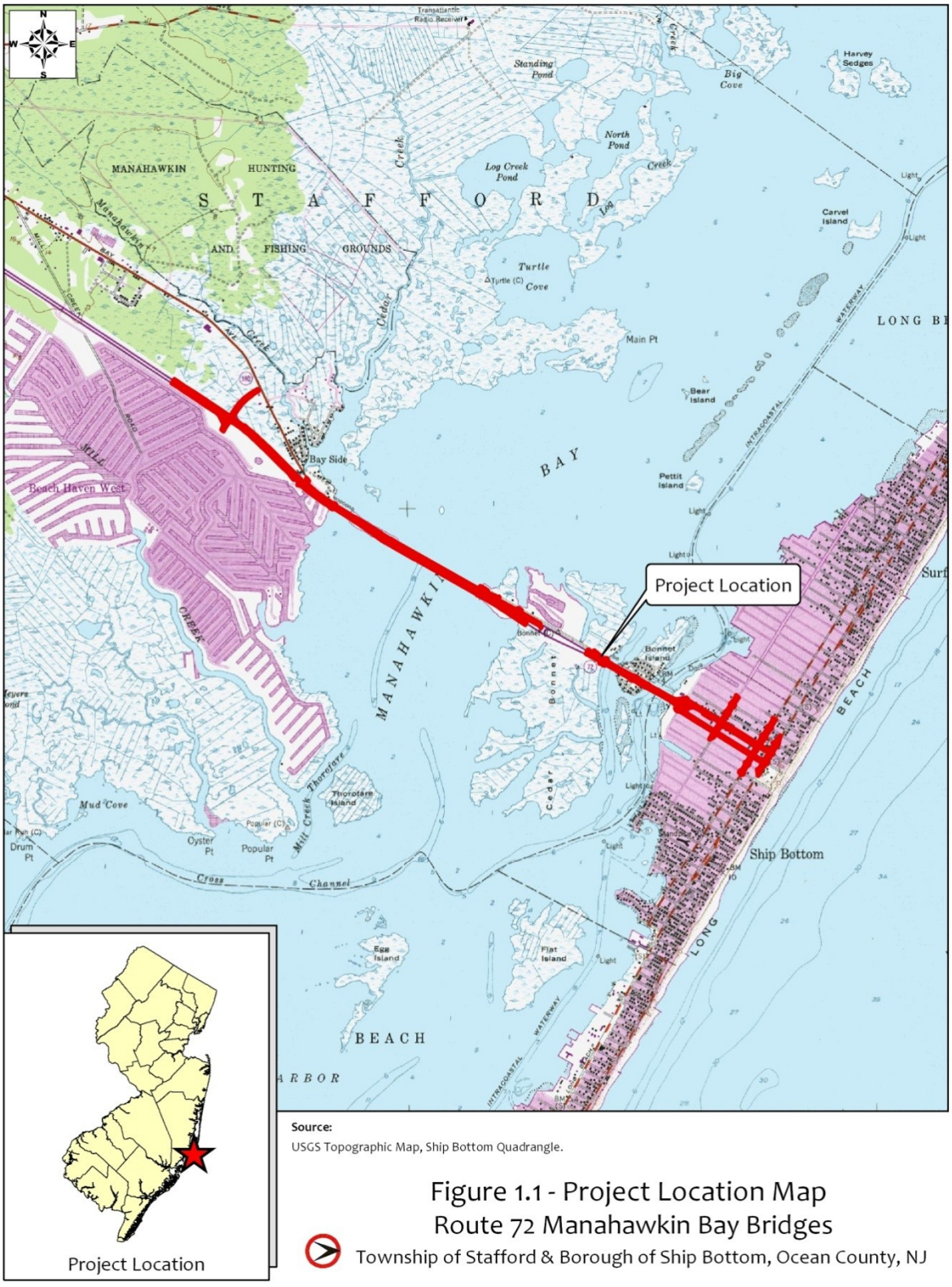


Figure 1.1 - Project Location Map
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

In addition to the structural problems, the Causeway segment bridges are functionally obsolete—they do not meet current design standards. The key obsolete elements include:

- Lack of shoulders for vehicle breakdowns;
- Inadequate bicycle compatibility; and
- Lack of sidewalks.

The Marsha Drive intersection on the Mainland segment no longer adequately serves current traffic demand, which causes traffic delays, especially during the summer.

The Barrier Island street system was built in the 1950s and cannot handle current traffic demand, which results in frequent traffic jams; furthermore, the roadway drainage systems have begun to fail, and the streets nearest the east end of the Causeway flood during small to moderate storms. Flooding occurs most often when high tides back water up into the piping systems.

What is going to be done?

The NJDOT would eliminate the bottleneck at the Marsha Drive/Route 72 intersection by adding through lanes on Route 72 approaching the intersection and turning lanes on Marsha Drive. The additional through lanes would merge shortly after Marsha Drive into the current two-lane in each direction segment of the roadway. No additional through lanes would be needed beyond the intersection. Dedicated turn lanes on both Marsha Drive approaches would improve cross flow. The improvements would reduce traffic delays, especially for vehicles leaving Long Beach Island on weekends.

The NJDOT would rehabilitate all four bridges that connect the three small islands in the bay.

The concrete pier caps on the trestle bridges would be reconstructed. The NJDOT would remove the bridge deck and temporarily store the existing concrete beams, fix the pier caps, reset the beams, and install a new bridge deck. The three trestle bridges could be

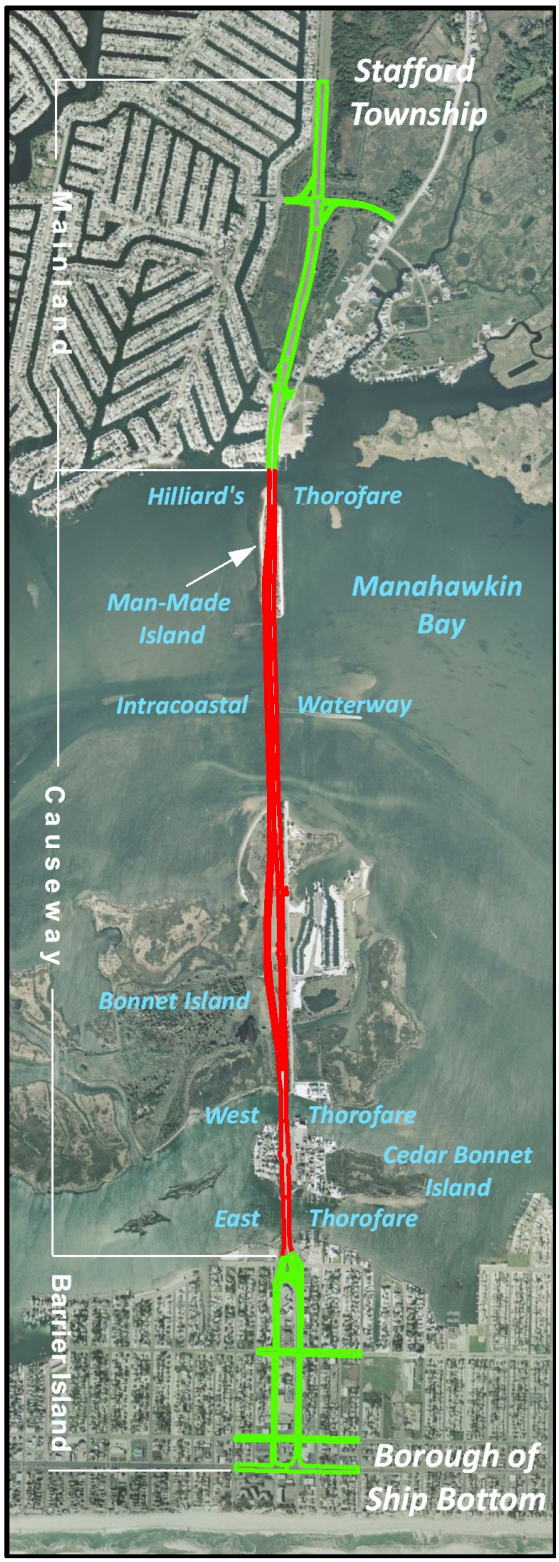


Figure 1.2 - Project Segments

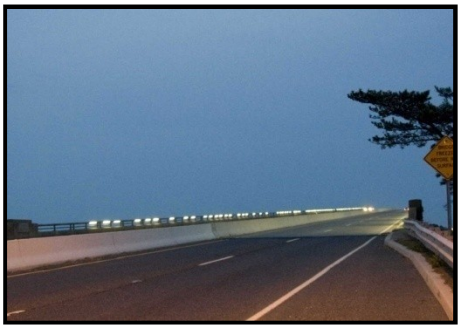
rehabilitated during the off-season when traffic would be light enough for NJDOT to close one traffic lane in each direction during construction. The bridges would be reconstructed one-half at a time without closing the bridges or causing delays.

Bay Bridge girders

The Bay Bridge superstructure has to be replaced. NJDOT has decided to reuse the substructure because it is in sound condition; however, unlike the trestle bridges, the Bay Bridge cannot be rebuilt in just one construction season. Narrowing the bridge to one lane in each direction through the summer would cause huge and unacceptable traffic delays. After extensive study, NJDOT has decided to build a new, parallel Bay Bridge before rehabilitating the existing one.

Once the new bridge is built, the traffic would be moved to the new bridge. After the existing bridge is rebuilt, beach-bound traffic would be kept on the new bridge and the rehabilitated bridge would carry traffic leaving Long Beach Island. Following construction there would still be two lanes of traffic in each direction, but unlike current conditions, both bridges would have shoulders to make is safer for stranded motorists and bikers, and would include one westbound sidewalk for pedestrians. Scour countermeasures would be installed around both abutments on the Bay Bridge.

One of the distinctive features of the Bay Bridge is the unique in-rail street lighting known locally as the "String of Pearls." Comments at many public meetings found a strong preference to keep this look. The NJDOT would replicate the look of this lighting on both the reconstructed bridge and the new bridge.



Bay Bridge lighting ("String of Pearls")

The street system in Ship Bottom was designed when traffic volumes were lower. It includes one-way streets that force motorists to make multiple turns to get to where they are going. All these extra turns can cause extensive traffic delay, especially since the out-of-date traffic signals are not coordinated. The NJDOT would reconstruct several streets to convert them to two-way traffic, improve turns, and coordinate the traffic signals on Long Beach Boulevard and Central Avenue. This would improve the traffic flow on Long Beach Island. In addition, NJDOT would replace the storm sewers along the reconstructed streets and connect them to a new stormwater pump station. The pump station would reduce flooding and reduce the number of times the Causeway would be closed during small and moderate storms.

When will it be built?

The Route 72 Manahawkin Bay Bridge Project would be constructed in phases lasting about 5 years. The new Bay Bridge would be constructed first and would take about 3 years, beginning in the fall of 2012. While the new bridge is being built, NJDOT would make the improvements to the Marsha Drive intersection, complete the operational improvements in Ship Bottom, build the pump station, and rehabilitate the trestle bridges. After completion of the new bay bridge, traffic would be shifted to it, and the existing bay bridge would be rehabilitated. This phase would last about 2 years.

Will it delay travel to the shore?

Since Route 72 Causeway is the only way onto Long Beach Island, NJDOT has developed a construction program that would maintain traffic on the Causeway at all times. During the summer, NJDOT would keep two lanes open in each direction, just like there are today; however, in the off-season, NJDOT would reduce traffic to one lane in each direction to do some of the work. There should be only minor traffic inconveniences during construction.

The Marsha Drive and Ship Bottom intersection roadway improvements would be done in stages by shifting traffic back and forth as needed to build the new roadways, which would minimize delays.

Marsha Drive intersection

The smaller trestle bridges would be rehabilitated during the off-season when NJDOT can reduce the Causeway to one lane in each direction. Traffic would use one side of the bridge, while the contractor works on the other side. Traffic would then be shifted to the rebuilt side and the rehabilitation would be completed before the next summer tourist season.

A new Bay Bridge would first be built parallel to the existing bridge. Traffic would then be shifted to the new bridge before rehabilitating the existing bay bridge.

Will it cause harm to the local businesses and residents?

The NJDOT has been planning this project for a long time and has coordinated with the local communities, including business groups, on many occasions. Access would be maintained to all businesses during construction, particularly in Ship Bottom where most of the businesses are located. It is possible that one or two businesses near the corner of Shore Avenue and 8th Street may be acquired to build the stormwater pump station. No residences would be taken for this project.

The project would cause temporary impacts on the residents in the project area. They may be inconvenienced by changing traffic patterns, traffic slow downs needed for safe work zones, and construction noise. To reduce traffic delay, some work may have to be done at night; however, NJDOT would apply noise abatement measures to limit the effect on sensitive noise receptors.

Will it affect the environment?

NJDOT has prepared an Environmental Assessment (EA) and has determined there would be impacts to natural resources, but the impacts would not be significant. For National Environmental Policy Act (NEPA) purposes, a significant impact means the impacts are so great that NJDOT would have to prepare an Environmental Impact Statement. NJDOT acknowledges there would be project impacts to wetlands, transition areas, riparian areas and open water to build the bridges and to improve the intersection at Marsha Drive. Additional paved surfaces needed for the widening would cause an increase in stormwater runoff. The bridges will have piers built in the bay, which will affect aquatic resources such as shellfish and submerged aquatic vegetation (SAV). The NJDOT will minimize these impacts to the extent practicable. No endangered species or historic resources would be affected by the project, and

no part of the national wildlife refuge would be used for transportation purposes. Public access to the refuge may be improved.

As required by law, NJDOT will get permits for the work from the New Jersey Department of Environmental Protection (NJDEP), the US Army Corps of Engineers (USACE), and from the United States Coast Guard (USCG) to ensure the project complies with all environmental regulations. Waivers from strict compliance with regulations may be required and, if needed, will be justified in the permit documents.

What is being done to mitigate the impacts?

The NJDOT will mitigate impacts to wetlands, freshwater wetlands, SAV, riparian areas, stormwater runoff, shellfish beds, and shallow-water habitat. It is customary for NJDOT to mitigate unavoidable impacts as close as practical to the affected resource and replace with similar resources that provide the same ecosystem values as those affected. This would be on-site, in-kind mitigation and is the preferred method for mitigation for this project.

The Route 72 corridor abuts many existing protected resources or heavily developed areas; there are limited areas that are favorable for on-site mitigation of impacted resources. Resource agencies have documented that on-site mitigation sites can fail. Forensic study reveals that some of these failures are caused by reliance on on-site, in-kind mitigation despite local conditions not being favorable to the intended mitigation. Impaired water quality contributes significantly to SAV loss in Manahawkin Bay, which suggests that on-site mitigation for SAV will have to be closely evaluated. Accordingly, NJDOT could increase compensation rates for SAV as well as considering off-site and out-of-kind mitigation alternatives for SAV mitigation. The NJDOT would prepare a mitigation plan for the USACE and NJDEP, who would coordinate with the public and resource conservation agencies such as the National Marine Fisheries Service (NMFS), US Fish and Wildlife service, and the NJDEP Division of Fish and Game before approving the mitigation plan.

Stormwater management devices will be constructed within the project corridor and would consist of approved treatment facilities such as detention basins, infiltration basins, and underground sand filters. Trash racks and grit removal will be installed in the pump station. If alternative off-site locations are identified that provide equal or better stormwater protection of the state's waters, they would be investigated in concert with NJDOT and USACE.

The NJDOT will investigate both on-site and off-site mitigation for wetlands, freshwater wetlands, SAV, riparian buffer and tidal and inter-tidal shallows. Shellfish mitigation is normally performed though compensation payments as required under NJDOT coastal regulations.

What is an Environmental Assessment?

NJDOT will use FHWA funding to design and construct this project. Before approving the final design funding, FHWA has to account for the environment impacts of the project. This EA is the formal process required by NEPA to demonstrate that the FHWA considered the potential environmental impacts. If, after public comment, it is agreed that there are no significant impacts, the FHWA would issue a Finding of No Significant Impact (FONSI). Once the FONSI is approved, NJDOT will continue the final design and begin to finalize impacts for future permitting applications. Copies of the environmental studies are published electronically on the NJDOT Route 72 project website.

The Route 72 project will repair, rehabilitate, and replace existing infrastructure essentially on the same alignment. Only in rare circumstances does this kind of project trigger significant impacts. The NJDOT has reviewed the project and has not found any special circumstances or exceptional resources that, if affected, would be considered "Significant" by the Federal Highway Administration (FHWA). The mitigation outlined in the EA would not be needed to reach the FONSI. Rather the mitigation discussed in the EA would be needed to mitigate for the unavoidable environmental impacts regulated under federal and state environmental rules and authorized by the FONSI.

Prior to developing the EA, the Clean Air Act (CAA) requires collaboration between NJDOT and North Jersey Transportation Planning Authority (NJTPA) that this project is consistent with air quality goals by demonstrating it is included in the New Jersey Statewide Transportation Improvement Plan (STIP). The Route 72 Project was placed on the STIP in 2008.

What is being done with the comments received on the earlier version of the Environmental Assessment?

All comments received on the earlier version of the EA, and NJDOT responses to those comments are included in Appendix C.

Did NJDOT change the project to address comments?

NJDOT circulated this EA for comment in the summer of 2010. Since that time, NJDOT continued to inspect the steel girders of the Bay Bridge and evaluate the vulnerability of the bridge to scour. It was found that the rust on these girders is so serious that NJDOT will now replace the main girders. The abutments of the Bay Bridge were found to be Scour Critical. The NJDOT revised the EA to account for this change and to account for changes made in response to the comments submitted in 2010. Changes made in response to new information include:

- Replace the main girders on the Bay Bridge because of significant pack rust.
- Approve the USCG to lower the Bay Bridge by 5 feet.
- Allow for increased temporary impacts needed to install access roadways and trestles to remove and replace the rusted Bay Bridge girders.
- Incorporate changes made in response to eliminating the roundabout on the Bay Avenue and Marsha Drive intersection.
- Keep the jughandle connecting westbound Route 72 to Marsha Drive.
- Update Category 1 waters' limits to conform to recent NJDEP guidance.
- Install specialized articulated concrete armor blocks around the Bay Bridge abutments.

The NJDOT has also made the following changes to the EA to address comments:

- Expand upon the drainage and stormwater management discussions.
- Include a discussion on the range of alternatives considered and discarded prior to preparing the EA.
- Discuss in more detail how the studied alternatives addressed NJDOT goals and objectives.
- Add traffic flow arrows to exhibits to make them easier to understand.
- Clarify that NJDOT has and will continue to use science-based mitigation approach for both on-site and off-site mitigation measures.

THIS PAGE LEFT BLANK INTENTIONALLY.

2 The Purpose and Need for the Project

2.1 Project Area

Route 72 is the only highway access to Long Beach Island, one of New Jersey's premier oceanfront tourist destinations. Route 72 connects the mainland in Stafford Township, Ocean County, New Jersey to Long Beach Island. On peak summer weekends, as many as 150,000 people live and vacation in the six municipalities of Long Beach Island—Barnegat Light, Beach Haven, Harvey Cedars, Long Beach Township, Ship Bottom, and Surf City. Without an alternative route, it is imperative to maintain a safe, reliable highway connection to Long Beach Island for the safety of residents and visitors, as well as to protect the economy of the Ocean County region. The Manahawkin Bay is a sensitive and valuable environmental resource that needs to be protected during and after construction.

2.1.1 Project Segments

The project has been divided into three primary segments (Figure 2.1) based upon their common geography and primary project need. The Mainland segment is located in Stafford Township and consists of a four-lane roadway separated by a grassed median. It includes the intersection at Marsha Drive. The primary need is that this intersection no longer functions at an acceptable level of service (LOS), which creates extensive traffic delays. The region's only hospital is located in Stafford Township, which makes travel delays a serious public-welfare concern.

The Causeway segment consists of four bridges and the connecting roadways built on the three islands in the Manahawkin Bay. The first bridge crosses Hilliard's Thorofare to a man-made island. The second and largest of the bridges crosses over the Atlantic ICWW and connects to Bonnet Island. It is called the Bay Bridge and has a 60-foot vertical under clearance. The third bridge crosses over West Thorofare and connects to Cedar Bonnet Island. The final bridge crosses over East Thorofare and connects to LBI. All of the bridges are more than 50 years old and are structurally deficient and functionally obsolete.

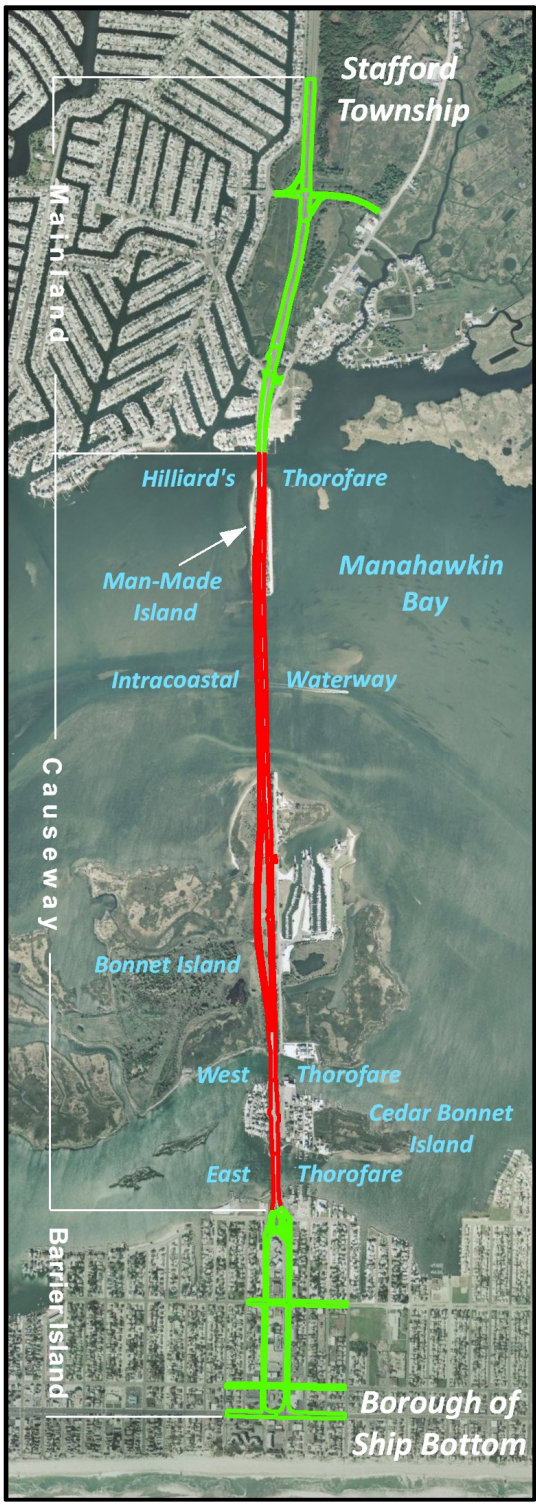


Figure 2.1 – Project Segments

The Barrier Island segment is located in Ship Bottom. Route 72 and the local connecting streets flood during common storm events. The flooding disrupts vehicle access to the causeway several times a year. As the only access point, traffic from both ends of Long Beach Island has to funnel through the narrow local streets and outdated intersections, which cause frequent turning movements and result in traffic delays and minimize coastal emergency evacuation capacity for the residents of Long Beach Island.

2.1.2 Routine Maintenance is No Longer Enough

The NJDOT has been maintaining the structurally deficient bridges on an "as-needed" basis. However, the bridges have deteriorated so much and structural problems are so persistent that routine maintenance is not keeping up. The bridges are now in need of major rehabilitation or replacement.

It is not reasonable to let these bridges decay any further since they form the only route on and off the island. The NJDOT has been coordinating with local communities and regulatory agencies to identify environmental impacts and community concerns related to any future construction effort.

Fatigue cracking

Pier cap failure on trestle bridge

Pack rust delaminating bottom flange

2.2 Purpose for the Project

The project's purpose is to keep the Causeway bridges and approach roadways in good condition so they can provide continuous, effective vehicular access to Long Beach Island communities and maintain suitable coastal evacuation egress and maritime passage in the ICWW. The NJDOT also has to maintain these services during construction.

2.3 Need for the Project

Demonstrating project need is the first step in any project. For NEPA, a suitable alterative is one that meets the project need. For this project, NJDOT has defined three primary needs: system linkage and safety, roadway and bridge deficiencies, and traffic capacity.

2.3.1 System Linkage and Safety

The dominant concern for the causeway is that it is the only roadway to and from Long Beach Island. It provides access to essential public services available only on the mainland, including access to the regional acute-care hospital, and schools for grades 7 to 12. The regional economy is highly dependent on tourism on Long Beach Island. Traffic studies confirm that at least one lane in each direction must be maintained during construction during off seasons and two lanes of traffic must be maintained in each direction during peak tourist seasons.

Almost all the electrical, gas, water, wastewater, and communication systems serving Long Beach Island are built within the causeway right-of-way. The NJDOT has to maintain these utilities at all times, especially those mounted on the bridges. Some of the existing pier caps are at risk of shearing off. Failure of the pier caps under individual beams could lead to deck failure and disruption of essential utility services to Long Beach Island.

Utilities on the Bay Bridge

The Causeway is the exclusive coastal evacuation route off Long Beach Island. Hurricane season coincides with peak population on the island, while severe Nor'easters occur during the off-season. It is essential to maintain enough roadway width during construction to safely evacuate the number of people likely to be on Long Beach Island at any given time. Flood surges from common storms routinely flood the barrier island approaches to the causeway and can isolate residents during coastal emergencies.

Flooded streets

The Bay Bridge crosses the ICWW, which, as the only continuous navigation channel in this part of Manahawkin Bay, must be reasonably maintained. The current bridge has 60 feet of clearance. However, NJDOT performed navigation studies in 2004 and 2009 and concluded that 60 feet of clearance is more than what is needed over the ICWW in this part of New Jersey. The USCG approved NJDOT's request to lower the vertical clearance by 5 feet to 55 feet. NJDOT has calculated all the impacts for this EA based upon a 55-foot vertical clearance.

2.3.2 Roadway and Bridge Deficiencies

The Causeway was constructed in 1958. The trestle bridges' concrete pier caps have shown significant distress. Much of the concrete under some of the bearings has crumbled away and past efforts to correct this problem have been only partially effective. If left unchecked, this condition could lead to sudden loss of support to some of the beams on the bridges, forcing NJDOT to close the roadway. Major

Timber bulkheads

fatigue cracking has been documented in the floor beams supporting the roadway on the high-level steel bridge. Ongoing repairs have failed to arrest the fatigue cracking. Substantial pack rust has been documented on the main girders of the Bay Bridge and this rust is pushing apart the plate girder rivets. The abutments of the Bay Bridge are Scour Critical, which means the bridge foundation could fail or become unstable if the soil around the foundation is eroded away in a major storm. Although it is not likely that failure of these members would lead to complete collapse of the structures, they could lead to local deck failure, which would force NJDOT to close some or all of the bridges for an extended period.

The timber bulkheads protecting portions of the roadway fill, utilities, and bridge abutments have decayed, and shoreline erosion during storm events is a threat to roadway stability. The NJDOT has already performed emergency stabilization of some roadway embankments. The Long Beach Island streets flood near the Causeway. NJDOT has to reduce the flooding frequency to maintain a high degree of access to the causeway.

The selected alternative must address the serious structural deficiencies and extend the life of all rehabilitated bridges by at least 25 years.

2.3.3 Traffic Capacity

The intersection of Route 72 and Marsha Drive no longer maintains a suitable LOS in summer months. Westbound Route 72 backups extend to the Bay Avenue intersection. Additional capacity is required to correct this bottleneck. In Ship Bottom, the local street grid is outdated and subjected to traffic backups. Changes to the signals and flow patterns are needed to improve traffic flow.

Bridges are designed to last over 50 years and the traffic study shows that the bridges adequately handle traffic and no new lanes are currently needed. However, more capacity may be needed on the causeway in about 20 years; therefore, if a new bridge is selected, it has to be designed to minimize the cost of adding a potential future new lane. The new bridge will be striped for only two lanes in each direction.

The Causeway and both approach roadways have outdated traffic-control technology. The corridor needs to be upgraded with variable message signs, incident management cameras, and flow monitoring systems. These intelligent vehicle-highway systems (IVHS) are considered to have low environmental impacts since they can improve traffic flow without having to install new travel lanes.

2.4 Goals and Objectives

The NJDOT has developed the following list of goals and objectives to help refine each studied alternative that meets the purpose and need. These goals and objectives are not project needs as defined in NEPA but additional considerations that help NJDOT consider stakeholder interests and social concerns:

- Minimize impacts to the environment, including temporary construction impacts.
- Reduce risks associated with sudden structural failure caused by natural or man-made threats.
- Provide pedestrian and bicycle compatibility.
- Minimize construction durations and protect workers and motorists in construction zones.
- Select an approach with affordable capital and life cycle costs.
- Develop stormwater management and environmental mitigation using watershed needs.

THIS PAGE LEFT BLANK INTENTIONALLY.

3 Developing the Alternatives

The Council on Environmental Quality and the FHWA prefer an EA to be as brief as possible and discourage agencies from including detailed environmental studies and discussions of any and all reasonable alternatives considered by the highway agency. To keep this EA as brief as possible, NJDOT considered the No Build Alternative plus two Build Alternatives. The Build Alternatives were selected after years of collaboration with the public, elected officials, and regulatory agencies because they balanced the project needs with environmental impacts. However, NJDOT has included a brief discussion of some of the other alternatives considered but discarded during the Concept Design and Feasibility Assessment stages.

ROUTE 72 MANAHAWKIN BAY BRIDGES PROJECT
ENVIRONMENTAL PROCESS

Prepare Technical Environmental Studies that describe the affected environment for each resource, effects of the proposed action, and how effects will be avoided, minimized, or mitigated.

⇓

Environmental Assessment is a concise document prepared in compliance with NEPA that discusses the purpose and need for an action and alternatives to the action. It provides sufficient analysis of impacts to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

⇓

FONSI or EIS

A FONSI presents reasons why an action will not have a significant effect on the environment and, therefore, not require an EIS.

3.1 Concept Development and Feasibility Studies

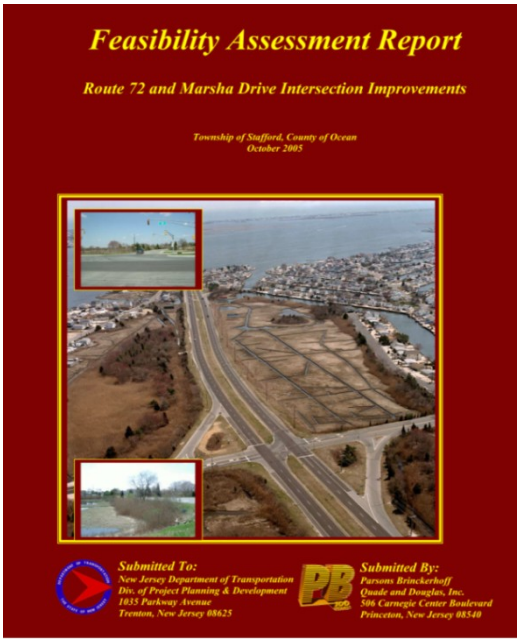
The current plan to upgrade the Route 72 corridor between Stafford Township and the Borough of Ship Bottom began with the 1991 filing of a Regional Transportation Problem Statement. The problem statement documented flooding and traffic issues on Long Beach Island and was the official trigger to improve this vital link. By 1994, all six of the municipal governments located on Long Beach Island formally endorsed the problem statement.

Also in 1991, NJDOT performed extensive repairs on the Causeway bridges. By 1998, NJDOT inspectors found that fatigue cracks on the Bay Bridge had worsened and the pier caps on the trestle bridges had deteriorated. These structural problems added to the need to improve the corridor, which was defined as extending from Marsha Drive in Stafford Township to Long Beach Boulevard in the Borough of Ship Bottom.

Pier cap repair – trestle bridges

In 2001, NJDOT completed the Concept Development phase, which identified improvement concepts to be studied in more detail. These concepts included traffic improvements on Long Beach Island, capacity improvements to the Marsha Drive intersection, and major rehabilitation or replacement of the bridges along the Causeway.

In 2007, NJDOT completed the Feasibility Assessment process, which used more detailed studies to develop an accurate scope of the necessary improvements, estimate construction costs, understand likely impacts, and to secure support from the key local stakeholders. Local support is especially important for a large project as this one, which requires significant investment. The Feasibility Assessment process included a robust public outreach program. Many public meetings were held with local officials, concerned citizens, state and federal resource protection agencies, and environmental conservation groups.



In 2010, continued inspection demonstrated the pack rust on the Bay Bridge was extensive and would force NJDOT to replace the girders during any major rehabilitation effort. Additionally, NJDOT reached out to the USCG for their approval to reduce the clearance over the ICWW to 55 feet. A lower bridge will reduce both cost and permanent environmental impact.

3.1.1 Alternatives Considered but Discarded during Feasibility Assessment

The NJDOT studied several alternatives prior to developing the EA. Table 3.1 lists some of alternatives considered but discarded by NJDOT before selecting the two Build Alternatives included in this EA.

3.1.2 Alternatives Advanced to the Environmental Assessment

At the conclusion of the Feasibility Assessment, NJDOT concluded that there was a compelling public need for the project. It narrowed the possible solutions to two alternatives, confirmed there is strong public support, and validated the project would qualify for federal funding. The project advanced into the next stage of the project development process—preliminary design and environmental assessment.

Local officials' meeting

FHWA procedures require NJDOT to consider the No Build and one or more Build Alternatives. The FHWA policies encourage NJDOT to incorporate the best elements of any studied in the Preferred Alternative; therefore, NJDOT studied the probable impacts associated with rehabilitation and replacement. The Preferred Alternative described in Section 4.19 incorporates the elements that best balanced the project needs and impacts. NJDOT has considered the following alternatives in this EA:

- No Build
- Alternative 1 – Rehabilitation
- Alternative 2 – Replacement

The two Build Alternatives are distinguished primarily by distinctions within the Causeway segment. Alternative 1 – Rehabilitation would reuse the existing bridges to the extent possible and Alternative 2 – Replacement would replace all the trestle bridges, build a parallel eastbound Bay Bridge, and reconstruct the westbound side of the existing bay bridge.

Alternative 1 – Rehabilitation

This alternative would expand the Marsha Drive intersection and would include new jughandles, reconstruct all the trestle bridges, symmetrically widen the Bay Bridge, reconstruct the streets, signals, and drainage systems, and add a pump station on the Barrier Island segment. It would also incorporate Intelligent Traffic Systems (ITS) throughout the corridor from west of the Garden State Parkway to Long Beach Island. ITS would include variable message signs, pole-mounted cameras, telecommunications cabinets, vehicle sensors, and a weather station.

Alternative 2 – Replacement

This alternative would expand the Marsha Drive intersection but re-use the existing jughandles, replace the trestle bridges, build a new two-lane, eastbound parallel Bay Bridge, and reconstruct the westbound side of the existing Bay Bridge. The improvements on the Barrier Island segment and the ITS improvements would be the same in each alternative.

Although Alternative 2 would have two separate bridges after construction, the reconstructed westbound Bay Bridge would be narrower than the existing bridge as this bridge would carry only the westbound traffic after reconstruction, since the eastbound traffic would be carried on the new Bay Bridge. There would be a new sidewalk along the westbound roadway in both alternatives.

In July 2010, ongoing inspection of the Bay Bridge determined that the plate girders were damaged by pack rust and needed replacing. Pack rust builds up inside the girder connections and over time can literally push apart the bridge rivets and diminish the strength of the girder. This condition affected the replacement alternative for the Bay Bridge.

Table 3.1 – Alternatives Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	Description of Alternative
Rehabilitate Existing Bridges without Widening Alternative (VE1)	Typical Section • Two 11-foot lanes in each direction • Two 1.75-foot-wide inside and 8-foot outside shoulders • No sidewalk Superstructure • Trestle Bridges – Replace concrete desk – Retrofit pier caps • Bay Bridge – Replace deck – Retain steel girders but replace fatigue prone floor beams** Substructure • Install scour countermeasures if needed. • Reuse and repair all substructures Assessment The shoulders would be bicycle compatible, improve refuge for stalled vehicles but not useful for an evacuation lane. No sidewalk. Without adding width, the bridges are too narrow to keep two lanes of traffic in each direction during construction. Retains the Bay Bridge rusting girders and obsolete pin and hanger system. Eliminates the need to build a separate bridge but two lanes of traffic cannot be maintained in each direction. This alternative does not meet the Project Purpose and Need (P & N) because it only keeps one lane open in the peak traffic flow direction leading to massive traffic delays. Therefore, this alternative was discarded. ** This alternative discussion was made prior to the documentation of the pack rust on the main girders. This alternative also fails to address the need to eliminate structural deficiencies.

Table 3-1 (Continued) - Alternative Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	*Description of Alternative*
Asymmetrical Bay Bridge Superstructure Widening with Foundation Enlargement Bay Bridge Alternative S4	Typical Section • Two 12-foot lanes in each direction • 5-foot-wide inside and 10-foot outside shoulders • One 6-foot eastbound sidewalk Superstructure • Replace deck • Replace all existing lightweight steel superstructure Substructure • Install scour countermeasures if needed. • Reuse existing substructure • Widen all substructures to one side. Assessment Lightweight steel needed to reuse existing substructure, increases maintenance costs in saltwater air. Construction performed immediately adjacent to existing substructure increasing subsidence risk on existing substructure. Construction staging more difficult in order to maintain traffic. Disparity in ages of substructure. This alternative did not meet the project purpose and need because it was a risk to system linkage without a substantial cost savings and no substantial reduction of environmental impacts. Therefore, this alternative was discarded.

Table 3.1 (Continued) – Alternatives Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	Description of Alternative
Widening without Replacing Substructure Bay Bridge Alternative S8	Typical Section • Two 12-foot lanes in each direction • 6-foot-wide inside and 12-foot outside shoulders • One 6-foot eastbound sidewalk Superstructure • Replace deck with lightweight "exodermic" steel panel with lightweight concrete surface course • Replace girders and floor beams with steel girders Substructure • Install scour countermeasures if needed. • Reuse existing substructure Assessment Lightweight steel needed to reuse existing substructure, but reduced the safety factor of failure below normal ranges. Increased maintenance costs since underside of steel deck exposed to saltwater air. Construction staging much more difficult with work zones bordered by traffic on both sides, increasing risk for bridges to be closed during construction incidents. More night work and work needing temporary closures. No temporary bridges needed. This alternative did not meet the project purpose and need because it does not meet the requirements for system linkage / safety during construction. Therefore, this alternative was discarded.

Table 3.1 (Continued) – Alternatives Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	Description of Alternative
Superstructure Widening using Orthotropic Deck – without Foundation Enlargement Bay Bridge Alternative S9	Typical Section • Two 12-foot lanes in each direction • 10-foot-wide inside and 15-foot outside shoulders • One 6-foot eastbound sidewalk Superstructure • Replace concrete deck with lightweight orthotropic steel grid deck. • Replace girders and floor beams with steel box girders Substructure • Install scour countermeasures if needed. • Reuse existing substructure Assessment Lightweight steel needed to reuse existing substructure. Increased maintenance costs since underside of steel deck exposed to saltwater air. Steel box girders expensive to install and maintain. This alternative did not meet the project purpose and need for system linkage because construction staging is much more difficult with work zones bordered by traffic on both sides. Also resulted in more night work and work needing temporary closures as well as greater life cycle costs for maintenance of steel deck.

Table 3.1 (Continued) – Alternatives Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	Description of Alternative
Symmetrical Widening Trestle Bridges Alternative S3	Typical Section • Two 12-foot lanes in each direction • 6-foot-wide inside and 12-foot outside shoulders • One 6-foot eastbound sidewalk Superstructure • Replace Concrete deck • Retrofit Pier Caps • Widen using concrete beams Substructure • Install scour countermeasures if needed. • Reuse existing substructure • Widen symmetrically with deep scour compatible foundation Assessment Widens deck to provide shoulders and sidewalks for bicycles and pedestrians. Leaves existing scour vulnerable center foundation. This alternative did not meet project purpose and need for system linkage and failed to address structural deficiencies, as it did not account for Scour Critical foundations. FHWA policy does not allow reimbursement for this approach; therefore, this alternative was discarded.

Table 3.1 (Continued) – Alternatives Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	Description of Alternative
Asymmetrical Widening Trestle Bridges Alternative S5	Typical Section • Two 12-foot lanes in each direction • 6-foot-wide inside and 10-foot outside shoulders • One 6-foot eastbound sidewalk Superstructure • Replace concrete deck • Retrofit pier caps • Widen using concrete beams Substructure • Install scour countermeasures if needed. • Reuse existing substructure • Widen to one side with deep scour compatible foundation Assessment Widens deck to provide shoulders and sidewalks for bicycles and pedestrians. Leaves existing scour vulnerable foundations, which would require extensive scour countermeasures. This alternative did not meet the project purpose and need because it did not meet the requirement for system linkage and did not address structural deficiency; therefore, this alternative was discarded.

Table 3.1 (Continued) – Alternatives Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	Description of Alternative
Symmetrical Widening with Outrigger Bents Trestle Bridges Alternative S12	Typical Section • Two 12-foot lanes in each direction • 6-foot-wide inside and 12-foot outside shoulders • One 6-foot eastbound sidewalk Superstructure • Replace Concrete deck • Replace pier cap to span to new outer foundation • Widen using concrete beams Substructure • Widen symmetrically with large/ deep scour compatible foundation that makes the existing foundation redundant • Install pier caps to span existing piles Assessment Widens deck to provide shoulders and sidewalks for bicycles and pedestrians. Requires temporary trestles to maintain traffic. This alternative did not meet the project's purpose and need was cost prohibitive and still had temporary long-term environmental impacts for the temporary bridges; therefore, this alternative was discarded.

Table 3.1 (Continued) – Alternatives Considered but Discarded by NJDOT during Concept and Feasibility Assessments

Alternative	Description of Alternative
Ship Bottom Operational Improvements	All the alternatives considered included lane, shoulder and sidewalk improvements as well as turning-lane improvements on the major roadways, including 8th and 9th Streets, Long Beach Boulevard, and Barnegat Avenue Alternatives B and C maintained existing one-way patterns on north south movements and constructed traffic control devices to eliminate problem weaves between 8th Street and Long Beach Boulevard. These alternatives did not eliminate problem duplicative turning movements caused by changes between one-way and two-way streets on the north south roadways. Alternatives D and E attempted to keep some of the current north/south one-way streets and managed the problem turns by redirecting them to different intersections. These alternatives did not meet the project's purpose and need because they did not meet the requirements for traffic capacity or resolve the traffic conflicts leading to unsafe weaving movements.
No Pump Station Alternative.	This alternative considered raising 8th Avenue 2 to 3 feet above the existing grade to help keep the inbound and outbound roadway more flood-free. However, many businesses would be closed since there would not be enough room to raise driveways. New driveways would cause significant localized flooding. This alternative was did not meet the project's purpose and need because of massive disruption and significant impacts on existing businesses; therefore, this alternative was discarded.

3.2 Public Outreach

From conception, NJDOT worked to involve the public in the ongoing decision-making process to improve the Causeway because the project will affect many people with the following interests:

- Adjacent residents prefer not to have the roadway widened into their properties;
- Business owners want continued access to their stores;
- Visitors are mostly concerned about getting to their summer rentals or homes without being stuck in traffic;
- Full-time Long Beach Island residents need to use the Causeway to get to work, to school, and to medical facilities; and
- Conservationists are focused on potential impacts to the adjacent ecosystems.

NJDOT balanced the range of interests and held numerous public officials meetings to confirm project need and to solicit public comment. Meetings were held to discuss interim design ideas. Special meetings were held to discuss particular concerns such as flooding and coastal evacuation plans (Appendix B). NJDOT also prepared a project-specific informational video and distributed it on a DVD to maximize the number of people and agencies involved.

Through this process, NJDOT was able to validate the project need, address the most pressing concerns of the local residents, and develop a cost-effective approach for keeping this critical infrastructure in good service.

Local officials touring project features

3.3 Issues Driving the Selection of Alternatives

3.3.1 Mainland Segment

Traffic studies show there is a significant traffic bottleneck at the intersection of Marsha Drive and Route 72, especially in the westbound direction during the summer months. In addition to large volumes of traffic on Route 72, the studies reveal that motorists destined to Long Beach Island are using Bay Avenue and Marsha Drive to get to Route 72 eastbound via a left turn from Marsha Drive. This traffic has to wait through several signal cycles, causing backups all the way to Bay Avenue and

contributing to operational problems at that intersection too. The results of the traffic studies are summarized in Table 3.2 and confirm the following alternatives selection criteria:

- Need to improve the Route 72 through capacity at this intersection;
- Increase the left-turn capacity on southbound Marsha Drive; and
- Address traffic intersection operations at Bay Avenue and Marsha Drive.

Table 3.2 – No Build Alternative Level of Service (Saturday/Sunday peak hour)

	Level of Service
Route 72 and Marsha Dr.	F/F
Marsha Dr. and Bay Ave.	E/F[1]
Route 72 Mainline Eastbound	D/B
Route 72 Mainline Westbound	D/F
Long Beach Island Traffic Signal System[2]	B-D/C-F

[1] Marsha Drive segment
[2] Levels of service range for 8th and 9th Streets traffic signals.

3.3.2 Causeway Segment

Route 72 is the only coastal evacuation route from Long Beach Island. Local residents and regional planners agree that keeping the Causeway open at all times is paramount. Closing the Causeway for any reason for any extended period would cause major economic hardship and could disrupt emergency services, thereby risking safety of the residents.

Traffic peak demands in the summer months make it imperative for NJDOT to maintain two lanes of traffic in each direction during the summer.

The alternatives selection criteria for the Causeway bridges include:

- Maintaining traffic during construction;
- Resolving structural deficiencies;
- Providing shoulders on the bridges and eliminates other functional deficiencies;
- Providing bicycle and pedestrian connections;
- Maintaining the existing lighting on the Bay Bridge; and
- Maintaining current traffic capacity but anticipating future traffic needs.

WHAT IS LEVEL OF SERVICE (LOS)?

It is the criteria used to measure how an intersection is performing.

LOS has been defined in the *Highway Capacity Manual* (HCM) as a "qualitative measure describing conditions within a traffic stream, and their perception by motorists and/or passengers." LOS is divided into six categories, ranging from LOS A (free-flow traffic) to LOS F (traffic flows break down over capacity volume conditions).

The HCM defines LOS for a signalized intersection based on control delay. Control delay is a measure of motorist delay due to the presence of the intersection and includes slowing, stopping, and starting time. The LOS criteria for signalized intersections is the following:

Level of Service	Control Delay per Vehicle (sec)
A	≤10.0
B	>10.0 and <20.0
C	≥20.0 and <35.0
D	≥35.0 and 55.0≤
E	≥55.0 and ≤80.0
F	>80.0

Source: HCM2000, TRB, 2000

In July 2010, NJDOT determined that the existing Bay Bridge main girders (part of the bridge's superstructure, or portion of the bridge lying above the piers and foundations) were damaged by pack rust and that rehabilitation could not effectively extend its service life by at least 25 years; therefore, NJDOT decided it was necessary to replace the existing bay bridge girders. All of the substructure (piers, foundations) are in acceptable condition and will be incorporated into each alternative.

Flooding Issues

The existing bridge has a 60-foot vertical clearance over the ICWW, a federal navigation channel managed by the USCG. NJDOT performed two navigational surveys—one in 2004 and another in 2009. The USCG approved NJDOT's request to lower the Bay Bridges by 5 feet. Lowering the bridges to maintain 55 feet of clearance will reduce costs, as well as impacts, and reduce the visual aspects of the bridge. The trestle bridge clearances are not affected because they are not over the ICWW.

8th Street Circle

3.3.3 Barrier Island Segment

Route 72 in Ship Bottom divides into two one-way streets. The eastbound direction is 9th Street and westbound direction is 8th Street. The physical condition of the Route 72 intersections on Long Beach Island and traffic-signal operations cause traffic delays. Flooding causes other safety, operational, and capacity problems.

The low-lying areas of 8th and 9th Streets and Barnegat Avenue entrap water during heavy rainfall and during high tides along Manahawkin Bay. An undersized closed drainage system with back-pitched pipes easily clogs with sand and debris. The flooded roadways impede or totally block access to and egress from the island. These conditions put Long Beach Island's year-round residents (10,000) and tourists (140,000+) at risk.

In addition to the flooding problems, traffic capacity is constrained along 8th and 9th Streets at Barnegat Avenue, Central Avenue, and Long Beach Boulevard. In particular, traffic operations at Long Beach Boulevard at 8th Street play a significant role in the poor overall operation of the Causeway. The existing one-way configuration of the Central Avenue and Long Beach Boulevard approaches to 8th and 9th Streets also impedes the north-south flow of traffic through Ship Bottom and neighboring Surf City; therefore, the alternatives selection criteria must consider:

- Reducing flooding frequency along 8th and 9th Streets.
- Addressing impacts the tides have on drainage.
- Improving traffic safety, capacity and circulation along 8th and 9th Streets.

3.4 The Alternatives

The following sections assess the three alternatives NJDOT studied in this EA:

- No Build Alternative
- Alternative 1 – Rehabilitation
- Alternative 2 – Replacement

Maintaining traffic during construction is as critical a concern for alternative selection as the bridges' structural issues.

3.4.1 No Build Alternative

The No Build Alternative would include the minimum maintenance needed to continue the function of the project without significant capital investment; it would not meet the purpose and need to improve access to Long Beach Island and to maintain the safe, reliable connection. This alternative would not improve traffic congestion on the mainland segment at Marsha Drive as well as in Long Beach Island. The potential to close a trestle bridge will increase as time goes on because the No Build Alternative would not provide a solution to the failing pier caps on the trestle bridges. Fatigue cracking will continue to increase in frequency on fracture-critical connections between the floor beams and the girders. Pack rust will continue to weaken the girders. The potential for an inspection revealing an imminent failure that could close one or all of the bridges will continue to increase. Flooding will continue unabated at the Long Beach Island approach of the bridge. This alternative assumes NJDOT will continue to perform the following as needed:

- Ongoing on-call maintenance of fatigue cracks and pack rust on the Bay Bridge superstructure;
- Ongoing maintenance of the trestle bridge pier caps;
- Evaluate accident history and incident management;
- Scour protection of the bridge abutments;
- Replacement of failing bulkheads to prevent shoreline erosion and damage to utilities and bridge fill slopes;
- Re-decking of the various structures to extend their service life;
- Ongoing on-call maintenance of the existing closed-drainage-system on Long Beach Island to remove accumulated sand and debris from inlets, manholes, and pipes; and
- Ongoing on-call maintenance of the existing traffic signals along 8th and 9th Streets on Long Beach Island.

3.4.2 Alternative 1 – Rehabilitation

This alternative meets the project's purpose and need and answers the question: What would happen if NJDOT rehabilitates the bridges? The proposed improvements at Marsha Drive and the Long Beach Island intersections would address the traffic-capacity problems on the approaches to the Causeway. The rehabilitation of the trestle bridges would address the pier-cap problems and the replacement of

the bridge superstructure on the Bay Bridge would eliminate the fracture-critical design with the fatigue cracks and rusty girders. Also, the Long Beach Island drainage improvements would alleviate the flooding frequency and enhance roadway operations.

Mainland Segment

NJDOT would make the following improvements at Marsha Drive (Figure 3.1):

- Add one through lane in each direction on Route 72 near the intersection;
- Add one through turn lanes in each direction on Marsha Drive;
- Realign the existing jughandle ramps from Route 72 to improve operations on the Marsha Drive approaches to Route 72; and
- Provide ITS, including variable message signs, cameras, telecommunications cabinets, vehicle sensors and a weather station (Figures 3.2A, sheets 1 & 2).

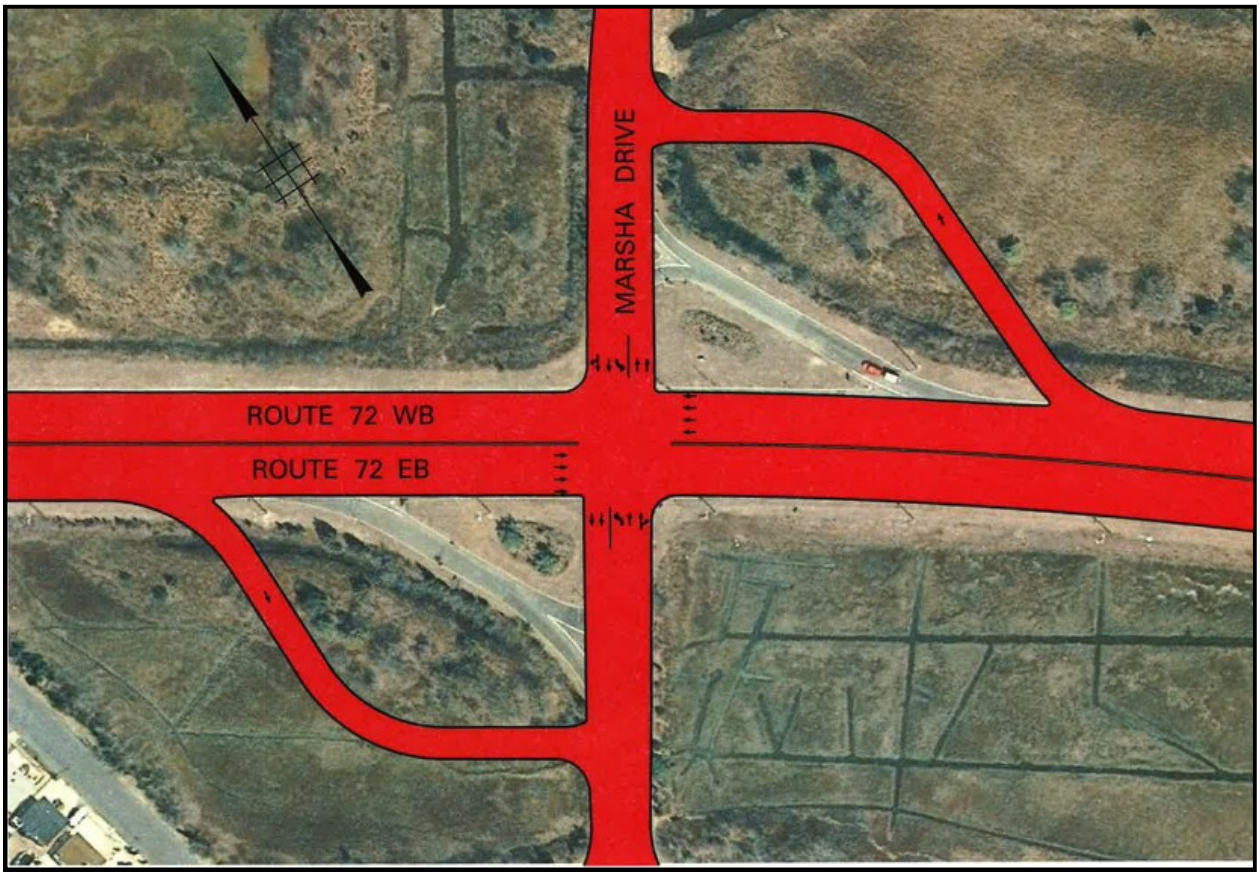
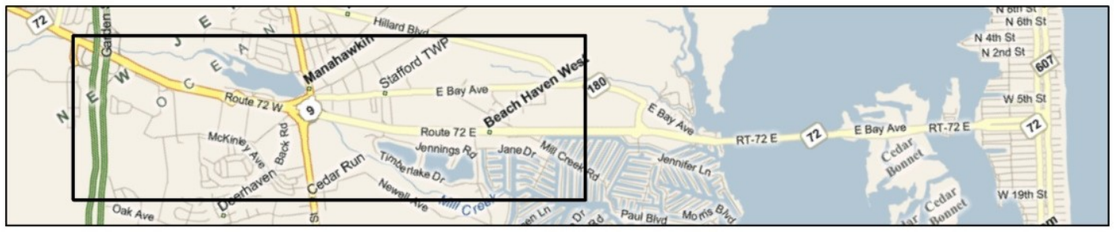


Figure 3.1 – Marsha Drive (Alternative 1 – Rehabilitation)

Table ID	Description
1	ITS-3, DMS (in EB Shoulder for EB Traffic)
2	NJTA/NJDOT Interface
3	Travel Time Data Collection (EB Shoulder)
4	ITS-6, DMS (for EB Traffic in Jughandle)
5	Travel Time Data Collection (WB Shoulder)
6	ITS-10, Travel Time Data Collection & CCTV (in WB Jughandle)
7	CCTV, on new bridge
8	ITS-11, in Median
9	ITS-12 CCTV & Travel Time Data Collection

Legend:

Sources:
Virtual Earth Aerial and Road Base Maps, 2009.



Legend:

★ ITS Locations

Figure 3.2A - Proposed ITS Locations

Route 72 Manahawkin Bay Bridges

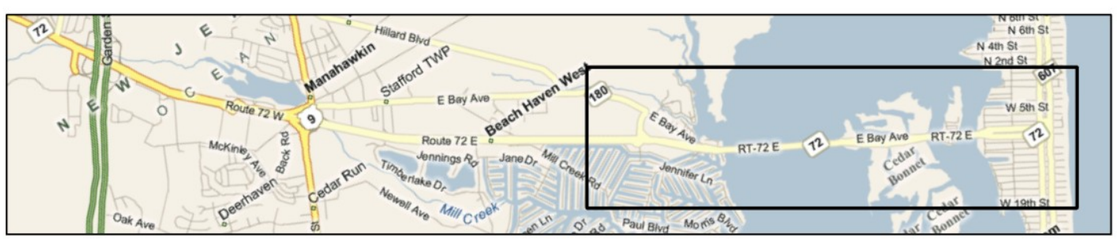
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 1/2

THIS PAGE LEFT BLANK INTENTIONALLY.

Table ID	Description
1	ITS-3, DMS (in EB Shoulder for EB Traffic)
2	NJTA/NJDOT Interface
3	Travel Time Data Collection (EB Shoulder)
4	ITS-6, DMS (for EB Traffic in Jughandle)
5	Travel Time Data Collection (WB Shoulder)
6	ITS-10, Travel Time Data Collection & CCTV (in WB Jughandle)
7	CCTV, on new bridge
8	ITS-11, in Median
9	ITS-12 CCTV & Travel Time Data Collection

Sources:
Virtual Earth Aerial and Road Base Maps, 2009.



Legend:

★ ITS Locations

Figure 3.2A - Proposed ITS Locations

Route 72 Manahawkin Bay Bridges

Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 2/2

THIS PAGE LEFT BLANK INTENTIONALLY.

Causeway Segment

The Causeway improvements would be divided between the trestle bridges and the Bay Bridge. The three trestle bridges would have similar construction and needs and would get similar consideration. NJDOT would make the following rehabilitation improvements to the trestle bridges (Figure 3.3):

- Rehabilitate the three structures over Hilliard's Thorofare, West Thorofare, and East Thorofare in stages; and
- Work to include pier cap rehabilitation, piling protection system, a new bearing support system, and reconfiguring the deck and lane configuration to provide a 6-foot sidewalk along the westbound side and 6-foot shoulders that would be bicycle compatible on both sides of the structure. The trestle bridges would be rehabilitated in two stages during the off-season (Figure 3.4).

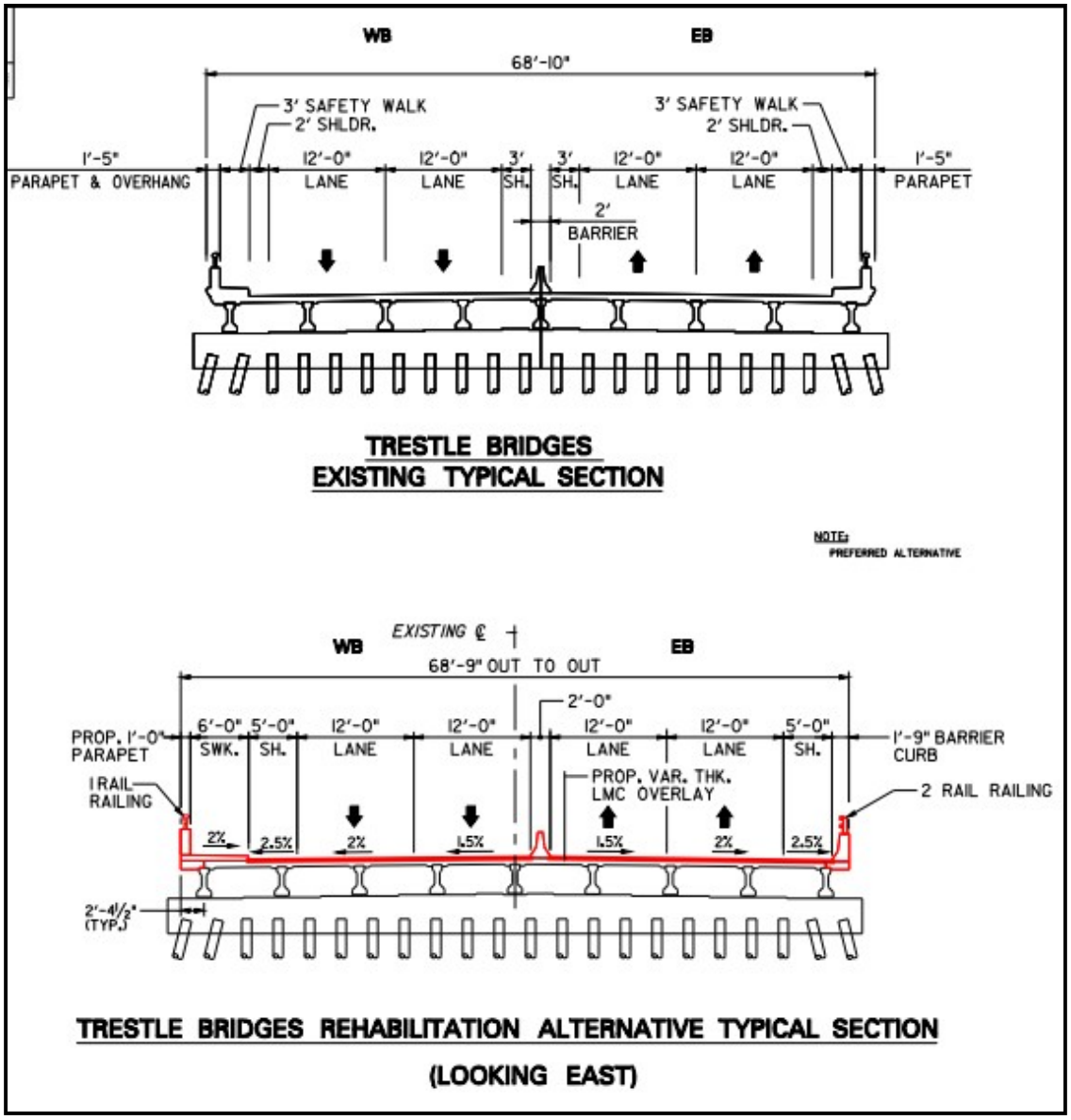


Figure 3.3 – Trestle Bridge Typical Sections (Existing and Alternative 1 – Rehabilitation)

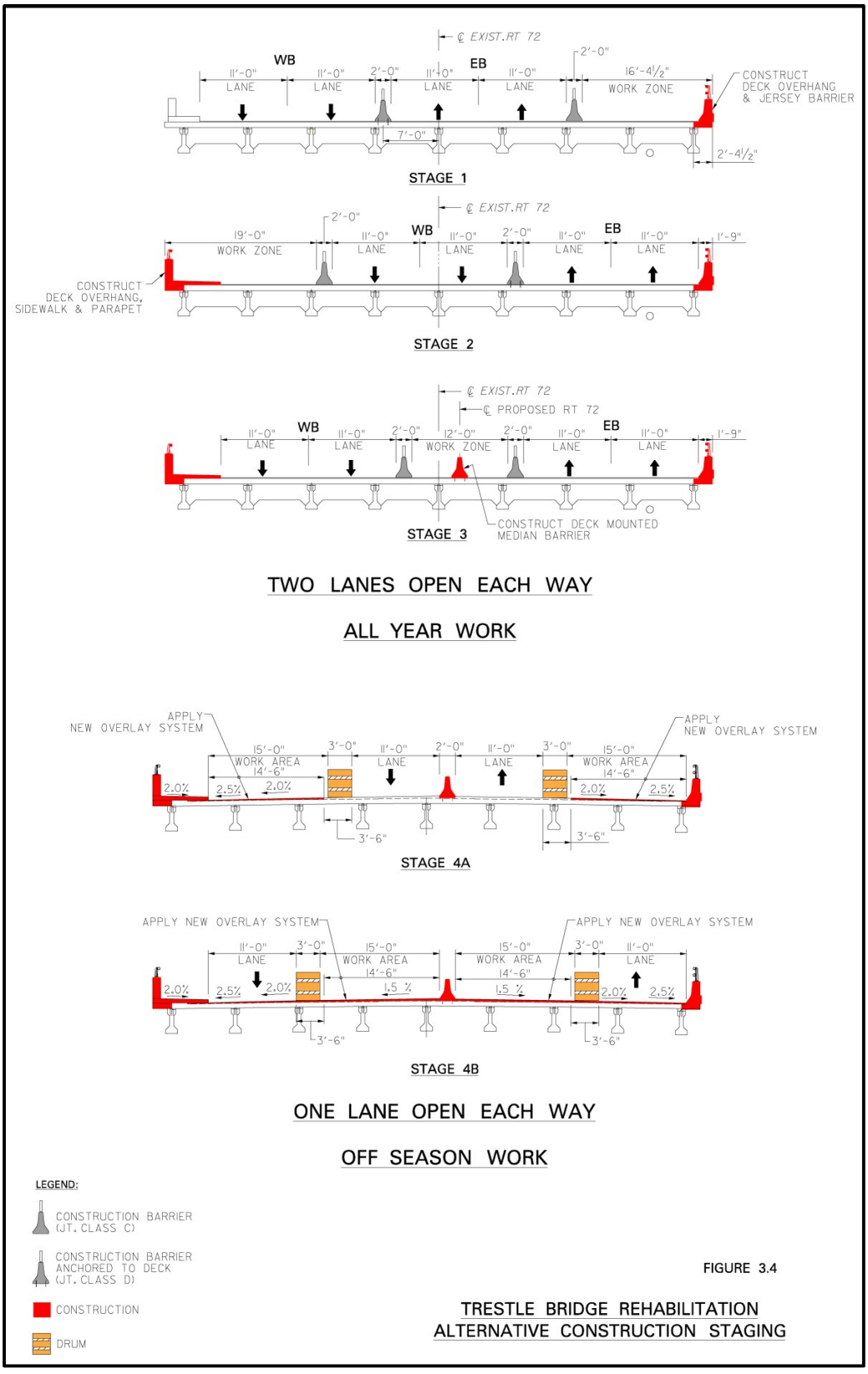


Figure 3.4 – Trestle Bridge Construction Staging (Alternative 1 – Rehabilitation)

NJDOT would make the following rehabilitation improvements to the Bay Bridge (Figure 3.5) and would maintain four lanes of traffic at all times (Figure 3.6):

- This rehabilitation alternative would symmetrically widen the existing substructure and replace the superstructure in stages:
  - Stage I – Widen to the north – maintain traffic on existing structure build temporary work bridges.
  - Stage II – Widen to the south – maintain traffic on new northerly section and portion of the existing structure, build temporary work bridges
  - Stage III – Demolish and reconstruct center portion of structure – maintain traffic on the new northerly and southerly sections.
- A 6-foot-wide sidewalk would be placed along the west side of the bridge. The overall width of the structure would be about 109 feet and would allow two lanes in each direction with inside shoulders and bicycle compatible outside shoulders. It would be constructed wide enough to convert the outer shoulders into a temporary lane for coastal evacuation or to add a third lane in each direction at some point in the future when traffic needs dictate. Sidewalks on the island would connect to the low-volume, low-speed local roadway system where possible.

ITS camera would be placed on the Bay Bridge, and sensors and a weather station would be constructed in the grass median east of the Bay Bridge.

Barrier Island Segment

NJDOT would make the following roadway operational improvements along 8th and 9th Streets and cross-street intersections under this alternative (Figure 3.7):

- Reconstruct/reconfigure 8th and 9th Streets to provide three travel lanes and inside and outside shoulders on each roadway;
- Reconstruct/reconfigure the 8th Street service road and median to provide an 8-foot-wide right shoulder on 8th Street;
- Reconstruct/reconfigure the through lanes and turning lanes on the cross street approaches (Long Beach Boulevard, Barnegat Avenue, Central Avenue) to 8th and 9th Streets for improved traffic operations;
- Reconfigure the Ship Bottom unsignalized intersection at 8th Street and Long Beach Boulevard and replace it with a signalized intersection to restore two-way operation of Central Avenue and Long Beach Boulevard at 8th and 9th Streets;
- Upgrade existing traffic signal equipment and install a mini-traffic control signal system to maintain coordinated traffic signal operations at the five existing signals along 8th and 9th Streets with the new signal at 8th Street and Long Beach Boulevard; and
- Provide ITS camera and communication of the Ship Bottom mini-traffic signal system to the NJDOT South Jersey Traffic Operations Center.

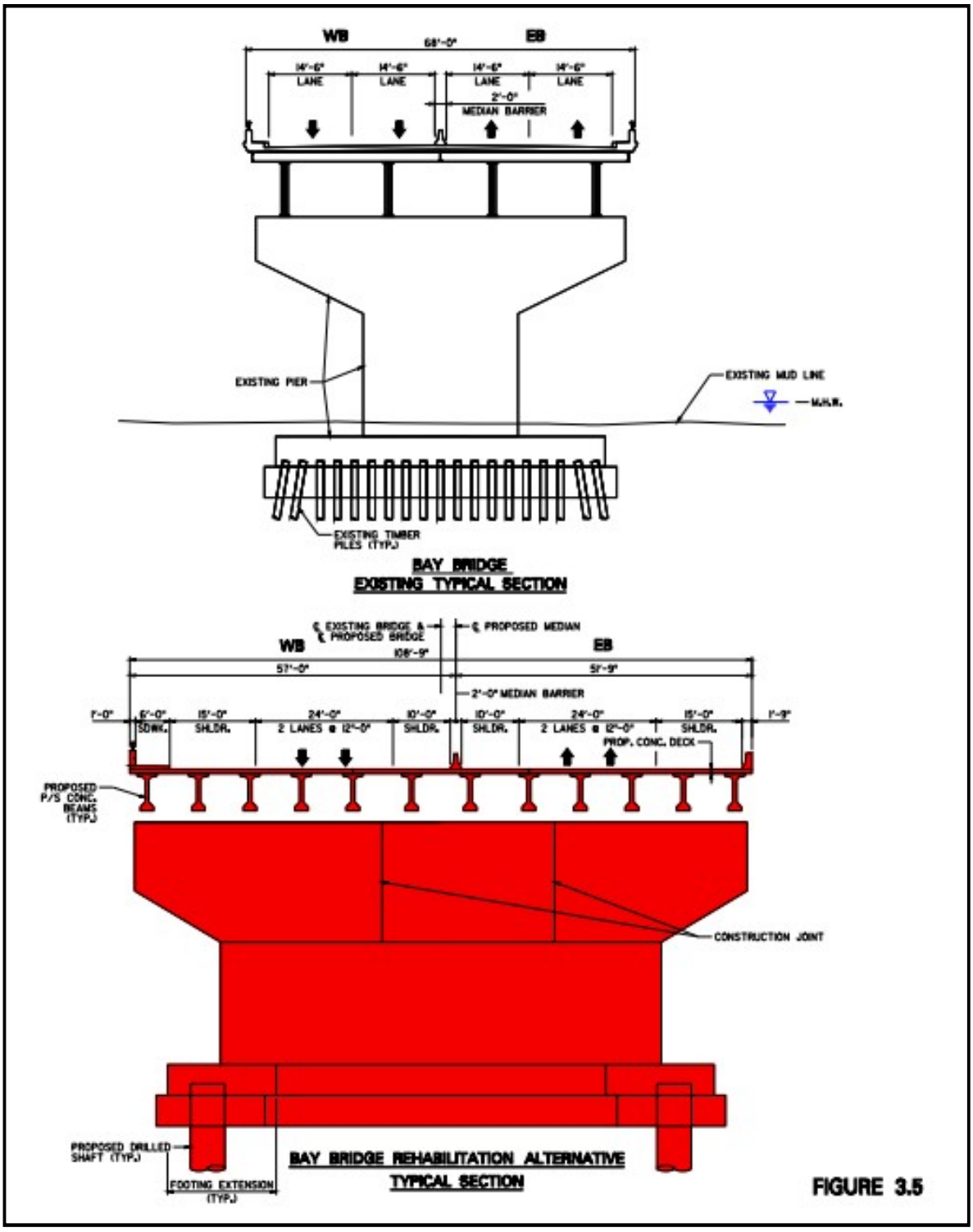


Figure 3.5 – Bay Bridge Typical Section (Existing and Alternative 1 – Rehabilitation)

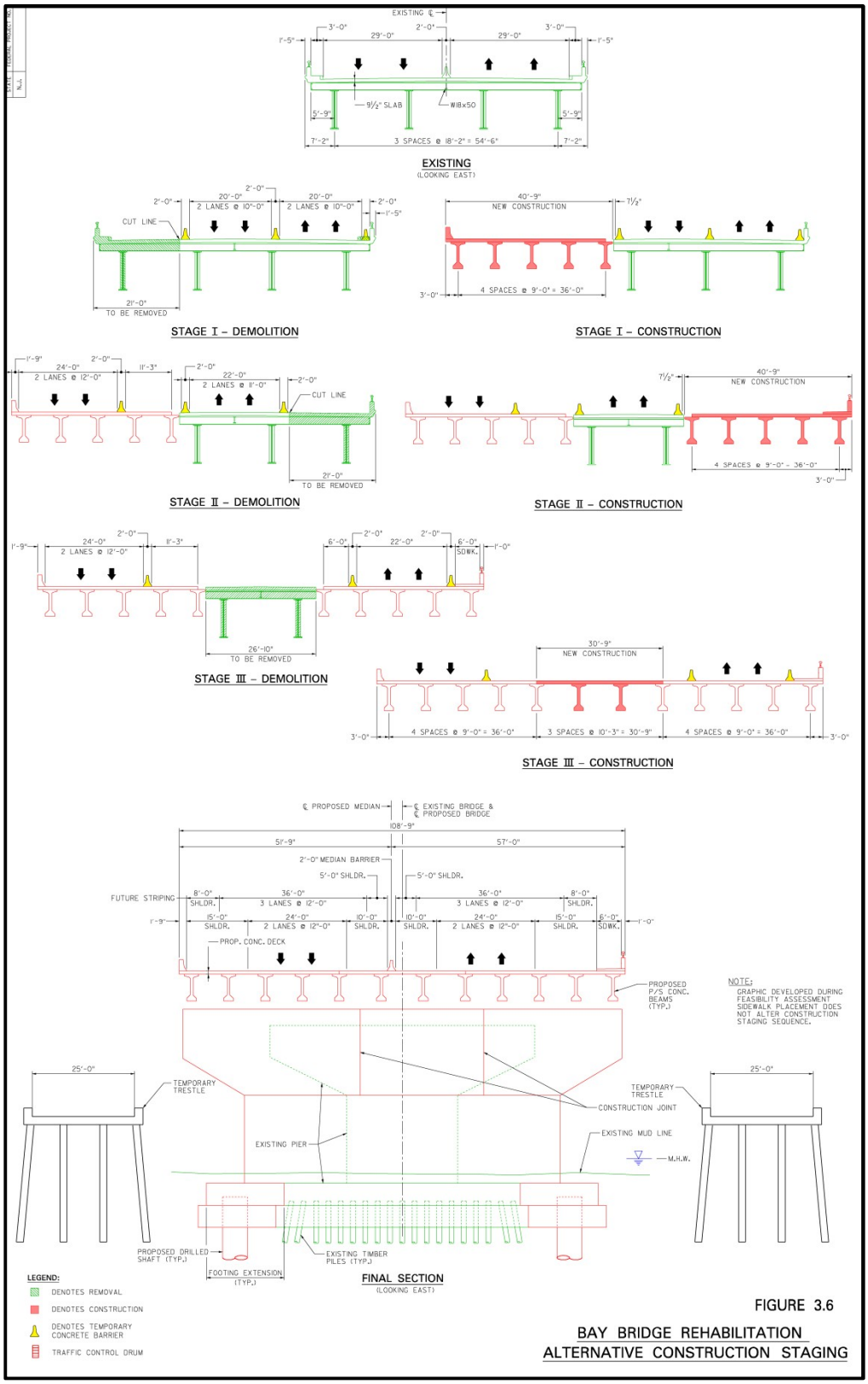


Figure 3.6 – Bay Bridge Construction Staging (Alternative 1 – Rehabilitation)

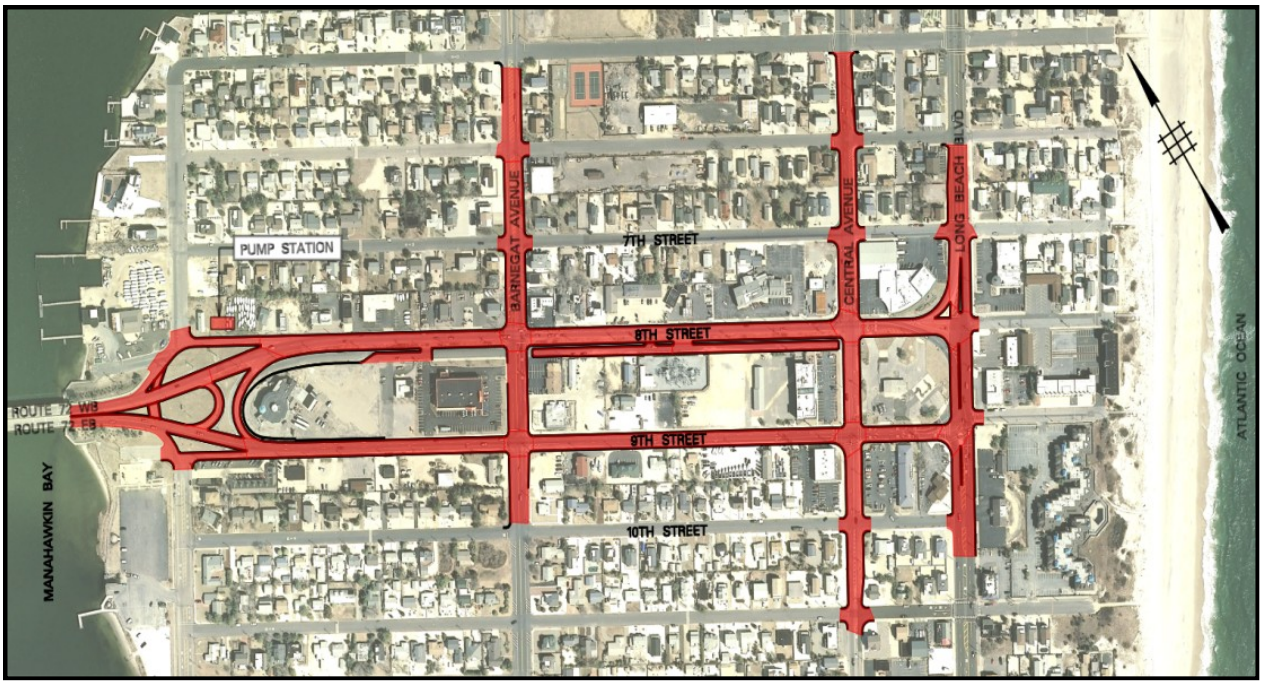


Figure 3.7 – Long Beach Island Operational Improvements (Alternative 1–Rehabilitation)

The NJDOT would make the following drainage improvements for 8th and 9th Streets under this alternative:

- Maintain the existing roadway profiles along 8th and 9th Streets to minimize grading impacts to adjacent properties;
- Replace the existing drainage system with a new system designed for higher-intensity storm events and separate conveyance systems along 8th and 9th Streets between Long Beach Boulevard and Shore Avenue;
- Provide a pump station in the vicinity of 8th Street and Shore Avenue that would allow the roadway stormwater runoff to be discharged into Manahawkin Bay at the existing outfall location, even during high tides;
- Provide a sand filter in the existing median between 8th and 9th Streets to collect sand, grit, and debris from the combined roadway runoff before it enters the pump station; and
- Provide a Tideflex check valve at the pump station outfall to protect the stormwater system from backwater and debris during high tides.

3.4.3 Alternative 2 – Replacement

This alternative would meet the purpose and need and answer the question: What would happen if NJDOT replaced all the bridges? The improvements at Marsha Drive and Long Beach Island would address the traffic capacity problems on the approaches to the Causeway. Replacing the trestle bridges would eliminate the problem pier caps, and adding a parallel bridge to the Bay Bridge and replacing deck superstructure on the existing bridge would eliminate the fatigue-cracked connections and the fracture critical design. Also, the Long Beach Island drainage improvements would alleviate the flooding frequency and enhance roadway operations.

Mainland Segment

The NJDOT would make the following improvements for this alternative (Figure 3.8):

- Add one through lane in each direction on Route 72 near the intersection;
- Add a third lane to Marsha Drive (to provide a double left-turn lane to eastbound Route 72), and a through/right lane;
- Maintain existing Route 72 jughandles; and
- Provide ITS facilities.

Figure 3.8 – Marsha Drive (Alternative 2 – Replacement)

Causeway Segment

Trestle Bridges

Alternative 2 would build new trestle bridges on the same alignment as the existing trestle bridges (Figure 3.9). These bridges would be built in two stages to maintain traffic (Figure 3.10):

- Stage I – Demolish and construct southerly portion of the bridge – maintain westbound traffic on a temporary traffic bridge installed to the north and eastbound traffic on the remaining portion of the existing bridge.
- Stage II – Demolish and construct the northerly portion of the bridge – maintain all traffic on the newly constructed southerly portion and remove the temporary bridge.

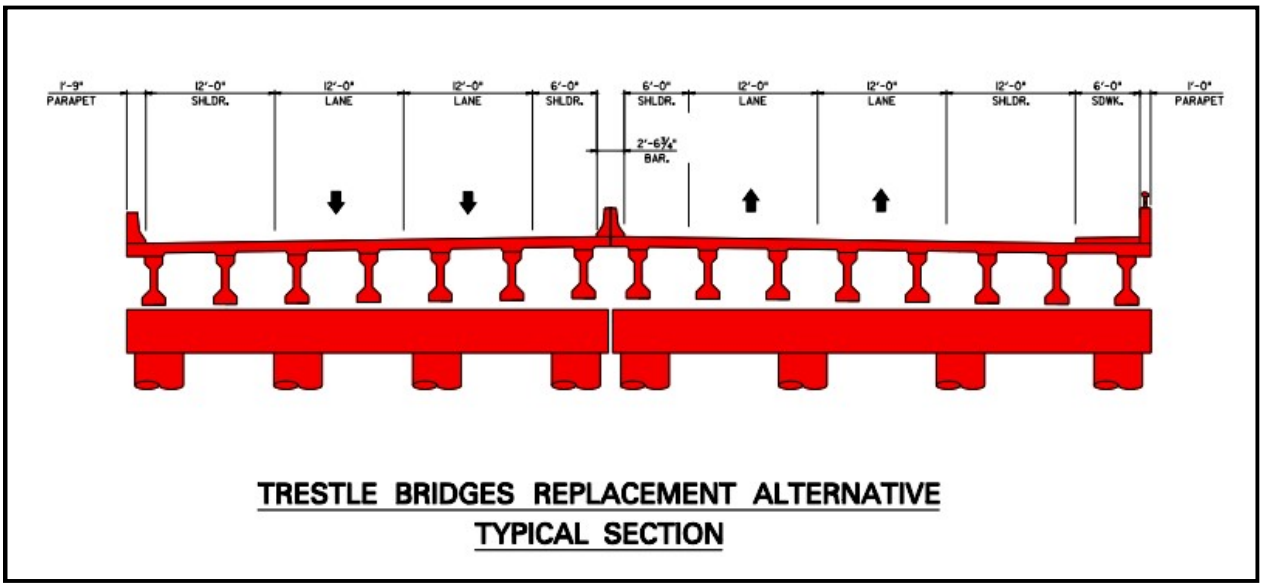


Figure 3.9 – Trestle Bridge Typical Section (Alternative 2 – Replacement)

The new bridges would have new pile foundations and a new concrete superstructure. Each bridge would carry two travel lanes, and have wider inside shoulders and outside shoulders (for bicycle compatibility) on each side and one 6-foot-wide sidewalk along the westbound lanes. The right shoulders could be used as temporary lanes for emergency evacuation of Long Beach Island.

Furthermore, the bridges could be restriped to carry three lanes in each direction with a wider bicycle-compatible right lane in the future, if necessary.

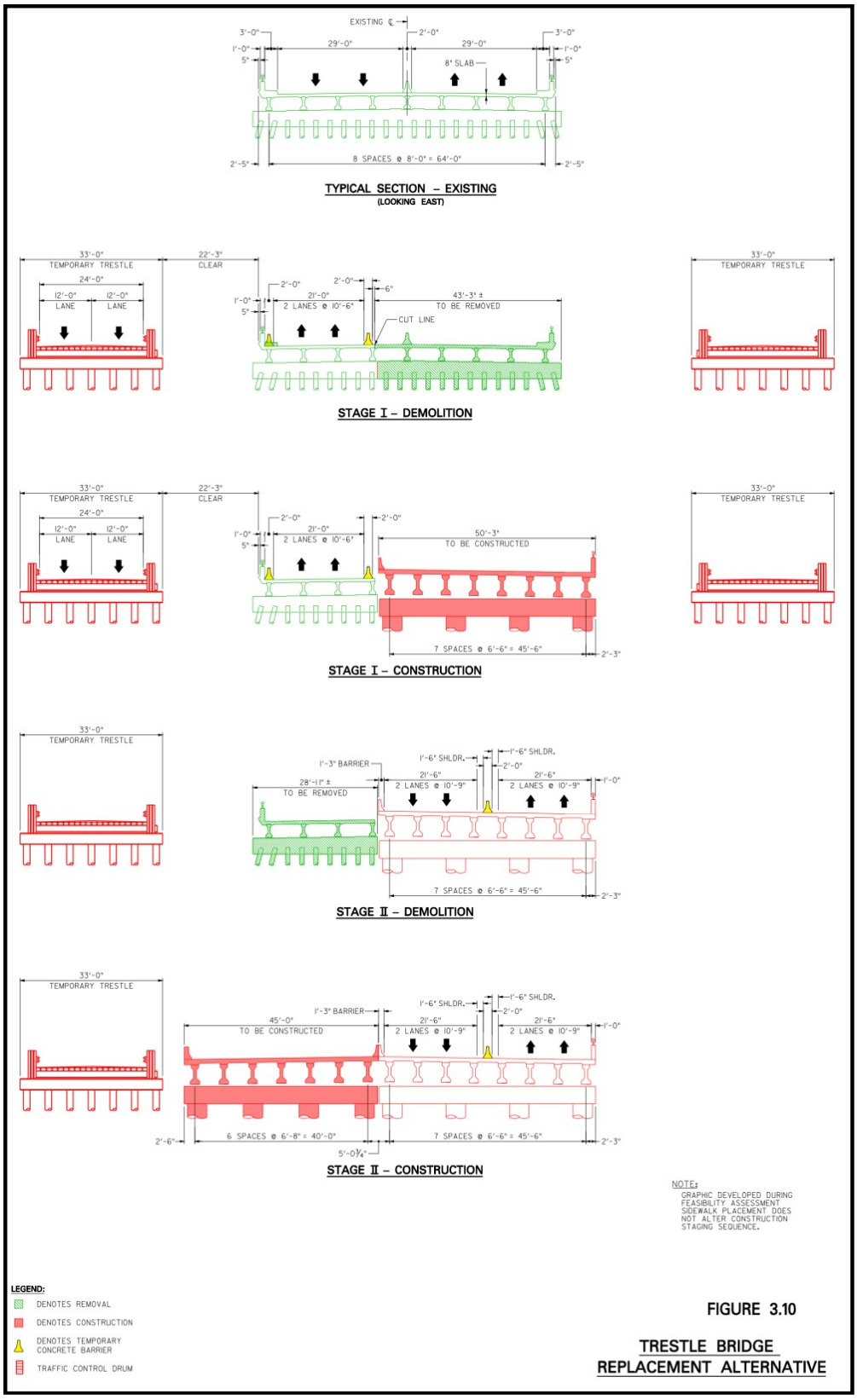


Figure 3.10 – Trestle Bridge Construction Staging (Alternative 2 – Replacement)

The Bay Bridge

While described as the replacement alternative, the existing Bay bridge substructure, including piers, abutments and foundations, would be reused (Figure 3.11) and a new parallel bridge would be constructed, resulting in two bridges spanning the bay. These would be built in two stages (Figure 3.12):

- Build a new parallel structure to the south of the existing structure. This new bridge would be built first and be wide enough to temporarily carry two lanes of traffic in each direction.
- Traffic would shift to the new bridge and the old bridge would be rehabilitated by removing the deck and replacing the fatigue-cracked steel. The rehabilitated bridge would be a bit narrower than the existing bridge since it would carry one direction of traffic plus shoulders and a sidewalk.
- The right shoulders could be used as temporary lanes for emergency evacuation of Long Beach Island.
- The bridge could be restriped for a future additional lane if needed.
- Provide ITS camera on the Bay Bridge and a sensor /weather station in the grass median east of the Bay Bridge.

Two bridges would provide an option to close one bridge and direct all four lanes to the other bridge for major maintenance, incident management, and/or in the event of catastrophic bridge failure.

The Alternative 2 – Replacement improvement description is the same as Alternative 1 – Rehabilitation for Long Beach Island (defined in Section 3.4.2).

The new Bay Bridge would give redundancy to the system and provide safety for Long Beach Island residents.

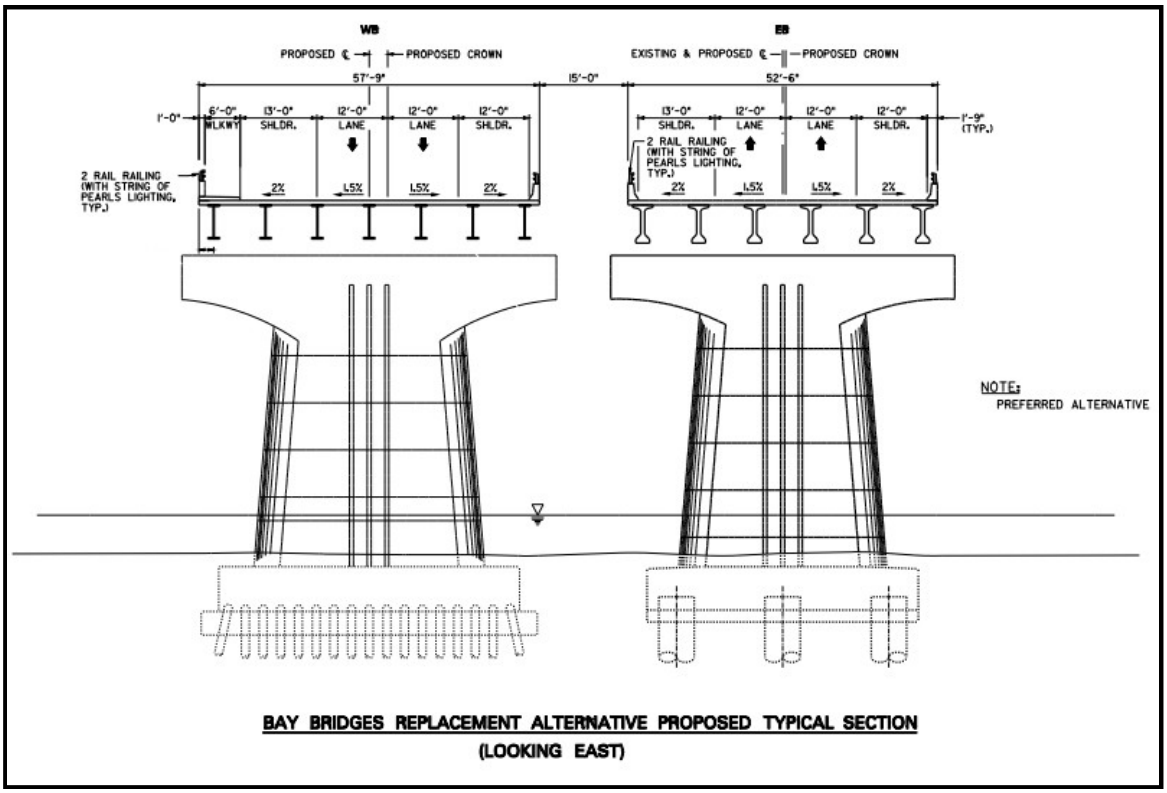


Figure 3.11 – Bay Bridge Typical Section (Alternative 2 – Replacement)

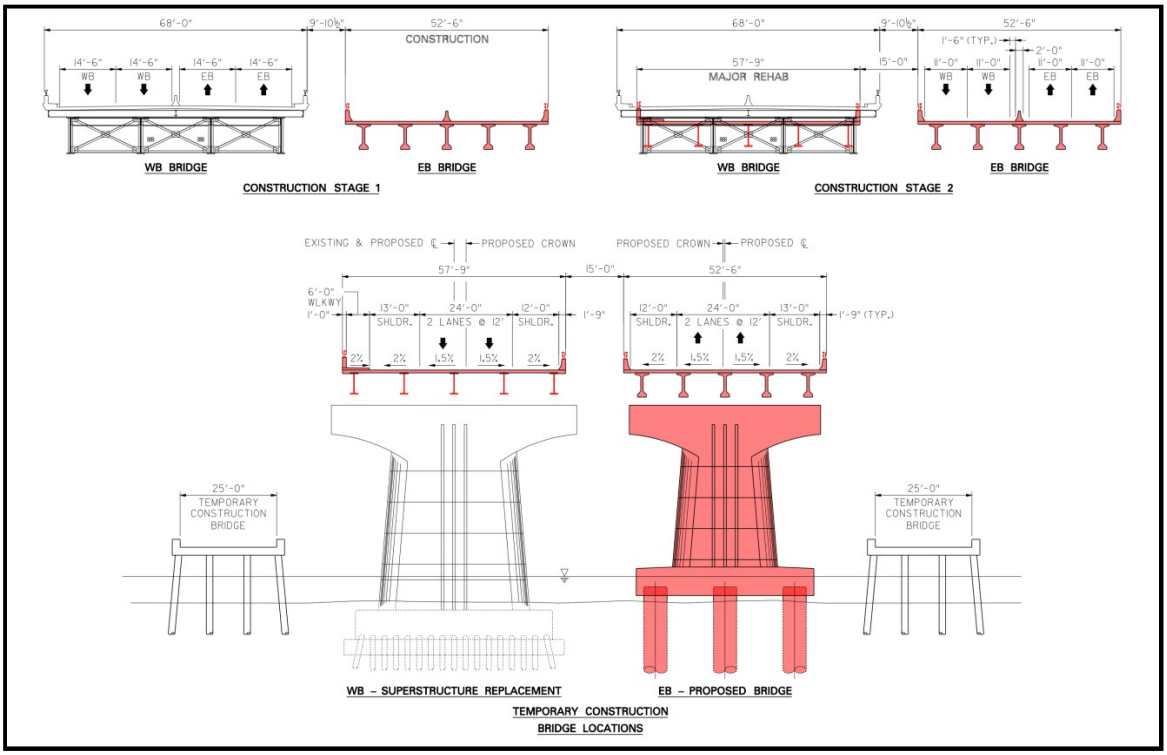


Figure 3.12 – Bay Bridge Construction Staging (Alternative 2 – Replacement)

THIS PAGE LEFT BLANK INTENTIONALLY.

4 Alternatives Analysis and Affected Environment

As defined under NEPA, NJDOT has considered a No Build and at least one Build Alternative for the EA. Based on the stated purpose and need for the project, NJDOT selected two Build Alternatives to evaluate (Alternative 1 – Rehabilitation and Alternative 2 – Replacement). This analysis shows that some aspects of Alternative 1 are preferred over Alternative 2 and vice versa. The Preferred Alternative will be made up of the best performing aspects of each alternative.

Marsha Drive intersection

The NJDOT has evaluated the impact of the alternatives on several elements/factors in the Affected Man-Made and Natural Environment in the following subsections. Each section includes a discussion on the impacts of the three studied alternatives.

4.1 Traffic and Congestion

Marsha Drive is the first signalized intersection motorists encounter west of the Causeway. It is a four-way signalized intersection in Stafford Township. Route 72 has two lanes of traffic in each direction, which are separated by a grass median. Marsha Drive has two approach lanes in each direction. Excessive summer traffic delays result from:

Bay Bridge

- Through traffic demand at the Marsha Drive signalized intersection exceeds its operating capacity on summer weekends; and
- Traffic turning left from Marsha Drive to Route 72 eastbound often backs up to Bay Avenue—an unsignalized intersection.

Only four lanes are needed to carry the existing and proposed daily traffic on the Causeway.

The Causeway has two lanes in each direction with intermittent shoulders. The posted speed is 55 mph. The existing roadway adequately handles the existing traffic. Crash rates are within the statewide norm except at the east end of the Causeway. Although traffic studies show the existing four lanes of traffic are adequate on the Causeway for design-year operations, improved operations are needed for the following reasons:

- There are no shoulders on the bridges. (Shoulders provide breakdown refuge, improve maintenance, improve incident management, and can serve as a coastal evacuation lane.)
- Bicycle compatibility.

- Sidewalk for safe pedestrian access.
- Accommodate long term traffic.

9th Street and Central Avenue

The Long Beach Island street system cannot handle the current and proposed traffic demands during summer months. Operational issues are caused by two factors: 1) There is an inefficient distribution of traffic among primary one-way streets. Long Beach Boulevard and Central Avenue are the primary north and south one-way streets, and 8th and 9th Streets are the primary east and west one-way streets. North-south drivers have to make numerous turning movements to get through Ship Bottom. Traffic coming onto or getting off the island also has to make additional turns. The signals are not coordinated, which increases delays for turning traffic. The layout of the streets also encourages drivers to make abrupt lane-changing movements as they travel through the street system; and 2) Street flooding caused by high tides and minor rainfall events create impassable conditions on 8th and 9th Streets, blocking exit from the island.

The Route 72 roadway design for Long Beach Island traffic is based on 1950's traffic data.

4.1.1 No Build Alternative

Under the No Build Alternative, the Marsha Drive intersection with Route 72 would not be improved and would continue to operate with an overall LOS F (Table 4.1). LOS F is a failing condition and long traffic lines can be expected. The existing four-lane Causeway would handle the 20-year design-year traffic in the eastbound and westbound directions. Since the bridges do not have shoulders or a sidewalk, the No Build Alternative would continue to suppress bike/pedestrian use of the Causeway.

Table 4.1 – Overall Level of Service (Saturday/Sunday peak hour)

	No Build	Alternative 1 Rehabilitation	Alternative 2 Replacement
Route 72 and Marsha Drive	F/F	D/C	D/D
Marsha Drive and Bay Avenue	E/F [1]	F/F [2]	D/F[1]
Route 72 Mainline (eastbound)	D/B	D/B	D/B
Route 72 Mainline (westbound)	D/F	D/E	D/E
Long Beach Island Traffic Signal System[3]	B-D/C-F	B-C/B-D	B-C/B-D

[1] Marsha Drive Approach

[2] Marsha Drive Approach (left lane, right lane)

[3] Level of service range for 8th and 9th Streets traffic signals

Coastal evacuation times were studied in 2004 and demonstrated that the four-lane Causeway could provide suitable evacuation during the tourist season as long as one eastbound lane were converted to a

westbound lane. There is much less off-season traffic, and coastal evacuation would be acceptable with only one westbound lane.

In Ship Bottom, the outdated traffic control system and traffic patterns would continue to cause congestion and long delays on Long Beach Island. The flooding on 8th and 9th Streets would remain unabated, effectively cutting off traffic between Long Beach Island and the mainland several times a year.

4.1.2 Alternative 1 – Rehabilitation

Additional lanes and expanded jughandles would improve the capacity at the Marsha Drive intersection, and the congestion would decrease from an overall LOS C to LOS D during the summer peak hours (see Table 4.1). However, the Marsha Drive southbound/northbound left turn lanes would still operate at LOS F during peak times. Saturday peak hours during the summer would operate at LOS E. The expanded jughandles would have more wetland impacts and cost more than Alternative 2 – Replacement.

No additional travel lanes would be needed on the Causeway section, and it would continue to provide adequate capacity throughout the design year. The trestle bridges would be rehabilitated to provide wider bicycle compatible outer travel lanes and a sidewalk on the westbound side of the bridge to improve safety for pedestrians and bicyclists (Figure 3.3). Without full-width shoulders, coastal evacuation planners would still convert one of the eastbound lanes to a westbound one for evacuation during the tourist season. The evacuation times would be acceptable using one lane in each direction for the off-season, so the contractor could close one lane during bridge rehabilitation.

In Ship Bottom, the proposed operational improvement would add lanes to existing sections of the streets, convert Long Beach Boulevard and Central Avenue to two-way streets, and modernize the traffic signal system. These improvements would markedly improve traffic operations in Ship Bottom. All intersections would operate at or above LOS D. Wider lanes and shoulders on the main roadways would be bicycle compatible and pedestrian friendly (Figure 3.7). The pump station installed near the intersection of 8th Street and Shore Avenue would be built to handle the 5-year design storm, and tide gates on the outfall pipes would be able to hold back high tides. This would significantly reduce the frequency and duration of flooding episodes that block traffic access to Route 72. However, this design would not be able to provide protection whenever high tides overtop the bulkheads along the bay side.

The ITS improvements, including a camera on the high point of the bridge and sensors with a weather station, would help reduce congestion on the approaches to the Causeway since the NJDOT would be able to adjust signal operation based on visual information from traffic cameras, and the travel time data measured by toll tag sensors installed in travel segments. Weather data helps NJDOT anticipate weather related delays. In addition, NJDOT could improve response to incidents to minimize the time that obstructions to traffic flow are present on the roadways.

4.1.3 Alternative 2 – Replacement

This alternative would add one through lane for each direction on Route 72 and reduce signal times needed for Route 72. The existing jughandles would be retained, but the Marsha Drive approaches would be widened to improve turning areas. This design would meet the traffic need and would have an overall LOS D for summer weekend peak hours. The Marsha Drive southbound/northbound approaches would improve to LOS D during the Saturday peak design hour (Table 4.1 and Figure 3.8).

On the Causeway, the trestle bridges would be replaced with a wider cross section and would include full-width, bicycle-compatible outside shoulders in both directions, and a sidewalk on the westbound side. Full-width shoulders would allow breakdowns/accidents to be moved to the side of the road without blocking traffic. The westbound shoulder could be converted to a travel lane to make coastal evacuation more efficient.

A new Bay Bridge would be constructed next to the existing bridge. Each bridge would have full-width shoulders in each direction, which could provide incident management and serve as temporary evacuation lanes; they could also be converted to permanent travel lanes if the need arises. Permanent crossovers at each end of the Bay Bridge would allow rapid deployment of temporary traffic control devices to make it convenient to detour traffic to either bridge for maintenance and incident management. A sidewalk would be added in the westbound direction. The Long Beach Island operational and ITS improvements are the same as defined in Section 4.1.2.

4.2 Maintenance of Traffic during Construction

Since Route 72 is the only way on or off Long Beach Island, maintaining traffic during construction is a key project need.

4.2.1 No Build Alternative

Under this alternative, there would be no construction activities; therefore, no traffic maintenance would be required.

4.2.2 Alternative 1 – Rehabilitation

Construction staging at the Marsha Drive intersection would be straightforward since the contractor could build new pavement outside the travel ways first (including expanded jughandles) and then shift traffic left or right to complete the intersection improvements.

The trestle bridges are too narrow to maintain four lanes of traffic and still have the contractor work on the bridge; therefore, the rehabilitation work on the trestle bridges would have to be performed during the off-season. Once the contractor reduces traffic to one lane in either direction, the contractor would have enough room to rebuild the westbound side of the bridge. Then traffic would be moved to the westbound side and the contractor would rebuild the eastbound half of the bridge. Since this work could be done during the off-season, no temporary bridges would be needed (Figure 3.4).

The Bay Bridge would be much harder to rehabilitate while maintaining traffic (Figure 3.6). This bridge is too large to completely finish any stage of work during the off-season. To maintain traffic, the contractor would have to build a temporary bridge for the cranes on the eastbound side. Then the contractor would widen the eastbound side while maintaining traffic on the existing bridge. Once this work is done, the contractor would have to relocate all of the equipment to a new temporary bridge built on the other (westbound) side of the bridge. Some utilities may have to be relocated along the westbound side of the Bay Bridge to install the temporary trestle. Traffic would be shifted to the newly built portion of the bridge and the southerly portion of the existing bridge. The contractor would then widen the westbound side. Once the two outside sections are built, traffic would move to the outside lanes while the contractor works on the middle section. During this stage, construction workers and motorists would be exposed to more traffic, and there would be more frequent, temporary traffic stoppages for the contractor to deliver materials. Working on the middle section would be most hazardous since the

contractor's work force would be exposed to traffic on both sides as well as nighttime work conditions. Cross-overs would be required to facilitate shifting traffic between bridges.

Although traffic could be maintained as needed throughout the construction period, this alternative would be the least desirable during construction.

The work in Ship Bottom would affect a number of streets. However, the contractor would systematically widen either side of the street and move traffic back and forth and would be able to maintain an adequate number of lanes. Some work would be performed in the off-season when fewer travel lanes need to be maintained. The contractor would use temporary access driveways to maintain access to all businesses throughout construction, especially when installing the storm sewers. The pump station would be constructed on its own property, so it would not affect traffic.

ITS improvements along the corridor would be located out of the travel way and require only localized shoulder closings to install the poles, pads, and protective guiderail.

4.2.3 Alternative 2 – Replacement

The design for Marsha Drive would be similar to Alternative 1 – Rehabilitation, except simpler, since there would be no jughandle ramp construction, which would make it much easier to maintain traffic.

This alternative would replace the existing trestle bridges, making them wider and raising the vertical profile. The full replacement could not be completed in one off-season, and the contractor would be required to maintain four lanes of traffic; therefore, the contractor would build a temporary bridge to carry one direction of traffic on the eastbound side and keep traffic in the westbound direction on the old bridge. The contractor would then replace the eastbound half of the bridge. Once the new portions of the bridges are completed, the traffic would be shifted to the new part of the bridge and the remainder of the bridge would be replaced. It is expected that this alternative would also have more impact on some of the local residences since temporary easements would be needed to build the temporary bridges. This alternative would take longer to construct but would maintain two lanes of traffic in each direction at all times except for temporary closures for material delivery.

Adding a second, parallel span for the Bay Bridge would simplify traffic maintenance. The contractor would build a temporary work bridge offset from the eastbound side of the existing bridge and would build the new bridge between the temporary bridge and the existing Bay Bridge. The new Bay Bridge would be wide enough to handle four lanes of traffic during the next construction phase. Once the new bridge is built, traffic would be moved to the new bridge. The contractor would move the temporary bridges to the westbound side and demolish the superstructure of the existing bridge. Cranes working from the temporary bridge would then remove the huge existing steel girders and erect the replacement girders. All of the work on the existing bridge would take place away from traffic. This alternative would take approximately 12 months less than Alternative 1 – Rehabilitation, and would be safer for contractors and motorists since they would not be in close proximity.

Adding a second span would also reduce risks to residents by providing redundancy. If one bridge had a problem, traffic could be rerouted to the other bridge. This sequence would be preferable to Alternative 1 – Rehabilitation. However, once built, there would only be two lanes of traffic in each direction under normal operating conditions, although additional capacity could be made available under emergency situations.

The Long Beach Island segment and ITS installation would be the same as Alternative 1 – Rehabilitation, so there would be no difference in impacts between the two alternatives.

4.3 Secondary, Indirect and Cumulative Impacts

Secondary, indirect and cumulative impacts are not directly associated with the project footprint but result from building the project. These impacts usually occur at some other place and/or occur at some other time; for instance, roadway projects can cause secondary growth in the surrounding countryside by making it more convenient or less expensive to live farther from an employment center. That convenience in turn encourages other landowners to build projects that affect the environment. The NEPA process requires the builder of the roadway to identify and consider the cumulative environmental impacts of the portion of the secondary, indirect and cumulative impacts that would not have occurred except for the proposed project. If the accumulated impacts of the proposed project and the offsite projects are deemed significant, NJDOT must prepare an EIS for the project.

However, not all roadway projects encourage additional development. Many projects, like this one, simply preserve existing infrastructure and eliminate inefficient operations to reduce congestion. In these circumstances, any additional growth that would occur does so despite the construction of the project. These types of impacts are not associated with the project and are not assessed as secondary, indirect and cumulative impacts. The FHWA generally believes that projects that do not increase through-corridor capacity do not trigger secondary growth impacts. NJDOT would not build any through lanes longer than 0.5 mile long on Route 72 and therefore would not trigger the need to consider secondary growth. The Causeway would meet design year demands; therefore, the Causeway would not limit development on Long Beach Island nor would it limit development in the future. In other words, this project would not have any impact on any development on the Barrier Island. Long Beach Island is fully developed so substantial growth on Long Beach Island is not expected regardless of the bridge capacity.

Indirect impacts can sometimes be considered significant if the roadway changes land use patterns by making access to existing development less desirable; for instance, a roadway could dissect a neighborhood or access could be denied to property owners—forcing businesses to close and residents to relocate. However, the Route 72 project would maintain access to properties and the existing street system. The project would not isolate neighborhoods or disrupt community services. There would be no low-income or minority-dominated neighborhoods in the project area. Developable land on Cedar Bonnet and Bonnet Islands has already developed. NJDOT would maintain access to the existing residential and commercial development on these islands. Almost all the remaining undeveloped land on these islands is protected by environmental regulations or incorporated into the national refuge and protected from development.

Since there would not be any indirect impacts or significant changes in existing land use generated by building this project, no specific developments other than the proposed project need to be identified or studied for this EA.

4.4 Public Transit

None of the alternatives would have a significant impact on mass transit. There are no operating public-transit bus routes to Long Beach Island, and there is no rail service near the project. Long Beach Island is a summer tourist destination with limited year-round population. Existing jobs tend to align with local

tourism. Long Beach Island is a resort community and most of the traffic is associated with recreational traffic coming to the shore sporadically. These non-recurring trips are not conducive to dedicated systems such as light rail or bus rapid transit. However, the proposal does not preclude adding bus service in the future.

4.5 Right-of-Way and Access

Right-of-way (ROW) in the area is owned by NJDOT to build and maintain the roads. NJDOT owns a wide ROW along Route 72 between Stafford Township and Long Beach Island. Nearly all of the proposed roadway improvements would be constructed within the existing ROW. Some additional ROW for this project is owned by other government entities, including Ocean County and Ship Bottom. Overall, the ROW acquisition for the alternatives would be small (less than 0.6 acres) and would not have a significant impact on property owners or the municipal tax base.

Each property owner needs access to his or her property; however, too many driveways can cause congestion on busy streets. The New Jersey Highway Access Code objective is to address this congestion by reducing the number of driveways along its roadways. The code also has provisions for alternate access that moves as many driveways to side streets as possible, which may involve access negotiations with property owners. Sometimes the access code can require a change in driveway access.

4.6 No Build Alternative

No new ROW would be needed for the No Build Alternative; however, NJDOT and Stafford Township dispute ownership of Block 185, Lot 68. In an effort to resolve the dispute, Stafford Township has agreed to donate the disputed lot to NJDOT exclusively for this project. The No Build Alternative also would have no impact on access but would not reduce congestion or eliminate operational problems, especially on the barrier island.

4.6.1 Alternative 1 – Rehabilitation

The Marsha Drive jughandle would be constructed within the existing ROW. Only small strip takes would be needed along Marsha Drive north of Route 72, which would total just over 0.1 acre.

There would be no changes in access and no private property would be needed for the Causeway portion; however, the State of New Jersey claims ownership of all lands that are flowed or formerly flowed by the tide, which are known as tidelands. The trestle bridges would be reconstructed mostly within the existing tidelands grants (0.08 acre), but NJDOT would need permanent tidelands grants for the widened Bay Bridge (1.21 acres) and temporary construction easements (16.91 acres) (see Table 4.2). NJDOT presently owns excess tidelands along the former bridge alignment to the north of the existing bridges. NJDEP and NJDOT have agreed to swap the excess tideland areas to the north to offset the required tideland areas to the south for this project, thereby minimizing impact on project's tideland needs.

There would be no driveway access changes in the Marsha Drive or the Causeway portions for this alternative.

On the Barrier Island segment, nearly all the new pavement could be built within the existing ROW. There would be a few hundred square feet of ROW needed at two intersection corners that curve onto the private property. NJDOT would maintain access to all properties on the barrier island; however,

several driveways would be reconfigured to move driveways farther away from intersections to reduce conflicts. "In-only" access from 9th Street would be imposed on a few businesses, which would not cause a significant impact since these businesses would also have access to 10th Street. These improvements would balance convenient access with reducing traffic conflicts. Overall traffic flow would improve and would benefit the local businesses.

NJDOT is currently negotiating the location of the proposed pump station. Each of the alternatives in Ship Bottom would be located in developed areas and would include private properties and the area within the existing ROW between 8th and 9th Streets. Each of the potential pump station locations would be in developed areas and would have no significant impact on the environment. A sand filter and trash rack structure could be located on private property. It is expected that NJDOT would acquire less than 1.0 acre of developed commercial property for the pump station.

No additional ROW would be needed to install the ITS facilities or the remainder of the stormwater management facilities. Permission to install ITS on the parkway would be needed from the New Jersey Turnpike Authority.

Off-site mitigation sites are commonly added to projects to address regulator demands. These sites are intended to restore existing ecosystem function and by definition are not considered to have significant impacts. The FHWA would perform an environmental reevaluation for any offsite parcel.

4.6.2 Alternative 2 – Replacement

For this alternative, the ROW needs at Marsha Drive would be less than 0.1 acre.

Access road under bridge

Replacing the trestle bridges would require both permanent and temporary tidelands instruments for the wider bridges—0.37 acre of permanent impact and 4.73 acres of temporary impact. In addition, temporary easements would be needed from private properties to relocate the roads for access to the temporary bridges (0.1 acre). There is an existing, narrow, one-way access road to and from the community on the south side of Cedar Bonnet Island that goes under the bridge as it crosses West Thorofare. This road would be eliminated in this alternative; however, access to the community would remain but would be less convenient since the residents and visitors would have to travel roughly 0.5 mile to the U-turn ramps on Bonnet Island or about 0.25 mile to the U-turn ramps in Ship Bottom. These U-turn distances would be consistent with other divided highways in the state. Pedestrian sidewalks under the bridges would be maintained.

Building the new Bay Bridge would result in new permanent (4.81 acres) and temporary (15.24 acres) tideland easements (Table 4.2). The NJDEP would swap tidelands with other tidelands owned by NJDOT.

The ROW impact for the Long Beach Island improvements and ITS would be the same as in Alternative 1 – Rehabilitation. Overall, Alternative 2 – Replacement would have more ROW needs than Alternative 1 – Rehabilitation, but, in general, there would be no significant impact from this alternative. Mitigation parcels would be addressed as noted above.

Table 4.2 – Environmental Resource (Alternative1 and Alternative 2 Impacts)

PROJECT AREA	Mapped Coastal Wetlands	Freshwater Wetlands and Unmapped Coastal Wetlands	Wetland Transition Areas	Riparian Zone	Submerged Aquatic Vegetation	Intertidal / Subtidal Shallows	Shellfish Habitat	Wildlife Refuge	Green Acres	Tidelands	Net Impervious Area
ALTERNATIVE 1 - REHABILITATION											
Marsha Drive *Route 72 Jughandles*											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Permanent Impacts (Ac. +/-)	0.61	0.54	0.82	0.22	0.00	0.00	0.00	0.00	0.00	0.08	3.03
Total Impacts (Ac. +/-)	0.61	0.54	0.82	0.22	0.00	0.00	0.00	0.00	0.00	0.08	3.03
Manahawkin Bay Bridge *Symetrical Widening*											
Temporary Impacts (Ac. +/-)	0.20	0.00	0.00	0.00	1.40	0.26	0.36	0.00	0.00	16.91	0.00
Permanent Impacts (Ac. +/-)	0.00	0.00	0.00	0.18	2.32	1.85	1.83	0.00	0.00	1.21	3.17
Total Impacts (Ac. +/-)	0.20	0.00	0.00	0.18	3.72	2.11	2.19	0.00	0.00	18.12	3.17
Trestle Bridges *Rehabilitation of Existing Structures*											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
Permanent Impacts (Ac. +/-)	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Total Impacts (Ac. +/-)	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.08	1.00
LBI Improvements *Operational and Drainage*											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Permanent Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
Total Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
ALTERNATIVE 1 TOTAL IMPACTS (Ac. +/-)	0.81	0.54	0.82	0.80	3.72	2.11	2.19	0.00	0.00	18.28	9.70
ALTERNATIVE 2 - REPLACEMENT											
Marsha Drive											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Permanent Impacts (Ac. +/-)	0.09	0.01	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.10	2.52
Total Impacts (Ac. +/-)	0.09	0.01	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.10	2.52
Manahawkin Bay Bridge *New Parallel Structure*											
Temporary Impacts (Ac. +/-)	0.16	0.00	0.00	0.15	1.35	0.23	0.25	0.00	0.00	15.24	0.00
Permanent Impacts (Ac. +/-)	0.17	0.00	0.29	3.01	2.59	2.00	2.15	0.00	0.00	4.81	3.80
Total Impacts (Ac. +/-)	0.33	0.00	0.29	3.16	3.94	2.23	2.40	0.00	0.00	20.05	3.80
Trestle Bridges *Symmetrical Widening*											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.03	0.24	0.43	0.60	0.00	0.00	4.73	0.00
Permanent Impacts (Ac. +/-)	0.00	0.00	0.00	1.26	0.07	0.02	0.03	0.00	0.00	0.37	1.39
Total Impacts (Ac. +/-)	0.00	0.00	0.00	1.29	0.31	0.45	0.63	0.00	0.00	5.10	1.39
LBI Improvements *Operational and Drainage*											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Permanent Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
Total Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
ALTERNATIVE 2 TOTAL IMPACTS (Ac. +/-)	0.42	0.01	1.15	4.45	4.25	2.68	3.03	0.00	0.00	25.25	10.21

THIS PAGE LEFT BLANK INTENTIONALLY.

4.7 Section 4(f) Compliance

Section 4(f) of the Department of Transportation Act of 1966 protects historic sites, parkland, conservation land, and refuges near federally funded highway and bridge projects. The State Historic Preservation Office (SHPO) has been consulted as required by Section 106 of the Historic Preservation Act and concluded there are no historic sites in the project area; therefore, there is no Section 4(f) review needed for historic properties (see SHPO letter in Appendix A).

Wildlife refuge

There is public conservation space owned by Ocean County near the intersection of Marsha Drive and Bay Boulevard. The US Fish and Wildlife Service (USFWS) owns the Edwin B. Forsythe National Wildlife Refuge that is adjacent to the Causeway on Bonnet Island (see Figure 4.1A at the end of the chapter). The NJDOT would not use any of the parkland or the refuge to build any of the proposed alternatives; therefore, no Section 4(f) is required for direct impact. However, Section 4(f) rules also require the NJDOT determine where there will be an increase in traffic noise that would affect a sensitive noise receptor (e.g., a refuge). The NJDOT project cannot increase the noise so much on the refuge that it severely disrupts the use of the refuge. This is called constructive use.

It is important to understand that Section 4(f) regulates only the increase in noise, not the actual noise level. Furthermore, it regulates only the increase in noise that can be traced back to a roadway design change. This means that if noise increases for reasons other than the design change then it is not regulated.

Traffic noise generally increases when traffic increases. Since the project would not increase traffic capacity, it would not increase noise for the Section 4(f) analysis.

Traffic noise can increase when roads are shifted closer to the refuge. The new Bay Bridge would be closer to the wildlife refuge so it could potentially increase noise.

The first step in the noise analysis is to estimate the noise levels that would occur in the design year for the No Build Alternative. The noise is then estimated in the Build Alternative. The two are compared. If the noise increases significantly there can be an impact.

Noise is measured with a unit called a decibel (dBA). The FHWA has determined that 66 dBA is the threshold where noise could affect a sensitive receptor like the refuge. Only if the projected noise levels exceed 66 dBA will there be a concern.

The NJDOT tested the 2035 design year No Build Alternative noise level and determined it would exceed 66 dBA near the refuge, which triggered a concern. The NJDOT next calculated the 2035 design year for Alternative 2 - Replacement since it would have the widest footprint at the refuge (Alternative 1 – Rehabilitation would have an even less increase) and found that the noise did increase near the refuge but the increase was less than 3 dBA. Any noise increase that is less than 3 dBA is barely perceptible. Since there would be no perceptible noise increase on the refuge there would be no constructive use.

During public outreach, the NJDOT informed the public that additional public access mitigation will be required by NJDEP regulations. The USFWS approached the NJDOT with a request for the NJDOT to build some of the public access mitigation measures such as public bird watching, nature trails, habitat restoration, and fishing on the national wildlife refuge. Mitigation on the refuge is exempted from Section 4(f) if the refuge managers agree in writing to the proposed work; therefore, since the refuge managers are in favor of this mitigation, this project does not result in the use of any Section 4(f) property.

4.8 Wetland and Open Water

NJDOT calculated the impacts to natural resources (including wetlands) based on the following assumptions (see Figure 4.3 for demonstration of how NJDOT calculated typical impacts):

- Resources are delineated as shown in Figure 4.1A and 4.1B.
- Several of these resources such as SAV, shellfish, and intertidal shallows overlap so totals do not add up to the footprint.
- Permanent impacts are the footprint of construction excluding temporary access plus shading impacts to SAV and wetlands. Shading does not affect open water or shellfish.
- Temporary impact is the area of access ways to the temporary bridges.
- Construction access in open water is primarily via temporary bridges built on pile foundations.
- Bridge foundations in open water are built in sheet pile cofferdams.

These estimates are based on typical construction techniques used by contractors in the New Jersey geographic region. They are also based on conceptual designs of the alternatives since detailed engineering data is not available until final design. All impact areas in this document are used solely to compare alternatives and to determine if there are significant impacts within the NEPA process; therefore, these impacts should not be considered sufficiently accurate for developing actual mitigation plans or permits.

4.8.1 The Determination of Wetlands and Open Water in the Project Area

Wetlands are those areas between open water and firm, dry land. These special areas are a valuable resource to our environment because they help preserve water quality, protect groundwater by slowing down and retaining flood waters during periods of rain, and remove sediment and pollutants from the water. Wetlands provide habitat for an amazing diversity of wildlife. Both the USACE and NJDEP have jurisdiction over the wetlands and open waters located in the project area.

Biologists conducted reviews of existing information by contacting all appropriate resource agencies and performed field investigations. Wetlands were delineated and documented in May and June of 2009 (Figure 4.1B). Vegetation, soils, and hydrology were examined for evidence of wetland characteristics according to methodologies outlined in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee on Wetland Delineation, 1989), the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (USACE 2008). All of these delineation methodologies were used since wetlands under the jurisdiction of both the USACE and

NJDEP were present within the study area. There were no discrepancies in the wetland/upland boundaries using the 1987, 1989, and 2008 delineation methodologies.

Coastal/tidal wetland

Manahawkin Bay is the primary water body in the project study area. According to the NJ Surface Water Quality Standards (N.J.A.C. 7:9B), Manahawkin Bay has been designated as Saline Estuarine 1 (SE1) waterway. Manahawkin Creek and Cedar Creek discharge to Manahawkin Bay from the mainland. Both of these water bodies have been classified as Freshwater 2 Non-Trout/Saline Estuarine 1 (FW2-NT/SE1). Waterways within the boundary of the in the Edwin B. Forsythe National Refuge and the Manahawkin State Wildlife Management Area are defined as Category 1 waters; however, the boundaries of the refuge exclude land claimed by New Jersey as tidelands. Limits of the C1 waters are shown on Figure 4.4 but are subject to verification during the permit phase.

In accordance with the methodologies described above, wetlands delineation identified freshwater and coastal wetlands. While the project area contains mostly coastal wetlands, there are limited amounts of freshwater wetlands adjacent to Marsha Drive and Route 72 near Marsha Drive; however, the project would have limited impacts to wetlands.

4.8.2 Intertidal/Subtidal Shallows

Intertidal/subtidal shallows are defined as "all permanently or temporarily submerged areas from the spring high water line to a depth four feet below mean low water." Some of these special habitats support SAV, including rooted subaqueous plants—particularly eelgrass. These areas are favorite breeding habitats for marine creatures and provide protection for crabs and many small bait fish that support the food chain. Because portions of Manahawkin Bay within the project limits are shallow, there is an abundance of SAV and the beds were mapped by the NJDEP. The survey showed that the majority of the shallow waters in the study area contain SAV (Figure 4.1B).

Submerged aquatic vegetation (SAV)

There are two primary ways in which the proposed project activities could affect wetlands and open water resources:

- Placing of fill material that completely displaces a resource; and
- Shading under the bridge for natural resources that thrive in full sunlight.

The only resources NJDOT considers as affected by bridge shading would be wetlands and documented SAV, since both these resources need full sunlight. (Refer to Table 4.2 for all environmental resource impacts across alternatives.)

Alternative 1 – Rehabilitation

Wetlands and open water and SAV impacts associated with this alternative are summarized below.

Resource Type	Permanent (acres)	Temporary (acres)	Total (acres)	Activity
Coastal Wetlands	0.61	0.20	0.81	Installation of new jughandle (Scour Project)
Freshwater Wetlands	0.54	0.00	0.54	
SAV	1.40	2.32	3.72	Bay Bridge construction (Scour Project)

Most of the wetland impacts would be caused by the installation of the new jughandles and widening at Marsha Drive, and construction of the wider Bay Bridge. Since two temporary work platforms would be needed for widening the Bay Bridge, the temporary bridges would have a temporary impact on SAV. There would be no SAV impacts due to rehabilitation of the trestle bridges because the bridge will not be widened and no temporary construction trestles are proposed. The abutments of the existing Bay Bridge are Scour Critical. NJDOT will install counter measures around both abutments. The scour counter measures are assumed to be articulated concrete mattresses. These are mats that have hundreds of individual concrete blocks that are interconnected by wire rope. This design has space between the individual blocks that will be filled with soil so vegetation can grow within the mats. These mats are responsible for much of the impact on shallow water habitat and riparian zones. This alternative has less impact than Alternative 2 - Replacement.

Alternative 2 – Replacement

Wetlands and open water and SAV impacts associated with this alternative are summarized below.

Resource Type	Permanent (acres)	Temporary (acres)	Total (acres)	Activity
Coastal Wetlands	0.26	0.16	0.42	Construction of new Bay Bridge; widening of trestle bridges; Marsha Drive improvements
Freshwater Wetlands	0.01	0.00	0.01	
SAV	2.66	1.59	4.25	Construction of new Bay Bridge; widening of trestle bridges (Scour Project)

Impacts to wetlands would be less at Marsha Drive for this alternative because there would be no new jughandles. Widening of the trestle bridges would affect SAV and intertidal/subtidal habitat, including impacts associated with temporary bridges. A new Bay Bridge is proposed for this alternative and the new bridge would have both permanently and temporarily affect SAV. This alternative would result in slightly greater temporary and permanent impacts to SAV and shallow water habitat than Alternative 1 – Rehabilitation. The outfall for the proposed pump station may impact open water near existing marinas.

4.9 Wildlife and Habitats

The environmental studies reveal that more than 70 different species of birds use the bay and adjoining uplands; in addition, they support deer otter, raccoons, and numerous other mammals. Snakes, turtles, and other non-game species are also found in the area, as well as a few reptiles and dozens of game and non-game fish species can be found at different times in the Manahawkin Bay area. These habitats also support both resident and protected migratory species.

Kemp's ridley

However, almost all of the project area for any of the alternatives is within the existing filled footprint of Route 72 or on adjacent developed properties. These areas are frequently mowed and are not very productive habitats. Accordingly, widening within these areas would not have a significant impact on any wildlife in any of the alternatives. Potential impact to threatened and endangered species and aquatic species related to the open water work is addressed below.

Diamondback terrapin

4.9.1 Threatened or Endangered Species and Species of Concern

The databases from the State of New Jersey and from the USFWS identified several Threatened and Endangered (T&E) species that use the Manahawkin Bay and adjacent uplands. NJDOT surveyed the project area and no species or habitat for these species was found in the project footprint; however, there is forage habitat for fish and bird species, including osprey, black skimmer, and black-crowned night heron. There are osprey nests almost 0.5 mile away from proposed project activities. In general, osprey nests are not affected by construction activities unless they are less than 0.25 mile away; therefore, none of the alternatives would affect osprey nests.

Atlantic leatherback

The NMFS has indicated that several species of sea turtle including the federally endangered Kemp's ridley (*Lepidochelys kempi*) and Atlantic leatherback (*Dermochelys coriacea*) as well as the federally threatened loggerhead (*Caretta caretta*) and Atlantic green sea (*Chelonia mydas*) may occasionally be present within Manahawkin Bay in the vicinity of the project area. None of the four species of turtle nest in New Jersey; therefore, impacts to nesting activities are not a concern.

Kemp's ridley, loggerhead and green sea turtles have fairly similar life cycle characteristics, distributions, and habitat preferences. These species mate and nest in southern latitudes in nests located on sandy, ocean and bay beaches. The first several years of their life stage is spent deep sea portions of the Gulf of Mexico and along the Atlantic coast. Once matured, the turtles move closer to shore living in shallower waters along the continental shelf and within bays and estuaries. The turtles feed on a variety of

organisms including crabs, sponges, tunicates and occasionally small fish. These species migrate south from New Jersey waters in the fall (October/November) and return in the spring (June).

The Atlantic leatherback is the largest turtle in the world; it leads a slightly different type of existence from the other sea turtles. Because of its size it tolerates colder temperatures than the other species of sea turtles allowing it to live in colder temperate latitudes as well as warmer waters. Juvenile leatherbacks are thought to live in the open oceans and adults do venture into bays and estuaries on occasions to forage on jelly fish.

The primary threats to all of these turtle species have been related to nesting. The combination of loss of habitat and predation has devastated the populations of each species. Because the proposed project will not have any impact on nesting habitat or breeding behavior, the primary concern is associated with impacts that occur in the marine environment.

The Diamondback terrapin, a coastal turtle, is not an endangered species but is a species of concern, especially in New Jersey. During the mating season, the female terrapin leaves the estuaries, seeking suitable sandy spots above the high-water line to lay her eggs. The terrapin prefers sand dunes but often travels inland to find nesting spots, which may include crossing roadways. NJDOT will evaluate the potential turtle pathways along Route 72 and will incorporate measures if needed to reduce opportunities for turtles crossing the roadway in the permit documents.

The USFWS has reviewed the documentation and agrees that there are no impacts to federally listed T&E species and concluded consultation as required under Section 7 of the Endangered Species Act.

Additionally, the Manahawkin Bay tributaries are used by blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*). These are anadromous species that spend most of their adult lives at sea and periodically move into freshwater streams to spawn. These fish can be found in Manahawkin Bay year round, but they tend to move through the project area en masse during spawning runs which typically last from March 1st to June 30th. Timing restrictions will be instituted during construction to prevent any impact to water quality that might harm anadromous fish.

4.9.2 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act mandates that federal agencies perform an Essential Fish Habitat (EFH) assessment for projects that could have an impact to important fisheries. The EFH (Appendix D) was completed in 2010 and was prepared in consultation with National Oceanic and Atmospheric Administration, NMFS. EFH includes the waters and substrate necessary for fish to spawn, breed, feed, and grow to maturity. This EFH assessment includes evaluation for habitats for winter flounder, Blue Claw crab, and bluefish that are recreationally and commercially important to the Long Beach Island economy and the larger Manahawkin Bay area. The EFH assessment showed an adverse effect to EFH, primarily caused by the temporary and permanent disturbance of SAV and reduction of shellfish foraging habitat; however, these impacts would be minimized through the use of appropriate soil erosion and sediment control measures and timing restrictions for in-water work during construction. The likely impacts to EFH are discussed in the impacts to SAV, Shellfish and intertidal / subtidal shallows.

Additionally, any unavoidable losses to habitat would be mitigated as required under the federal and state permit requirements. The USACE and NJDEP will consult again with the USFWS, NMFS and the NJDEP Division of Fish and Game during the mitigation selection and approval process.

4.9.3 Shellfish

The Manahawkin Bay has a rich shellfish heritage dating back to colonial days. Shellfish are still harvested within sight of the Route 72 Causeway. Shellfish, including oysters and clams, are important commercial and recreational resources.

Shellfish are filter feeders and can be affected by turbidity. NJDOT would enact strict soil erosion and sediment control features (approved during the permit process) to be installed during construction and would install stormwater quality controls in the built condition to minimize any indirect impacts to this commercial resource. As summarized below, direct impacts to the habitat would be limited to the displacements caused by pier foundations and fills. NJDOT will coordinate with the NJDEP to mitigate by making monetary contribution for these losses in accordance with environmental regulations. As part of the overall mitigation program, the local shell-fishermen will be notified prior to construction to allow them time to enter and harvest shellfish within the project impact limits.

Alternative	Shellfish Impact (acre)	Intertidal Shallows (acre)	Activity
No Build	0.00	0.00	
Alternative 1 – Rehabilitation	Temp. 0.36 Perm. 1.83	Temp. 0.26 Perm. 1.85	Construction of wider piers for the rehabilitated Bay Bridge
Alternative 2 – Replacement	Temp. 0.85 Perm. 2.18	Temp. 0.66 Perm. 2.02	Construction of wider trestle bridge piers and foundation for new Bay Bridge

4.10 Flooding

4.10.1 Floodplain

The Federal Emergency Management Agency Study for Ship Bottom and Stafford Township, Ocean County, New Jersey, shows the 100-year tidal floodplain for the Manahawkin Bay to be about elevation 8 feet NGVD (National Geodetic Vertical Datum, 1988). The peak flood elevations in New Jersey can come from either hurricanes or nor'easters. Some of the Long Beach Island street system east of the Causeway is below elevation 3.0 feet; therefore, the streets will have about 5 feet of water at the 100-year flood event. While it is normal practice to place roadways above the 100-year flood, it is not practical to raise the streets in Long Beach Island by up to 5 feet. This would cut off access to many businesses and residences in the project area.

The lowest part of the Causeway is about elevation 6.3 feet on Cedar Bonnet Island. Most of Route 72 west of the bay is above the 100-year flood event, with a few spots that are lower than 1 foot. Marsha Drive north of Route 72 gradually tapers down to about elevation 3.0 feet near Bay Avenue.

The project is located entirely in the tidal zone; therefore, the NJDEP Flood Hazard Area rules on net fill and restricting peak runoff flows to prescribed preconstruction levels do not apply.

Alternative 1 – Rehabilitation

This alternative would minimize the amount of roadway work and would not change the profile of the roads. The proposed improvements to address the existing frequent flooding on the streets near the bay in Ship Bottom are presented in Section 3.4.2. Near Marsha Drive most of Route 72 is above the 100-year event; however, the intersection of Bay Avenue would remain below the 100-year flood elevation. Since the existing trestle bridges would not be replaced, the small section of roadway on Cedar Bonnet Island would not be raised and would remain about 1.5 feet lower than the 100-year flood. There would be no significant grade change to any of the streets in Ship Bottom.

ITS facilities would predominantly be on poles and equipment cabinets installed at existing grade; therefore, this alternative would not substantially change the risk of flooding. There are no significant impacts on the floodplain from this alternative.

Alternative 2 – Replacement

This alternative would not change the elevations of Marsha Drive and Bay Avenue or change the grades in Ship Bottom; however, the bridges over East and West Thorofare would be replaced and the profile on Cedar Bonnet Island would be raised above the 100-year flood. This could require additional easements to reconstruct the access road into the existing communities. This would ensure that the Causeway would remain passable in the 100-year flood; however, the approaches in Ship Bottom would be flooded before the Causeway and few, if any, vehicles would be able to get onto the Causeway. This alternative would create no significant impacts.

4.10.2 Roadway Flooding

A portion of the roadway in Ship Bottom floods on a routine basis, especially near the intersection of 8th Street and Shore Avenue. This is caused by a combination of low-lying roads, substandard storm drainage system, and backing up of the tide into the pipe systems. Street flooding is exacerbated during rainfall events that occur at high tide.

Development typical for proposed pump station

NJDOT has decided to reduce the frequent flooding by building a pump station near the intersection of 8th Street and Shore Avenue. Stormwater pump stations have high-volume, low-pressure pumps. These pumps are designed to drain the runoff during rainfall and high-tide conditions. Tide gates would be installed in the outfalls to keep bay water from backing up into the system. The new piping system would be built to carry water to the station and a trash rack and grit removal component will be added to the pump station. The pump station discharge into the bay would be located at or near the same location as the current discharge so there would not be a significant impact to the bay.

Ship Bottom drainage issues

The proposed improvements would reduce the flooding frequency up to the 5-year design storm but would have no effect on 100-year storm. The existing building would be relocated near the intersection of 8th Avenue and Shore Avenue (see Attachment A). The building would be designed to blend into the neighborhood and would be designed to meet local noise ordinances. This would dampen any excessive noise made by the pumps to acceptable levels. Since the pumps would have to work, even if the electricity goes out, NJDOT would install a backup generator at the pump station. The generator would run on diesel fuel, but there would be mufflers on the exhaust to minimize noise to acceptable levels. If practical, the station would be designed to allow gravity flow of stormwater during minor storms occurring at low tide. This would reduce the number of pumping events.

4.10.3 Stormwater Runoff

New Jersey stormwater management regulations require stormwater treatment facilities for all projects that increase the paved surface in the project area by more than 0.25 acre. This is an anti-degradation rule, meaning the applicant cannot increase the amount of total suspended solids (TSS) discharged to the receiving water. Paved surfaces collect dirt and grime. When this dirt is washed off during a rain event, some of the dirt is mixed in the runoff and is a component of the TSS contained in runoff. When it rains, the TSS is washed into the bay. New Jersey's Stormwater Management Rules (NJAC 7:8) require 85 percent TSS in runoff be removed by installing stormwater treatment devices. The common treatment devices likely to be included are detention basins, infiltration basins, sand filters and manufactured water quality treatment devices. The manufactured devices could include concrete chambers, vortex or swirl devices and filter media. Category 1 waterways are located on Bonnet and Cedar Bonnet Islands. Discharges to these areas would be avoided where practical. If needed, the treatment devices would be designed to remove 95 percent of the anticipated TSS. NJDOT expects to build approximately 10 acres of new impervious surface for this project; therefore, NJDOT would have to install stormwater management facilities to treat the runoff from the site. However, since the project is in the tidal area, only water quality treatment would be needed.

Typically, the NJDOT would build detention basins to treat the runoff from the pavement. Basins are usually built next to the road on undeveloped upland; however, most of the land along Route 72 corridor is developed, environmentally sensitive, or not suitable for stormwater management basins. There is enough room to build only one small infiltration basin near Marsha Drive.

Given the lack of available land, NJDOT's on-site options are limited. NJDOT is planning to build sand filters placed under the paved surface of the road to treat the runoff. Sand filters are large concrete chambers, partially filled with sand, that remove TSS. This method is a costly way to meet the regulations, because it treats a small amount of runoff by removing a high degree of TSS. NJDOT is working with the Barnegat National Estuary Program, the county, and local governments to identify whether it is feasible to build or rehabilitate offsite systems in a way that removes much more TSS overall while making on-site systems less expensive. This approach could provide greater environmental benefit.

Alternative 1 – Rehabilitation

This alternative would have 3.03 acres of new pavement at Marsha Drive, much of it associated with the new jughandles. There would be an increase of 1.00 acre for the trestle bridges, 3.17 acres for the new widened Bay Bridge, and 2.50 acres in the Ship Bottom area. Alternative 1 – Rehabilitation would increase impervious area by 9.70 acres. To the extent practical, NJDOT would install sand filters onsite to handle water quality requirements. Additional stormwater management facilities would be installed at off-site locations, if needed. If the off-site locations are impractical, waivers of strict compliance would be secured from the NJDEP.

Alternative 2 – Replacement

Compared to Alternative 1 – Rehabilitation, Alternative 2 – Replacement would have less new pavement at Marsha Drive (2.52 acres), but would have more impervious surface for the new Bay Bridge (3.80 acres) and trestle bridges (1.39 acre), due to the wider trestle bridges. There would be the same increase of 2.50 acres of new, impervious area for Ship Bottom for both alternatives. Alternative 2 – Replacement would increase the impervious area by 10.21 acres. To the extent practical, NJDOT would install sand filters onsite to handle water quality requirements (see Attachment A). If additional stormwater management facilities are needed, they would be installed at off-site locations. If the off-site locations are impractical, waivers of strict compliance would be secured from the NJDEP.

4.10.4 Riparian Areas

Riparian areas are the fringe of land along every stream or bay, except for certain man-made waterways like the lagoons in Beach Haven West or where specifically excluded in the regulations. In New Jersey, regulated riparian areas are not found on barrier islands or adjacent to lands regulated by the Wetlands Act of 1970. Keeping development out of the riparian areas helps the vegetation near the shoreline stay healthy so it can filter out pollution and provide habitat for animals that use both uplands and the waterways. The Route 72 Project would cross the waterways and by definition would have to cross the riparian areas. The amount of impact to the riparian areas would also include the amount of reconstruction of the roadways already in the riparian areas. NJDOT would minimize impacts to the areas but could not avoid them. The bulk of the regulated riparian areas are found on the man-made island.

Riparian area

Alternative 1 – Rehabilitation

This alternative would result in riparian impacts of 0.80 acres, which would be associated primarily with the rehabilitation of the bridges connecting to the man-made island (Table 4.2).

Alternative 2 – Replacement

This alternative would result in riparian impacts of 4.45 acres on the man-made island that would be caused primarily by the realignment of the roads to connect to the new bridge (Table 4.2). These riparian areas would be mostly steep roadway embankments that have less ecosystem function than a

natural riparian area. Only portions of the riparian areas that are vegetated would be mitigated. There would be no significant impact to riparian areas.

4.11 Air Quality and Noise

4.11.1 Air Quality

Automobile emissions are a significant source of air pollution and are controlled under the Clean Air Act (CAA). The CAA regulates projects funded by the FHWA that would lead to increased regional air pollution in areas determined not to meet the air quality standards circulated by the US Environmental Protection Agency (EPA). These areas are called non-attainment zones.

The Route 72 corridor is located in an ozone non-attainment zone. Ozone is a smog-inducing pollutant that is also an irritant. NJDOT, in conjunction with the NJTPA, considered the scope of this project and deemed it was a critical element of the existing infrastructure and that it was worthy of being advanced. These kinds of projects get listed on the STIP. Since this project is on the STIP, it conforms to the air pollution reduction plan in New Jersey.

The CAA encourages the FHWA to reduce pollution by reducing congestion since idling vehicles add unnecessary pollution. It also requires NJDOT to consider how air quality changes with intersection designs because different designs can decrease or increase delay on particular legs of the intersections. Both alternatives include improvements to intersections to eliminated bottlenecks to reduce congestion and related emissions. Studies in Long Beach Island and at Marsha Drive show that the existing roadways would not cause emissions that exceed the local carbon monoxide standards.

Vehicle exhaust is also a source of greenhouse gas (GHG) emissions. The project is designed to reduce congestion and to minimize idling, which would reduce the amount of GHG emissions from traffic. The project would not increase the number of travel lanes and would not increase the amount of traffic emitting GHGs.

It is recognized that concrete used in construction is a significant contributor to GHG emissions. Using alternatives to use less concrete could lead to less GHG emissions; however, NJDOT prefers using concrete bridge construction near saltwater where possible to protect the structure from the corrosive effects of the salt. The incremental increase in GHG emissions using concrete bridge construction compared to steel bridge construction would be offset by the reduced service life of steel versus concrete since additional GHGs would be generated when the steel is replaced more frequently.

The project would include a pump station with a standby internal combustion engine driven generator, which is considered a stationary source of emissions. However, the maximum rated heat input to the burning chamber of the emergency generator would be less than 80 million BTU per hour; therefore, no stationary-source air quality analysis was necessary. In addition, the emergency generator would not require an NJDEP general permit. Energy-efficient highway lighting would be used to reduce energy consumption and GHG production. If possible, the pump station would include systems to allow the runoff to flow by gravity into the bay during low tide periods. This would reduce the number of times the pump would use electricity to operate.

Furthermore, neither of the Build Alternatives has elements that would lead to increased emissions that would exceed the allowable standards along the roadway. Both Build Alternatives would include

similar traffic, similar delays, similar energy needs for lighting and the pumping station. Accordingly, there is no distinction between alternatives for air quality purposes. This project would not violate any air quality requirements, and there would be no significant impact to the environment.

4.11.2 Traffic Noise

The noise assessment focused on the contribution that traffic noise has on the local community. It is recognized that traffic in the project area might increase even if the No Build Alternative is chosen; therefore, the focus is on the impact of the noise increase generated by the Build Alternatives that would be above the increase in noise over time caused by the No Build Alternative.

DESCRIPTION OF ACTIVITY CATEGORY A AND B

Category A – Tracts of land for which serenity and quiet are of extraordinary significance. Such areas include amphitheaters, particular parks, or portions of parks, open spaces, or historic districts.

Category B – Picnic areas, recreation areas, playgrounds, active sports areas and (exterior) parks that are not included in Category A, and residences, motels, public meeting rooms, schools, churches, libraries and hospitals.

The FHWA allows different increases depending on the land use at the sensitive receptors. In the project area, the sensitive receptors consist mostly of residences and the wildlife refuge. The level for developed areas is Category B. Based on monitored results, roadway geometry, and existing seasonal peak traffic volumes, 39 residential structures currently approach or exceed the Category B criteria. Additionally, the portion of the project within Edwin B. Forsythe National Wildlife Refuge currently possesses noise levels that approach or exceed the Category B Noise Abatement Criteria (NAC). Figures 4.2A and 4.2B at the end of the chapter show the noise contour for 66 dBA threshold. However, none of the increases on sensitive receptors exceeds the 3 dBA level; therefore, none of the alternatives would have a significant noise impact on any of the sensitive receptors in the project area.

4.11.3 Construction Noise

Construction activities could generate significant noise from construction equipment used to move earth and place pavement, especially for the building of bridges where pile driving is needed to install deep foundations and for cranes and equipment needed to assemble large structures. This noise is unavoidable for any of the Build Alternatives; however, the majority of noise-generating activities are associated with work on the Bay Bridge and would be located away from developed areas. In addition, the project would incorporate standard noise specifications, such as installing properly maintained mufflers on all equipment powered by an internal combustion engine. Also, whenever possible, NJDOT minimize the time contractors can operate loud operations before 7:00 A.M. or after 8:00 P.M. within 150 feet of a noise sensitive site.

Alternative 1 – Rehabilitation

This alternative would require night closings, especially for the work on the Bay Bridge, in order for the contractor to close lanes as needed to install larger components. Night time work would be more frequent during demolition stages where traffic could not be maintained on the deck. The trestle bridges could be constructed only during lower traffic-flow periods, which would limit the amount of time available to work before the start of winter. It may also be necessary to work at night to keep on schedule for the trestle bridges. Since these bridges are close to residential areas that approach or

exceed the NAC, NJDOT would try to minimize night work within 150 feet of these sensitive receptors. It is anticipated that only minimal pile-driving activities, mostly associated with restoring bulkheads, would be needed for this alternative. Overall this alternative has more potential of night-time noise impacts than Alternative 2.

Alternative 2 – Replacement

The trestle bridges since these bridges are close to the existing residences in Beach Haven West and on Cedar Bonnet Island between East and West Thorofare. This alternative would have more potential noise increases during construction, especially for activities associated with pile driving for new foundations on the trestle bridges. There would also be pile driving for the new Bay Bridge, but given the fact that most of the Bay Bridge work would be away from sensitive receptors, impact from noise is not anticipated to be significant. Additionally, there would be less need for nighttime construction, minimizing the impact the construction would have on the adjacent residences.

4.11.4 Pump Station Noise

NJDOT proposes to install a low-head, high-volume screw pump in the pump station. Screw pumps turn at a much slower rate than turbine pumps and have less and lower-pitched noise. The pumps would be installed inside a pump station building designed to reduce noise from the pumps. NJDOT has not yet selected the pumps, but will evaluate the selected configuration and incorporate noise dampening if necessary in the pump station building to ensure that it will comply with the FHWA noise criteria.

An emergency diesel generator may be placed outside of the pump station. The generator would be placed adjacent to the pump station building opposite the closest sensitive noise receptors. A muffler would be placed on the diesel engine exhaust and the generator would be appropriately screened to mitigate any visual impact.

4.12 Cultural and Social Concerns

All federally funded projects must consider the impact of the project on historic or prehistoric resources according to Section 106 of the National Historic Preservation Act. A cultural resource investigation was conducted within the Area of Potential Effect for both archaeology and historic architecture, and it has been determined that there are no eligible historic or prehistoric resources in the project area. The SHPO was consulted and has concurred (see Appendix A).

Bay Bridge lighting, also known as the String of Pearls, is a distinctive feature. One of the most distinctive features on the Bay Bridge is that the lighting fixtures are built into the bridge railing, making the night view of the Bay Bridge unique since almost every other bridge in the state is illuminated by light fixtures mounted on poles high above the roadway. The public expressed a strong desire to have NJDOT keep the railing mounted lighting. NJDOT was initially opposed to this option because of

Bay Bridge's distinctive "String of Pearls" lighting

maintenance expense and decreasing availability of replacement parts; however, recent advances in lighting technology have created fixtures that are more reliable, consume less energy, and are less costly to maintain, so NJDOT would replicate the in-rail lighting for both the rehabilitated and the new Bay Bridges. The trestle bridges and remainder of the Causeway would continue to use energy-efficient pole-mounted roadway lighting fixtures. Lighting fixtures adjacent to the refuge would be designed to minimize indirect light spilling into the refuge.

The Bay Bridge is actually named the Dorland J. Henderson Memorial Bridge after the engineer who designed the in-rail lighting system 50 years ago. Mr. Henderson was one of the early African-American engineers working for NJDOT. His lighting system was unique when it was designed and remains unique to this day. NJDOT would continue to honor Mr. Henderson's contributions to the State of New Jersey.

Barnegat Bay is a wetland of global significance. The Ramsar Convention, an international conservation organization, recognized the Barnegat Bay as a wetland of global significance. The US Congress also recognized the value of the bay by creating the Edwin B. Forsythe National Wildlife Refuge, which owns more than 47,000 acres throughout the bay. Furthermore, Congress also established the Barnegat Bay National Estuary program to encourage conservation of Barnegat Bay. The portion of the bay south of Route 72 is part of the Jacques Cousteau National Estuarine Research Reserve, dedicated to promoting stewardship of the bay. Given the importance of the bay, NJDOT has included estuary, research reserve, and refuge managers in the development of the design of this project. The project is designed to minimize the impact to the bay and NJDOT would mitigate unavoidable impacts in conformance with appropriate regulatory authorities.

4.13 Community Facilities and Neighborhoods

The project would not affect any public facilities. Access to all parts of Long Beach Island and to adjacent parks would be maintained throughout the project. No neighborhoods would be isolated by the project. Route 72 is the only access for the communities and businesses on Bonnet Island and Cedar Bonnet Island, and NJDOT will maintain local access to these communities during and after construction.

Pedestrian access and bicycle compatibility would be enhanced throughout the corridor. Specifically, a sidewalk, developed in collaboration with the public, is proposed to be installed along the westbound side of the project. All of the pedestrian facilities will be Americans with Disabilities Act (ADA) compliant.

4.14 Utilities

The Route 72 corridor is also the only corridor for all the utilities serving the island. NJDOT performed detailed investigations to identify the location of all the utilities to implement a utilities plan that would prevent damage to the utilities during construction and minimize relocations. The utilities located in the roadway corridor include:

- Electric – Atlantic City Electric Company
- Telecommunication – Verizon–New Jersey, Inc., Comcast Cable
- Gas – New Jersey Natural Gas Company
- Water and sanitary sewers – Stafford Township, Borough of Ship Bottom
- Treatment plant force main – Ocean County Utility Authority

The Bay Bridge was constructed in the 1950s to replace the then-aging bridge to Long Beach Island and was built parallel and to the south of the former bridge. NJDOT retained the ROW from the prior bridge that now provides access for most of the utilities serving Long Beach Island. Accordingly, replacement alternatives shifting the bridges to the north would be placed in or very close to the utility corridor and were considered too risky since there are no redundant services; therefore, alignment to the north of the existing bridge was discarded without detailed consideration. The two Build Alternatives to the south would have no significant impact to utilities. Some minor relocations would be needed to construct the project especially to replace the existing drainage in Ship Bottom, to widen the intersections and to replace the bridge decks. Minor utility relocations may be needed to install the temporary trestles built along the westbound bridge fascia. Alternative 1 – Rehabilitation would have a greater impact to utilities since the symmetric widening of the Bay Bridge would move construction closer to utility corridor.

4.15 Contaminated Materials

The cleanup of contaminated sites can be costly in both time and money; therefore, it is better to avoid properties that have hazardous material issues. NJDOT has reviewed the Route 72 corridor to determine the likely presence of contaminated sites (Figure 4.1A). The existing alignment was originally built for a railroad back in the 1800s, and since then the land uses have changed often. Several gas filling stations and boat maintenance shops have existed along the ROW. Most of these uses are in Ship Bottom; however, the contaminants that are normally associated with these types of facilities are typically fuels and solvents, and there are usually cost-effective cleanup strategies for these sites.

No contaminated sites would likely be found in the Marsha Drive area or on the artificial island where most of the ROW is needed. NJDOT would not acquire significant amounts of ROW in Ship Bottom for the operational improvements; therefore, there would be no significant impacts to the project caused by contaminated materials.

4.16 Permits and Approvals

Implementation of the project would require NJDOT to secure various permits and approvals (Table 4.3). The proposed Build Alternatives were developed in consideration of the existing environmental regulation and consultation with the agencies. The Preferred Alternative has been reviewed and conceptually supported by the NJDEP Division of Land Use Regulation (Appendix C, NJDEP June 11, 2010). NJDOT will continue to coordinate with the agencies in fashioning an acceptable approach for building mitigation sites mandated by state and federal land use regulations. NJDOT has reasonable assurance that the regulatory agencies will issue permits for this critically important infrastructure project.

Table 4.3 – Permits and Approvals

Agency	Approval	Statutory Authority
NJDEP	General/Individual Freshwater Wetland and Open Water Fill Permit	NJ Freshwater Wetlands Protection Act (NJFWPA) (N.J.A.C. 7:7A)
NJDEP	Water Quality Certification Federal CWA Section 401	Federal Clean Water Act
NJDEP	Waterfront Development Permit (WDP)	N.J. Coastal Permit Program Rules (N.J.A.C. 7:7E)
NJDEP	Compliance with the Flood Hazard Control Act	N.J. Flood Hazard Area Control Act (N.J.A.C. 7:13)
NJDEP	Tidelands/riparian Grants	New Jersey Statutes Annotated (N.J.S.A.) 13:1B-13
NJDEP	Coastal Zone Consistency Determination (part of WDP)	N.J. Coastal Permit Program Rules (N.J.A.C. 7:7E)
NJDEP	Coastal Area Facility Review Act	N.J.S.A. 13:19
NJDEP	Wetlands Act of 1970	N.J.S.A. 13:9A
NJDEP	Stormwater Management Rules	N.J.A.C. 7:8
USACE	Nationwide Permit #15 and/or Individual Section 10/404 Permit	Rivers and Harbors Act of 1899, Section 10 & Federal Clean Water Act, Section 404
Pinelands	*Certification to install ITS Signs*	Pinelands Protection Act, NJSA 13:18A et seq.
USCG	*Permit to Construct or Modify a Bridge*	Federal River and Harbors Act Section 9 & General Bridge Act of 1966

4.17 Sea Level Rise

NJDOT has anticipated the effects of sea level rise for this project. According to *Holocene sea-level rise in New Jersey: An Interim Report* (Rutgers University, 2004), expected sea level rise in New Jersey would experience approximately 2 millimeters (mm) (approximately 0.08 inch) per year. NJDOT calculated that mean high water level in Barnegat Bay would go up by 50 mm (approximately 2 inches) at the 2035 design year for the trestle bridge replacement, and by 150 mm (approximately 6 inches) for the 2085 design year Bay Bridge replacement. No change in clearance is planned for the trestle bridges since the superstructure would not be replaced. NJDOT will include a 0.5-foot increase for bay bridge clearances. NJDOT opted not to raise the roadways in the project area currently at or below the 100-year tidal floodplain elevation because of the significant impact to existing businesses.

There is one location on the Causeway where the roadway is currently below the 100-year floodplain. This section is between the trestle bridges on the East and West Thorofares. The roadway profile is restricted by the existing bridges, so this section of roadway would be raised when the trestle bridges need replacing sometime in the future.

Route 72 west of Manahawkin Bay is wide and there are few driveways in the project area. NJDOT would not realign the roadway to account for sea level rise at this time; however, nothing in this project would preclude NJDOT raising the profile in the future to adapt to sea level rise.

4.18 Project Cost

The project costs for the proposed alternatives are presented in Table 4.4.

Table 4.4 – Cost Comparison Matrix[1]

Segment	Alternative 1 – Rehabilitation ($ Millions)	Alternative 2 – Replacement ($ Millions)	Preferred Alternative ($ Millions)
Marsha Drive	7.8	7.7	7.7
Trestle Bridges	15.1	60.2	15.1
Bay Bridge	141.9	134.4	134.4
Ship Bottom Operational Improvements	10.7	10.7	10.7
Total	175.5	213.0	167.9

1 Costs not escalated for contingencies, mobilization or engineering These costs will be proportional to the construction costs and do not factor into the selection of an alternative. These costs include life cycle/maintenance costs of the bridges.

4.19 Preferred Alternative

NJDOT studied rehabilitation and replacement alternatives (Alternative 1 and Alternative 2, respectively) and found that impacts to the environment could be minimized by rehabilitating the trestle bridges, replacing the Bay Bridge, and maintaining the existing jughandles at Marsh Drive. According to NEPA, NJDOT can select the Preferred Alternative from the studied elements of listed alternatives. The Preferred Alternative would combine project components of the two Build Alternatives, which would provide safety for Long Beach Island, operational improvements for the corridor, and reduction of flooding frequency in Ship Bottom. The components selected from the alternatives are as follows and shown in Figure 4.5. (Attachment A presents details of this Preferred Alternative.)

4.19.1 Marsha Drive

The Marsha Drive improvement described in Alternative 2 – Replacement would have less impact and cost less than Alternative 1 – Rehabilitation and is selected for the Preferred Alternative. This would minimize environmental impacts while meeting the project's purpose and need.

4.19.2 Trestle Bridges

NJDOT selected Alternative 1 – Rehabilitation for the trestle bridges, which would have fewer environmental impacts and cost less than Alternative 2 – Replacement. This major rehabilitation would correct the substandard pier cap deficiency and provide for a bicycle-compatible shoulder and a sidewalk. Based on analysis of the pier structures, the bridges have approximately 25 years remaining in their service lives. Alternative 1 – Rehabilitation would be easier to construct and would minimize the impact to the adjacent residents. The rehabilitated bridges would not have a full shoulder, would not perform as well as Alternative 2 – Replacement for coastal evacuation, and would not make it easier to maintain traffic if there were an accident on the bridge; however, the lack of these benefits would not outweigh the additional costs and bigger environmental impacts. Alternative 1 – Rehabilitation would not change the profile of Route 72 on Cedar Bonnet Island, and this section would remain below the 100-year floodplain.

4.19.3 Bay Bridge

NJDOT has chosen Alternative 2 – Replacement to build a new parallel bridge and rehabilitate the existing bridge after the new bridge is built. This alternative would have more overall environmental

impacts but would be the safest for the public and the contractor. It would reduce the risk of closing the bridge if there is a construction mishap and would provide redundancy. The new structure would be easier, faster, and safer to build. Rerouting traffic to the new bridge also makes the rehabilitation of the existing Bay Bridge less expensive and safer. Construction activities could avoid numerous temporary closings, and there would be no conflict with traffic. Additionally, this second span would be built to the south, which would minimize potential impacts to utilities along the north side. The second bridge would reduce the chances that residents of Long Beach Island could be affected by a natural or man-made disaster that may damage the existing bridge. This is a critical need since there are no alternative access roads to Long Beach Island. The increased impact especially to SAV and open water would be justified by the overall benefits of the parallel structure.

4.19.4 Long Beach Island Operational and Drainage Improvements

NJDOT would make operational improvements in Ship Bottom to improve traffic flows and safety on the eastern end of the Causeway. In addition, NJDOT would install a pump station and replace the existing storm sewers in Ship Bottom to reduce flooding. The outfall of the proposed pump station would be placed at the same location as the existing outfall to minimize impact to the wetlands and aquatic resources; however, the pump station would not prevent flooding from major storms that raise the tidal elevations above the street level, including 100-year storm event.

4.19.5 Summary of Preferred Alternative Impacts

Based on the analysis of the Technical Environmental Study and the evaluation of viable alternatives, NJDOT believes that the identified Preferred Alternative would minimize impacts to the extent practicable (while meeting the project need) and would not have a significant impact on the environment. The project would affect only a small proportion of the available wetlands, open water, and associated natural resources like submerged aquatic vegetation and shellfish habitat (Table 4.5). There would be no impact to historic resources or T&E species. Furthermore, there would be no significant social impact to public facilities or neighborhoods. NJDOT would mitigate for all unavoidable impacts to resources of the Manahawkin Bay as required by the permit agencies.

4.19.6 Preferred Alternatives Goals and Objectives

During the selection of the Preferred Alternative NJDOT considered the goals and objectives listed below:

- Minimize Impacts to Natural and Man-made Resources
- Reduce Risks Associated with Sudden Structural Failure
- Provide Pedestrian and Bicycle Compatibility
- Minimize Construction Durations and Protect Workers and Motorists
- Select an Affordable Approach

The discussion below provides a summary of how the Preferred Alternative would perform when compared to the goals and objectives.

Mainland Approach (Alternative 2 – Replacement)

Minimize Impacts to Natural and Man-made Resources

- Excluded intersection improvements at Marsha Drive and Bay Avenue to avoid Green Acres encumbered property
- Reused the existing jughandles at Marsha Drive intersection to avoid wetlands.
- Widened Route 72 to the median to avoid wetland impacts along the outside of roadway.

Minimize Construction Durations and Protect Workers and Motorists

- Refrain from construction during peak traffic seasons.
- Reuse existing jughandles to reduce footprint.
- Constructing Marsha Drive intersection improvements in stages minimize conflicts between traffic and construction areas.
- Maintain profiles of Route 72 to widen in stages out of existing traffic lanes.

Select an Affordable Approach

- Reuse existing jughandles to reduce footprint.
- Widened Route 72 to the median to avoid ROW and utility relocation costs along the outside of roadway.
- Maintain profiles of Route 72 to avoid fill and full pavement reconstruction
- The cost for this alternative is $7.7 million.

Causeway Approach (Alternative 1 – Rehabilitation for the Trestle Bridges and Alternative 2 – Replacement for the Bay Bridge)

Minimize Impacts to Natural and Man-made Resources

Trestle Bridges

- Maintains the existing bridge width avoiding impacts to open water resources – SAV, Subtidal/Intertidal Shallows, shellfish beds, and EFH.
- Construct in off season avoids temporary bridges.
- Reuse substructure to avoid impacts to bay bottom
- Reduces noise by reusing existing bridge piles.

Bay Bridge (Alternative 2 – Replacement)

- High retaining walls at abutments to reduce fill of open water.
- Reuse existing Bay Bridge Foundation for westbound roadway.
- Reduce width of westbound roadway.
- Use temporary construction trestles to minimize impact on open water resources.
- Build new bridge pier foundations in cofferdams.
- Reduce height to 55 feet.
- Maintain the string of pearls lighting to keep unique appearance.

- Employ energy efficient lighting.
- Use lenses in highway lighting to minimize light spilling into refuge.

Reduce Risks Associated with Sudden Structural Failure

Trestle Bridges (Alternative 1 – Rehabilitation)
- Repairs failing pier caps.
- Repairs existing pile foundations.
- Replaces existing bridge parapets.

Bay Bridge (Alternative 2 – Replacement)
- Two parallel Bay Bridges provide redundancy against natural or manmade threats.
- During maintenance or emergency each bridge can accommodate four lanes of traffic.
- Permanent median crossings to allow rapid deployment of traffic control.
- Scour countermeasures reduce risk of collapse of abutments.
- Replacing existing bay bridge superstructure eliminates fracture critical pin-hanger design and fatigue cracking of floor beams.
- Increase the numbers of girders from four to six on westbound bridge to increasing redundancy against sudden structural failure and ease future deck repairs.

Pedestrian and Bicycle Compatibility
- Add sidewalk from West Beach Haven to trestle bridge over Hilliard's Thorofare.
- Reconfigure three Trestle Bridges to provide a 6-foot sidewalk on the north side.
- Add a 6-foot sidewalk on the westbound Bay Bridge.
- Connect sidewalk system to the waterfront under the bridges.
- Connect sidewalk system to the refuge on the south side and to any public access improvements.
- Adequate pedestrian walkways, ADA compatibility ramps, fences, and lighting to connect the south side of Route 72 to the sidewalk on the north side.
- Sidewalks will be installed along all roadways impacted by this project on Long Beach Island.
- Bicycle compatible shoulders will be provided on all bridges and approach roadways.
- Sidewalks will direct pedestrians to low speed, low-volume, local street on Bonnet Island.
- NJDOT will run shuttle bus service when the corridor pedestrian/bike access cannot be maintained during construction.

Minimize Construction Durations and Protect Workers and Motorists

Trestle Bridges (Alternative 1 – Rehabilitation)
- Work during off-season and at night to minimize worker exposure to traffic.
- Reusing most of the existing bridges to minimize schedule.

Bay Bridge (Alternative 2 – Replacement)
- Maintain traffic on existing bridge during the construction of new bridge.

- Move traffic to new bridge while working on existing bridge.
- Provide temporary trestles during each major stage to keep construction equipment away from traffic and avoid crane picks over live traffic.
- Incorporate cofferdams during pier construction to minimize timing restrictions for impacts in open water.

Select Affordable Approach

Trestle Bridges
- Rehabilitate trestle bridges and limit substructure repairs to only deficient elements
- Repairs pier caps without removing deck.
- Sealing and resurfacing the decks where possible.
- Estimated costs: Initial – $10.1 million (lower than replacement)
- Life Cycle – $46.8 million (Present Value). Future maintenance costs are relatively high reducing the overall price advantage of this option.

Bay Bridge
- Build a new bridge to minimize contractor conflict with existing traffic.
- Maximize periods during which the contractor can work.
- Exchange tidelands parcels with NJDOT to minimize ROW costs.
- Replacing structural steel to reduce future maintenance costs related to rusting steel.
- Reuse existing substructure on westbound bridge.
- Estimated costs: Initial – $100.6 million.
- Life Cycle – $108 million (Present Value). Future maintenance very low.

Barrier Island Approach (Alternative 1 – Rehabilitation)

Minimize Impacts to Natural and Man-made Resources
- Maintain number of outfalls into Manahawkin Bay.
- Replace existing drainage systems that allow infiltration.
- Install trash racks and grit removal at proposed pump station.
- Noise damping in the pump house.
- Build pump house to be harmonious with surrounding architecture.

Pedestrian and Bicycle Compatibility
- Connect city street system to sidewalk on Causeway.
- Reconstruct existing sidewalks in Ship Bottom.
- Improve bicycle compatibility on local streets.
- Improve traffic signals crosswalks.

Minimize Construction Durations and Protect Workers and Motorists

- Work only in off-season to minimize conflicts with traffic.
- Work only in off-season to maximize room for contractor to speed construction.
- Maintain driveways to protect motorists using adjacent property.

Select an Affordable Project

- Work only in off-season to maximize room for contractor to speed construction.
- Maintain driveways to avoid taking adjacent property.
- Employ high efficiency lighting pumps and mechanical devices in pump station.
- Site the pump station at location that avoids condemnation.
- Cost for this segment $10.7 million.

4.19.7 Concept Mitigation Plan

Although the impacts have been minimized, there would still be unavoidable impacts to protected resources, including wetlands, public access, riparian areas, open water, intertidal areas, stormwater quality, submerged aquatic resources, shellfish habitats, and essential fish habitat. The regulatory agencies require that NJDOT and FHWA compensate for these impacts with mitigation. NJDOT will attempt to replace the value and functions of these resources within the project corridor; however, there are few, if any, places to mitigate in the project area since almost all of the areas along the road are already protected. Off-site mitigation may be necessary and only after the on-site options have been used to the extent practicable. Any agreed-upon plan will be monitored in conformance with state and federal regulations.

Stormwater runoff will be managed on-site as required by NJDOT stormwater management rules, using a combination of infiltration basins and sand filters. Grit removal, a trash rack, and noise damping will be incorporated in the pump station area.

The wetland impacts are less than 1.0 acre and contributing to a mitigation bank is the preferred method. If no such bank exists, then the NJDOT may chose to create wetlands on-site or off-site. Riparian areas and SAV mitigation are more likely to be mitigated off-site because of the limited opportunities to perform mitigation on-site. Shellfish impacts can be mitigated through monetary contribution as required by NJDEP regulations.

The most pressing threat to Barnegat Bay is from non-point source pollution (NPSP) as noted in Barnegat Bay National Estuary Program's (BBNEP) letter dated 12/23/09 (Appendix A). NPSP is the sediment and nutrient load contained in runoff from developed land. Several environmental resource organizations—including BBNEP, Rutgers University, in collaboration with Ocean County, Ocean County Soil Conservation District, and Ocean County Mosquito Control Commission—have been studying effects of NPSP in the Barnegat Bay Watershed. They have identified many high-priority projects for protecting the bay. NJDOT may be able to fund some of these off-site projects to fulfill its mitigation requirement. This is a watershed-based mitigation approach that could balance on-site and off-site mitigation strategies. This could reduce NPSP to the bay's ecosystem better than an on-site only approach.

The NMFS recommends replacing SAV by replanting it elsewhere in the bay. NJDOT is prepared to mitigate in this traditional manner; however, scientists studying Barnegat Bay confirm that continued

degradation of bay water quality is a leading cause to loss of existing SAV beds. There is strong scientific consensus that preserving existing natural systems can be more effective than planting new ones. There is merit to considering a mitigation plan that includes measures to reduce untreated stormwater runoff elsewhere in the bay. NJDOT will consult with relevant resources and regulatory agencies prior to any decision to include offsite or out-of-kind mitigation,

Public access could be mitigated by adding sidewalks on the bridges; improving parking areas near the trestle bridges; a public access area on the man-made island that could include a parking lot, launch areas for cartop boats and rehabilitated bulkheads for fishing and crabbing. NJDOT will improve existing public parking areas near the three thorofares. NJDOT is consulting with the National Wildlife Refuge Managers on potentially improving the access to the refuge on Bonnet Island. This access could include walkways, parking and bird watching areas. No fishing will be allowed from the bridges, and no fishing piers are currently under consideration.

All proposed mitigation sites would be designed to be maintained and protected from future development. It is preferable that mitigation sites would be located within the Barnegat Bay watershed and would be associated with sites under federal, state, or local government control, or under the stewardship of a non-profit conservation organization. Mitigation can be built on private property provided that conservation easements are placed on the property to allow enforcement of operation and maintenance plans.

4.20 Conclusions

This EA has concluded that there are no significant impacts and no significant public controversy. In addition, while mitigation for the various resources will be included in the project, the measures are not needed to support a FONSI.

THIS PAGE LEFT BLANK INTENTIONALLY.

Table 4.5 – Environmental Resource (Preferred Alternative Impacts)

PROJECT AREA	Mapped Coastal Wetlands	Freshwater Wetlands and Unmapped Coastal Wetlands	Wetland Transition Areas	Riparian Zone	Submerged Aquatic Vegetation	Intertidal / Subtidal Shallows	Shellfish Habitat	Wildlife Refuge	Green Acres	Tidelands	Net Impervious Area
PREFERRED ALTERNATIVE											
Marsha Drive											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Permanent Impacts (Ac. +/-)	0.09	0.01	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.10	2.52
Total Impacts (Ac. +/-)	0.09	0.01	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.10	2.52
Manahawkin Bay Bridge *New Parallel Structure*											
Temporary Impacts (Ac. +/-)	0.16	0.00	0.00	0.15	1.35	0.23	0.25	0.00	0.00	15.24	0.00
Permanent Impacts (Ac. +/-)	0.17	0.00	0.29	3.01	2.59	2.00	2.15	0.00	0.00	4.81	3.80
Total Impacts (Ac. +/-)	0.33	0.00	0.29	3.16	3.94	2.23	2.40	0.00	0.00	20.05	3.80
Trestle Bridges *Rehabilitation of Existing Structures*											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
Permanent Impacts (Ac. +/-)	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Total Impacts (Ac. +/-)	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.08	1.00
LBI Improvements *Operational and Drainage*											
Temporary Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Permanent Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
Total Impacts (Ac. +/-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
PREFERRED ALTERNATIVE TOTAL IMPACTS (AC. +/-)	0.42	0.01	1.15	3.56	3.94	2.23	2.40	0.00	0.00	20.23	9.82

THIS PAGE LEFT BLANK INTENTIONALLY.

Sources:
NJDEP State Owned Parkland and Known Contaminated Sites, Ocean County Parkland, Virtual Earth Aerial Map, 2009

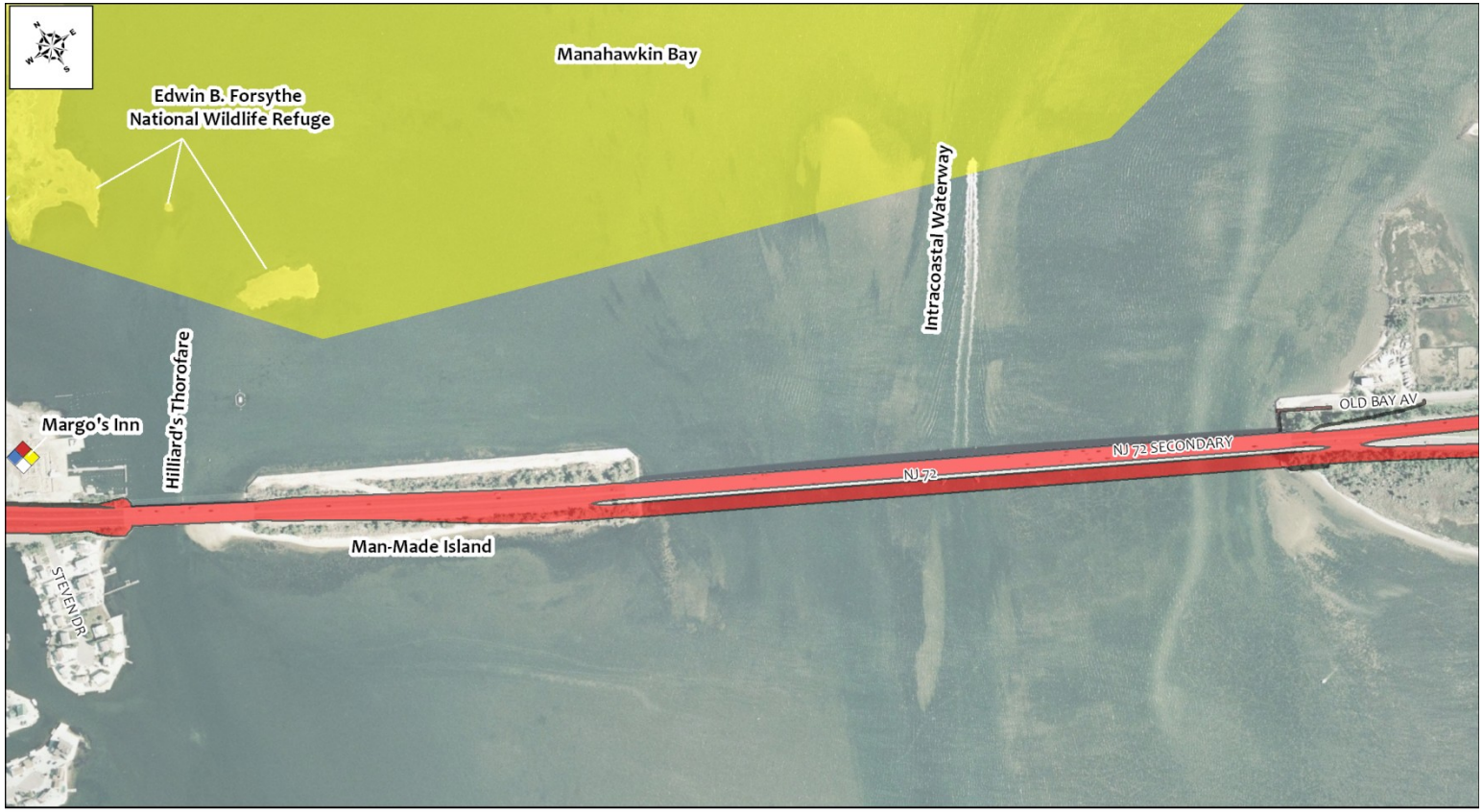
Legend

- Proposed Improvements
- Parkland/Natural Areas
- Known Contaminated Sites

Figure 4.1A - Exisiting Conditions
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 1/4

THIS PAGE LEFT BLANK INTENTIONALLY.



Sources:
NJDEP State Owned Parkland and Known Contaminated Sites, Ocean County Parkland, Virtual Earth Aerial Map, 2009

Legend

- Proposed Improvements
- Parkland/Natural Areas
- Known Contaminated Sites

Figure 4.1A - Exisiting Conditions
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 2/4

THIS PAGE LEFT BLANK INTENTIONALLY.

Sources:
NJDEP State Owned Parkland and Known Contaminated Sites, Ocean County Parkland, Virtual Earth Aerial Map, 2009

Legend

Proposed Improvements

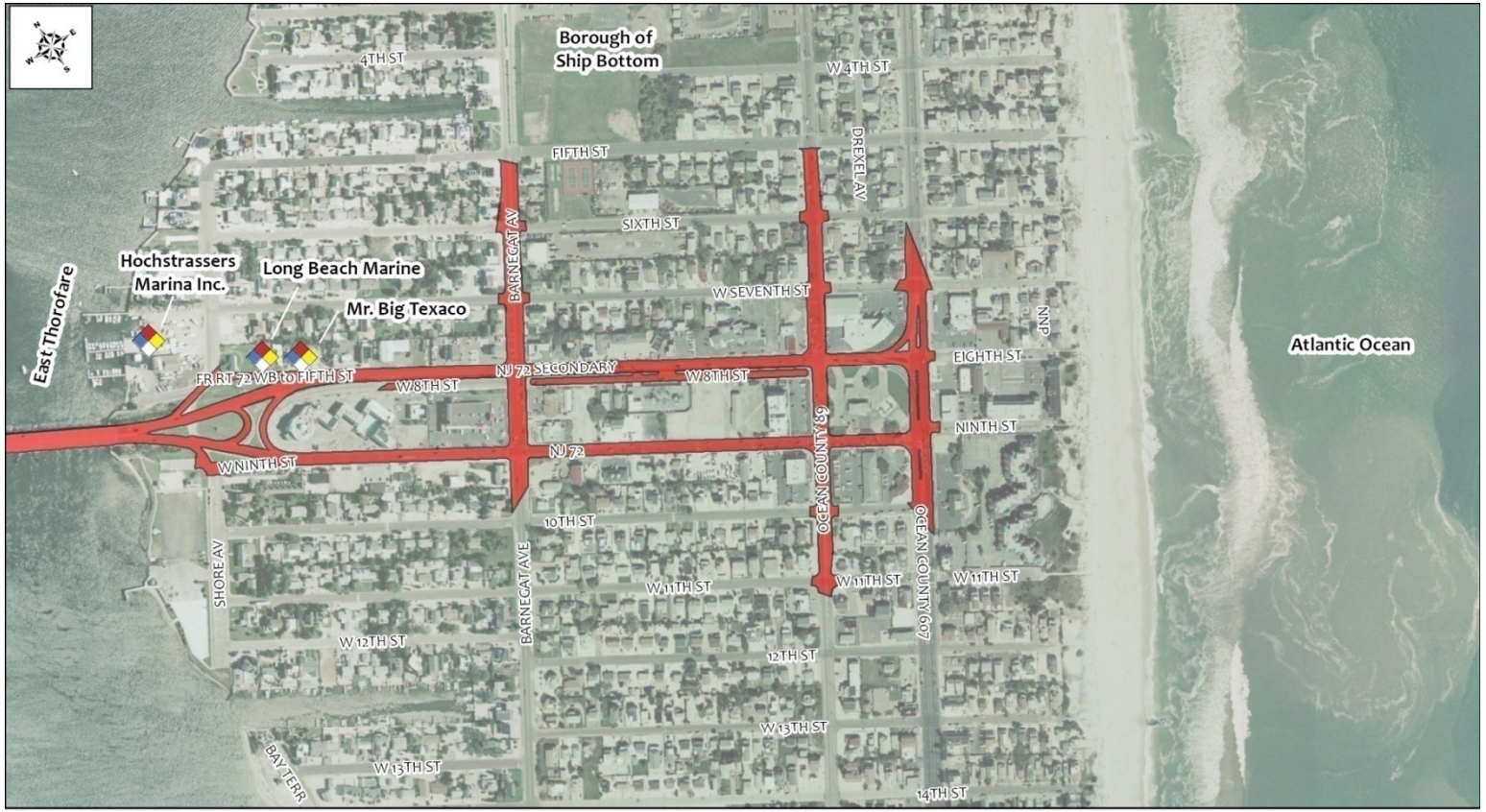
Parkland/Natural Areas

Known Contaminated Sites

Figure 4.1A - Exisiting Conditions
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 3/4

THIS PAGE LEFT BLANK INTENTIONALLY.



Sources:
NJDEP State Owned Parkland and Known Contaminated Sites, Hazardous Waste Screening by Prestige Environmental Inc., Ocean County Parkland, Virtual Earth Aerial Map, 2009

Legend
- Proposed Improvements
- Known Contaminated Sites
- Parkland/Natural Areas

Figure 4.1A - Exisiting Conditions
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 4/4

THIS PAGE LEFT BLANK INTENTIONALLY.

Sources:
Wetland boundary delineated by Parsons Brinckerhoff, Inc., 2009.
Submerged Aquatic Vegetation delineated by LGA Associates, Inc. 2009.
NJDEP Upper Wetland Boundary, Virtual Earth Aerial Map, 2009

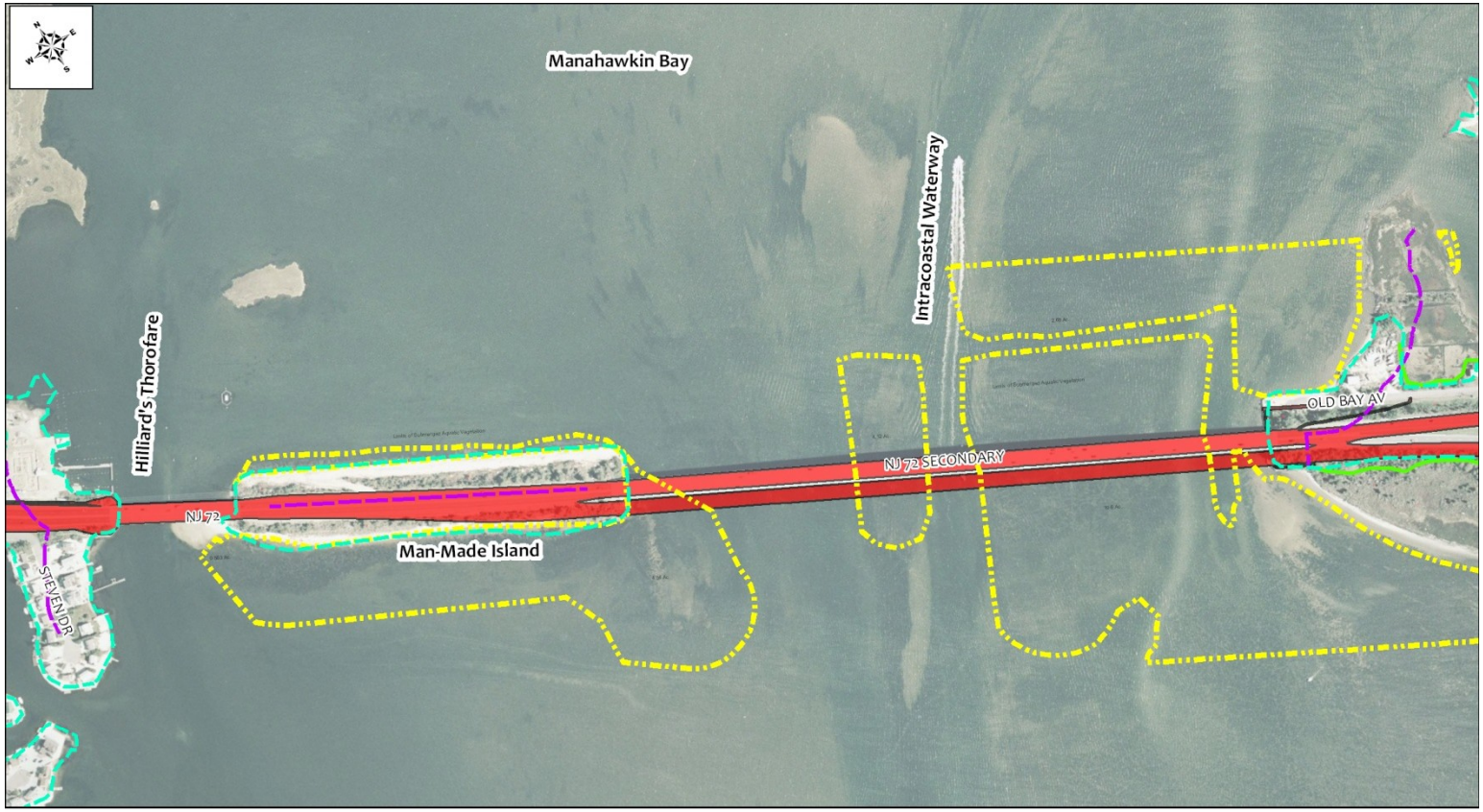
Legend

- Proposed Improvements
- Submerged Aquatic Vegetation
- Upper Wetland Boundary
- 150-foot Riparian Zone
- Delineated Wetland Boundary

Figure 4.1B - Exisiting Conditions
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 1/4

THIS PAGE LEFT BLANK INTENTIONALLY.



Sources:
Wetland boundary delineated by Parsons Brinckerhoff, Inc., 2009.
Submerged Aquatic Vegetation delineated by LGA Associates, Inc. 2009.
NJDEP Upper Wetland Boundary, Virtual Earth Aerial Map, 2009

Legend

- Proposed Improvements
- Submerged Aquatic Vegetation
- Upper Wetland Boundary
- 150-foot Riparian Zone
- Delineated Wetland Boundary

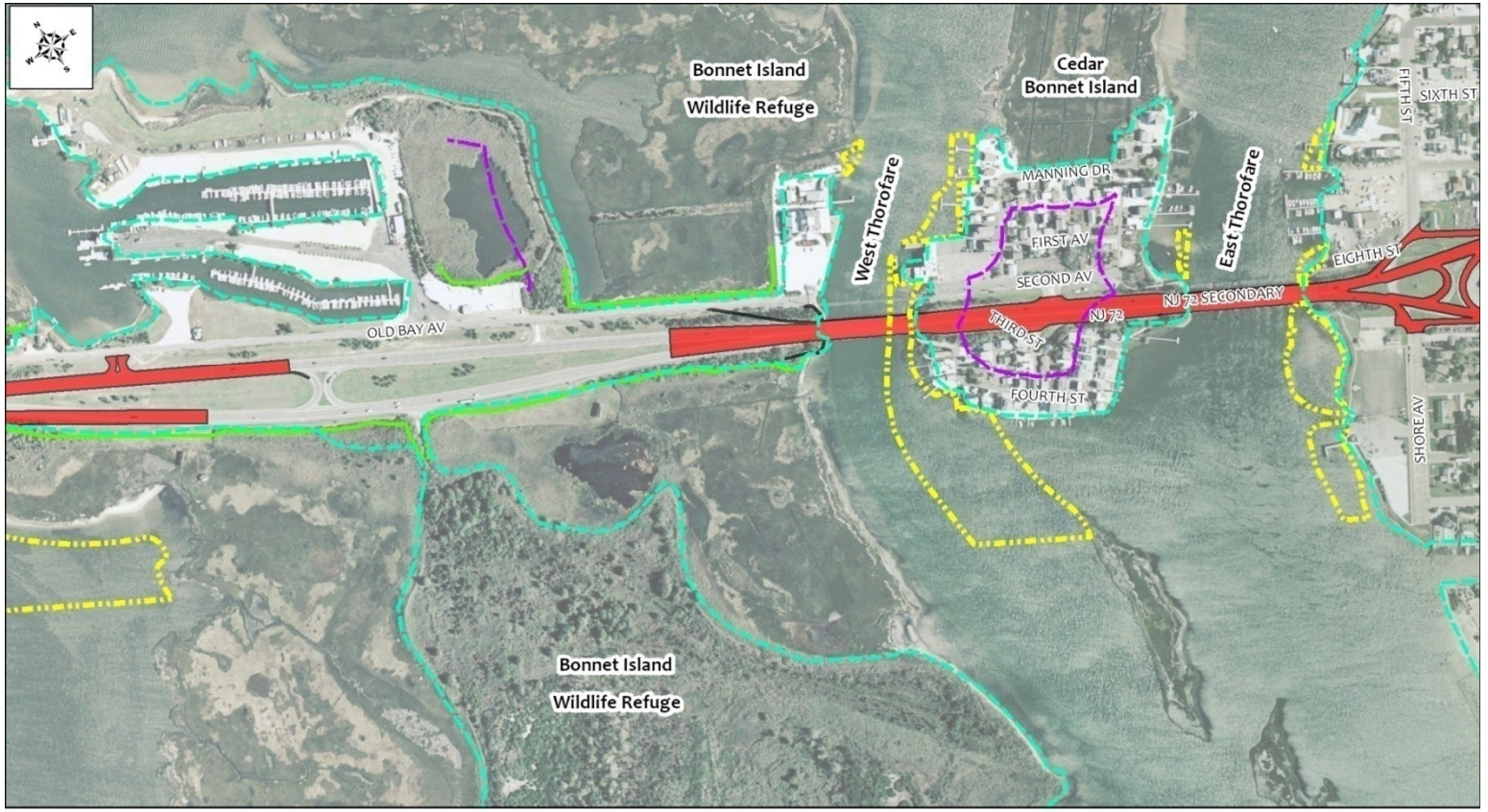
Figure 4.1B - Exisiting Conditions

Route 72 Manahawkin Bay Bridges

Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 2/4

THIS PAGE LEFT BLANK INTENTIONALLY.



Sources:
Wetland boundary delineated by Parsons Brinckerhoff, Inc., 2009.
Submerged Aquatic Vegetation delineated by LGA Associates, Inc. 2009.
NJDEP Upper Wetland Boundary, Virtual Earth Aerial Map, 2009

Legend

- Proposed Improvements
- Submerged Aquatic Vegetation
- Upper Wetland Boundary
- 150-foot Riparian Zone
- Delineated Wetland Boundary

Figure 4.1B - Exisiting Conditions
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 3/4

THIS PAGE LEFT BLANK INTENTIONALLY.

Sources:
Wetland boundary delineated by Parsons Brinckerhoff, Inc., 2009.
Submerged Aquatic Vegetation delineated by LGA Associates, Inc. 2009.
NJDEP Upper Wetland Boundary, Virtual Earth Aerial Map, 2009

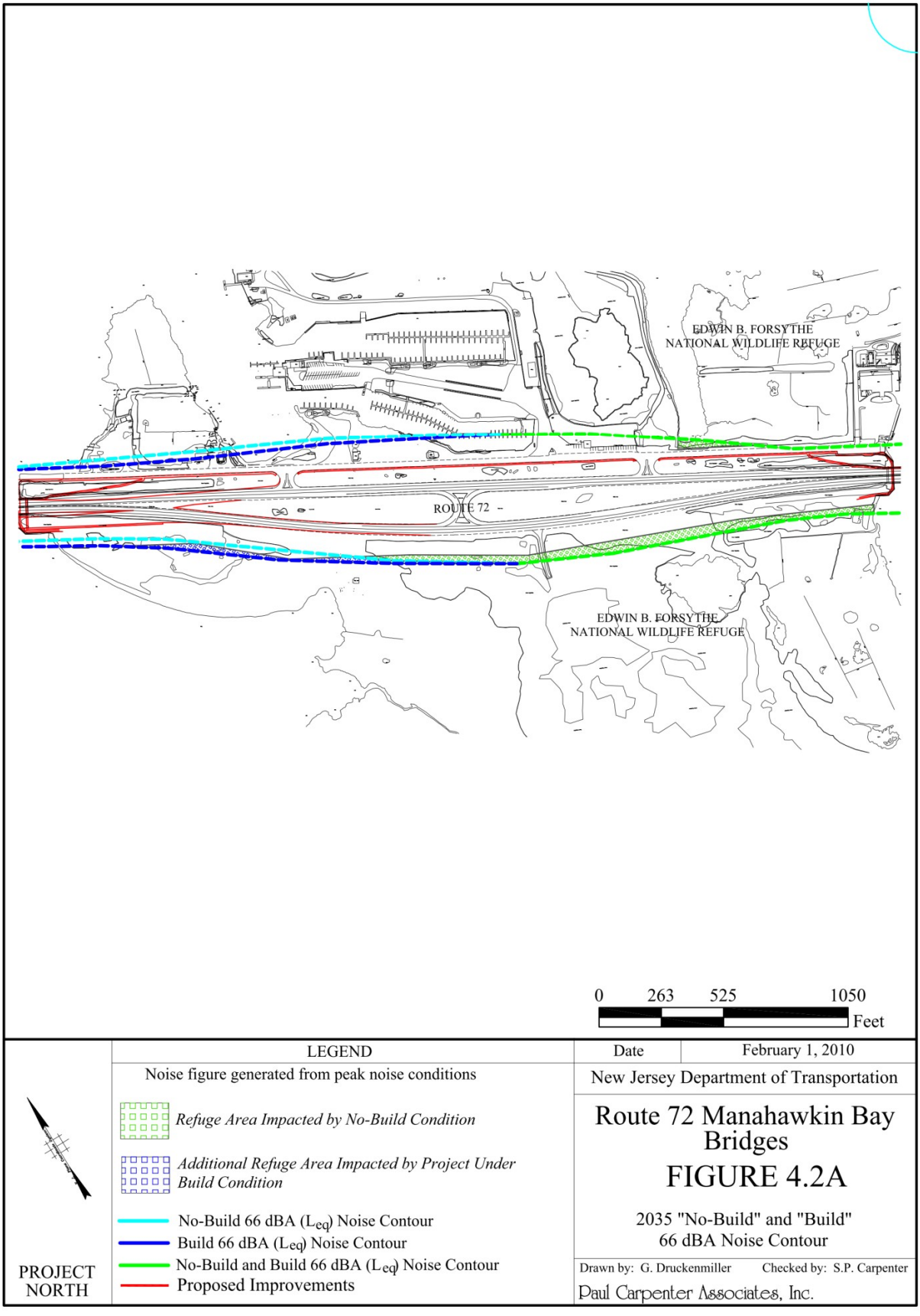
Legend

- Proposed Improvements
- Submerged Aquatic Vegetation
- Upper Wetland Boundary
- 150-foot Riparian Zone
- Delineated Wetland Boundary

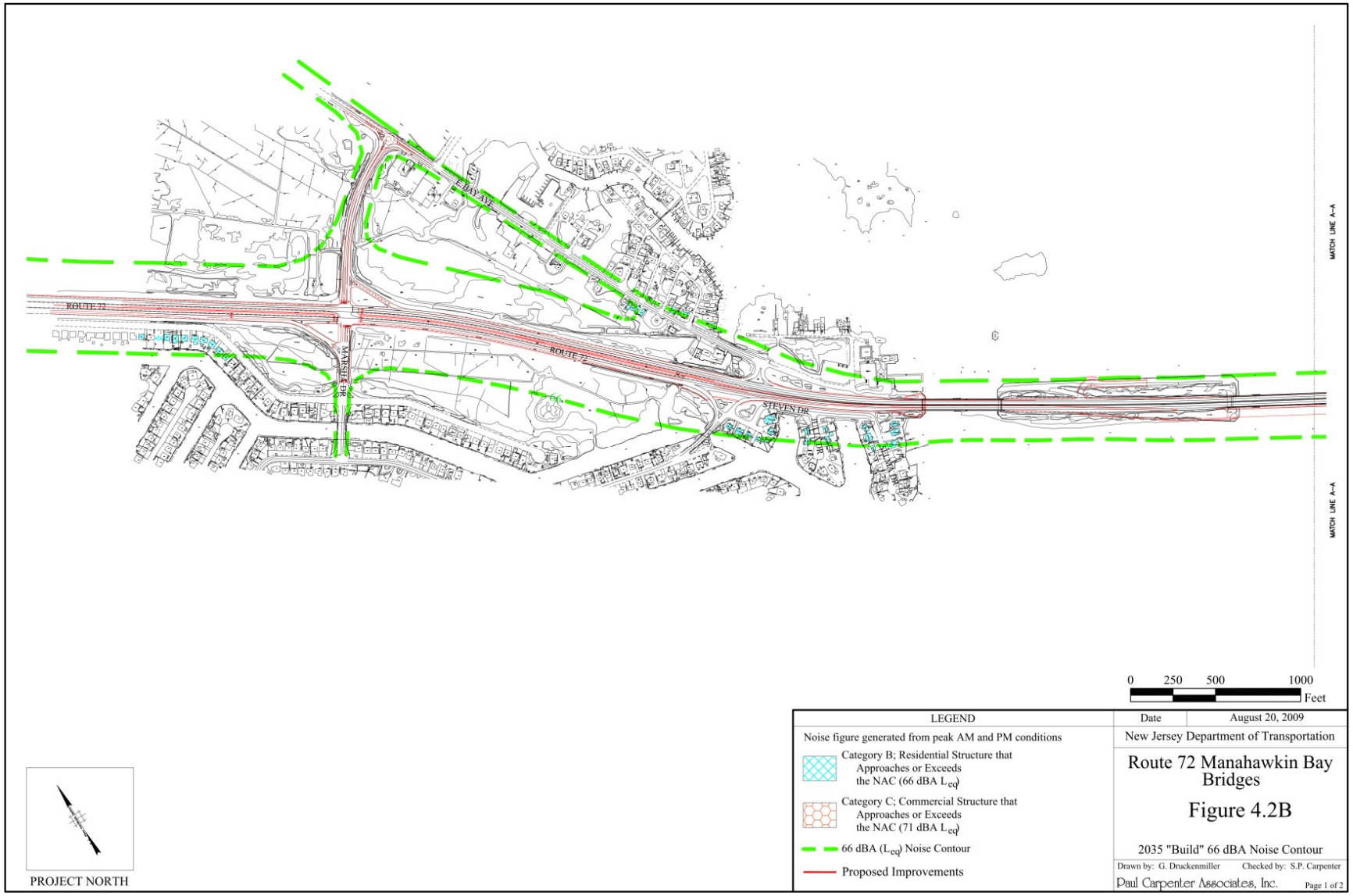
Figure 4.1B - Exisiting Conditions
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

Sheet 4/4

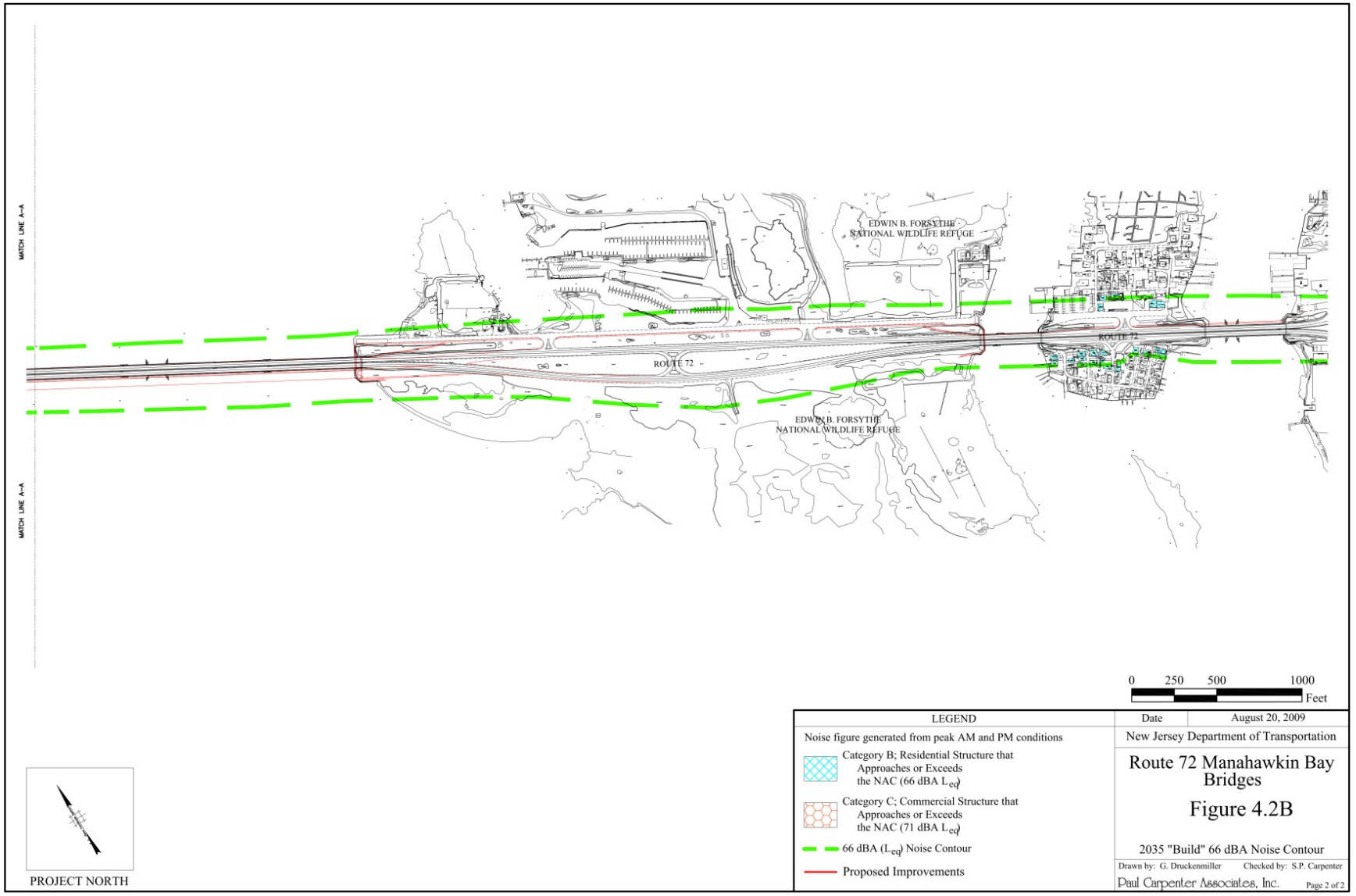
THIS PAGE LEFT BLANK INTENTIONALLY.


EDWIN B. FORSYTHE
NATIONAL WILDLIFE REFUGE
ROUTE 72
EDWIN B. FORSYTHE
NATIONAL WILDLIFE REFUGE
0
263
525
1050
Feet
LEGEND
Noise figure generated from peak noise conditions
Refuge Area Impacted by No-Build Condition
Additional Refuge Area Impacted by Project Under Build Condition
No-Build 66 dBA (Leq) Noise Contour
Build 66 dBA (Leq) Noise Contour
No-Build and Build 66 dBA (Leq) Noise Contour
Proposed Improvements
PROJECT NORTH
Date
February 1, 2010
New Jersey Department of Transportation
Route 72 Manahawkin Bay Bridges
FIGURE 4.2A
2035 "No-Build" and "Build"
66 dBA Noise Contour
Drawn by: G. Druckenmiller
Checked by: S.P. Carpenter
Paul Carpenter Associates, Inc.

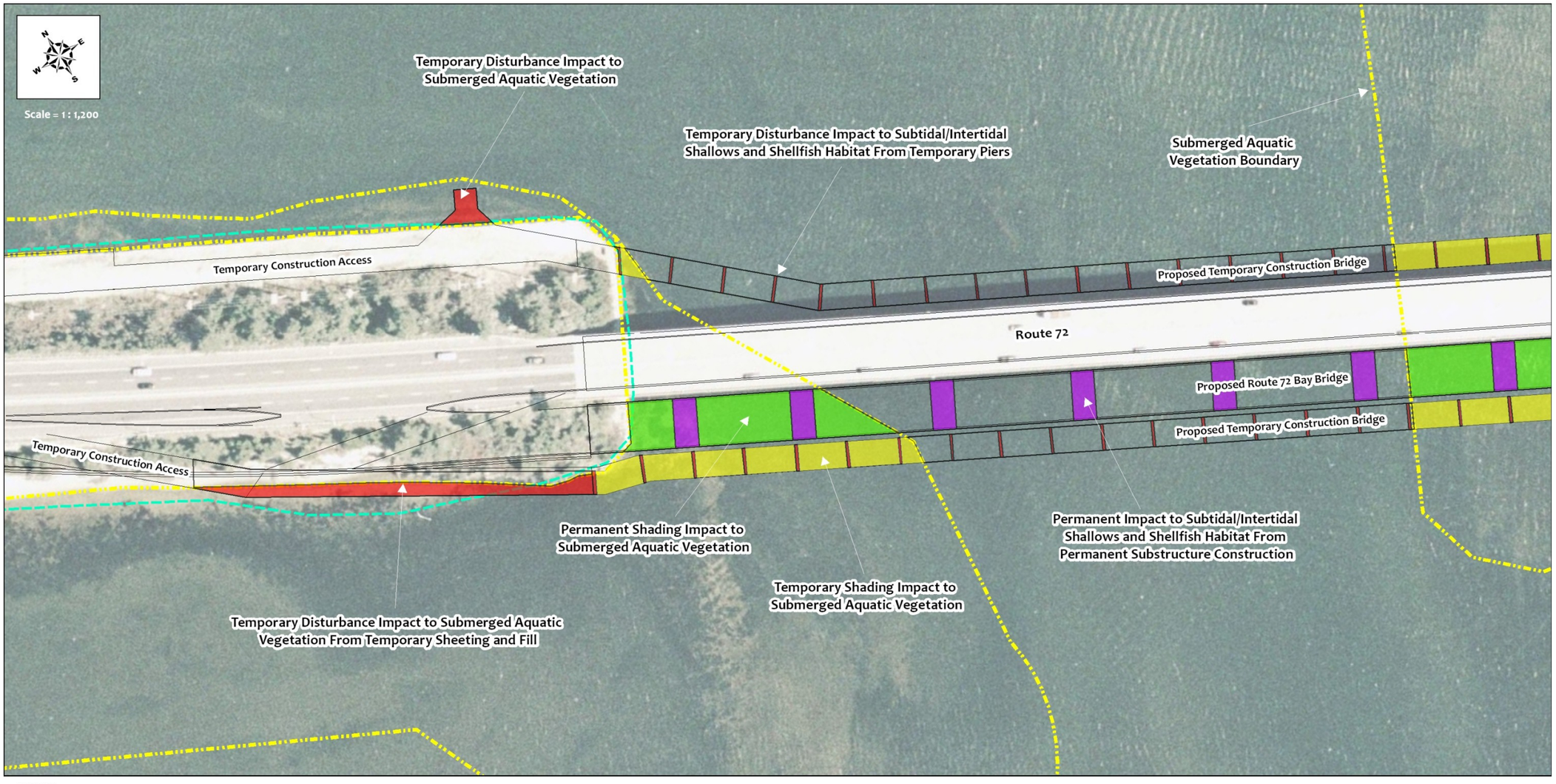
THIS PAGE LEFT BLANK INTENTIONALLY.


ROUTE 72
MARSHALL DR
BAY AVE
ROUTE 72
STEVEN DR
66
MATCH LINE A–A
MATCH LINE A–A
0 250 500 1000
Feet
PROJECT NORTH
LEGEND
Noise figure generated from peak AM and PM conditions
Category B; Residential Structure that Approaches or Exceeds the NAC (66 dBA L_{eq})
Category C; Commercial Structure that Approaches or Exceeds the NAC (71 dBA L_{eq})
66 dBA (L_{eq}) Noise Contour
Proposed Improvements
Date
August 20, 2009
New Jersey Department of Transportation
Route 72 Manahawkin Bay Bridges
Figure 4.2B
2035 "Build" 66 dBA Noise Contour
Drawn by: G. Druckenmiller
Checked by: S.P. Carpenter
Paul Carpenter Associates, Inc.
Page 1 of 2

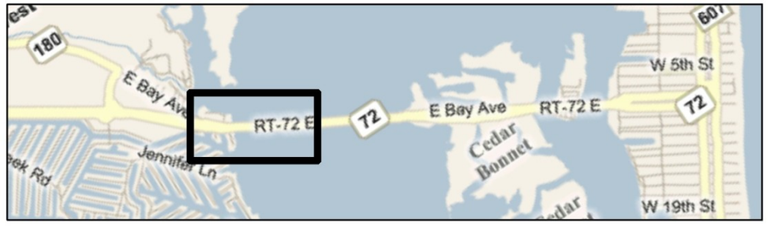
THIS PAGE LEFT BLANK INTENTIONALLY.


MATCH LINE A–A
MATCH LINE A–A
EDWIN B. FORSYTHE NATIONAL WILDLIFE REFUGE
ROUTE 72
ROUTE 72
EDWIN B. FORSYTHE NATIONAL WILDLIFE REFUGE
0 250 500 1000
Feet
LEGEND
Noise figure generated from peak AM and PM conditions
Category B; Residential Structure that Approaches or Exceeds the NAC (66 dBA L_{eq})
Category C; Commercial Structure that Approaches or Exceeds the NAC (71 dBA L_{eq})
66 dBA (L_{eq}) Noise Contour
Proposed Improvements
PROJECT NORTH
Date
August 20, 2009
New Jersey Department of Transportation
Route 72 Manahawkin Bay Bridges
Figure 4.2B
2035 "Build" 66 dBA Noise Contour
Drawn by: G. Druckenmiller
Checked by: S.P. Carpenter
Paul Carpenter Associates, Inc.
Page 2 of 2

THIS PAGE LEFT BLANK INTENTIONALLY.



Sources:
Proposed bridge and pier locations were created by Parsons Brinckerhoff, Inc. Submerged Aquatic Vegetation was surveyed by LGA Associates, Inc., NJDEP Upper Wetlands Limit Boundary, Virtual Earth Aerial and Road Base Maps.



Legend:

- Upper Wetland Boundary
- Submerged Aquatic Vegetation
- Temporary Disturbance Impact to Intertidal/Subtidal Shallows, Shellfish Habitat, and/or Submerged Aquatic Vegetation
- Permanent Disturbance Impact to Intertidal/Subtidal Shallows, Shellfish Habitat, and/or Submerged Aquatic Vegetation
- Temporary Shading Impact to Submerged Aquatic Vegetation
- Permanent Shading Impact to Submerged Aquatic Vegetation

Figure 4.3 - Typical Impact Determination
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

THIS PAGE LEFT BLANK INTENTIONALLY.

Sources:

Potential Limits of Category One Waters Delineated by PB Americas as per N.J.A.C. 7:9B Surface Water Quality Standards; Virtual Earth Aerial Map, 2009

Legend

- Proposed Improvements
- Limits of Category One Waters

Figure 4.4 - Potential Limits of Category One Waters
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

THIS PAGE LEFT BLANK INTENTIONALLY.

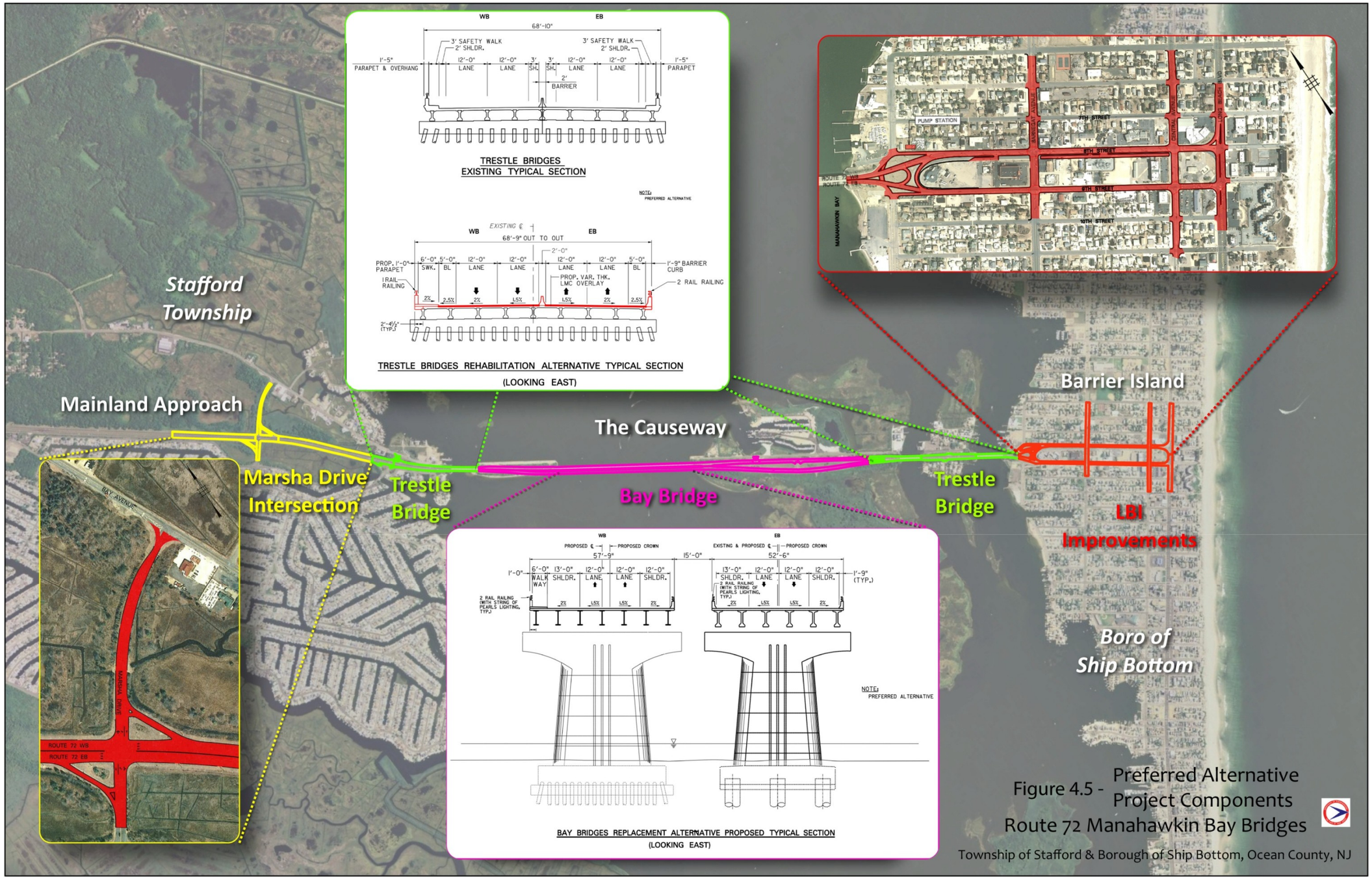


Figure 4.5 - Preferred Alternative Project Components
Route 72 Manahawkin Bay Bridges
Township of Stafford & Borough of Ship Bottom, Ocean County, NJ

THIS PAGE LEFT BLANK INTENTIONALLY.

5 List of Technical Studies and References

A.D. Marble & Company, March 2006. *Traffic Noise and Air Quality Technical Memorandum, New Jersey Route 72, Ship Bottom Operational and Drainage Improvements.*

A.D. Marble & Company, December 2005, Cultural Resources Study, New Jersey Route 72, Ship Bottom Operational and Drainage Improvements.

Arora and Associates, P.C., May 2010. *Combined Inspection Report, Route 72 Manahawkin Bay Bridges Project, Structure Nos. 1513-151, 1513-152, 1513-153, 1513-154*.

Arora and Associates, P.C., November 2009. *Navigational Survey Report, NJ Route 72 over Manahawkin Bay Bridges*.

Amy S. Greene Environmental Consultants, Inc., July 2009. *Technical Environmental Study on Ecology, Route 72 Manahawkin Bay Bridges.*

LGA Engineering, Inc., June 2009, revised November 2009. *Submerged Aquatic Vegetation Delineation Survey, Route 72 Manahawkin Bay Bridges Improvement Project.*

LGA Engineering, Inc., June 2009. *Mean High Water Elevation Determination, Route 72 Manahawkin Bay Bridge Replacement.*

New Jersey Department of Transportation, April 2010. *Essential Fish Habitat Assessment for Route 72 Manahawkin Bay Bridges Improvement Project*.

Malik and Scherer, PC, September 2006, *Roadway Drainage Report, Route 72 Ship Bottom Operations and Drainage Improvements*

Paul Carpenter Associates, Inc., February 2010. *Air Quality Assessment, Route 72 Manahawkin Bay Bridges.*

Paul Carpenter Associates, Inc., February 2010. *Noise Assessment, Route 72 Manahawkin Bay Bridges.*

PB Americas, Inc., January 2011. *Preliminary Hydraulics and Scour Report for Route 72 Manahawkin Bay Bridges.*

PB Americas, Inc., January 2011. *Intelligent Transportation Systems (ITS), Preliminary Design Report for Route 72 Manahawkin Bay Bridges.*

PB Americas, Inc., January 2011, *Drainage Report for Route 72 Manahawkin Bay Bridges.*

PB Americas, Inc., January 2011. *Traffic Impact Report for Route 72 Manahawkin Bay Bridges.*

PB Americas, Inc., August 2010*. Supplement to Technical Environmental Study on Ecology for Proposed ITS Locations*

PB Americas, Inc., July 2009. *Wetland Delineation Report for Route 72 Manahawkin Bay Bridges, MP 25.5 to MP 28.2.*

PB Americas, Inc., December 2009. *Socioeconomic Impact Assessment for Route 72 Manahawkin Bay Bridges.*

PB Americas, Inc., January 2007. *Feasibility Assessment Report Assessment Addendum for Route 72 Manahawkin Bay Bridges.*

PB Americas, Inc., March 2006. *Bridge Scour Evaluation Report Structure 1513-152, Route 72 Over Manahawkin Bay.*

PB Americas, Inc., October 2005. *Feasibility Assessment Report Assessment for Route 72 Manahawkin Bay Bridges.*

Prestige Environmental, Inc., February 2010. *Hazardous Waste Screening, Route 72 Manahawkin Bay Bridges.*

Richard Grubb & Associates, July 2009, revised February 2010. *Cultural Resources Investigation, Improvements to Route 72 Manahawkin Bay Bridges and Marsha Drive Intersection.*

6 List of Preparers

The following individuals had primary responsibility for the preparation and review of the Environmental Assessment:

U.S Department of Transportation, Federal Highway Administration

Tony Sabidussi	Environmental Realty Specialist
Shaun O'Hanlan	Area Engineer

New Jersey Department of Transportation

Pankesh Patel, PE	Project Manager
Joseph Sweger	Section Chief, Environmental Project Manager
Bruce Hawkinson	Section Chief, Environmental Project Manager
Tina Shutz	Principle Environmental Specialist
Scott Ackerman	Senior Environmental Specialist, Environmental Assessment Lead

CONSULTANT TEAM

Parsons Brinckerhoff

Judy Burton	Supervising Environmental Scientist
Joe Mumber, PE	Project Manager
Kuldip Singh, PE	Deputy Project Manager
Tony DeJohn, PE	Vice President

Rowbear Consulting, P.C.

Marshall Robert, PE, PP, Esq.	Project Manager

Amy S. Greene Environmental Consulting, Inc.

William Romaine	Sr. Project Manager

Prestige Environmental, Inc.

Xerxes Antia, P.E.	Associate

LGA Engineering, Inc.

Michael S. Sinnema	Sr. Environmental Project Manager
Paul Bologna	Montclair University, Asst. Professor, Biology & Molecular Biology, SAV Specialist

Richard Grubb & Associates

Glenn R. Modica	Principal Sr. Historian

Paul Carpenter Associates, Inc.

Sharon Paul Carpenter	President

CMX

Frank A. Frega, P.E.	Project Manager

Appendix A – Agency Coordination

Agency	Date
Barnegat Bay National Estuary Program	December 29, 2009
NJDEP Bureau of Water Standards and Assessment	December 10, 2010
NJDEP Natural & Historic Resources, Historic Preservation Office	December 29, 2009
NJDEP Office of Natural Lands Management	May 7, 2009
New Jersey Department of Transportation	August 26, 2010
New Jersey Department of Transportation	August 30, 2004
U.S. Department of Commerce, National Oceanic and Atmospheric Administration	September 29, 2010
U.S. Department of Commerce, National Oceanic and Atmospheric Administration	June 8, 2009
U.S. Department of Homeland Security, Unites States Coast Guard	August 15, 2010
U.S. Department of Homeland Security, Unites States Coast Guard	August 7, 2009
U.S. Department of Homeland Security, Unites States Coast Guard	September 17, 2004
U.S. Department of the Interior, Fish and Wildlife Service, Ecological Service	September 16, 2009

Barnegat Bay National Estuary Program

December 23, 2009

Mr. Marshall Robert
Rowbear Consulting, P.C.
957 Route 33, PMB 341
Trenton, New Jersey 08690

Dear ~~Mr Robert~~ Marshall,

I am writing to communicate the collective interest of the Barnegat Bay National Estuary Program (BBNEP) and its management partners in developing a comprehensive mitigation package for the Route 72 Bridge Project which will focus on the BBNEP's highest priority in its 2008-2011 Strategic Plan (copy attached): addressing eutrophication and improving water quality. This Strategic Plan was developed by the BBNEP and its many partners during 2007 and was approved by our Policy Committee at a Public Reaffirmation Ceremony on May 22, 2008.

The BBNEP and its partners value comprehensive and strategic measures to reduce stormwater pollution, which contributes substantially to the bay's overall nutrient loading. A number of specific stormwater management actions are included in the plan. The actions identified in the Strategic Plan are by no means exhaustive or exclusive, but were developed as a starting point to reduce nonpoint source pollution throughout the watershed.

We look forward to working with you to develop a comprehensive mitigation plan for the Route 72 Bridge Project. Established by Section 320 of the Clean Water Act (33 U.S.C. 1330, as amended by P.L. 100-4), the BBNEP works with its public and private partners to protect and improve water quality and the other natural resources throughout the watershed.

Please call me if you have any questions regarding the Strategic Plan or our working together on this mitigation effort.

Sincerely,

L. Stanton Hales, Jr., Ph.D.
Program Director

Attachments (1): BBNEP 2008-2011 Strategic Plan

cc: Rich Kunze, Advisory Committee Co-Chair

Ocean County College • College Drive • PO Box 2001 • Toms River, NJ 08754-2001
phone (732) 255-0472 • *fax* (732) 864-3851 • *web* www.bbnep.org

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Water Monitoring and Standards
P.O. Box 409, 401 E. State Street
Trenton, New Jersey 08625
Phone (609) 292-1623 Fax (609) 633-1276

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

December 10, 2010

Walter McGrosky, Director
Department of Transportation
Division of Capital Program Support
P.O. Box 600
Trenton, New Jersey 08625-0600

Dear Mr. McGrosky:

Assistant Commissioner John Plonski requested that my office investigate the surface water classification for the Manahawkin Bay. The Bureau of Water Quality Standards and Assessment reviewed the surface water stream classifications at N.J.A.C. 7:9B-1.15(c) and the stream classifications digitized on the GIS coverage. Manahawkin Bay and the Little Egg Harbor Bay are part of the Barnegat Bay estuary; however, all three bays are clearly identified as individual waterbodies on the USGS maps.

Pursuant to the Surface Water Quality Standards (SWQS), all waters designated as Category One must be listed at N.J.A.C. 7:9B-1.15. Although Manahawkin Bay and Little Egg Harbor Bay are part of the Barnegat Bay Estuary Program, according to the SWQS, only the waters of Barnegat Bay are designated as Category One. Therefore, since Manahawkin Bay is not listed as Category One in the SWQS, the GIS coverage is being revised to show Manahawkin Bay as SE1.

Please contact Debra Hammond, Chief, Bureau of Water Quality Standards and Assessment, of my staff at 609-777-1753 if you have any questions.

Sincerely,

Jill A. Lipoti, Ph.D.
Director

c: John Plonski, Assistant Commissioner, Water Resource Management
Debra Hammond, Bureau of Water Quality Standards and Assessment
Scott Brubaker, Director, Permit Coordination and Environmental Review
Ruth Foster, Permit Coordination and Environmental Review
P. Patel, Department of Transportation

HPO-L2009-195
05-0794-4

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

JON S. CORZINE
Governor

NATURAL & HISTORIC RESOURCES, HISTORIC PRESERVATION OFFICE
PO Box 404, Trenton, NJ 08625
TEL: (609) 984-0176 FAX: (609) 984-0578
www.state.nj.us/dep/hpo

MARK N. MAURIELLO
Acting Commissioner

December 29, 2009

Pamela Garrett
Supervising Environmental Specialist
Bureau of Environmental Program Resources
New Jersey Department of Transportation
1035 Parkway Avenue
P.O. Box 600
Trenton, NJ 08625

Dear Ms. Garrett,

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40553-40555), I am providing consultation comments on the following proposed undertaking:

Ocean County, Township of Stafford and Borough of Ship Bottom
Route 72 Manahawkin Bay Bridge

This letter was prepared in response to your submission of a cover letter and a copy of the following report, received by the Historic Preservation Office (HPO) on December 1, 2009:

Leynes, Jennifer B. and Robert J. Lore. July 27, 2009. *Cultural Resources Investigation, Improvements to Route 72 Manahawkin Bay Bridges and Marsha Drive Intersection, Township of Stafford and Borough of Ship Bottom, Ocean County, New Jersey*. Cranbury, NJ: Richard Grubb & Associates, Inc. Prepared for PB Americas, Inc. and New Jersey Department of Transportation.

800.4 Identifying Historic Properties

The submitted report states that based upon the results of background research, previous archaeological investigations, environmental setting, and existing conditions, the APE-Archaeology has a low potential for significant prehistoric and historic period resources. The HPO concurs with this assessment.

The submitted report identified one new architectural resource, the Dorland J. Henderson Memorial Bridge (Route 72 over the Manahawkin Bay, Structure No. 1513-152) as eligible for listing in the New Jersey and National Registers of Historic Places for state level significance under Criterion C in the area of engineering for its low-level lighting system.

The HPO respectfully disagrees with this determination of eligibility. In addition to the information provided in the submitted report, HPO staff conducted additional research in an attempt to gain a better contextual understanding of post-war highway bridge construction with a focus on lighting systems and the extent to which this technology was utilized in other locations on future bridge projects. While the Dorland J. Henderson Memorial Bridge and particularly its low-level lighting system do retain integrity from the time of construction, HPO staff does not feel that the information available at this time sufficiently supports a level of significance that justifies register eligibility under Criterion C.

The HPO concludes that there are **no historic properties affected** by the proposed undertaking. Consequently, pursuant to 36 CFR 800.4(d)(1), no further consultation is required unless additional resources are discovered or there is a change in the scope of work during the project implementation pursuant to 36 CFR 800.13.

It should be noted that the history of Dorland Henderson and his low-level lighting system is intriguing and the well-known "string of pearls" effect produced by the lighting system has certainly made the bridge a familiar landmark for anyone traveling to or from Long Beach Island. The HPO commends the New Jersey Department of Transportation's commitment to replicate the low-level lighting system using modern technology on both the rehabilitated Dorland J. Henderson Memorial Bridge and the new bridge to be constructed parallel to the existing structure.

Thank you for providing the opportunity to review and comment on the potential for the above-referenced project to affect historic properties. Please do not hesitate to contact Jonathan Kinney of my staff at (609) 984-0141 with any questions.

Sincerely,

Daniel D. Saunders/kn

Daniel D. Saunders
Deputy State Historic
Preservation Officer

Cc:
Timothy Hart, Ocean County Cultural and Heritage Commission
Robert Garthwaite, Ocean County Historical Society
Craig Brearly, Stafford Township Historic Preservation Commission
Timothy Hart, Stafford Township Historical Society
Jaime Ciardelli, Long Beach Island Historical Association
Mayor William Huelsenbeck, Borough of Ship Bottom
Mayor John McMenimon, Township of Stafford

3109

State of New Jersey

JON S. CORZINE
Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program
P.O. Box 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

MARK N. MAURIELLO
Acting Commissioner

May 7, 2009

Sean J. Ronan
Amy S. Greene Environmental Consultants, Inc.
4 Walter E. Foran Boulevard, Suite 209
Flemington, NJ 08822-4666

Re: Route 72 Manahawkin Bay Bridges

Dear Mr. Ronan:

Thank you for your data request regarding rare species information for the above referenced project site in Stafford Township and Ship Bottom Borough, Ocean County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3 in the highlands region, Version 2.1 elsewhere) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat on the referenced site. Please see Table 1 for species list and conservation status.

Table 1 (on referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
black skimmer	*Rynchops niger*		E	G5	S1B,S1N
black-crowned night-heron	*Nycticorax nycticorax*		T/SC	G5	S2B,S3N
cattle egret	*Bubulcus ibis*		SC	G5	S3B,S3N
common tern	*Sterna hirundo*		SC	G5	S3B,S4N
Cope's gray treefrog	*Hyla chrysoscelis*		E	G5	S1
eastern box turtle	*Terrapene carolina carolina*		SC	G5T5	S3
eastern king snake	*Lampropeltis g. getula*		U	G5T5	S3
Fowler's toad	*Bufo woodhousii fowleri*		SC	G5	S3
glossy ibis	*Plegadis falcinellus*		SC/S	G5	S3B,S4N
gull-billed tern	*Sterna nilotica*		SC	G5	S3B,S3N
little blue heron	*Egretta caerulea*		SC	G5	S3B,S3N
northern harrier	*Circus cyaneus*		E/U	G5	S1B,S3N
osprey	*Pandion haliaetus*		T/T	G5	S2B
peregrine falcon	*Falco peregrinus*		E	G4	S1B,S1N
roseate tern	*Sterna dougallii dougallii*	LE	E	G4T3	S1B,S1N
snowy egret	*Egretta thula*		SC/S	G5	S3B,S4N
spotted turtle	*Clemmys guttata*		SC	G5	S3
tricolored heron	*Egretta tricolor*		SC/SC	G5	S3B,S3N
yellow-crowned night-heron	*Nyctanassa violacea*		T/T	G5	S2B,S2N

We have also checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within one mile of the referenced site. Please see Table 2 for species list and conservation status. This table excludes any species listed in Table 1.

Table 2 (additional species within one mile of referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
Atlantic leatherback	*Dermochelys coriacea*	LE	E	G2	S1
Atlantic loggerhead	*Caretta caretta*	LT	E	G3	S1
barred owl	*Strix varia*		T/T	G5	S2B,S2N
black rail	*Laterallus jamaicensis*		T/T	G4	S2B,S2N
humpback whale	*Megaptera novaeangliae*	LE	E	G3	S1
northern pine snake	*Pituophis melanoleucus melanoleucus*		T	G4T4	S2
northern right whale	*Eubalaena glacialis*	LE	E	G1	S1
veery	*Catharus fuscescens*		S/S	G5	S3B
wood thrush	*Hylocichla mustelina*		SC/S	G5	S3B

We have also checked the Natural Heritage Database for occurrences of rare plant species or ecological communities. The Natural Heritage Database does not have any records for rare plants or ecological communities on the site or for rare plant species covered by the Flood Hazard Area Control Act rule within one mile of the site.

A list of rare plant species and ecological communities that have been documented from Ocean County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2008.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive I-Map-NJ website at the following URL, http://www.state.nj.us/dep/gis/depsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292 9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Herbert A. Lord

Herbert A. Lord
Data Request Specialist

cc: Robert J. Cartica
NHP File No. 09-3907462-2261

NJDEP LANDSCAPE PROJECT MAPPING

Emergent Wetland Imperiled Species

LINK	Species	COUNT	RANK
10271	BLACK SKIMMER	1	4
10271	LEAST TERN	1	4
10271	NORTHERN HARRIER	1	4
10271	ROSEATE TERN	1	5
10271	BLACK SKIMMER FORAGING AREA	1	4
10271	BLACK-CROWNED NIGHT-HERON FORAGING HABITAT	1	3
10271	COLONIAL WATERBIRD FORAGING HABITAT	1	2
10271	COLONIAL WATERBIRD NESTING HABITAT	1	2
10271	TERN SPECIES FORAGING HABITAT	1	2
10271	YELLOW-CROWNED NIGHT-HERON FORAGING HABITAT	1	3
10271	EMERGENT SUITABLE	1	1
10173	BLACK SKIMMER FORAGING AREA	1	4
10173	BLACK-CROWNED NIGHT-HERON FORAGING HABITAT	1	3
10173	COLONIAL WATERBIRD FORAGING HABITAT	1	2
10173	HERPTILE PRIORITY SPECIES	2	2
10173	TERN SPECIES FORAGING HABITAT	1	2
10173	EMERGENT SUITABLE	1	1
10195	BLACK SKIMMER FORAGING AREA	2	4
10195	BLACK-CROWNED NIGHT-HERON FORAGING HABITAT	2	3
10195	COLONIAL WATERBIRD FORAGING HABITAT	2	2
10195	HERPTILE PRIORITY SPECIES	2	2
10195	TERN SPECIES FORAGING HABITAT	2	2
10195	EMERGENT SUITABLE	1	1
10258	BLACK SKIMMER FORAGING AREA	1	4
10258	BLACK-CROWNED NIGHT-HERON FORAGING HABITAT	1	3
10258	COLONIAL WATERBIRD FORAGING HABITAT	1	2
10258	TERN SPECIES FORAGING HABITAT	1	2
10258	YELLOW-CROWNED NIGHT-HERON FORAGING HABITAT	1	3
10258	EMERGENT SUITABLE	1	1
10259	BLACK SKIMMER FORAGING AREA	1	4
10259	BLACK-CROWNED NIGHT-HERON FORAGING HABITAT	1	3
10259	COLONIAL WATERBIRD FORAGING HABITAT	1	2
10259	TERN SPECIES FORAGING HABITAT	1	2
10259	YELLOW-CROWNED NIGHT-HERON FORAGING HABITAT	1	3
10259	EMERGENT SUITABLE	1	1
25091	NORTHERN HARRIER	1	4
25091	PEREGRINE FALCON	1	4
25091	OSPREY	6	3
25091	COPE'S GRAY TREEFROG	1	4

25091	BLACK SKIMMER FORAGING AREA	9	4
25091	BLACK-CROWNED NIGHT-HERON FORAGING HABITAT	2	3
25091	COLONIAL WATERBIRD FORAGING HABITAT	2	2
25091	HERPTILE PRIORITY SPECIES	4	2
25091	TERN SPECIES FORAGING HABITAT	8	2
25091	EMERGENT SUITABLE	1	1

Emergent Wetland Priority Species

LINK	Species	COUNT
10173	FOWLER'S TOAD	1
10173	SPOTTED TURTLE	1
10195	FOWLER'S TOAD	1
10195	SPOTTED TURTLE	1
25091	CARPENTER FROG	1
25091	FOWLER'S TOAD	2
25091	SPOTTED TURTLE	1

State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O. BOX 600
TRENTON, NJ 08625-0600

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

JAMES S. SIMPSON
Commissioner

05-0794-5
HPO-H2010-223

August 25, 2010

Mr. Daniel D. Saunders
Department of Environmental Protection
Historic Preservation Office
PO Box 404
Trenton, NJ 08625

Attn: Jonathan Kinney

Re: Rt. 72 Manahawkin Bay Bridge
Township of Stafford and Borough of Ship Bottom, Ocean County
HPO-L2009-195; 05-0794-4

Dear Mr. Saunders:

The New Jersey Department of Transportation is proposing to improve the Route 72 Manahawkin Bay Bridges and the intersection of Route 72 and Marsha Drive in Stafford Township and Ship Bottom Borough, Ocean County, New Jersey. This project has received a concurrence from the SHPO that there are no historic properties that are to be affected with this project (HPO-L2009-195; 05-0794-4 - Letter from SHPO Dated 12-29-09). However, while this project is nearing Final Design, a new component has been added to this project. Intelligent Transportation Systems (ITS) improvements have been added to the project, which include:

- A possible equipment cabinet in the Garden State Parkway Southbound shoulder, north of Rt. 72
- A possible Variable Messaging System (VMS) sign on the Rt. 9 Southbound Shoulder, north of Hilliard Boulevard.
- A possible EZ-Pass Tag Reader at the intersection of Rt. 72 and Rt. 9.

In total, eleven improvements fall into the No Effect agreement (5/14/09), however, these three are located near or in cultural resource areas.

The Garden State Parkway is considered a historic district (SHPO Opinion 10/12/01). The work that is being proposed is the building of an equipment cabinet for the ITS operations that are being proposed. The equipment cabinet will be designed to match equipment cabinets currently found on the Garden State Parkway, thus there will be no impact and any plans that are produced shall reflect this.

The location of the EZ-Pass Tag Reader is located in the Tuckerton Railroad Manahawkin Station Heritage Park. This location received a Certificate of Eligibility on 8/29/08. As the inclusion of this reader will not impact the architecture/archeology of this location, nor is it directly adjacent to this location, nor will it impact the use of this resource, there will be no impact and any plans that are produced shall reflect this.

The location of the VMS Sign is near the Manahawkin Village Historic District (SHPO Opinion 10/26/90). As the inclusion of this sign will not impact the architecture/archeology of this location, nor will it impact the use of this resource, there will be no impact and any plans that are produced shall reflect this.

Upon speaking with Jonathan Kinney on August 5, 2010, as well as follow up discussion on August 17, 2010, the addition of these projects to the project, as well as its construction, should not yield any effect.

As the completion of Section 106 is one item needed to complete the NEPA process, we would appreciate receiving your concurrence as soon as possible. Should you have any questions about the project, please contact me at 609-530-2543 or Scott Ackerman at 609-530-5685.

Sincerely,

Tina M. Shutz

Tina Shutz
Principle Environmental Specialist
Office of Environmental Solutions, NJDOT

✓ I concur with the conclusion based on background research and observations made during a field reconnaissance, no historic properties will be affected by the work as presently proposed. No further research is required at this time to comply with the requirements of Section 106 of the National Historic Preservation Act. Should the scope of the project change, the proposed project will have to be re-evaluated.

_____ I do not concur for the following reason(s):

D. Saunders

Daniel Saunders
Deputy State Historic Preservation Officer

8/27/10
Date

05-0794-5
HPO-H2010-223

Cc: Ackerman, Scott

State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O.Box 600
Trenton, New Jersey 08625-0600

JAMES E. McGREEVEY
Governor

JACK LETTIERE
Commissioner

August 27, 2004

Mr. Waverly Gregory, Chief
Bridge Administration Section
United States Coast Guard
Federal Building
431 Crawford Street
Portsmouth, Virginia 23704-6629

Ref.: Route 72 Manahawkin Bay
Ocean County
Bay Bridge Improvements

Dear Mr. Gregory:

The New Jersey Department of Transportation is currently studying four (4) Route 72 bridges over Manahawkin Bay in the Township of Stafford and Borough of Ship Bottom, Ocean County that are structurally deficient due to their deteriorating condition. The Bureau of Project Planning and Development (BPPD) is currently in the Feasibility Assessment (FA) phase of the project's development. During FA, the bureau is going to evaluate a number of bridge improvement alternatives, ranging from minor deck rehabilitation to complete bridge replacement. At the end of FA, an Initially Preferred Alternative (IPA) that addresses the existing problems, has the stake-holders approval, has no fatal-flaws and has the best balance of project cost, community and environmental impacts will be selected.

The existing navigation channel clearances of the four bridges are as follows:

Structure No.	Feature Intersected	Vert. Clear.	Hor. Clear.
1513-151	Hilliards Thorofare	15'	60'
1513-152	Manahawkin Bay (Intercoast.)	60'	100'
1513-153	West Thorofare	15'	60'
1513-154	East Thorofare	10'	50'

The *Navigation Survey Report* for the Manahawkin Bay Bridge, updated by the Department's consultant August 2004, is attached for your review and comments. The survey concludes that except for one vessel in the area, all other vessels can pass under the Manahawkin Bay Bridge.

The vertical clearance of the structure will be established by the requirements of the various governing agencies; therefore, we would appreciate clarification of the USCG requirements before we advance any preliminary design work. However, should bridge rehabilitation be determined the Initially Preferred Alternative, the existing vertical clearances will be maintained.

Should your staff have any questions regarding this request, please call me at (609) 530-2721.

Very respectfully,

Pamela Garrett

Pamela Garrett
Environmental Team Leader
Bureau of Environmental Project Support

Enclosures

cc w/o enc.: Robert Marshall
Tony Obidike
Jerry Thomas

Rt72ManUSCG

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

Joseph G. Sweger
New Jersey Department of Transportation
Office of Environmental Solutions
P.O. Box 600
Trenton, New Jersey 08625-0600

SEP 29 2010

Dear Mr. Sweger:

NOAA's National Marine Fisheries Service (NMFS), Northeast Region, Habitat Conservation Division has reviewed the essential fish habitat assessment (EFH) for the Route 72 Manahawkin Bridges Project prepared by the New Jersey Department of Transportation (NJDOT), the designated non-federal representative of the Federal Highway Administration (FHA), the lead federal agency.

Based upon the information contained in the environmental assessment (EA) prepared for the project, the preferred alternative selected by the NJDOT involves the rehabilitation of the existing Route 72 Bridge over Manahawkin Bay, also known as the Bay Bridge as well as three smaller trestle bridges, collectively known as the Route 72 Causeway. Also included is the construction of a new Bay Bridge south of the existing bridge along with roadway improvements in Stafford Township and Ship Bottom, Ocean County, New Jersey. We provided comments on the EA in our letter dated July 6, 2010. We look forward to receiving a revised EA that addresses the issues raised in that letter. Our comments below focus on the EFH assessment provided to us with your August 20, 2010 letter.

The project area has been designated as EFH for a number of federally managed species including Atlantic butterfish (*Peprilus triacanthus*), Atlantic sea herring (*Clupea harengus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), cobia (*Rachycentron canadum*), king mackerel (*Scomberomorus cavalla*), scup (*Stenotomus chrysops*), Spanish mackerel (*Scomberomorus maculatus*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), winter flounder (*Pseudopleuronectes americanus*), winter skate (*Leucoraja ocellata*), little skate (*Leucoraja erinacea*) and clearnose skate (*Raja eglanteria*).

The Magnuson Stevens Fishery Conservation and Management Act (MSA) requires federal agencies such as FHA to consult with the Secretary of Commerce, through NMFS, regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect EFH identified under the MSA. The EFH regulations, 50 CFR Section 600.920, outline that consultation procedure. A Federal agency may designate a non- Federal representative to conduct an EFH consultation by giving written notice of such designation to NMFS. If a non-Federal representative is used, the Federal action agency remains ultimately responsible for compliance with sections 305(b) (2) and 305(b) (4) (B) of the MSA.

The EFH final rule published in the Federal Register on January 17, 2002 defines an adverse effect as; "any impact which reduce the quality and/or quantity of EFH." The rule further states that:

> An adverse affect may include direct or indirect physical, chemical or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The rule also states:

> Loss of prey may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat and the definition of EFH includes waters and substrate necessary to fish for feeding. Therefore, actions that reduce the availability of a major prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat that are known to cause a reduction in the population of the prey species, may be considered adverse effects on EFH if such actions reduce the quality of EFH.

The required contents of an EFH assessment include: 1) a description of the action; 2) an analysis of the potential adverse effects of the action on EFH and the managed species; 3) the Corps's conclusions regarding the effects of the action on EFH; 4) proposed mitigation, if applicable. Other information that should be contained in the EFH assessment, if appropriate, includes: 1) the results of on-site inspections to evaluate the habitat and site-specific effects; 2) the views of recognized experts on the habitat or the species that may be affected; 3) a review of pertinent literature and related information; and 5) an analysis of alternatives to the action that could avoid or minimize the adverse effects on EFH.

The EFH assessment worksheet and species list submitted by NJDOT includes the required elements of an EFH assessment and, within the limits of the information available on the construction methods to be used and the specifics of the bridge design, evaluates the impacts adequately. Sufficient information is presented to allow us to provide EFH conservation recommendations. However, additional coordination will be necessary once the construction plans and construction methods are developed more fully. Further coordination is also necessary to develop the needed monitoring and mitigation plans.

Impact Assessment

In the EFH worksheet, the NJDOT has concluded that the proposed project will have substantial adverse effects on EFH. We agree. Impacts to EFH will result from the permanent filling of aquatic habitat for the construction of the piers for the new bridge, shading impacts from the new bridge deck and the widened trestle bridge decks and potential changes in sedimentation and scour patterns that will result from the installation of the new structures in the waterway. Temporary impacts to EFH will result from the installation and removal of the two trestle bridges to be used for construction access for the rehabilitation of the existing bridge and the

construction of the new bridge. Cofferdams to be installed to allow for the construction of the new bridge piers will also impact EFH. Because the exact sizes and locations of the access structures and cofferdams are not available, NJDOT has estimated the area of impact using a worst-case scenario. Further, since the temporary structures will be in place for more than six months, compensatory mitigation for these areas to address the temporal loss of the use of the habitat by NOAA trust resources is necessary.

According to the EFH assessment, the proposed project will impact permanently intertidal and subtidal shallows, shellfish habitat and submerged aquatic vegetation (SAV or seagrass). These habitats are important for a wide variety of federally managed species and their prey. Permanent impacts include 0.52 acres of intertidal and subtidal shallows (water depths less than 4 feet at mlw), 0.63 acres of mapped shellfish habitat and 0.41 acres of SAV. Temporary impacts include 0.30 acres of intertidal and subtidal shallows, 0.36 acres of mapped shellfish habitat and 0.25acres of SAV. Since some areas are mapped as more than one type of habitat, the acreage cannot be added together to get a total area of aquatic habitat affected. Also not included in the impacts assessment are the 1.46 acres of temporary and 1.42 acres of permanent shading of SAV. Since SAV is present under the existing bridge, it is not known if the additional shading from the new, adjacent bridge and the widened causeway bridges will result in the loss or degradation of SAV. Nor is it known if the temporary shading from the trestle bridges will affect SAV.

Much of the project area has been identified as SAV habitat under New Jersey Coastal Zone Management Rules (7:7E- 3.6). Submerged vegetation habitat consists of water areas supporting or documented as previously supporting rooted, submerged vascular plants such as widgeon grass (*Ruppia maritima*) and eelgrass (*Zostera marina*) as well as several others. Both eelgrass and widgeon grass have been found in the area. If SAV is found in the area, or the area has been identified as supporting SAV in the past on historic maps such as the New Jersey Submerged Aquatic Vegetation Distribution Atlas (Final Report) (1980), conducted by Earth Satellite Corporation and also on "Eelgrass Inventory" maps prepared by the Division of Fish and Wildlife, Bureau of Shellfisheries in the 1980's (McCloy and Joseph 1985), the area is considered SAV habitat regardless if SAV is currently present. According to Fonseca et al. (1998), SAV beds move; and depending upon the species and physical setting, the rate at which portions of the seafloor switch from vegetated to unvegetated may vary on the scale of days or decades, meaning that the amount of seafloor required to maintain patchy seagrass beds is greater than the coverage of seagrass itself at any one point in time, sometimes by a factor of two. From the information in the EA and the EFH assessment it is not clear if the SAV areas of impact are only those that currently support SAV. NJDOT should ensure that the impact information includes all areas of SAV habitat, not just areas where SAV exists currently. The New Jersey Submerged Aquatic Vegetation Atlas (1980) shows SAV present in all areas along the bridge except for the navigation channels.

SAV and their associated epiphytes are highly productive, produce a structural matrix on which many other species depend, improve water quality and stabilize sediments (Fonseca et al 1998). Seagrasses are among the most productive ecosystems in the world and perform a number of irreplaceable ecological functions which range from chemical cycling and physical modification of the water column and sediments to providing food and shelter for commercial, recreation as well as economically important organisms (Stephan and Bigford 1997). Larvae and juveniles of

many important commercial and sport fish such as bluefish, summer flounder, spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), herrings (*Clupeidae*) and many others appear in eelgrass beds in the spring an early summer (Fonseca et al 1992). Studies from the lower Chesapeake Bay found that SAV beds are important for the brooding of eggs for fishes with demersal eggs and as habitat for the larvae of spring-summer spawners such as anchovies (*Anchoa* spp.), gobies, (*Gobiosoma* spp.), weakfish (*Cynoscion regalis*), and silver perch (*Bairdiella chrysoura*) (Stephan and Bigford 1997). Heckman and Thoman (1984) concluded that SAV beds are also important nursery habitats for blue crabs (*Callinectes sapidus*). According to Peterson (1982) in Kenworthy (1988) shallow dwelling hard clams (*Mercenaria mercenaria*) may be protected from predation by the rhizome layer of seagrass beds.

SAV has been designated as a habitat area of particular concern (HAPC) for summer flounder. HAPCs are subsets of EFH based on one or more of the following considerations: 1) the importance of the ecological function, 2) extent to which the habitat is sensitive to human-induced degradation, 3) whether and to what extent, development activities are stressing the habitat type, or 4) rarity of habitat type (50 CFR 600.815(a)(8)). Studies by Weinstein and Brooks (1983), Adams (1976) and Lascara (1981) in Packer et al. (1999) indicate that SAV is important habitat for juvenile summer flounder. Rodgers and Van Den Avyle (1983) suggest that SAV beds are important to summer flounder, and that any loss of these areas along the Atlantic seaboard may affect summer flounder stocks.

The proposed project many affect SAV beds and EFH for summer flounder in several ways; the direct loss from the construction of the bridge pier, trestle bridges and cofferdams; the loss or degradation due to shading from the structures, increases in suspended sediments during construction, and changes in sedimentation and scour pattern while construction is ongoing and after the new structures are in place.
At this point only the direct impacts can be calculated.

Water quality and, in particular, water clarity are considered among the most critical, if not the most critical, factors in the maintenance of healthy SAV habitats (Stephan and Bigford 1997). Seagrasses require at least 15% to 25% of the incident solar radiation (at the water surface) just for maintenance (Kenworthy et al. 1991). Increases in suspended sediments and the subsequent reductions in water transparency caused by dredging or other in-water construction activities such as the installation of piles and cofferdams, or from nutrient loading stormwater runoff, and boating activities limits photosynthesis. Experiments by Short et al. (1991) with eelgrass have shown that reduction in light decreases growth, promotes a reduction in plant density and can ultimately eliminate an eelgrass population altogether. As a result, NMFS has recommended that activities that generate suspended sediments be avoided in and near SAV beds when eelgrass and widgeon grass are actively growing, generally from April 15 to September 30 to avoid affecting the plant's ability to photosynthesize, grow and survive.

Because of the ecological importance of SAV habitat, we also recommend compensatory mitigation for all areas of SAV that will be affected by this project. However, because the compensatory process for seagrass is of questionable merit (Race and Fonseca 1996 in Fonseca et al. 1998), we generally recommend a ratio of at least 3:1 for mitigation to account for the difficulties in establishing successful seagrass beds and the uncertainty associated with its long-

term success. Fonseca et al. (1998) notes that the existence of techniques to transplant seagrass has often been used to justify the destruction of existing, productive habitat, and that this approach has consistently resulted in a net loss of habitat. This net loss occurs for a number of reasons including insufficient area for on-site planting to offset the habitat loss, and the selection of an inappropriate planting location off-site.

In considering off-site locations, particularly in areas where seagrass once existed but does not currently exist, it must first be determined why seagrass no longer exists in that location. If the seagrass loss was caused by water quality issues, then those issues must be corrected before seagrass planting in the site can be successful. Post construction monitoring of the mitigation site and a nearby reference for a minimum of five years is also necessary to evaluate the success of the mitigation. Monitoring of a reference site is recommended to ensure that any system-wide seagrass declines due to climatic conditions, disease or other causes are considered in evaluating the success of the mitigation. Further, since it is not known if shading or changes in the scour pattern from the new bridge will affect adversely the existing seagrass around the bridge, these areas should also be monitored. If a decline in the seagrass is seen in these locations that is disproportionate to any regional changes in seagrass, additional compensatory mitigation should be provided.

The project area has also been designated as EFH for winter flounder. The New England Fisheries Management Council (NEFMC) has defined the EFH for winter flounder early life stages as having depths of less than 5 meters for eggs and less than 6 meters for larvae with salinities between 10 and 30 ppt for eggs and 4 to 30 ppt for larvae on bottoms with substrates of sand, muddy sand, mud and gravel. Winter flounder have demersal eggs that sink and remain on the bottom until they hatch. After hatching, flounder larvae are initially planktonic, but following metamorphosis they assume an epibenthic existence. Winter flounder larvae are negatively buoyant (Pereira et al. 1999), and are typically more abundant near the bottom (Able and Fahay 1998). These young-of-the-year flounder tend to burrow in the sand rather than swim away from threats. Because eggs or newly metamorphosed larvae are located on the bottom and are not mobile, they can be harmed by the deposition of suspended sediments and the installation of the cofferdams. To minimize impacts to winter flounder early life stages and their EFH, we recommend that in-water work be avoided from January 1 to May 31 or each year.

The *Inventory of New Jersey's Estuarine Shellfish Resources* (McCloy and Joseph 1985) and the Department of Interior shellfish maps (1963) identify the project area as hard clam habitat. In addition to their commercial value, shellfish have an important ecological role in the Barnegat and Manahawkin Bay complex. As filter feeders, they improve water quality in the bays. They also serve as a food source for a variety of fish that feed the siphons of shellfish. Steimle et al. (2000) studied the diets of demersal fish in the lower Hudson-Raritan Estuary. They reported the siphons of hard clams were an important part of the diet of winter flounder in the estuary. Any reduction or degradation to the habitat for hard clam is considered to be an adverse effect on EFH for winter flounder.

While NJDOT's proposal to notify the shellfisherman prior to the start of construction to allow them to harvest any shellfish in the area may be beneficial, this action does not address the loss of shellfish habitat that will result from the project. As stated in our comments on the EA, we

expect the NJDOT to develop and to implement a compensatory mitigation plan that will restore, create or enhance shellfish habitat in the vicinity of the project area in order to offset the impacts to shellfish beds and to EFH. NJ Department of Environmental Protection's Bureau of Shellfisheries should be consulted to determine the most appropriate form of compensatory mitigation. In addition, portions of the project area are open seasonally from November 1 to April for the direct harvest of shellfish. Activities that generate turbidity should be avoided during this time in any area open for direct harvest.

Lastly, from the EA it appears that a small amount of tidal wetlands will be affected by the proposed project. We expect that the revised EA for the project will clearly define the extent of the wetlands impacts and include a compensatory mitigation plan to offset those impacts. Estuarine wetlands provide nursery and forage habitat for a variety of species of concern to NMFS including alewife (*Alosa pseudoharengus*), Atlantic croaker (*Micropogonias undulatus*), Atlantic menhaden (*Brevoortia tyrannus*), spot, striped bass (*Morone saxatilis*) as well as federally managed bluefish, winter flounder and summer flounder (Graff and Middleton undated). Important forage species such as mummichog (*Fundulus heteroclitus*), Atlantic silverside (*Menidia menidia*), inland silverside (*Menidia beryllina*), striped killifish (*Fundulus majalis*) and bay anchovy (*Anchoa mitchilli*) also use these areas. Mummichog, killifish, anchovies and other small fish and benthic organisms found in estuarine wetlands provide a valuable food source for many of the commercially and recreationally valuable species mentioned above including striped bass, summer flounder, weakfish, red hake, scup and windowpane (Steimle et al. 2000).

Wetlands also provide many other important ecological functions including water storage, nutrient cycling and primary production, sediment retention, water filtration or purification, and groundwater recharge. The loss of wetlands as a result of this project can adversely affect EFH for a number of federally managed species through the loss of nursery, forage and refuge habitat, the reduction in prey species and primary production and water quality degradation from the reduction in sediment retention and pollution filtration. As a result, we recommend that a compensatory mitigation plan be developed to offset all of the project impacts to aquatic resources, including wetlands, SAV, shellfish and EFH, in accordance with the federal standards and criteria for compensatory mitigation for losses of aquatic resources as published in the Federal Register on April 10, 2008 (Vol. 73 No. 70) prior to the issuance of a Finding of No Significant Impact (FONSI) and as part of any federal permit application.

EFH Conservation Recommendations

As discussed above, we concur with the NJDOT's determination that the proposed project will have substantial impacts to EFH. To minimize the impacts, NMFS recommends the following EFH conservation recommendations pursuant to Section 305(b) (4) (A) of the MSA:

1. The development, review, approval and implementation of a compensatory mitigation plan for all unavoidable impacts to aquatic habitats including SAV, intertidal and subtidal shallows, wetlands and shellfish habitats in accordance with the 2008 federal mitigation regulations. We note that the submittal of this plan is required as part of any Department of the Army permit application. The plan must include baseline information on the mitigation site or sites, the goals and objectives of the plan, performance measures and

2. success criteria, monitoring and maintenance plans and provisions for the long-term stewardship of the site. The mitigation plan must also demonstrate how it will replace the functions and values of the habitats to be impacted.

   We expect in-kind mitigation for these important habitats. For SAV, we recommend a minimum ratio of 3:1. For wetlands and other aquatic habitats, the ratio recommended will depend upon the location and nature of the compensatory mitigation proposed. Typically, 3:1 is recommended for in-kind enhancement of wetlands and 2:1 is recommended for in-kind creation or restoration. We will not support the creation, restoration or enhancement of wetlands to offset the loss SAV, shellfish or unvegetated intertidal and subtidal shallows.

   The NJDEP Bureau of Shellfisheries should be consulted as soon as possible to discuss options for addressing the mitigation of impacts to shellfish habitat as well as SAV habitat. NMFS should be included in these discussions.

3. The development, review, approval and implementation of a monitoring plan for SAV in and around the project site to determine if shading or scour effects from the new bridge and rehabilitated bridges affects adversely existing SAV beds. The plan should include monitoring of reference locations as well as the area in and around the bridges. The monitoring should be undertaken for a minimum of five years in conjunction with the monitoring period for the compensatory mitigation.

4. No dredging or other in-water work that would result in increases in suspended sediments from:

   - January 1 to May 31 to minimize adverse effects on winter flounder EFH and early life stages. Work within the cofferdams may occur during this time frame provided the cofferdams are installed and removed outside of this time.

   - April 15 to September 30 to minimize impacts to SAV. SAV beds have been identified as an HAPC for summer flounder. As discussed above, SAV is also valuable habitat for wide variety of NOAA trust resources including bluefish, spot, blue crabs and many others. Work within the cofferdams may occur during this time frame provided the cofferdams are installed and removed outside of this time.

5. In areas identified as seasonally open for shellfish harvesting, any work that would result in the closure of the shellfish beds should be avoided from November 1 to April 15. The NJDEP Bureau of Shellfisheries should be consulted to determine the areas of concern and the activities that should be avoided as well as any potential mitigation that may be necessary should any of the work proposed result in the closure of commercially harvested shellfish beds.

Please note that Section 305 (b)(4)(B) of the MSA requires the NJDOT, acting as FHA's designated non-federal representative, to provide NMFS with a detailed written response to these

EFH conservation recommendations, including the measures adopted by the NJDOT for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with NMFS' recommendations, Section 305 (b) (4) (B) of the MSA also indicates that the NJDOT must explain its reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with NMFS over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate or offset such effect pursuant to 50 CFR 600.920 (k).

Please also note that further EFH consultation must be reinitiated pursuant to 50 CRF 600.920 (j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

We recognize that EFH conservation recommendations, particularly the seasonal work restrictions that we have provided may present logistical difficulties for the construction and rehabilitation of the Route 72 bridges. As project plans are developed more fully and the details of the construction methods are known, these recommendations may be modified. We look forward to additional coordination on this project as those details become available and as the mitigation and monitoring plans are developed. If you have any questions regarding our comments or need additional information, please contact Karen Greene at 732 872-3023.

Sincerely,

Peter Colosi

Peter D. Colosi
Assistant Regional Administrator
Habitat Conservation Division

cc: EPA Region II - L. Knudson, R. Montgomerie
FWS Pleasantville – C. Popolizio
ACOE Phila. – M. Hayduk
PRD – J. Crocker
NJDEP Bureau of Shellfisheries- M. Cellestino
NJDEP – Div. Fish and Wildlife – K. Davis

LITERATURE CITED

Able, K.W. and M.P. Fahay. 1998. The first year in the life of estuarine fishes of the Middle Atlantic Bight. Rutgers University Press. New Brunswick, NJ

Adams, S.M. 1976. The ecology of eelgrass, *Zostera marina* (L.), fish communities. I. Structural Analysis. J. Exp. Mar. Biol. Ecol. 22: 269-291.

Department of Interior. 1963. Distribution of shellfish resources in relation to the New Jersey Intracoastal waterway. Bureau of Sportfisheries and Wildlife. Boston, MA.

Fonseca, M.S., W.J. Kenworthy and G.W. Thayer. 1998. Guidelines for the Conservation and Restoration of Seagrasses in the United States and Adjacent Waters. NOAA's Coastal Ocean Program. Decision Analysis Series No. 12.

Fonseca, M.S., W.J. Kenworthy and G.W. Thayer. 1992. Seagrass beds: nursery for coastal species. In: R.H. Stroud (ed.). Stemming the side of coastal fish habitat loss. Proceedings of a symposium on conservation of coastal fish habitat, Baltimore, Maryland, March 7-9, 1991. p 141-146.

Graff, L. and J. Middleton. Undated. Wetlands and fish: catch the link. Save Our Stream Program. Izaak Walton League of America, Inc., Prepared for National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Habitat Conservation. Silver Spring, Maryland. 48 p.

Heck, K.L. and T.A. Thoman. 1984. The nursery role of seagrass meadows in the upper and lower reaches of the Chesapeake Bay. Estuaries 7:70-92

Kenworthy, W.J., G.W. Thayer and M.S. Fonseca. 1988. Utilization of seagrass meadows by fishery organisms. In: Hook, D.D., W.H. McKee, Jr., H.K. Smith, J. Gregory, V.G. Burrell, Jr., M.R. DeVoe, R.E. Sojka, S. Gilbert, R. Banks, L.H. Stolzy, C. Brooks, T.D. Matthews and T.H. Shear (eds.). The ecology and management of wetlands. Vol 1, Ecology of wetlands. Timber Press. Oregon. 592 p.

Kenworthy. W.J. and D.E. Haunert (eds.) 1991. The light requirements of seagrasses: proceedings of a workshop to examine the capability of water quality criteria, standards and monitoring programs to protect seagrasses. NOAA Technical Memorandum NMFS-SEFC-287.

Lascara, J. 1981. Fish predatory-prey interactions in areas of eelgrass (Zostera marina). M.S. Thesis. Coll. William and Mary. Williamsburg, VA. 81 p.

McCloy, T.W and J.W. Joseph. 1985. Inventory of New Jersey's Estuarine Shellfish Resources. Completion Report. Project no. 3-332-R-5.

New Jersey Department of Environmental Protection. 1980. New Jersey Submerged Aquatic Vegetation Distribution Atlas (Final Report) conducted by Earth Satellite Corporation

Packer, D.B., S.J. Griesbach, P.L. Berrien, C.A. Zetlin, D.L. Johnson and W.W. Morse. 1999. Essential Fish Habitat Source Document: Summer Flounder, *Paralichthys dentatus*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-151.

Pereira, J.J. R. Goldberg, J.J. Ziskowski, P.L. Berrien, W.W. Morse and D.L. Johnson. 1999. Essential Fish Habitat Source Document: Winter Flounder, *Pseudopleuronectes americanus*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-138.

Peterson, C.H. 1982. Clam predation by whelks (Busycon spp.): Experimental tests on the importance of prey size, prey density, and seagrass cover. Mar. Biol, 66:159-70.

Race, M.S. M.S. Fonseca. 1996. Fixing compensatory mitigation: what will it take? Ecological Applications. 6:94-101.

Rogers, S.G. and M.J. Van Den Avyle. 1983. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Atlantic): summer flounder. U.S. Fish and Wildl. Serv. FWS/OBS-82/11.15. 14p.

Short, F.T., G.E. Jones and D.M. Burdick. 1991. in Bolton, S.H. and O.T. Magoon. (eds.) Coastal wetlands, papers presented at Coastal Zone '91, the seventh symposium on Coastal and Ocean management. Long Beach, CA, July 8-12, 1991. p 439-453.

Steimle, F.W., R.A. Pikanowski, D.G. McMillan, C.A. Zetlin, and S.J. Wilk. 2000. Demersal fish and American lobster diets in the Lower Hudson-Raritan Estuary. NOAA Technical Memorandum NMFS-NE-161. Woods Hole, MA. 106 p.

Stephan, C. D and T.E. Bigford. eds. 1997. Atlantic Coastal Submerged Aquatic Vegetation: a review of its ecological role, anthropogenic impacts, state regulation and value to Atlantic coast fish stocks. Atlantic States Marine Fisheries Commission. Habitat Management Series #1.

Weinstein, M.P. and H.A. Brooks. 1983. Comparative ecology of nekton residing in a tidal creek and adjacent seagrass meadow: community composition and structure. Mar. Ecol. Prog. Ser. 12: 15-27.

From: Lindsey.R.Middleton@uscg.mil on behalf of Middleton, Lindsey R [Lindsey.R.Middleton@uscg.mil]
Sent: Tuesday, September 28, 2010 3:13 PM
To: Middleton, Lindsey R; Sharad.Rana@dot.state.nj.us; Pankesh.Patel@dot.state.nj.us
Subject: RE: Manahawkin Bay Bridge Public Notice

Good Afternoon,

We have not received any comments concerning the clearance reduction. Please proceed with your bridge design. Let me know if you have any questions.

Lindsey Middleton
Bridge Management Specialist
United States Coast Guard District 5
757-398-6629

-----Original Message-----
From: Middleton, Lindsey R
Sent: Thursday, September 16, 2010 10:09 AM
To: 'Sharad.Rana@dot.state.nj.us'; 'Pankesh.Patel@dot.state.nj.us'
Cc: Gregory, Waverly
Subject: Manahawkin Bay Bridge Public Notice

Good Morning,

As of midnight tonight the comment period for the bridge clearance reduction will come to an end. I will be out of the office this next week but will return on the 27th. When I am back in the office I will contact you about any comments that we may have received concerning the bridge clearance reduction.

Enjoy your weekend.

Lindsey Middleton
Bridge Management Specialist
United States Coast Guard District 5
757-398-6629

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Habitat Conservation Division
James J. Howard Marine
Sciences Laboratory
74 Magruder Road
Highlands, New Jersey 07732

June 8, 2009

TO: Jennifer Czar
Amy S. Greene Environmental Consultants, Inc.
4 Walter E. Foran Blvd, Suite 209
Flemington, NJ 08822

SUBJECT: New Jersey Department of Transportation
Route 72 Manahawkin Bay Bridges Project
Stafford Township and Ship Bottom Borough
Ocean County, NJ
ASGECI Project # 3109

Karen Greene
(Reviewing Biologist)

We have reviewed the information provided to us regarding the above subject project. We offer the following preliminary comments pursuant to the Endangered Species Act, the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act:

Endangered Species Act

Threatened and endangered shortnose sturgeon may be present in the project area at certain times of the year. As a result, further consultation by the federal action agency may be required depending upon the activities proposed by the applicant. As part of the federal authorization process, the federal action agency should contact NMFS Protected Resources Division to initiate coordination on this project. Requests for coordination can be addressed to: Endangered Species Coordinator, NOAA Fisheries Service's Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930-2276

Fish and Wildlife Coordination Act

The following may be present in the project area: Resident, forage and benthic species including winter flounder, summer flounder, windowpane bluefish, river herring, bluefish, striped bass and hard clams. Submerged aquatic vegetation, a habitat area of particular concern for summer flounder has also been mapped in the project area. Avoidance and minimization of impacts to aquatic habitats should occur to the maximum extent practicable. Compensatory mitigation will be needed to offset unavoidable impacts. Seasonal work restriction may also be needed to minimize impacts to sensitive life stages of some species.

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat

The project area has been designated as Essential Fish Habitat (EFH) for one or more species. Further EFH consultation by the federal action agency will be required as part of the federal permit process. For a listing of EFH and further information, please go to our website at: http://www.nero.noaa.gov/hcd.

If you wish to discuss this further, please call 732-872-3023.

U.S. Department of Homeland Security

United States Coast Guard

Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (dpb)
Phone: (757) 398-6557
Fax: (757) 398-6334
Email: Lindsey.R.Middleton@uscg.mil

16591
AUG 15 2010

PRELIMINARY PUBLIC NOTICE 5-1191

TO WHOM IT MAY CONCERN:

The purpose of this notice is to inform mariners, adjacent property owners, and government agencies that New Jersey Department of Transportation (NJDOT) proposes plans for rehabilitating an existing bridge across navigable waters of the United States.

WATERWAY AND LOCATION: On Route 72 over Manahawkin Bay along the Intracoastal Waterway, mile 37.4 near Ship Bottom in Ocean County, NJ.

CHARACTER OF WORK: NJDOT proposes to rehabilitate the existing Manahawkin Bay Bridge on Route 72 in Ship Bottom, Ocean County, New Jersey. The rehabilitation will include replacing the existing superstructure to carry westbound traffic for Route 72, and a constructing a new parallel bridge on the south side to carry eastbound traffic for Route 72. The existing span has a 60-foot vertical clearance above mean high water (MHW) over the navigational channel. At this time, NJDOT is proposing that the new bridges have a 55-foot vertical clearance above MHW. The horizontal clearance of the proposed bridges will remain the same as the current bridge at 100 feet.

MINIMUM NAVIGATIONAL CLEARANCES:

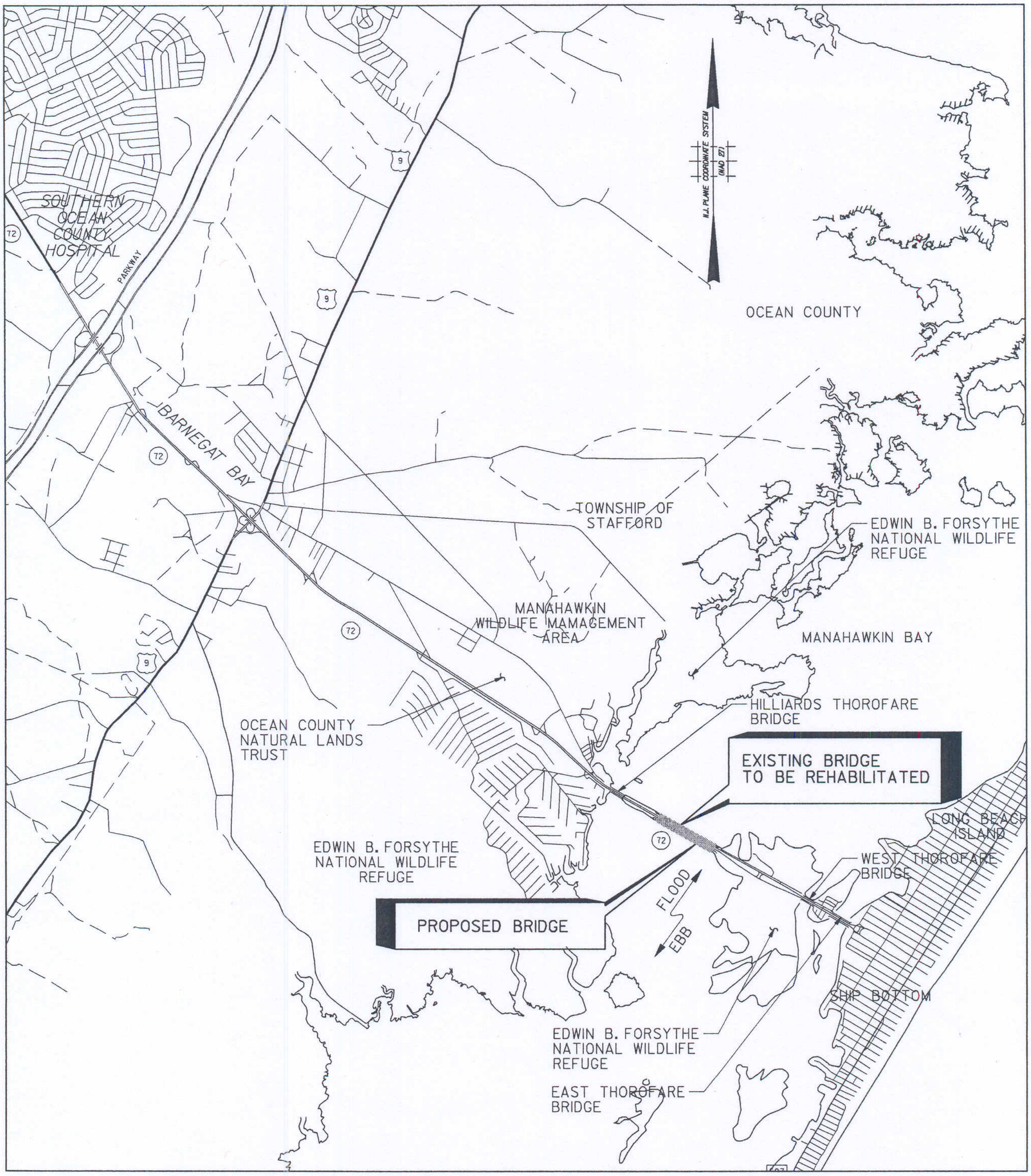
EXISTING	***PROPOSED***
Vertical clearance: 60 feet above MHW	Vertical clearance: 55 feet above MWH
Horizontal clearance: 100 feet between fenders.	Horizontal clearance: 100 feet between fenders.

SOLICITATION OF COMMENTS:

It is further requested that mariners and adjacent property owners express their views from a navigational standpoint, in writing, on the proposed project giving sufficient detail to establish a clear understanding of their reasons for support of or opposition of this project. Comments will be received for the record at the office of Commander (dpb), Fifth Coast Guard District, 431 Crawford Street, Portsmouth, Virginia 23704-5004 through SEP 16 2010.

Copy of location map and plan are attached.

WAVERLY W. GREGORY, JR.
Chief, Bridge Administration Branch
By direction of the Commander
Fifth Coast Guard District



KEY MAP

SCALE: 1" = 1 MILE

1 0 1 2

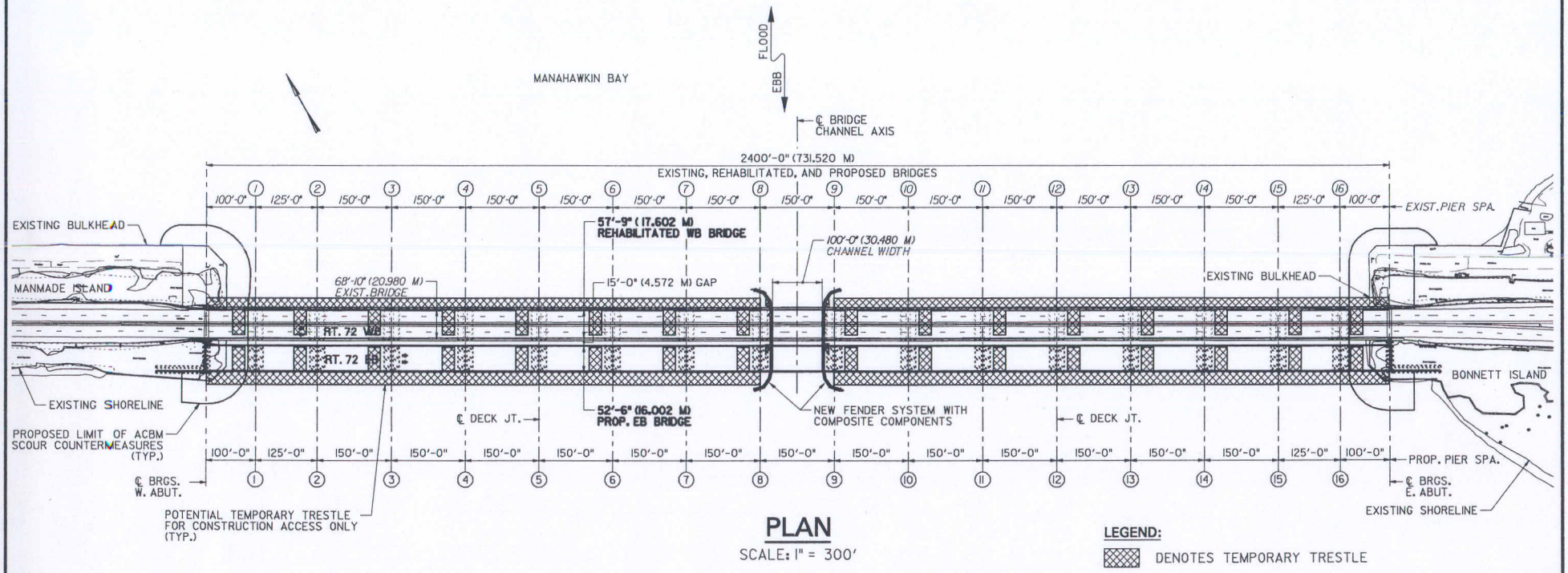
MILES

US COAST GUARD PERMIT PLAN:

PROPOSED BRIDGE OVER MANAHAWKIN BAY NEAR STAFFORD TOWNSHIP AND THE BOROUGH OF SHIP BOTTOM, NEW JERSEY

NEW JERSEY DEPARTMENT OF TRANSPORTATION	
ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES INTRACOASTAL WATERWAY M.P. 37.4 (60.19 KM)	
STAFFORD TOWNSHIP BOROUGH OF SHIP BOTTOM MUNICIPALITY STATE OF NEW JERSEY	OCEAN COUNTY
PB AMERICAS, INC. 506 CARNEGIE CENTER BLVD. PRINCETON, N.J. 08540	SCALE: AS NOTED AUGUST 2010 1 / 4

T:\52105 _ Route_72_Manahawkin_Bay_Bridges\str\USCG Ap... skrobot strhalf.tbl \\amprlpr101\PRICP06_CLR



PLAN

SCALE: 1" = 300'

LEGEND:

DENOTES TEMPORARY TRESTLE

NOTES:

1. EXISTING, REHABILITATED & PROPOSED BRIDGE LENGTH = 2400'-0" (731.520 M)
2. EXISTING BRIDGE WIDTH = 68'-10" (20.980 M)
3. REHABILITATED BRIDGE WIDTH = 52'-6" (16.002 M)
4. NEW BRIDGE WIDTH = 57'-9" (17.602 M)
5. NUMBER OF SPANS = 17
6. MEAN HIGH WATER ELEVATION = 0.63 (0.192 M)
7. 100 YEAR FLOOD ELEVATION = 8.3 (2.530 M)
8. BOTTOM OF CHANNEL ELEVATION = -8.00 (-2.438 M)
9. NAVIGATION CHANNEL WIDTH = 100'-0" (30.480 M)
10. VERTICAL NAVIGATION CLEARANCE = 55'-0" (16.764 M) ABOVE M.H.W.
11. DATUM = N.A.V.D. 1988

1" = 300'

300' 150' 0 300' 600'

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES INTRACOASTAL WATERWAY M.P. 37.4 (60.19 KM)

STAFFORD TOWNSHIP
BOROUGH OF SHIP BOTTOM
MUNICIPALITY

OCEAN
COUNTY

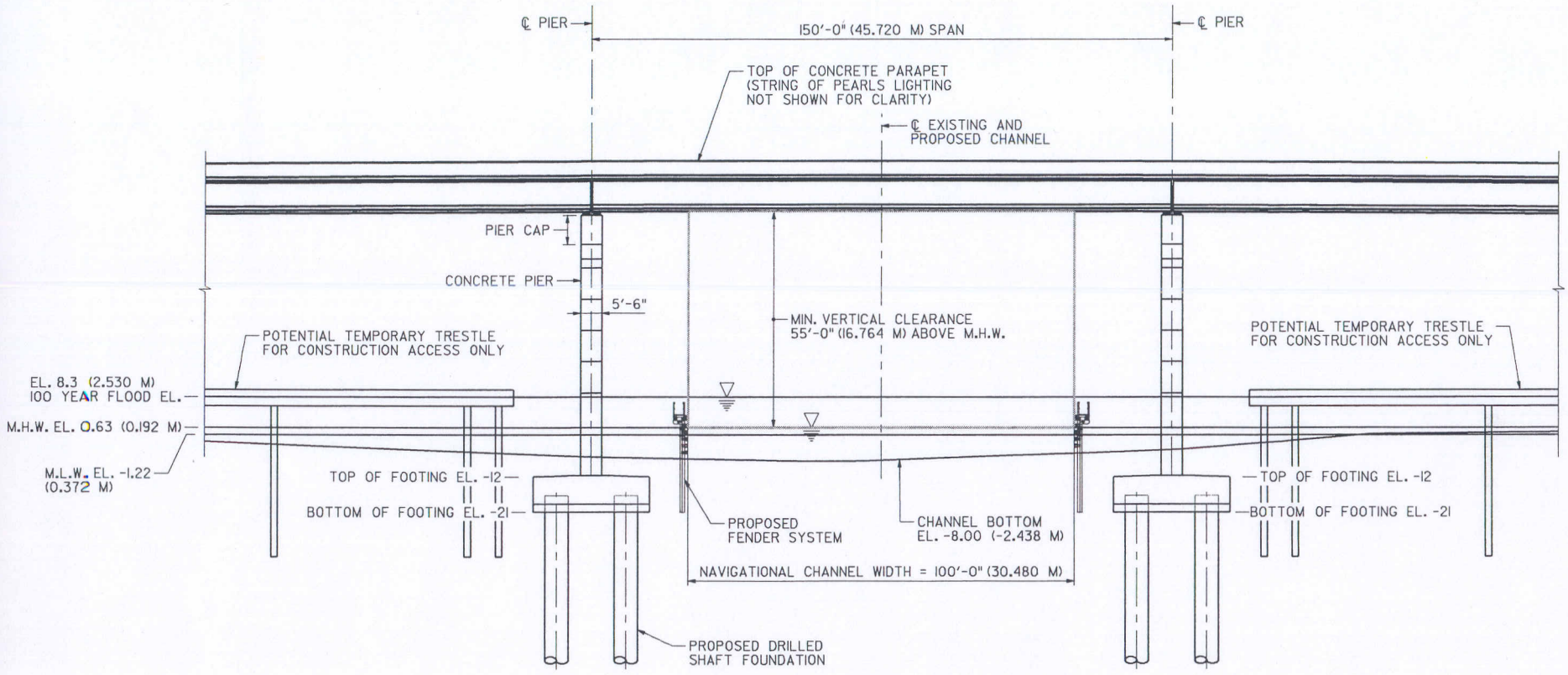
STATE OF NEW JERSEY

PB AMERICAS, INC.
506 CARNEGIE CENTER BLVD.
PRINCETON, N.J. 08540

SCALE: AS NOTED

AUGUST 2010

2
4



ELEVATION OF NAVIGATIONAL CHANNEL

SCALE: 1" = 40'

NOTES:

1. EXISTING, REHABILITATED & PROPOSED BRIDGE LENGTH = 2400'-0" (731.520 M)
2. EXISTING BRIDGE WIDTH = 68'-10" (20.980 M)
3. REHABILITATED BRIDGE WIDTH = 52'-6" (16.002 M)
4. NEW BRIDGE WIDTH = 57'-9" (17.602 M)
5. NUMBER OF SPANS = 17
6. MEAN HIGH WATER ELEVATION = 0.63 (0.192 M)
7. 100 YEAR FLOOD ELEVATION = 8.3 (2.530 M)
8. BOTTOM OF CHANNEL ELEVATION = -8.00 (-2.438 M)
9. NAVIGATION CHANNEL WIDTH = 100'-0" (30.480 M)
10. VERTICAL NAVIGATION CLEARANCE = 55'-0" (16.764 M) ABOVE M.H.W.
11. DATUM = N.A.V.D. 1988

1" = 40'

40' 20' 0 40' 80'

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES INTRACOASTAL WATERWAY M.P. 37.4 (60.19 KM)

STAFFORD TOWNSHIP
BOROUGH OF SHIP BOTTOM
MUNICIPALITY

OCEAN
COUNTY

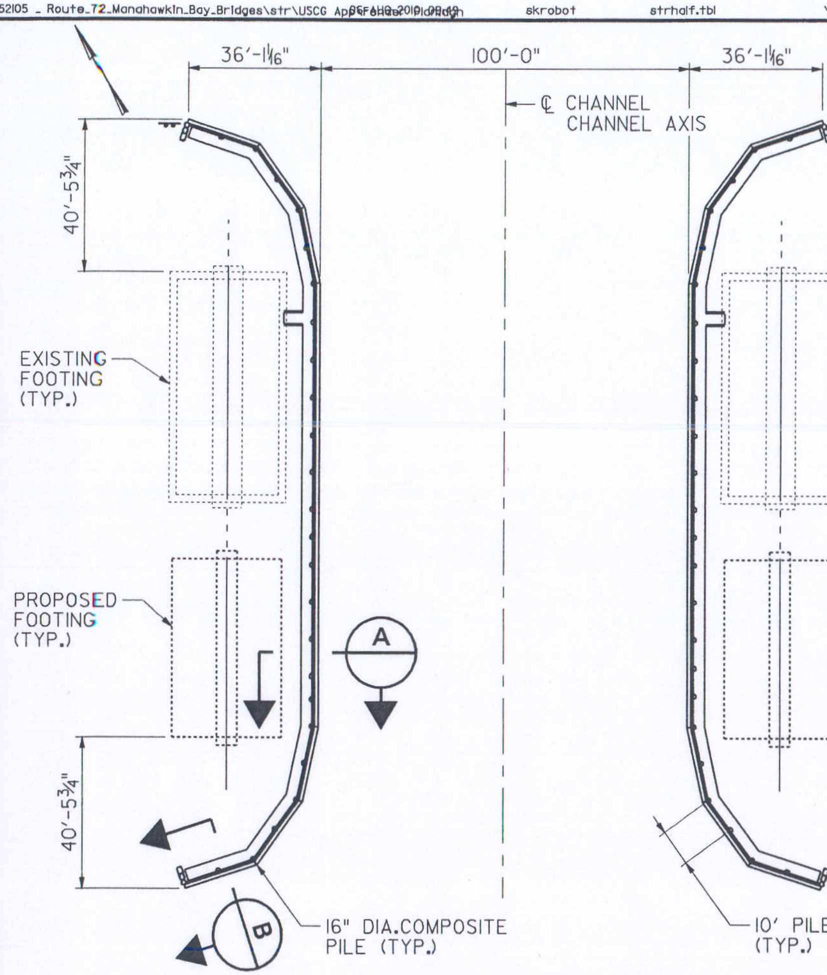
STATE OF NEW JERSEY

PB AMERICAS, INC.
506 CARNEGIE CENTER BLVD.
PRINCETON, N.J. 08540

SCALE: AS NOTED

AUGUST 2010

3
4



FENDER PLAN

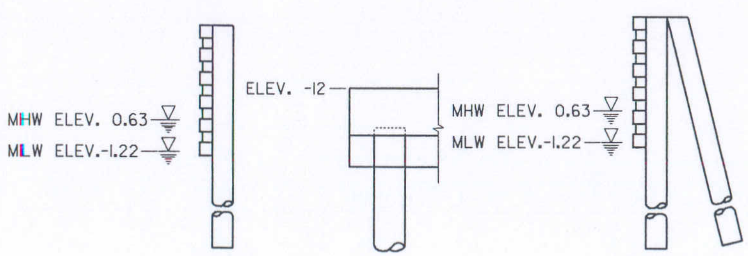
SCALE: 1" = 50'

NAVIGATION CLEARANCE GAUGE NOTES

1. NAVIGATION CLEARANCE GAUGE SHALL BE INSTALLED TO INDICATE THE VERTICAL DISTANCE BETWEEN LOW POINT OF THE BRIDGE CHANNEL SPAN AND THE LEVEL OF THE WATER. THE DISPLAY OF THE CLEARANCE GAUGE SHALL FOLLOW US COAST GUARD STANDARD.
2. CLEARANCE GAUGE SHALL BE INSTALLED ON THE END OF THE RIGHT CHANNEL PIER OR PIER PROTECTION STRUCTURE FACING APPROACHING MARINE TRAFFIC AND EXTEND TO A REASONABLE HEIGHT ABOVE HIGH WATER LEVEL WHICH IS MEANINGFUL TO THE MARINER.
3. CLEARANCE MUST BE MARKED BY BLACK NUMERALS AND FOOTMARKS ON A WHITE BACKGROUND.
4. THE SIZE, TYPE AND SPACING OF THE NUMERALS CONFORMING WITH THOSE PUBLISHED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS," FEDERAL HIGHWAY ADMINISTRATION (FHWA), U.S. DEPARTMENT OF TRANSPORTATION SHALL BE USED.
5. THE LENGTH OF THE FOOTMARK SHALL BE NO LESS THAN THE WIDTH OF A SINGLE NUMERAL USED (EXCEPT 1 AND 4) AND THE THICKNESS MUST BE THE SAME AS THE WIDTH OF STROKE OF THE NUMERALS. FOOTMARKS SHALL BE SPACED EVERY FOOT.
6. THE MINIMUM WIDTH OF THE WHITE BACKGROUND SHALL NOT BE LESS THAN THREE TIMES THE WIDTH OF A SINGLE NUMERAL (EXCEPT 1 AND 4) PLUS THE WIDTH OF EACH ADDITIONAL NUMERAL, PLUS NUMERAL SPACING.

1" = 50'

50' 0 50' 100'



SECTION A
N.T.S.

SECTION B
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES
INTRACOASTAL WATERWAY M.P. 37.4 (60.19 KM)

STAFFORD TOWNSHIP
BOROUGH OF SHIP BOTTOM
MUNICIPALITY

OCEAN
COUNTY

STATE OF NEW JERSEY

PB AMERICAS, INC.
506 CARNEGIE CENTER BLVD.
PRINCETON, N.J. 08540

SCALE: AS NOTED
AUGUST 2010

4 / 4

ARORA and ASSOCIATES, P.C.
Consulting Engineers
3120 Princeton Pike, 3rd Floor, Lawrenceville, NJ 08648
(609) 844-1111 • Fax (609) 844-9799
E-mail: arora@arorapc.com • http://www.arorapc.com

TELEPHONE CONVERSATION MEMORANDUM

FROM: Eric Yermack EY

TALKED TO: Gary Heyer **OF:** U.S. Coast Guard

DATE: August 7, 2009 **TIME:** 9:30 AM

PHONE: 757-398-6629

PROJECT: Route 72 MBB **PROJECT NO:** 1506

SUBJECT: Navigational Survey and Bridge Opening

I received a call from Mr. Heyer regarding the proposed navigational survey for the Route 72 Manahawkin Bay Bridges project. We reviewed the materials emailed to him on July 31, 2009. I gave Mr. Heyer an overview of the project and explained the IPA, which was to construct a new bridge on a parallel alignment south of the existing bridge. The existing bridge would then be rehabilitated. The two bay bridges would share a new fender system. The three trestle bridges would also be rehabilitated, and the East Thorofare fender system would only be repaired.

I said that our design team anticipated submitting a bridge permit application for a 60-foot bridge (to be submitted by PB) and an associated navigation lighting permit application (to be submitted by Arora). We wanted to get USCG by-in early before we had proceeded too far with the design. No bridge applications are anticipated for the East Thorofare bridge since it is only being repaired.

The proposed survey is intended to supplement the two surveys performed earlier for this project. Mr. Heyer and I thought it would be prudent to add a line to question No. 1 of the survey form to inquire about 65-foot tall vessels. This was the only comment made on the survey form.

Mr. Heyer agreed with the concept of providing a 60-foot underclearance. This is a reasonable approach if we are rehabilitating the existing bridge. However, given that the USCG had requested a 65-foot clearance, Mr. Heyer wanted to inquire about this. A 65-foot clearance would be required for new bridges over the intracoastal waterway where federal funding was involved. We thought this clearance might have been requested during FA, when all bridge alternatives (including replacing the existing bay bridge structure) were still being considered.

In a follow up conversation (1:15 PM), Mr. Heyer said he had discussed the project with Waverly Gregory and the 65-foot height requirement was a guideline. Since we will be rehabilitating the existing bridge, we can match the opening of the proposed bridge with that of the existing bridge (100-feet wide by 60-feet high).

cc: To File
G. Heyer – USCG
P. Patel – NJDOT PM
J. Mumber – PB PM
K. Singh – PB DPM
D. Rue – PB Structures
M. Myers – Arora Structures
J. Rossi – Arora Survey

Subject: 1506 - Route 72 MBB, Existing Navigation Channel
From: Eric Yermack <eyermack@arorapc.com>
Date: Fri, 07 Aug 2009 10:14:16 -0400
To: Gary Heyer <gary.s.heyer@uscg.mil>
CC: David Rue <Rue@pbworld.com>

Gary,

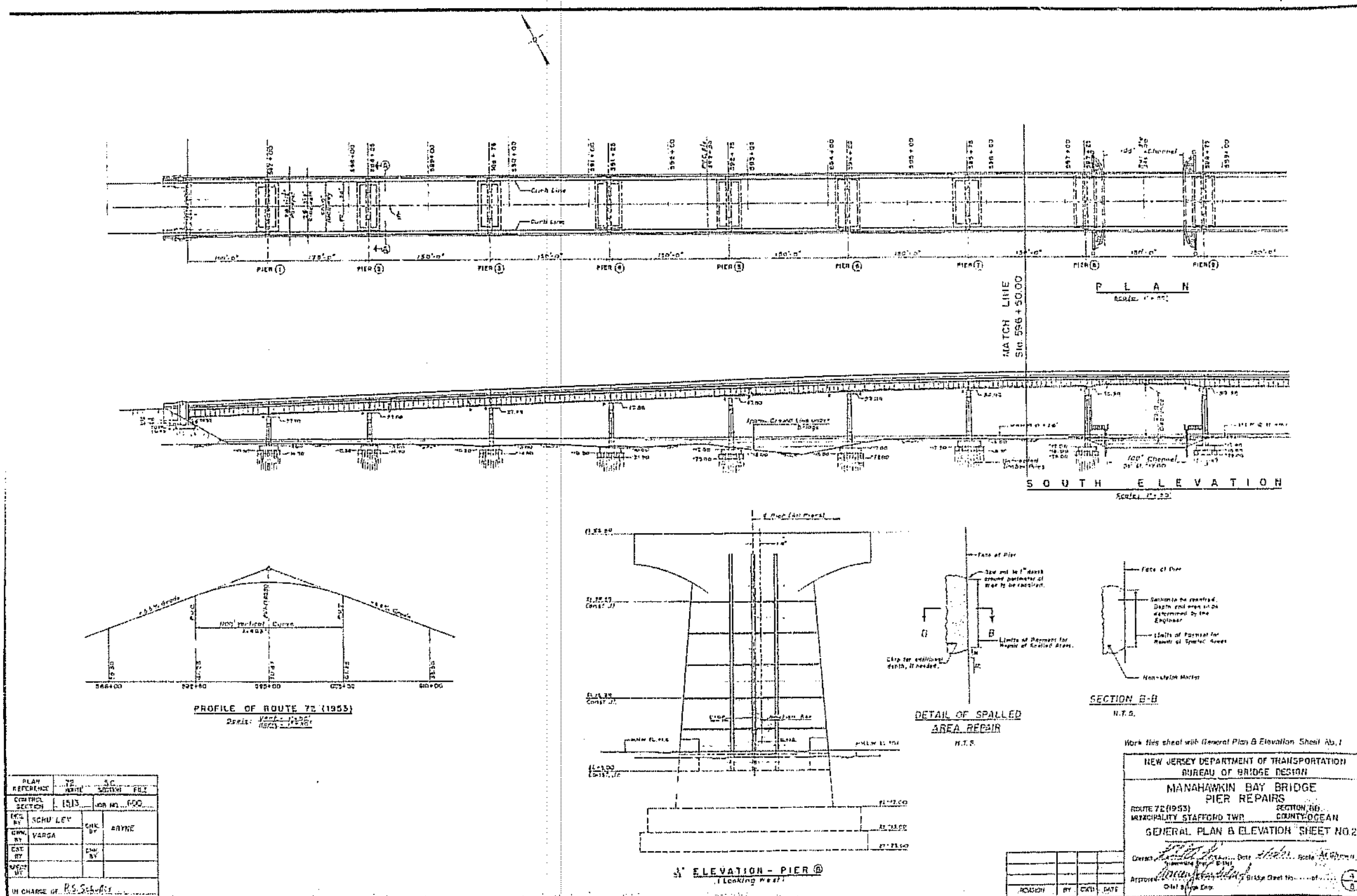
Attached is a drawing showing the existing clearance envelope. The existing channel is 100-ft wide by 60-ft high above MHW. The previous USCG direction had been to provided a horizontal clearance of 150-ft and vertical clearance of 65-ft above MHW. with the rehabilitation alternative, we would probably maintain the existing opening (100-ft by 60-ft).

Eric

--
Eric Yermack, PE
Manager, Structural Engineering
Arora and Associates, P.C.
1200 Lenox Drive, Suite 200
Lawrenceville, NJ 08648
609-844-1111 Main Phone
609-844-9799 Fax

Rt 72-Manahawkin Bay -1972-General Plan 2.PDF
Content-Type: application/pdf
Content-Encoding: base64

9513752 4-5



PLAN
PIER ① PIER ② PIER ③ PIER ④ PIER ⑤ PIER ⑥ PIER ⑦ PIER ⑧ PIER ⑨
Curb Line
MATCH LINE Sta. 596+50.00
SOUTH ELEVATION
PROFILE OF ROUTE 72 (1953)
1000' Vertical Curve
ELEVATION - PIER ⑧
(Looking West)
DETAIL OF SPALLED AREA REPAIR
N.T.S.
SECTION B-B
N.T.S.
Face of Pier
Non-shrink Mortar
Work this sheet with General Plan & Elevation Sheet No. 1
NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGE DESIGN
MANAHAWKIN BAY BRIDGE
PIER REPAIRS
ROUTE 72 (1953)
MUNICIPALITY STAFFORD TWP.
COUNTY OCEAN
GENERAL PLAN & ELEVATION SHEET NO. 2
REVISION BY CKD. DATE
CONTROL SECTION 1513
SCHULEY
VARGA
IN CHARGE OF R.S. Schultz

Subject: 1506 - Route 72 Manahawkin Bay Bridge Navigational Survey Questionnaire
From: Eric Yermack <eyermack@arorapc.com>
Date: Fri, 31 Jul 2009 17:37:42 -0400
To: Gary Heyer <gary.s.heyer@uscg.mil>
CC: David Rue <Rue@pbworld.com>, Joe Mumber <Mumber@pbworld.com>, Meghan Myers <mmyers@arorapc.com>, John Rossi <jrossi@arorapc.com>

Dear Mr. Heyer,

I am a subconsultant to PB Americas, Inc., who has been retained by the New Jersey Department of Transportation to design the Route 72 Manahawkin Bay Bridges Project located in Ocean County, New Jersey.

As part of this design effort, we are planning to conduct a navigational survey. The results of the survey will supplement previous surveys conducted for the Route 72 over Manahawkin Bay Bridge (Structure No. 1513-152) and will be used to set the vertical underclearance for the proposed bridge, apply for a USCG bridge permit, and determine the design vessel to be used for determining impact loads.
To help familiarize you with the project, I am sending you the following attached materials:
1. Project Location Map
2. Project Description
3. Navigational Survey Narrative from the Feasibility Assessment Report
4. Navigational Survey Questionnaire

After you have had a chance to review these materials, I would like to discuss the project with you. We would also like to have any comments you may wish to make regarding the Navigational Survey Questionnaire. I look forward to speaking with you.

Eric

--
Eric Yermack, PE
Manager, Structural Engineering
Arora and Associates, P.C.
1200 Lenox Drive, Suite 200
Lawrenceville, NJ 08648
609-844-1111 Main Phone
609-844-9799 Fax

NAVIGATIONAL SURVEY.doc	**Content-Type:** application/msword **Content-Encoding:** base64

Project Location Map.pdf	**Content-Type:** application/pdf **Content-Encoding:** base64

FAR Navigational Survey.doc	**Content-Type:** application/msword **Content-Encoding:** base64

Route 72 MBB Project Description.doc	**Content-Type:** application/msword **Content-Encoding:** base64

U.S. Department of Homeland Security
United States Coast Guard

Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: obr
Phone: (757) 398-6227
Fax: (757) 398-6334
Email: aallen@lantd5.uscg.mil

16591
17 Sep 04

Mrs. Pamela Garrett
Environmental Team Leader
Bureau of Environmental Project Support
New Jersey Department of Transportation
P. O. Box 600
Trenton, NJ 08625-0600

Dear Mrs. Garrett:

This is to acknowledge receipt of your letter dated August 27, 2004, concerning the rehabilitation or replacement of Route 72 bridges over Manahawkin Bay, New Jersey.

A Coast Guard bridge permit would only be required if the structures are completely replaced, or if rehabilitation deviates from current bridge plans. We have enclosed a copy of the Bridge Permit Application Guide for your convenience.

If the Initially Preferred Alternative suggests replacement of the bridge over the Intracoastal Waterway, the Coast Guard Bridge Clearance Guide for New Jersey suggests a horizontal clearance of 150 feet and vertical clearance of 65 feet at MHW.

Additionally, the Coast Guard requires a 30-day notice, submitted in writing to this office, prior to commencing any planned work on bridges.

Please contact Anton Allen at the above number for further assistance. Thank you.

Sincerely,

Waverly W. Gregory, Jr.

WAVERLY W. GREGORY, JR.
Chief, Bridge Administration Branch
By direction of the Commander
Fifth Coast Guard District

Encl: (1) Copy of Bridge Permit Application Guide

Copy: MSO Philadelphia, Waterways Management

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
Ecological Services
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609/646 9310
Fax: 609/646 0352
http://www.fws.gov/northeast/njfieldoffice

In Reply Refer To:
09-FA-0259

SEP 16 2009

John Pabish, GIS Specialist
Amy S. Greene Environmental Consultants, Incorporated
4 Walter E. Foran Boulevard, Suite 209
Flemington, New Jersey 08822

Subject: Route 72 – Manahawkin Bay Bridge Project, Ocean County New Jersey (AEGECI project # 3109)

Dear Mr. Pabishi:

The U.S. Fish and Wildlife Service (Service) has reviewed your requests dated May 7 and September 3, 2009 for information on federally listed species, significant habitats, and critical environmental areas for the new structures proposed for addition to the existing Manahawkin Bay Bridge.

AUTHORITY

This response is pursuant to Section 7 of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of federally listed endangered and threatened species and the Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 755; 16 U.S.C. 703-712), as amended. These comments do not preclude separate review and comments by the Service as afforded by the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*), if any permits are required from the U.S. Army Corps of Engineers pursuant to the Clean Water Act of 1977 (33 U.S.C. 1344 *et seq.*), or comments pursuant to the December 22, 1993 Memorandum of Agreement among the U.S. Environmental Protection Agency, New Jersey Department of Environmental Protection (NJDEP), and the Service, if project implementation requires a permit from the NJDEP pursuant to the New Jersey Freshwater Wetlands Protection Act (N.J.S.A. 13:9B *et seq.*), nor do they preclude comments on any forthcoming environmental documents pursuant to the National Environmental Policy Act of 1969 as amended (83 Stat. 852; 42 U.S.C. 4321 *et seq.*).

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES

The Service concurs with your determination that the proposed project is not likely to adversely affect federally listed threatened or endangered species under Service jurisdiction or their critical habitats. No federally listed or proposed threatened or endangered species under Service jurisdiction are currently known to occur within the project area. No further consultation pursuant to Section 7(a)(2) of the ESA is required by the Service. If project plans change or new information on federally listed threatened or endangered species becomes available, this determination may be reconsidered.

OTHER SERVICE COMMENTS

Nesting habitat for terns (*Sterna* spp.) and colonial waterbirds occurs in the vicinity of the proposed project area. Loud construction noises can be expected during bridge construction and there is a high likelihood of nest interruption and/or abandonment. A seasonal restriction on project activities producing loud noises may be necessary between March 15 and August 15 during the breeding season. Migratory birds are a federal trust resource responsibility of the Service pursuant to the MBTA.

The commercially harvested hard clam (*Mercenaria mercenaria*) is the most valuable of the food species harvested in the bays. The densities of hard clams are highest in the open water and sandflats areas at the southern end of Barnegat Bay and in Little Egg Harbor. Estuarine, shallow waters and associated shellfish beds provide food for federal trust species such as migratory birds and fish, support commercial fisheries, and serve as important nurseries to the young of many marine and estuarine species (Day *et al.* 1989). In accordance with NJAC 7:7E-3.2(e), "New dredging within shellfish habitat is prohibited . . . ." The Service recommends that the applicant coordinate with the NJDEP and National Marine Fisheries Service to determine if project activities will be in compliance with applicable State statutes and consistent with federal concerns regarding fisheries.

The bay is an important spawning and nursery area for blue crab (*Callinectes sapidus*). Adult crabs can be found from late May, when crabs come out of their wintering habitat in the bottom sediments, until October when they return.

The northern diamondback terrapin (*Malaclemys terrapin*) lives and feeds in the bays, especially among the salt marsh islands, and nests above the high tide line on the back sides of barrier islands, sandy beaches, dredged material islands, dirt roads, causeways, and other suitable locations with sandy soil. Hibernating diamondback terrapins are susceptible to harm between November 1 and March 15.

The proposed project site is within Priority Wetlands designated by the Service pursuant to the Emergency Wetlands Resources Act of 1986 (100 Stat. 3582) because of National Significance. Consistent with the intent of the Service's Mitigation Policy (Federal Register, Vol. 46, No. 15,

Jan. 23, 1981). The Service will likely recommend that losses be compensated by replacement of the same kind of habitat value so that populations of species may remain stable in the area over time (in-kind replacement). As noted in National studies performed by the National Research Council (2001) and the U.S. General Accounting Office (2001), the success rate for mitigation required by Clean Water Act Section 404 permits was not met in the last 20 years. In response to this finding, the U.S. Army Corps of Engineers and the Departments of Transportation and Interior, among other federal agencies, released a National Wetlands Mitigation Action Plan (U.S. Army Corps of Engineers *et al.* 2002) (Action Plan). The Action Plan identified 16 action items, which are under development by the federal inter-agency team. The applicant's mitigation plan should be developed with sufficient flexibility to ensure success while capturing the intent of the Action Plan. The Service is available to assist in the development of this mitigation and compensation plan. The mitigation plan should include the following provisions:

- All mitigation should be constructed prior to or concurrent with project implementation, when possible.

- The traditional authorizing method for monitoring should be increased from the traditional 5-year requirement to the life of the project (although the likelihood of success for tidal wetland mitigation is typically high). As a cost-saving measure, these additional monitoring efforts could be incorporated into the applicant's project maintenance schedule.

- All vegetation planting should be accomplished with native species.

- All mitigation shall meet a set of performance standards designed for success over the life of the project, including a detailed monitoring plan and reporting requirement.

- All temporary construction areas shall be restored to pre-construction grade.

- Upon completion of the proposed mitigation, a conservation easement, or similar real estate protective instrument, should be developed and filed with the appropriate federal, State or local agency, or non-governmental organization. A goal of the instrument should be to maintain the functions and values of all wetlands created for the life of the project.

The Service also recommends that, in association with the implementation of best management practices (BMPs), the applicant include provisions to control the spread of invasive species, such as *Phragmites australis*.

A draft Management Plan by the Chesapeake Bay Program's *Phragmites australis* Working Group (2003) includes recommendations to curb the spread of *Phragmites* through federal and State permit conditions, in order to help achieve a long-term goal of no net gain in *Phragmites* acreage. In the interim, the Service recommends that any Federal authorization resulting in wetland disturbance include conditions requiring: (1) BMPs to prevent the introduction or spread

of *Phragmites*, such as avoiding creation of elevated berms and the spread or burial of *Phragmites* rhizomes; (2) 2 to 5 years of post-construction monitoring; and (3) control efforts if *Phragmites* is detected, including re-grading or performing hydrologic alterations.

If you have any question regarding the above, please contact Carlo Popolizio at 609-383-3938, extension 32.

Sincerely,

Ron Popowski
Assistant Supervisor

REFERENCES

Chesapeake Bay *Phragmites australis* Working Group. 2003. Common reed (*Phragmites australis*) in the Chesapeake Bay: a draft bay-wide management plan. U.S. Department of the Interior, Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, Maryland. 30 pp. (Available online at http://www.chesapeakebay.net/pubs/calendar/1NISW 2-10-3 Report 4 5129.pdf.)

Day, J.W., C.A.S. Hall, W.M. Kemp, and A Yanez-Arancibia. 1989. Estuarine ecology. John Wiley & Sons, New York, New York. 558 pp.

McCloy, T.W. and J.W. Joseph. 1984. Inventory of New Jersey's estuarine shellfish resources. NOAA-NMFS Project No. 3-332-R. New Jersey Department of Environmental Protection, Division of Fish, Game and Wildlife. Trenton, New Jersey.

National Research Council. 2001. Compensating for Wetland Losses under the Clean Water Act. National Academy Press, Washington, D.C. 322 pp. (Available online at http://www.nap.edu/books/0309074320/html/.)

U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Federal Highway Administration, and U.S. Department of Agriculture. 2002. National Wetlands Mitigation Action Plan Webpage. www.mitigationactionplan.gov/map.html. National Oceanic and Atmospheric Administration , Washington, D.C.

U.S. Fish and Wildlife Service and U.S. Census Bureau. 2002. 2001 National survey of fishing, hunting, and wildlife-associated recreation. U.S. Department of the Interior, Fish and Wildlife Service, Wasshington, D.C. and U.S. Department of Commerce, Census Bureau, Washington D.C. p.120 of 170 pp. (Available online at http://www.census.gov/prod/2002pubs/FHW01.pdf.)

U.S. Government Accounting Office. 2001. Wetlands protection: assessments needed to determine effectiveness of the in-lieu-fee mitigation. U.S.Government Accounting Office, Washington, D.C

Appendix B – Public Participation

RESOLUTION 11-0304.01

RESOLUTION OF THE TOWNSHIP OF LONG BEACH, COUNTY OF OCEAN, STATE OF NEW JERSEY, SUPPORTING THE INSTALLATION OF A PUMP STATION BY THE NEW JERSEY DEPARTMENT OF TRANSPORTATION

WHEREAS, the New Jersey Department of Transportation has recognized severe drainage problems along the 8th and 9th Street corridors within the Borough of Ship Bottom; and

WHEREAS, the NJDOT proposes to install a pump station and drainage improvements to the 8th and 9th Street corridors: and

WHEREAS, the NJDOT believes this is necessary to accommodate a one (1) to five (5) year storm; and

WHEREAS, the NJDOT is asking for the support of the Long Beach Island municipalities for this project.

NOW, THEREFORE BE IT RESOLVED by the Board of Commissioners of the Township of Long Beach, that we support the New Jersey Department of Transportation's pump station and drainage improvements to the 8th and 9th Street corridors within the Borough of Ship Bottom, with the following conditions:

1. That the costs associated with the maintenance of the pump station and drainage improvement project is solely the responsibility of the NJDOT.
2. That the pump station is located within the NJDOT right of way or constructed on property that is acquired from a private property owner.
3. That no part of the pump station is located on private land unless the private owner(s) consent to the acquisition of that property by the State of New Jersey.

PASSED ON: March 4, 2011

CERTIFICATION

I, **LYNDA J. WELLS**, Municipal Clerk for the Township of Long Beach do hereby certify that the foregoing Resolution 11-0304.01 was duly adopted by the Board of Commissioners at their regular meeting held on Friday, March 4, 2011.

Lynda J. Wells

Lynda J. Wells, RMC
Municipal Clerk

RESOLUTION 2011-50

RESOLUTION OF THE BOROUGH OF SHIP BOTTOM, COUNTY OF OCEAN, STATE OF NEW JERSEY, SUPPORTING THE INSTALLATION OF A PUMP STATION BY THE NEW JERSEY DEPARTMENT OF TRANSPORTATION

WHEREAS, the New Jersey Department of Transportation has recognized severe drainage problems along the 8th and 9th Street corridors within the Borough of Ship Bottom; and

WHEREAS, the NJDOT proposes to install a pump station and drainage improvements to the 8th and 9th Street corridors: and

WHEREAS, the NJDOT believes this is necessary to accommodate a one (1) to five (5) year storm; and

WHEREAS, the NJDOT is asking for the support of the Long Beach Island municipalities for this project.

NOW, THEREFORE BE IT RESOLVED by the Mayor and Council of the Borough of Ship Bottom, that we support the New Jersey Department of Transportation's pump station and drainage improvements to the 8th and 9th Street corridors within the Borough of Ship Bottom, with the following conditions:

1. That the costs associated with the maintenance of the pump station and drainage improvement project is solely the responsibility of the NJDOT.
2. That the pump station is located within the NJDOT right of way or constructed on property that is acquired from a private property owner.
3. That no part of the pump station is located on private land unless the private owner(s) consent to the acquisition of that property by the State of New Jersey.

Motion: Councilman Rossi
Second: Councilman Tallon
Dated: February 22, 2011
Roll Call: English, Sinopoli, Gleason, Rossi, Malatino and Tallon, all aye.

CERTIFICATION

I, Kathleen Wells, Municipal Clerk, do hereby certify that the foregoing Resolution was duly adopted by the Governing Body of the Borough of Ship Bottom at a regular meeting held on February 22, 2011.

Kathleen Wells, RMC

CERTIFICATION
I hereby certify that the above is a true copy of an ~~(ordinance)~~ (resolution) adopted by the Mayor and Council at a meeting held on
2-22-11
Kathleen Wells
Kathleen Wells, Municipal Clerk
Borough of Ship Bottom, County of Ocean, State of New Jersey

Route 72 Manahawkin Bay Bridges Project
Stafford Township and Borough of Ship Bottom
Ocean County, NJ

Public Involvement and Agency Coordination Meetings Held to Date
(Concept Development Phase: April 2009 - January 2010)

Southern Ocean County Chamber of Commerce Presentation – January 13, 2010
Public Involvement Action Plan – December 31, 2009
Local Officials' Briefing - Stafford Township - November 16, 2009
Local Officials' Briefing - Borough of Ship Bottom - November 16, 2009
STAC Meeting – Toms River Yacht Club – August 11, 2009
Environmental Team Agency Meeting No. 1 - NJDOT Trenton – May 19, 2009

ROUTE 72

MANAHAWKIN BAY BRIDGES PROJECT
Township of Stafford &
Borough of Ship Bottom
Ocean County, New Jersey

ROUTE 72 MANAHAWKIN BAY BRIDGES PROJECT
Stafford Township and Borough of Ship Bottom, Ocean County, NJ
LBI PUMP STATION COORDINATION MEETING WITH LOCAL OFFICIALS
MEETING REPORT

DATE: Wednesday, January 19, 2011

TIME: 10:00 a.m.

LOCATION: Borough of Ship Bottom Municipal Building, Ship Bottom, NJ

ATTENDEES:

First Name	Last Name	Representing	Phone	Email
		Project Team		
Andy	Baran	Township of Long Beach	609-361-1000	
Richard	Bethea	Borough of Ship Bottom	609-494-2171 x104	sbadmin@comcast.net
Martine	Culbertson	M. A. Culbertson, LLC	856-795-8485	maculbertson@verizon.net
Bill	Huelsenbeck	Borough of Ship Bottom	609-494-2171 x116	sbclerk@comcast.net
Mary	Madonna	Surf City Borough	609-494-3064	scclerk@comcast.net
Joseph	Mumber, P.E.	PB Americas, Inc.	609-512-3500	mumber@pbworld.com
Jonathan	Oldham	Harvey Cedars Borough	609-494-2843	mayor@harveycedars.org
Pankesh	Patel	NJDOT, Project Mgmt.	609-530-2367	pankesh.patel@dot.state.nj.us
Denise	Peck	NJDOT, Community Relations	609-530- 2853	denise.peck@dot.state.nj.us
Sharad	Rana	NJDOT, Project Mgmt.	609-530-2196	sharad.rana@dot.state.nj.us
Peter	Rossi	Borough of Ship Bottom	609-494-2171	
Kuldip	Singh, P.E.	PB Americas, Inc.	609-512-3500	singh@pbworld.com
Kathleen	Wells	Borough of Ship Bottom	609-494-2171	sbclerk@comcast.net

PURPOSE OF MEETING

The purpose of this meeting is to review a rendering of the proposed pumping station, which is to address storm water drainage along Route 72 in the Borough of Ship Bottom. The proposed location would be in the approach area on Route 72 entering Long Beach Island. (Agenda attached)

MEETING SUMMARY

1. Mayor Huelsenbeck of Ship Bottom welcomed everyone to the meeting. He thanked NJDOT for providing renderings of the proposed LBI pumping station and this opportunity for the neighboring LBI officials to review the appearance given the location is at the entrance to Long Beach Island.

2. After introductions from attendees, Pankesh Patel, NJDOT Project Manager, presented an overview of the project and schedule. The Preliminary Design (PD) submission is scheduled for January 28th. A Public Hearing was held in May of 2010 to present the results of the Environmental Assessment, which is in final review with FHWA.

(a) There is an NJDOT web site, which provides information on the project and the current schedule. It also has a video, which includes imagery on the string of pearls lighting to be included on the new bridge. There is also a section on what's new on the project.

(b) A recent in-depth detailed bridge inspection revealed that the deterioration to the existing Bay Bridge girders was much worse than was previously recorded, so the project has been amended to include the replacement of the entire superstructure to include new girders, thus increasing the total cost of the project from $243 million to $300 million.

(c) With the completion of PD in January, the project schedule is for the Final Design Phase to be completed by May/June 2011 and construction expected to begin in the fall 2012 separated into four contracts.

(d) The four construction contracts are:

(1) Marsha Drive intersection improvements in Stafford Township and Ship Bottom roadway & drainage improvements between 8th and 9th Streets
(2) Construction of new Manahawkin Bay Bridge structure
(3) Rehabilitation of the three Thorofare Bridges
(4) Rehabilitation of the existing Manahawkin Bay Bridge structure

(e) Construction schedule of the proposed pump station is dependent on its location. If it is located at the intersection of Shore Avenue and 8th Street (on a parcel of the marina property), it could be constructed offline from the roadway traffic and be completed sooner. However if it is located within the NJDOT right-of-way between 8th and 9th Streets, it will take longer to construct. Other locations were examined since 2006 when this effort was a separate project, however the impacts of the other locations were greater and thus dismissed as viable options.

3. Joe Mumber, PB Project Manager, presented details on the proposed roadway and drainage improvements in the Borough of Ship Bottom including the proposed location of the pump station (see report attachment).

(a) Central Avenue and Long Beach Boulevard will be changed from one-way roadways to two-way traffic roadways.

(b) 8th and 9th Streets will be widened to include a third lane.

(c) Drainage design along this area will be improved to handle 5-year storm.

(d) The original pump station location in the area of the marina would have allowed for the construction of the pump station and the adjacent necessary sand filter to treat the runoff before it enters the pump station without interfering with the roadway improvements. However it is important to note that the new proposed location between 8th and 9th Streets within the NJDOT right-of-way has some other concerns beyond the visual impact to take into consideration:

1) There are two major utility lines, a 26Kva electric line providing power to the entire island from the mainland and a sanitary sewer force main that could be impacted. The 26Kva electric line will need to be relocated, and this could require a year or so additional time to complete prior to the pump station construction and will cost up to two million dollars. There is also an Ocean County Municipal Utility Authority sanitary force main that will cross paths with the outfall pipe at the center location , although the depth of the line is unknown at this time. It will also be very costly if it needs to be relocated because it interferes with the outfall pipe. The relocation of this line is estimated at up to

one million dollars.

2) Construction of the pump station will require two continual years including work through the summer seasons to complete.

3) With the location of the pump station between 8th and 9th Streets, the work on the pump station can not proceed until after the East Thorofare Bridge rehabilitation under the trestle bridge construction contract is completed because the area in the median where the pump station will be located is needed for traffic maintenance in the trestle bridge contract. Therefore the pump station construction cannot start until 2015 in the central location, while for other locations the construction would be able to begin in the fall of 2012.

4) In the central location, there is little room for the equipment necessary to construct the pump station because of the proximity of the roads and the smaller lot size. Therefore, it will not be possible to construct the sand filter until after the pump station has been substantially completed. Since the sand filter will be used to collect the runoff from the new drainage system installed in the roadway with the operational improvements prior to entering the pump station, the roadway and drainage work would be further delayed because the water collected in the new drainage system will have no where to go if the sand filter is not constructed. This could introduce another delay of about two years, so the roadway improvements might not be possible until 2017 in the central location.

(e) Joe Mumber then presented information on the proposed rendering of the pump station if it is to be located in the NJDOT right-of-way. The renderings were developed to provide an idea of the possible appearance and size the structure (see report attachment with rendering):

- The pump station building would be an estimated 55 feet by 85 feet in area.
- The height would range from 38 feet on one side (east side) and 30 feet on the other (west side) with a sloping roofline, which is a two-story structure to accommodate the height of the pumps.
- There is a large underground sand filter structure (90'x40'x10') required to treat the stormwater before pumping it into the bay. It is completely underground except for openings needed for maintenance.
- The noise factor is minimal given the thick concrete walls on the interior. The exterior can be designed as a steel framed structure with aesthetic features as desired including architectural cladding.
- The u-turn roadways between the pump station and the Quarter Deck property would remain as they are today in the final condition. However during construction of the pump station, these roadways will be temporarily closed for up to two years to install the sand filter and pump station structure.

4. Kuldip Singh, PB Deputy Project Manager, presented information on the operation and maintenance required for the pump station.

(a) The pumps can be operated from a remote control room, which does not have to be on site, however there is a distance limitations for remote control connectivity.

(b) NJDOT without the resources or expertise to operate the pump station would contract with another agency to provide the operation and maintenance. NJDOT will maintain the sand filter.

(c) The local officials from Ship Bottom and the other LBI communities present at the meeting suggested that Ocean County take responsibility for the pump station since it services the entrance to all the Long Beach Island municipalities. The County does operate sewer pump stations, and they may be able to handle the operation of the stormwater pump station. The

Ocean County MUA contracts with Brick Township to run the Point Pleasant pump station, however Brick Township may be too far away for the controls for this stormwater pump station.

(d) The Long Beach Township representative asked about the quantity of outflow the pump station is likely to produce (gallons per minute). The project team will provide this information.

(e) DEP requires the treatment of the storm water prior to discharging into the bay to limit contamination. The requirements are available from DEP.

(f) Kuldip Singh noted that the pump station would not be operable until fully constructed so flooding may still occur on the newly constructed LBI roadways until the pump station construction is completed.

5. After presenting the information on the pump station renderings, Kuldip Singh distributed images of the Point Pleasant pump station. The Point Pleasant pump station structure looks like a residential building blending in well within the residential area in which it is situated. Martine Culbertson asked participants for feedback on the rendering for the proposed LBI pump station. The following comments were noted on the proposed pump station renderings:

- The three circular nautical type windows are interesting, however the overall appearance is modern and Ship Bottom would prefer something more traditional to LBI.
- This is the gateway on to the island and as the first structure seen, it should reflect the character of the LBI communities.
- The structure could reflect more characteristics found on the Beach Haven lifeguard rescue service building, LBI lighthouses or Victorian type windows and trim, such as what was on the famous Baldwin Hotel.
- The front of the building is one consideration but the back side faces the former Quarter Deck restaurant and the large doors appear more like a fire station or public works building and may not be well received by the property owner. He has long term plans to convert the property to additional retail in the style of the Baldwin Hotel.

6. Other comments and questions raised during the discussion:

Question: Is the funding in place for the project?

Response: There is funding for the Final Design phase and once completed, then a request would be made for funding construction.

Question: Have you considered contacting the owner of the vacant lot located between the former Quarter Deck property and the CVs property, as a possible alternative location to the area within the NJDOT right-of-way?

Additional Comment: The Marina parcel location has advantages over the center area location, however from the onset of the project, the Borough had an understanding of no taking of any private property for the project. Perhaps though if the owner of the vacant lot is interested in selling the property to the State it may be a better location than the center area. The pump station design should still be traditional, but may be more acceptable with less impacts.

Response: The site would have to be examined to determine if the pump station could be designed from that location given the distance from the bay and amount of land available. The project team will contact the property owner to determine if interested in selling the property.

Question: The roadways crossing 8th and 9th Streets (Barnegat Avenue, Central Avenue and Long Beach Blvd.) are flat and during heavy rains are sometimes flooded for miles. Will the

new pump station and drainage systems installed by the NJDOT help drain water from the flooded cross streets, beyond the project limits?

Response: The drainage system to be installed by the NJDOT will be able to evacuate water from flooded cross streets beyond the limits of the project. Flood waters will flow along the roadway surface to the new drainage system and will be conveyed to the pump station and discharged to Manahawkin Bay. Existing outfall points within the area of concern will continue to operate as they do currently but since the new drainage system and pump station are more efficient at conveying water than the existing outfalls it is to be expected that more water will enter the new drainage system. The pump station will continue to operate as long as the water reaches it. If the inflow to the pump station exceeds its capacity, the excess water will stay in the drainage pipes or on the roadway surfaces until the pump station can evacuate the water.

7. In summary, Pankesh Patel noted the importance of having a decision on the location of the LBI pump station. Resolution of support for the LBI pump station from the Borough of Ship Bottom is needed by NJDOT, so the project will not incur any schedule delay. There will be on-going coordination on the final aesthetic design of the pump station structure. The Mayor encouraged the other LBI communities to also provide a resolution of support for the LBI pump station. Denise Peck, NJDOT Community Relations Manager, will provide a sample resolution to Kathleen Wells, Ship Bottom Clerk to aid in drafting the appropriate text.

8. In closing, Martine Culbertson reviewed the handouts distributed at the meeting.

(a) The Project Team contact list includes the project web site address for further project information.

(b) The other two handouts are sections under the project web site indicating the Proposed Improvements and the Community Outreach efforts to date. Martine noted that the left margin lists the sections, which can be accessed by simply clicking on the titles. The web site will continue to be used through design and into construction to inform the public of the project status and schedule.

(c) Meeting minutes will be distributed to the attendees and to the other LBI community local officials who were not able to attend the meeting. In addition, the meting minutes will be forwarded to Ocean County and Stafford Township local officials to maintain communication and sharing of project information among key stakeholders.

9. The Mayor of Ship Bottom, Bill Huelsenbeck, thanked everyone for their participation and input. The meeting adjourned at 11:30 am.

KEY ACTION ITEMS

1. Local Officials/Attendees to review the project web site and share the project information handouts with their constituents.

2. Local Officials/Attendees assist in obtaining resolution of support for the LBI pump station.

3. Denise Peck to provide a sample resolution of support for LBI pump station location to Kathleen Wells, Borough of Ship Bottom.

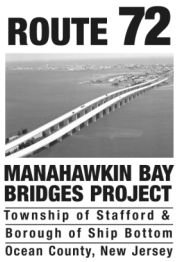
4. PB project team - to contact the vacant lot property owner to determine if he is interested in selling the lot and to conduct the necessary engineering analysis to determine if the lot is feasible as a location for the pump station.

5. PB project team - to develop alternative renderings of the pump station, which incorporate structural elements of the LBI communities' traditional architecture and Long Beach Island environment (lifeguard rescue station, Baldwin Hotel, lighthouses of LBI).

6. Martine Culbertson - to draft and distribute meeting report to attendees once approved; to assist in distribution of sample resolution to LBI communities; and will provide meeting notification for future meeting to review the revised rendering of the proposed LBI pump station.

We believe the foregoing to be an accurate summary of discussions and related decisions. We would appreciate notification of exceptions or corrections to the minutes within three (3) working days of receipt. Without notification, these minutes will be considered to be record of fact.

Martine Culbertson
RT72 Facilitator



NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE 72 MANAHAWKIN BAY BRIDGES PROJECT
STAFFORD TOWNSHIP AND BOROUGH OF SHIP BOTTOM, OCEAN COUNTY, NJ

Local Officials' Meeting

January 19, 2011

Borough of Ship Bottom Municipal Bldg, 10:00 a.m.

AGENDA

The purpose of this meeting is to provide an opportunity to review a rendering of the proposed pumping station, which is to address storm water drainage along Route 72 in the Borough of Ship Bottom. The proposed location would be in the approach area on Route 72 entering Long Beach Island.

I. WELCOME AND INTRODUCTION (Denise Peck, *NJDOT, Community Relations*)

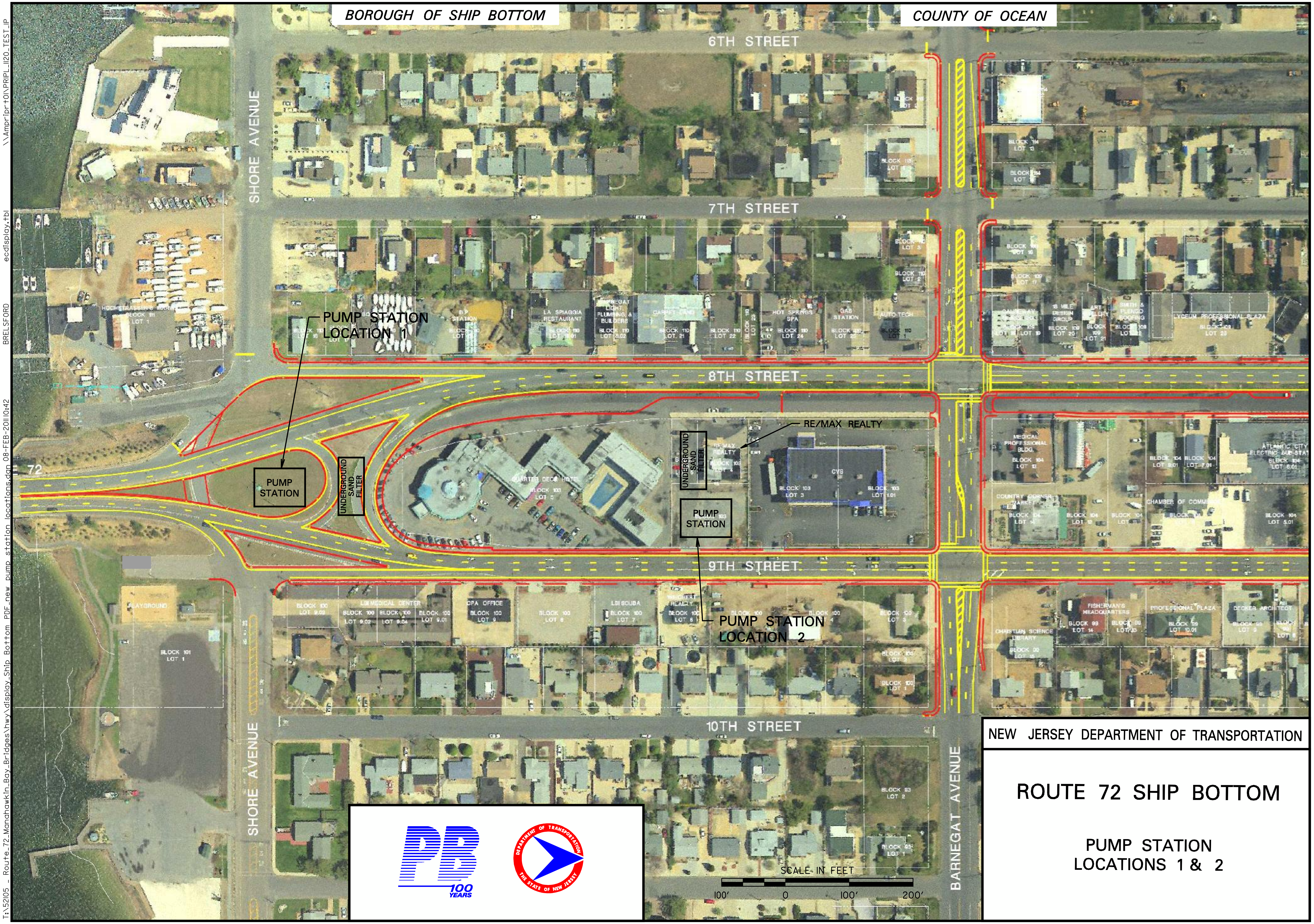
- Meeting Agenda (Martine Culbertson, *M.A. Culbertson, LLC, Facilitator*)
- Project Status (Pankesh Patel, *NJDOT, Project Manager*)

II. PROJECT PRESENTATION

- LBI Pump Station (Joe Mumber, *PB Americas, Project Manager*)
  - Rendering of Pump Station Location between 8th and 9th Streets
  - Project Construction Schedule Issues
  - Impacts during Pump Station Construction
  - Pump Station Maintenance and Operation
  - Resolution of Support for the Pump Station Location

III. DISCUSSION AND NEXT STEPS

- Community Comments (Martine Culbertson, *M.A. Culbertson, LLC, Facilitator*)
- Project Schedule and Action Items (Pankesh Patel, *NJDOT, Project Manager*)



NEW JERSEY DEPARTMENT OF TRANSPORTATION

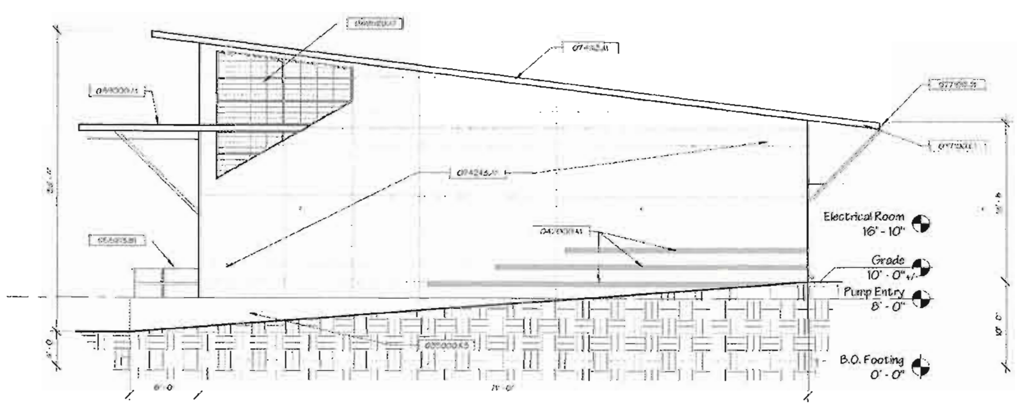
ROUTE 72 SHIP BOTTOM

PUMP STATION LOCATIONS 1 & 2

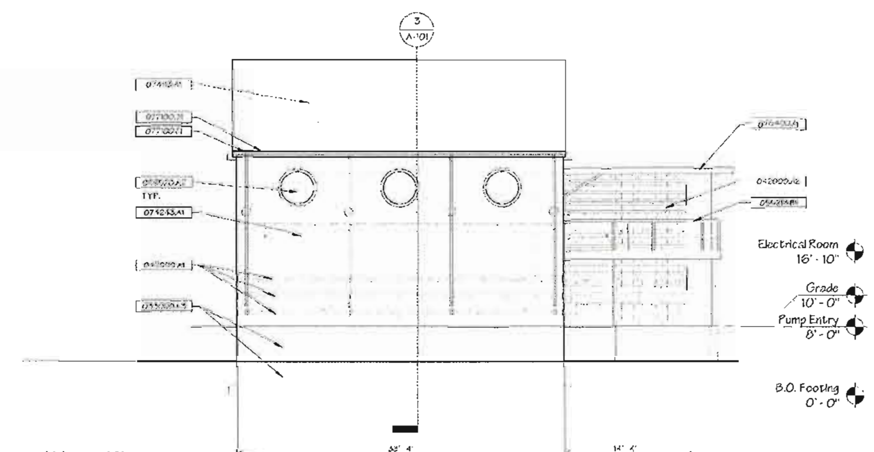
T:\52105 _ Route_72_Manahawkin_Bay_Bridges\hwy\display_Ship_Bottom_PDF_new_pump_station_locations.dgn 08-FEB-2011 10:42

BRELSFORD

ecdisplay.tbl

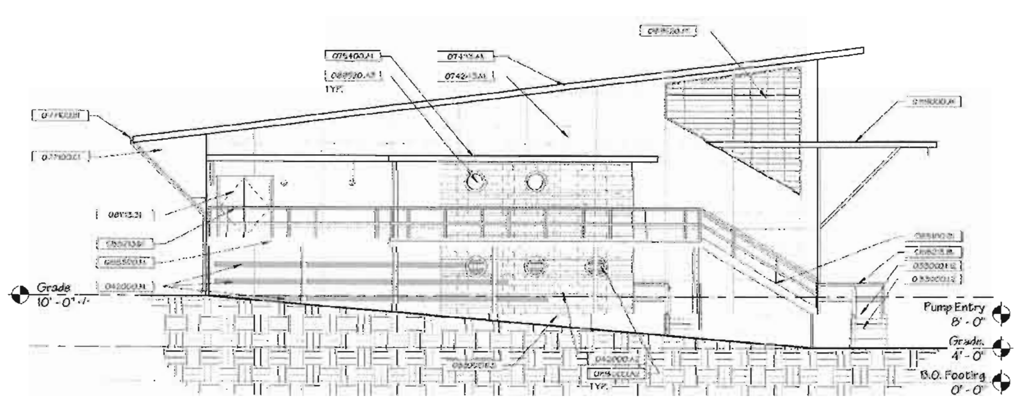


1 North Elevation
A-100 1/8" = 1'-0"

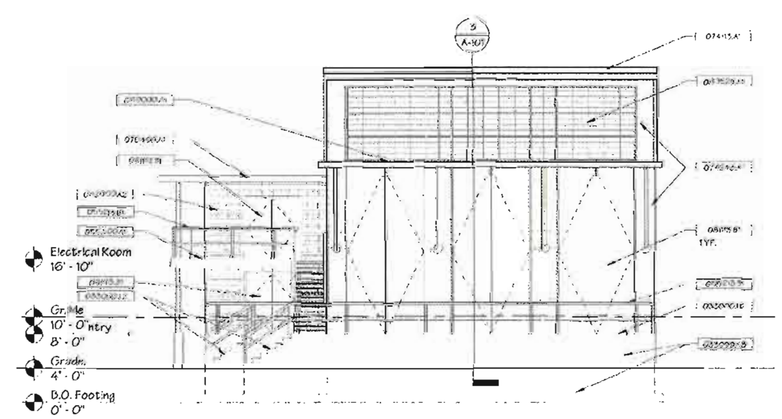


2 West Elevation
A-100 1/8" = 1'-0"

DRAWING KEYNOTES



3 South Elevation
A-100 1/8" = 1'-0"



4 East Elevation
A-100 1/8" = 1'-0"

DRAFT

LONG BEACH ISLAND PUMP STATION CENTRAL LOCATION

ROUTE 72 MANAHAWKIN BAY BRIDGES PROJECT

TOWNSHIP OF STAFFORD
BOROUGH OF SHIP BOTTOM *JANUARY, 2011* *OCEAN COUNTY*

ROUTE 72

MANAHAWKIN BAY BRIDGES PROJECT
Township of Stafford &
Borough of Ship Bottom
Ocean County, New Jersey

PROJECT TEAM

Dave Lambert NJDOT, *Program Manager*	609-530-4235 dave.lambert@dot.state.nj.us
Pankesh Patel NJDOT*, Project Manager*	609-530-2367 pankesh.patel@dot.state.nj.us
Bruce Hawkinson NJDOT*, Environmental Project Manager*	609-530-4272 bruce.hawkinson@dot.state.nj.us
Denise Peck NJDOT*, Regional Manager, Community Relations*	609-530-2853 denise.peck@dot.state.nj.us
Joseph Mumber PB Americas, Inc., *Senior Project Manager*	609-512-3571 mumber@pbworld.com
Kuldip Singh PB Americas, Inc., *Deputy Project Manager*	609-512-3525 singh@pbworld.com
Judy Burton PB Americas, Inc., *E-Team Leader*	609-512-3512 burtonj@pbworld.com
Marshall Robert Rowbear Consulting, P.C., *E-Team Coordinator*	609-571-8381 mrobert@rowbearconsulting.com
Martine Culbertson M.A. Culbertson, L.L.C., *Facilitator*	856-795-8485 maculbertson@verizon.net

For project information go to the NJDOT web site:

http://www.state.nj.us/transportation/works/studies/rte72manahawkinbaybridges/

PUBLIC INVOLVEMENT ACTION PLAN

Route 72 Manahawkin Bay Bridges Project

Purpose

The purpose of the Public Involvement effort for the Route 72 Manahawkin Bay Bridges Project is to have an informed and involved public who has access to the planning approach and the decision making process. The Draft Public Involvement Action Plan (Draft PIAP) seeks to provide ample opportunity for public comment regarding the identification and development of proposed improvements. This document is not intended to be a static schedule for the public involvement process. The intention is to establish a public involvement guideline that is dynamic in nature so that it can evolve as the project progresses to keep the public involved and maintain broad-based support for the project.

The limits of the project for Preliminary Design, as in the Feasibility Assessment, extend west from the Long Beach Island (MP 28.2) up to and including Marsha Drive/Route 72 Intersection Improvements (MP 25.5), including the below mentioned four (4) Route 72 bridges:

1. NJ Route 72 Bridge over Hilliards Thorofare, Structure No. 1513-151
2. NJ Route 72 Bridge over Manahawkin Bay, Structure No. 1513-152
3. NJ Route 72 Bridge over West Thorofare, Structure No. 1513-153
4. NJ Route 72 Bridge over East Thorofare, Structure No. 1513-154

The project is located in the Township of Stafford and the Borough of Ship Bottom, Ocean County, New Jersey. It is the sole access route for the Long Beach Island communities of Ship Bottom, Long Beach Township, Harvey Cedars, Barnegat Light Borough, and Surf City and is adjacent to the community of Beach Haven.

Original Problem Statement

During Feasibility Assessment, a Regional Transportation Problem Statement was initiated by the Transportation Executive Council for Long Beach Island access/egress, traffic flow and flooding. This problem statement describes the concern of the existing highway as a physical condition problem, an operational problem, a capacity problem and a safety problem. The Transportation Executive Council's problem statement lists specific goals for this area and suggests that an improvement project should improve traffic flow, relieve the area of flood water accumulation, and eliminate the need to close the NJ Route 72 bridges to traffic. This problem statement also indicates that the year round population of Long Beach Island has grown to ten thousand and the vacation population is estimated to be over one hundred thousand. The commercial development along NJ Route 72 has grown dramatically in the past decade drawing traffic from over the surrounding Ocean County area. Traffic controls and utilization of available road space should be used to relieve the traffic congestion during the summer months and weekend rental turnovers.

Flooding situations interrupt driving at various points along the Ship Bottom causeway leads to temporary roadway closures. The closing of the only ingress/egress to the island puts the Long Beach Island population at risk and is very costly in terms motorist travel time.

Route 72 Manahawkin Bay Bridges Project

A structural evaluation report of the NJ Route 72 over Manahawkin Bay Bridge (Cycle No. 11, dated 12/31/01) indicates that structure No. 1513-152 is in poor overall condition. The thorofare bridges are the sole evacuation route from Long Beach Island and maintaining the safety and function of these bridges is of critical importance in addition to the main bridge of Manahawkin Bay.

Proposed Problem Statement

As part of the Preliminary Design Phase and Environmental Assessment, a draft Problem Statement has been developed as follows:

Identified Purpose and Need

1. The Manahawkin Bay Bridge has an overall structure condition rating of poor due to the condition of the superstructure. The superstructure is in poor condition due to horizontal cracks found in the floorbeam webs and vertical cracks found in the bracket connection angles at numerous locations, and various degrees of section loss throughout. The structure received a sufficiency rating of 49.8 and is categorized "structurally deficient". The structural alternative designs to address the bridge problems are under evaluation during this phase of the project.
2. The other three thorofare bridges have an overall structure condition rating of poor due to the condition of the substructure. The superstructure is in fair condition due to the large spalls in the prestressed concrete stringers with exposed rusted strands and stirrup reinforcement. The substructure is in poor condition due to the development of large areas of spalled and delaminated concrete, undermining the bearing plates, in the caps of Piers. The structural alternative designs to address the bridge problems are under evaluation for rehabilitation.
3. Emergency evacuation of Route 72 is an important design issue. Route 72 is the sole emergency evacuation route. Two lanes of traffic need to be maintained in each direction along Route 72 during bridge improvements.
4. The clearance envelope at Manahawkin Bay Bridge will be coordinated with Coast Guard. If the IPA includes superstructure replacement for the bay bridge, the US Coast Guard may require that the vertical clearance be improved to 65 ft. (from 60' existing), since the bridge does span the Intracoastal Waterway, however if the existing structure is rehabilitated and an additional structure is constructed adjacent, the same bridge elevation as the existing may be acceptable.
5. The vertical sight distance at some vertical curves along Route 72 is substandard. Route 72 has substandard shoulders at the bridges. The bridges do not provide accommodations for bicycles and pedestrians.
6. There is an aerial utility line on the northerly side of Route 72, carrying power (transmission and distribution), telephone and cable television facilities. All these facilities go underground/ underwater across the Manahawkin Bay. The presence of marine utility facilities in the Manahawkin Bay bed, on the north side of the bay bridge, may complicate the bridge

widening on that side. At the three smaller bridges these facilities are aerial (on poles). Until recently, no utility facilities were attached below the deck of Manahawkin Bay Bridge. AC Electric is in the process of installing conduit(s) on the bay bridge. Utility facilities are attached below the deck of the East Thorofare Bridge. The utility relocation and maintenance of utility service to Long Beach Island is an important design issue.

7. The acquisition of ROW parcels at the Route 72 and Marsha Drive intersection and the acquisition of riparian grants in Manahawkin Bay are anticipated.
8. Highway lighting is installed along Route 72, including the Bridges over East Thorofare, West Thorofare, and Hilliards Thorofare. No highway lighting is installed on the bridge over Manahawkin Bay. However, there is architecturally unique lighting incorporated in the existing railing mounted on top of the parapet. This type of lighting is planned to be incorporated in any improvement to the structure over the bay.
9. Due to the environmental constraints in the project area, NJDOT made the decision to conduct an Environmental Assessment. The environmental impacts caused by the proposed improvements will be mitigated as a part of the design consideration, and will be coordinated with NJDEP and SHPO.

Process

Public Involvement will be an on-going throughout the project. Though the Pubic Involvement Action Plan (PIAP) is organized by project phases, it will be implemented in such a manner that the public sees one seamless process. The PIAP is organized by project phase to allow its integration with the engineering efforts to facilitate the scheduling of contingent activities.

The Concept Development phase and the Feasibility Assessment phase have already been completed. The PIAP is a continuation of the Public Involvement performed by the Department during Concept Development and the Feasibility Assessment.

During the Concept Development, the Department held the First Public Information Workshop (PIW #1) on October 27, 1999, in addition to various coordination meetings with the Public Officials.

The remaining project phases are as listed below:

- Feasibility Assessment
- Preliminary Engineering
- Final Design
- Construction

Feasibility Assessment. Feasibility Assessment tasks included analyzing the improvement concepts proposed in Concept Development as well as any additional alternatives that developed as a result of the studies conducted and public input. The FA is now completed and the public involvement steps, which were conducted, are listed in the next section.

Preliminary Engineering. The Preliminary Engineering Design Phase will further develop the IPA and identify any issues that may require community input and public involvement to resolve. An Environmental Assessment is also part of this phase and is currently underway. The public involvement steps to be implemented are presented in the section following the FA steps conducted.

Final Design. During Final Design, the design of the selected alternative will be advanced, taking into consideration the input obtained through the public involvement effort to provide an improvement solution that satisfies the needs of the public as well as those of the other project stakeholders.

Construction. Notifying the public about traffic patterns and potential delays will be important during Construction of the identified solution. Providing this information in a timely manner will facilitate the formation of positive public perception towards both the project and NJDOT.

The Public Involvement Process during Feasibility Assessment

1. Draft PIAP prepared. Coordinated with the NJDOT Office of Community Relations and the NJDOT Office of Community Impact Assessment. Developed contact/mailing list of stakeholders.

2. Identified an NJDOT Work Group (Core Group) composed of relevant disciplines. Met with the selected NJDOT SME's and key Local Officials at project site, to discuss the conceptual solutions.

3. Met with key Local Officials to identify potential stakeholders (Community Leaders/Groups, Public Officials, Local/Government Agencies and interested parties) to establish a Community Partnering Team. Presented project history, congestion issues and physical deficiencies. Establish Project Need Statement and Project Goals.

4. The following meetings were conducted as part of the on-going public involvement efforts during the Feasibility Assessment phase:

5. Initial Strategy Meeting – June 2006 – Reviewed Draft PIAP and established a Steering Committee and Community Partnering Team

6. Held a Route 72 Core Group Meeting – July 12, 2006 – Reviewed the study results and proposed options to move forward in the process.

7. Conducted Steering Committee Meeting No. 1 – August 1, 2006. Meeting minutes were generated and are part of the documentation for the FA.

8. An initial Community Partnering Team (CPT) Meeting was held on September 8, 2006 – presented the project goals and objectives and obtained input on the issues of the community and environmental impacts by agencies represented.

9. Held Steering Committee Meeting No. 2 – October 3, 2006. Meeting minutes were generated and are part of the documentation for the FA.

10. Based upon input from the CPT meeting and on-going coordination with key Local Officials, an Emergency Evacuation Plan Kick-off Meeting was held on November 6, 2006. Meeting minutes were drafted and are part of the FA documentation.
11. An Emergency Evacuation Plan Review Meeting was held on December 11, 2006. Meeting minutes were drafted and are part of the FA documentation. Resolution of support for the proposed project improvements by Stafford Township and the Borough of Ship Bottom were obtained at the completion of the Feasibility Assessment phase.

Environmental Justice and Title VI

Public Involvement activities during Preliminary Design and Environmental Assessment will be in compliance with Environmental Justice and Title VI rules and regulations. Proposed recommendations will include Limited English Proficiency provisions.

Project Stakeholder List

The project stakeholder list will be developed in coordination with local officials from the Township of Stafford, Borough of Ship Bottom, and Ocean County. The list will include local and state officials as well as property owners in the vicinity of the project and individuals recommended by local officials. Stakeholders may be added throughout the project process as pertinent individuals become evident. The stakeholders' list includes representation from the following agencies, municipalities and regional organizations:

Governmental Agencies

- NJDOT BPPD, CPM, SME's
- U. S. Coast Guard
- Army Corps of Engineers
- Federal Highway Administration
- U.S. Fish and Wildlife Service, Edwin B. Forsythe National
- Barnegat Bay National Estuary Program
- Jacques Cousteau National Estuarine Research Reserve
- Natural Lands Trust Program
- NJDEP, Bureau of Marine Fisheries, Div. Fish & Wildlife
- NJDEP, Bureau of Tideland
- NJDEP, Central Bureau of Water Compliance & Enforcement
- NJDEP, Land Use Regulation Program
- NJDEP, State Historic Preservation Office (SHPO)
- NOAA, National Marine Fisheries Service, Habitat Conservation Division

County and Municipal Officials and Organizations

- Township Elected Officials, Engineers, Police, Fire and School Board Officials
- Ocean County Officials, Engineer, Planner, OEM
- Legislative Representatives, State Senate and Assembly
- Interested local groups in the area, such as LBI In/Out Committee, Chamber of Commerce
- Pedestrian, cyclists, transit, buses, such as Trolley Tours, Inc.
- Marine such as marinas, shell fisheries council, yacht clubs

Public Involvement Deliverables

Project Fact Sheets. Project Fact Sheets will be prepared and distributed to public officials at the initial public officials' meeting and later to the public at Public Information Centers. Fact Sheets will include a brief project history, project issues, project location map and proposed alternatives. The Project Fact Sheet will be updated as the project progresses to reflect the most up-to-date project information available. Information contained in the Project Fact Sheet can be adapted to fashion a project newsletter.

Project Portfolios. Project Portfolios will be developed and utilized to provide clear and consistent hard copy materials to project team members, government agency representatives and key stakeholders from the County and local municipalities of Stafford Township, Borough of Ship Bottom and LBI communities. The materials include contact information lists, regional map, aerial map of project study area, project schedule, project fact sheet, meeting agendas and reports.

Display Boards. Display boards will be utilized to convey the proposed improvements to the public. Project display boards will include a project aerial, project deficiency display, concept displays, IPA display, and a display of the final project configuration.

Comment Forms. NJDOT written comment forms will be made available for Public Information Center meetings, Public Hearing (as written testimony) and at the Local Officials Briefings so on-going public comment and input will be made available throughout this phase of the project.

Project Web Site. A project specific web site will be developed under the NJDOT commuters.com web site under the top menu section titled "In The Works". The site will provide a project overview, draft purpose and need statement, FAQs (*Frequently Asked Questions*), community outreach efforts, maps, photos, and helpful links.

The Public Involvement Process during Preliminary Design and EA Phase

Step 1. Conduct Project Team Status Meetings, PI Strategy

At monthly Project Team Status Meetings, the Public Involvement strategy and steps will be an agenda item for discussion with the project team members including project managers and NJDOT Community Relations Coordinator. An overall strategy for the development and

presentation of information to key Local Officials and County representatives will be reviewed and steps to coordinate the public outreach efforts proposed for preliminary design and EA phases will be discussed.

Members of the project team to attend these meetings will include the NJDOT Project Manager and NJDOT Community Relations Coordinator, PB's Project Manager, PB project engineers and other team consultants responsible for the EA process. The PI agenda items include a brief project status update, the proposed public participation strategy, and opportunity to identify and discuss community issues, potential stakeholders, logistics, meeting formats, next steps for public involvement, action items and the project schedule.

Step 2. Review Stakeholders and Brief New Local Officials

To maintain community consensus and discuss the context sensitive design issues, it is necessary to work in advance to review issues and identify new key stakeholders. A stakeholder is an individual or group with an interest or investment in the way an issue is resolved. For example, EMS providers were added in the FA phase to address traffic incident management given the review of Emergency Evacuation Plans.

This step involves determining the new stakeholders given the change in local official representation in Stafford Township. A new Mayor and Council members were elected and officially took office on July 1, 2009. The proposed public involvement strategy is to schedule a Local Officials Briefing in Stafford Township and then another Local Officials Briefing in the Borough of Ship Bottom (later same day or within same week) since there are specific issues unique to each municipality to be presented and discussed. With a smaller group meeting, it is possible to engage in effective communication for constructive dialogue on specific issues relating to the design and for focused input. The key players must be present as active participants so to ensure the community interests are represented.

Based upon the review of key stakeholders from Step 1, a revised list of potential stakeholders with contact information will be distributed to the project team. Representation from the communities and agencies is at the discretion of the project managers and will be determined once issues assessment has been completed by the Community Involvement Task Leader. The reason it is necessary to review stakeholders is to understand the issues represented by each stakeholder prior to meeting and to determine that there is not duplication of interests, or any missing interests from the local or regional communities. This is to ensure community balance, environmental justice and also maintain a manageable and effective number of stakeholders for effective discussion and collaborative problem-solving and consensus-building during this phase of the project.

Step 3. Conduct Issues Assessment and Tracking

The issues assessment is an essential step and public involvement strategy, which provides the means to identify and acknowledge issues relevant to all affected parties. It is critical to developing and maintaining a successful public outreach program for this project. Issues identification prior to meetings allows for more effective planning so to design the appropriate meeting format and agenda to accomplish the goals of the public outreach meetings and the overall project effort

Follow-up issues assessment will be conducted after Local Officials Briefings or public meetings to determine if the meeting met project objectives and team expectations. It is also effective in determining if any stakeholders need to be added or if issues had changed after obtaining project information or group discussion input. The assessments are conducted as courtesy calls if a large period of the time has passed since the last briefing or meeting. A summary matrix of issues will be provided for the project team to review at monthly project team status meetings.

Step 4. Develop Team Meeting Agenda and Materials

At the Project Team Status meetings, the Project Portfolio will be reviewed and materials produced to maintain clear and consistent project information and to assist members on communication. The project logo, letterhead and other public information materials will be reviewed and revised as needed and new materials designed with NJDOT and PB Project Managers' approval such as name tags, sign-in sheets, handouts, meeting reports and display boards.

The team logo and meeting materials are designed to clearly define the project and the purpose of stakeholders' role in the public involvement process for this phase of the project. A Project Portfolio has been developed for the E-Team members and Agency Representatives including list of members, structure, purpose and roles, and to provide the Environmental Assessment project data needed to inform and educate and update the E-team members. A similar Project Portfolio is to be developed for the County and Municipal Local Officials, however it may contain more community relevant project information and renderings where the E-Team has regulatory and mitigation technical data. The Project Portfolio serves as an effective communication tool within the team and for stakeholders to use with their constituents in disseminating project information.

Step 5. Conduct Local Officials Meeting(s)

Local Officials meetings will be conducted with key entities in each community to review community issues, present project information and schedule of activities; and to identify any new issues or community sensitive design elements for the bridge rehabilitation or replacement options.

These meetings will be held with key local officials as identified in Step 2 and conducted in direct coordination with the NJDOT Community Relations Coordinator. The purpose of these meetings will be to present the project status, cultural and historic resource concerns, and to solicit input on

issues and potential design refinements to address the communities' interests and prepare for public information center meetings or the Public Hearing for the EA.

Members of the project team to attend these meetings will include the representatives from NJDOT and other key project consultant support staff as appropriate. The agenda would include a brief project status update, review of the preliminary design options, environmental mitigation efforts and the opportunity to identify and discuss community issues, and the approach for the public information center meeting as well as the progress of the separate deck paving project added as part of the Federal stimulus program to maintain the current operation of the bridge while the design process is under development and approval.

Step 6. Facilitate Public Information Center Meeting(s)

The Public Information Center (PIC) meetings will be held at the appropriate time in the schedule, once the preliminary design alternative options have been developed and recommendations or refinements to the IPA are reviewed so to allow for general public comments and community support to advance the project. One or two public information center meetings may be held in same day depending on Local Officials input and project team objectives for this phase of the project.

The PIC meetings will be conducted to present the updated project information and obtain input on the context sensitive design elements for the rehabilitation or replacement design option for the Manahawkin Bay bridge and the thorofare bridges. The PIC meeting will provide a means to present or discuss project information with the general public, local public officials, community entities, and business representatives in an open house format with specific stations or areas of information. An area will be established to present study results, on-going public involvement accomplishments to date, and in addition an area for written comments and feedback on the proposed design improvement options.

Step 7. Facilitate Special Purpose Meeting(s), EA Coordination, Public Hearing

Special purpose meetings, E-team coordination meetings or workshops may be facilitated should certain issues require additional effort outside the scheduled Local Officials Briefings or PIC meetings. These meetings will be conducted and coordinated with NJDOT, agencies, and other members of the project team. At these meetings, the facilitator will provide for open dialogue and collaborative problem-solving with active participation of all parties involved to build consensus. The results of these special purpose meetings or workshops will be recorded and information shared with project team members and stakeholders to maintain effective communication and broad based support for the project.

In coordination with NJDOT Office of Community Relations and with the Division of Project Management and Environmental Services, these special purpose meetings will be facilitated and materials developed as needed. Phone and email coordination may be conducted in order to

provide further clarification or insight. The information obtained at these meetings will be recorded and a report summary generated for distribution to the project team.

SCHEDULE OF PUBLIC INVOLVEMENT INITIATIVES

	STEP	DATE	PURPOSE
1.	Conduct Project Team Status Meetings*	May, June, July, August, Sept., Oct., Nov., Dec. 2009	• present approach and updates • discuss PI strategies • obtain input on stakeholders and support status
2.	Review Stakeholders and Brief New Local Officials	August / September 2009 (on-going)	• identify new stakeholders • review local officials, agencies
3.	Conduct Issues Assessment and Tracking	May - Dec 2009 (on-going)	• identify issues/interests • interview new stakeholders • develop issues matrix
4.	Develop Team Meeting Agenda and Materials	May - Dec 2009 (on-going)	• review logo and portfolio materials • meeting preparations
5.	Conduct Local Officials Meeting(s)	November 16, 2009, Mar/Apr, 2010	• review project status and schedule • identify issues and concerns • prioritize issues and make recommendations • present refined information; design and EA progress • discuss community issues • provide input and make recommendations for consideration
6.	Facilitate Public Information Center Meeting(s)	Fall, 2009 (tentative date, final date based upon EA and design progress)	• present project information • present project history, current status, context sensitive design concepts • obtain public comments

7.	Facilitate Special Purpose Meeting(s) / Public Hearing	Spring, 2010 (tentative date, final date based upon EA design progress)	• present design progress • discuss specific community issues • provide input and make recommendations for consideration • written and oral testimony

* Monthly Project Team Status Meetings to be held second or third Tuesday as appropriate and prior to Local Officials Briefings and the Public Information Center meetings. They will also be scheduled as needed to monitor progress of EA efforts and to maintain effective PIAP.

The above PIAP has the concurrence/approval of:

_____

Tony Marsella, NJDOT Community Relations Deputy Director

_____

Pankesh Patel, NJDOT Project Manager

_____

Dave Lambert, NJDOT Program Manager

_____

Joseph Mumber, PB Project Manager

State of the Chamber 2010

Agenda

8:30 Registration and Continental Breakfast

8:50 Welcoming remarks

9:00 NJDOT – Presentation of the Rt. 72 Bridge Project
Q & A after the presentation

9:50 Installation of Officers

10:00 Municipal Dais

Little Egg Harbor Township
Mayor Ray Gormley

Borough of Ship Bottom
Mayor William Huelsenbeck

Eagleswood Township
Mayor James Pine

Borough of Surf City
Councilman James Russell

Stafford Township
Council President Joanne Sitek

Borough of Tuckerton
Mayor Lee Eggert

Borough of Beach Haven
Mayor Michael Battista

Barnegat Township
Mayor Jeff Melchiondo

U.S. Congressman John Adler - 3rd District
Represented by Ocean County Field Representative Ben Giovine

Ocean County Freeholder
John P. Kelly

11:40 Presentation by Atlantic City Electric

11:45 Keynote Speaker

(Due to an emergency medical issue, Joan Verplanck is undergoing surgery today)
NJ Chamber of Commerce
Aldonna Ambler – Board of Directors

12:30 Buffet Luncheon

1:30 Closing remarks

SOUTHERN OCEAN COUNTY CHAMBER OF COMMERCE
265 West Ninth Street, Ship Bottom, NJ 08008 • Ph: 609-494-7211 • Fx: 609-494-5807 • Email: info@discoversouthernocean.com • Web: discoversouthernocean.com

ROUTE 72 MANAHAWKIN BAY BRIDGES PROJECT
Stafford Township and Borough of Ship Bottom, Ocean County, NJ
BBNEP Coordination Meeting
Watershed Based Mitigation Planning

Date: December 8, 2009
Time: 1:00 P.M.
Location: Ocean County Community College Bldg 13, Room 107
Prepared by: Marshall Robert
Attendees:

Name	Email	Affiliation
Stan Hales	shales@ocean.edu	BBNEP
Martha M Doyle	mmdoyle@ocean.edu	BBNEP
Steven Mars	Steve.mars@fws.gov	USFWS/NJFO
Barbara Spinweber	Spinweber.barbara@epa.gov	EPAR2
Bob Mancini	Bob.mancini@dep.state.nj.us	DEP/DWM
Scott Haag	scotth@crssa.rutgers.edu	CRSSA
Mike Romanowski	ocmosquito@comcast.net	Ocean Co. MEC
Michael Hayduk	Michael.h.hayduk@usace.army.mil	USACE Phila. Dist
Judy Burton	burtonj@pbworld.com	PB
Mike DeLuca	deluca@marine.rutgers.edu	Rutgers U.
Scott Ackerman	Scott.ackerman@dot.state.nj.us	NJDOT
Mike Kennish	kennish@marine.rutgers.edu	Rutgers
Thomas Grothues	grothues@marine.rutgers.edu	Rutgers
Joe Dobarro	dobarro@marine.rutgers.edu	Rutgers
Rose Petrecca	petrecca@marine.rutgers.edu	Rutgers
Helen Henderson	Helen@littoralsociety.org	American Littoral Society
Joe Schmidt	ocmosquito@comcast.net	OCMEC
Marshall Robert	mrobert@rowbearconsulting.com	Rowbear Cons.
David Friedman	dfriedman@ocscd.org	OCSCD
Christopher Raabe	craabe@ocscd.org	OCSCD
Lisa Avermuller	avermull@marine.rutgers.edu	JCNERR
David McKeon	dmckeon@co.ocean.nj.us	OC Planning
Tom Hartman	THartmanJr@co.ocean.nj.us	OC Engineering
Vicki Pecchidi	vpecchidi@co.ocean.nj.us	OC Planning
Joe Sweger	Joseph.sweger@dot.state.nj.us	NJDOT E-team
Bill Romaine	bromaine@amygreene.com	Amy Greene Env.
Brendan K. Brock	Brendan.brock@dot.state.nj.us	NJDOT E-team

The meeting began with introductions. Stan Hales stated that the purpose of the meeting is to discuss specific mitigation opportunities. He asked for an overview of project from Marshall Robert. The following key issues were addressed:

- Marshall summarized project status, including the purpose for project and the need to maintain access to LBI
- Impacts to regulated resources were summarized.
- Discussed that NJDOT can meet the minimum permitting requirements by building on-site facilities including stormwater management.
    - This approach is costly due to adjacent constraints
    - The overall benefits are just enough to meet permitting requirements.
    - The benefit for the watershed is limited.
    - NJDOT would like to consider alternative mitigation strategies that meet the regulatory goals but could address more pressing watershed needs
- The typical mitigation strategy for SAV is to restore on-site at a 2:1 ratio. However SAV mitigation is risky. Alternatively the NJDOT could:
    - Restore at a 1:1 ratio on-site, liquidate costs remaining 1:1 ratio and retrofit offsite stormwater facilities known to contribute high sediment and nutrient input to bay
    - The NJDOT would demonstrate equal to better ecological function to meet the regulatory requirements.
    - Experts in the BBNEP could assist in providing the existing data to support current nutrification threats to the survivability of SAV
- Any off-site approaches need to be tied to mitigation credit for the Route 72 project in order to meet FHWA restrictions that funding is related only to the project requirements

<u>Discussion of Resource Impacts</u>

- Mike Hayduk (USACE) and Steve Mars (USFWS) indicated that the impacts to resources need to be fine-tuned and coordinated between the regulatory agencies. For instance some agencies consider the area shaded below the bridge to be an impact others may not.
- Helen Henderson asked if the mitigation ratios were established. Rowbear indicated that it was too early in the process to establish ratios but that they would be determined prior to permitting. It has been the NJDOT's experience that the NJDEP's practice was to presume shading impact to SAV considering the already stressed populations in the bay.
- Stan Hales noted to the attendees that the BBNEP /NJDOT were not here to discuss specific details of the project impacts.

Presentation of opportunities for restoration projects in the Barnegat Bay Watershed

Stan requested that all attendees proposing projects to address watershed needs to discuss the broad applicability and intent of the proposal. The NJDOT needs to understand how the proposals tie to a watershed need that could also address an anticipated ecosystem function. The NJDOT funding needs to be tied to mitigating project related impacts.

Mike DeLuca (Jacques Cousteau Research Reserve -Rutgers)

The Reserve staff were prepared to address three interrelated approaches. These approaches are already at various stages of completion. All are related to improving the water quality of the bay. Reducing nutrients and turbidity caused by non-point sources is the number one watershed need identified by the BBNEP.

Scott Haag presented a slide show highlighting the extensive development in the watershed over the past several decades and the following key points were presented:

- Within this developed area, Rutgers, Ocean County, and Ocean County Soil Conservation District (OCSCD) had currently mapped over 1,200 detention basins.
- The drainage areas adjacent to the basins were tied to the underlying soil types. One observation from Dave Friedman of the SCD is that the soil compaction in the developed watershed had a strong influence on the overall quality of runoff.
- His data supports the finding that by un-compacting these soils and adding organic content, the soils will return much of its pre-developed function and increase groundwater recharge.
- Increased recharge reduces inflows to the basins and removes much of the nutrients in the remaining runoff. This reduces overall flows to the bay, reduces sediment loads and improves the water quality in the bay.
- The mosquito control commission has already identified many basins that hold water and have become mosquito breeding hot spots requiring repeated chemical treatment.

The proposal presented is to:

- Map the stormwater basins and adjacent watershed soils.
- Identify stormwater basins that could be retrofitted and restored.
- Determine stormwater basins that are intended to be wet basins vs. failed dry basins.
- Rank the stormwater basins for potential to reduce nutrient loads after retrofit.
- Quantify ecosystem function in order to satisfy Route 72 goals.
- Select basin or basins to retrofit.
- Estimated cost per basin retrofit is $100,000.

Data needs are:

- Ability to calculate benefits of malfunctioning basins.
- Water quality in bay.
- How to rank the basin (parameters or values).

Thomas Grothues (Rutgers)

Rutgers is studying the effects of non-point source loading on the bay after particular events (i.e., rainfall events of varying size) and the following key points were presented:

- One of the problems in selecting and addressing non-point source retrofits is understanding the spatial and temporal impacts of specific rainfall events of a specific size at a specific location.
- This is the sort of data that can inform the selection of particular retrofits that maximize improvements to the water quality of the bay.
- Given the high variability and unpredictability of the location of the events, the Estuary Program needs to have a sampling device that is portable and deployable on demand. The results from this portable sensor would be integrated into the results of stationary sensors that test for changes in concentrations over time.
- Therefore, the program recommends the following:
    - Purchase of an AUV (Autonomous Underwater vehicle)

      Deployable quickly – on demand, programmable to test large areas in a short time conceivably during a given storm to determine actual loadings to the bay at a targeted location
    - Permanent sensor – Installation of one or more permanent stations to compliment data with the AUV.

- Cost $100,000 per permanent sensor and $350,000 per AUV.

M. Robert pointed out that the FHWA rules only allow investment in capital cost and in studies that lead to specific solutions for specific project related mitigation. For instance, studies to map SAV and to select a suitable location are costable, but general research is not. FHWA participation for something like discussed would have to be very focused and be part of the overall approach for off-site out of kind mitigation. FHWA funding cannot exceed the requirements for mitigating the project impacts.

Lisa Avermuller (Rutgers) presented the following potential mitigation opportunity:

- Stafford Twp basins have been identified that can be converted into bioretention systems.
- The effort will consist of reconditioning the basin bottom, filling in the bottom and turning them into bioretention systems.
- This has been employed at other locations in Stafford Township with demonstrated results. Lisa has identified additional candidate basins owned by Stafford Township.
- Cost per retrofit is estimated at $100,000.

Dave Friedman and Christine Raabe OCSCD provided the following comments:

- The school district has been working with Ocean County on soils restoration on county parks and public school grounds.
- This program is referred to as Sub Watershed Action Plan (SWAP)
- OCSCD has identified specific functions associated with improved soils. Healthy soils are also tied to improvements in stream health and bay water quality.
- In addition to documenting the improvement, they have included a public outreach and educational programs. One is called the "Blue Car for the Blue Crab" is targeted to elementary schools.

Steve Mars indicated that the Mill Creek project is located close to project area and is a candidate for mitigation efforts.

One of the mitigation requirements for this project will be riparian buffer impacts. The purpose of the buffers is to reduce flooding by encouraging recharge and for vegetation to help improve shallow ground water quality. There is a connection between improving soil function and riparian buffer mitigation. The NJDOT will discuss the potential of mitigating riparian buffer through soil density mitigation.

OC Engineering and OC Planning provided the following comments:

- There are a series of county owned detention basins along Route 72 in Stafford Township in need of retrofit to address flooding and water quality.
- Among these are basins located in the Ocean Beach section of Stafford Township. These are potential candidates that may be excellent opportunities especially considering their proximity to the project site as well as the Manahawkin Bay.

M. Robert pointed out that because the Route 72 Project is located entirely in the tidal zone there is no stormwater runoff volume (flooding) controls required by the rules. The NJDOT can only participate if the projects can demonstrate measurable water quality improvements.

Helen Henderson Littoral Society provided the following comments:

- The society has several candidate salt marsh restoration projects on private property. The society estimates that cost to restore wetlands in these areas as about $100,000 per site.

- Helen wanted to know what measures the NJDOT proposed to do onsite and if the proposals being discussed are in addition to meeting all mitigation on-site.

M. Robert explained that the NJDOT proposed one of two options. Perform all mitigation on-site using typical acre to acre mitigation. This approach will get NJDOT a permit. However, given the very restricted corridor the NJDOT will have to install expensive and extraordinary measures to meet the permit goals. For instance to meet the 95% TSS removal targets, the NJDOT will have to separate out drainage systems and install reinforced concrete underground infiltration chambers.

The alternative is to install what reasonable best management practices that will fit within the constrained corridor. The balance of the money the NJDOT would have expended on the less productive but more expensive measures and participate in an off-site out of kind mitigation approach. It is the consensus of the BBNEP staff that greater benefits to the bay can be realized by targeting this offsite out of kind investment into known problems in the watershed. As a result greater ecosystem function can be achieved for the same cost to the taxpayers.

Next Steps

- Letter from the BBNEP confirming that the focus of restoration efforts in the Barnegat Bay watershed is to address nutrients / sediment inputs into the bay. That other ecosystem functions like survivability of SAV, shellfish and shallow water habitats are connected to reduced nutrient / sediment loads.
- That the BBNEP will support the NJDOT in developing an off-site out of kind mitigation effort for the Route 72 project after the NJDOT meets the avoidance and minimization requirements of the rules and after the NJDOT proves it has installed appropriate on-site best management practices.
- NJDOT will provide the BBNEP a letter indicating the types and kinds of resources that are being impacted and develop a list of ecosystem functions provided by or effected by water quality of the bay.
- BBNEP will use the ecosystem functions that need to be replaced for the permitting on Route 72 to identify and rank the mitigation approaches presented to the NJDOT/FHWA for selection.
- NJDOT will prepare the EA with the option to meet some of its mitigation requirement at offsite locations selected and constructed in collaboration with partners in the BBNEP.
- Additional follow-up as we begin to finalize the design.

Develop a memorandum of agreement between the regulatory agencies to pursue the agreed upon strategy with the specific amounts of off-site investment to be agreed to during the permitting stage later in 2010.

ROUTE 72
MANAHAWKIN
BAY BRIDGES

IMPROVEMENTS
PROJECT
Township of Stafford &
Borough of Ship Bottom
Ocean County, New Jersey

ROUTE 72 MANAHAWKIN BAY BRIDGES PROJECT
Stafford Township and Borough of Ship Bottom, Ocean County, NJ
LOCAL OFFICIALS' BRIEFING
MEETING REPORT

DATE: Monday, November 16, 2009

TIME: 1:00 p.m. – 2:30 p.m.

LOCATION: Ship Bottom Municipal Building, 1621 Long Beach Blvd., Ship Bottom, NJ

ATTENDEES:

First Name	Last Name	Representing	Phone	Email
		Project Team		
Judy	Burton	PB Americas, Inc.	609-734-7012	burtonj@pbworld.com
Martine	Culbertson	M. A. Culbertson, LLC	856-795-8485	maculbertson@verizon.net
Frank	Frega	CMX Engineering	732-577-9889	ffrega@cmxengineering.com
Stewart	Gordon	PB Americas, Inc.	609-734-7023	gordons@pbworld.com
Jenn	Grenier	P.B. Americas, Inc.	609-734-7075	grenier@pbworld.com
Tony	Marsella	NJDOT Community Relations	609-530-6116	tony.marsella@dot.state.nj.us
Joseph	Mumber	PB Americas, Inc.	609-734-7071	mumber@pbworld.com
Pankesh	Patel	NJDOT, Project Mgmt.	609-530-2367	pankesh.patel@dot.state.nj.us
Sharad	Rana	NJDOT	609-530-2196	sharad.rana@dot.state.nj.us
Kuldip	Singh	PB Americas, Inc.	609-734-7025	singh@pbworld.com
		Stakeholders		
Michael	Bradley	Long Beach & Barnegat Police	609-361-2050	bradley@longbeachtownship,com
Edward	English	Ship Bottom Council	609-494-2171	sbclerk@comcast.net
Ben	Giovine	Office of John Adler	202-225-4765	ben.giovine@mail.house.gov
Matthew	Greenwood	Beach Haven Police Dept.	609-492-0505	police@beachhaven-nj.gov
Tom	Hartman	Ocean County Engineering	732-929-2130	thartmanjr@co.ocean.nj.us
Mary	Madonna	Surf City Borough	609-494-3064	
Joseph	Mancini	Township of Long Beach	609-494-6689	mancini@longbeachtownship.com
Jonathan	Oldham	Harvey Cedars Borough	609-494-2843	mayor@harveycedars.org
Bill	Rickards	Borough of Ship Bottom	609-494-2171	sbclerk@comcast.net
Paul	Sharkey	Ship Bottom Police Dept.	609-494-1511	psharkey@shipbottom.org
Richard	Sinopoli	Ship Bottom Council	609-494-2171	sbclerk@comcast.net
Mark	Villinger	Ocean County Planning	732-929-2054	mvillinger@co.ocean.nj.us
Kathleen	Wells	Ship Bottom Clerk	609-494-2171	sbclerk@comcast.net
Gail	Wetmore	Barnegat Light Admin.	609-494-9196	bladmin@comcast.net

PURPOSE OF MEETING

The purpose of this meeting is to present an overview of project status and schedule; review proposed design elements; describe the environmental documentation process and environmental constraints; and discuss community interests and issues. (Agenda attached)

MEETING SUMMARY

1. Tony Marsella, NJDOT Community Relations Coordinator, opened the meeting and welcomed everyone. After introductions, Martine explained the handouts in the blue Project Portfolio distributed to attendees.

2. Pankesh Patel, NJDOT Project Manager, presented the project status. The project is now in the Preliminary Engineering Design phase. The project schedule is to complete the preliminary engineering phase by 2011 and then final design in 2012, with construction expected to begin in 2012. He noted that public outreach would be on going through design and construction. The string of pearls lighting will be part of the design of the Manahawkin Bay Bridge with a new technology approved by NJDOT for better maintenance and operation.

3. Joe Mumber, PB Project Manager, presented the project overview (*A Project Summary handout is included in the Project Portfolio*):

(a) Due to operational deficiencies at the Marsha Drive and Route 72 intersection, increased lane capacity is proposed through additional lanes and elimination of the jug handle and a roundabout at Marsha Drive and Bay Avenue.

(b) Due to structural deficiencies on the Manahawkin Bay Bridge, it will be rehabilitated and a new Bay Bridge will be constructed parallel to it on the south side. Both will have a curb-to-curb width of 49 feet, which will have two 12-foot lanes, a 12-foot left shoulder and a 13-foot right shoulder in each direction in the final configuration. The existing Bay Bridge once rehabilitated will also have a six-foot sidewalk. There will be a crossover provided in the median at the ends of the bridges between eastbound and westbound roadways for use in emergency situations or to allow closure of one of the bridges to perform rehabilitation in the future if necessary.

(c) Two lanes of traffic in each direction will be maintained in the peak season (May through October) through the construction phase. However temporary lane closures will occur in the evening or off-season as needed for safety in moving materials or during the final deck overlay surfacing. During the off-season one lane per direction will be maintained.

(d) The trestle bridges over Hilliards, West and East Thorofares are to be rehabilitated to continue to operate for an estimated 20-year period. The work involves piling protection and resurfacing of the decks. The bridges will be reconfigured to accommodate two 12-foot lanes, a five-foot bike lane in each direction, and a six-foot sidewalk in the westbound direction.

(e) Pedestrian and bicycle access are included in the design improvements so there is continuity from Stafford Township to the Borough of Ship Bottom along Route 72. The sidewalk will be on the north side (westbound side) of Route 72 with connections to communities and points of interest along the way on the south side such as Cedar Bonnet Island. Public access for fishing is a consideration to be reviewed as part of the environmental permitting process.

(f) Jurisdictional agreements between the State and municipalities will need to be created for snow removal and minor maintenance of the sidewalk. The State does provide maintenance of the roadway and shoulders including snow removal.
(g) The Ship Bottom Drainage and Operational Improvements Project has been combined with this project and is in the process of being incorporated. The design includes a proposed pump station designed for a ten-year storm event at Shore and 8th Streets, and improved roadway geometrics including traffic signals and shoulders at 8th and 9th Streets with two-way traffic being proposed to replace the current one-way movements on the crossroads at Long Beach Boulevard and Central Avenue.
(h) The construction will be done in four contracts and will begin in 2012 and will continue through 2017. Marsha Drive improvements are in the first contract; the construction of the new Bay Bridge will be in the second contract, the rehabilitation work on the three trestle bridges will be in the third contract and contract four will be the rehabilitation work on the existing Bay Bridge. It is anticipated that the Ship Bottom Drainage and Operational Improvements will become part of the first phase of construction. Depending on available funding, it is possible that work on the trestle bridges, construction of the new bay bridge and the Ship Bottom work could occur at the same time starting in the fall of 2012. If sufficient funding is not available, they will be sequenced in the order listed above 4. Stewart Gordon, PB Traffic Engineer, presented the traffic engineering status for the project.

4. Stewart Gordon, PB Traffic Engineer, presented the traffic engineering status for the project.
(a) The proposed traffic improvements are based upon the traffic analysis of the peak hours of Saturday a.m. and Sunday p.m. as these are the most critical volumes of traffic during the summer peak season.
(b) The intersection of Marsha Drive at Route 72 will have an additional lane in each direction on Route 72 and Marsha Drive will be configured to have a double left turn lane and on through/right lane in each direction to improve the capacity. Also, the westbound jug-handle from Route 72 will be removed to eliminate the conflict between the left turn from the jug handle to go to Beach Haven West and the left turn from Marsha Drive to go on Route 72 eastbound. Right turns will still be permitted at the traffic light from Route 72 westbound to Marsha Drive. To replace the jug handle movement for traffic headed to Beach Haven West from Route 72 westbound, motorists will have to exit further east at Bay Avenue and then turn left onto Marsha Drive.
(c) The Marsha Drive and Bay Avenue intersection does not warrant a traffic signal, but a roundabout is proposed to allow for a "free flowing" right onto Marsha Drive and better movement on Bay Avenue where vehicles must yield to the motorists in the roundabout.
(d) There are also improvements proposed at Route 72 and Bay Avenue intersection to eliminate the yield to provide continuous flow off of Route 72 westbound. A stop condition will be imposed on traffic in each direction on Bay Avenue. The movement from Bay Avenue to Route 72 westbound will be eliminated and motorists currently making that movement will need to use Bay Avenue and Marsha Drive to access Route 72.
(e) Intelligent Transportation Systems are proposed for the project; a camera mounted on the crest of the new Bay Bridge to view in both directions and another camera mounted near Ship Bottom to view the traffic conditions on the trestles and into Ship Bottom. Two other cameras exist near Route US 9 and the Garden State Parkway. These web cams will present images of the traffic flow conditions on Route 72 during and after the construction phase to aid motorists. There is an existing VMS sign on Route 72 and NJDOT Traffic Ops has recommended

additional VMS signs be placed eastbound at the approach to the Garden State Parkway, and southbound on Route US 9 north of Hilliard Boulevard.

(f) The traffic signals on Route 72 in Ship Bottom will be designed with signalization control by NJDOT Traffic Operations so that the signal phasing can be adjusted to meet the traffic flow.

(g) The lighting for the existing and new bay bridges will utilize new technology, however it will provide the similar String of Pearls appearance with the lighting contained in the railing like the existing system.

5. Judy Burton, PB Environmental Lead, presented the status of the environmental documentation process and explained that the key role of the environmental team is to ensure that issues are addressed to support project implementation schedule. The project has a range of resources such as the wetlands, Green Acres protection, shellfish, submerged aquatic vegetation and water regulatory protection by NJDEP and US Army Corps of Engineers.

(a) The technical environmental studies have been completed and they are now working on the constraints and impacts mapping.

(b) The Environmental Assessment (EA) process requires the comparative analysis of alternatives, which is done with the use of the results from the constraints and impact mapping, The goal of the design is to first avoid impacts, then minimize impacts and third to mitigate impacts.

(c) The team recognizes the importance of the Manahawkin Bay estuary and is investigating the potential of mitigation opportunities within watershed that would satisfy regulatory requirements and at the same time provide environmental improvements to the estuary.

(d) The EA document is to be completed with a preferred alternative for concurrence by the regulatory agencies by end of 2010.

(e) Significant early coordination is being completed with the NJDEP and regulatory agencies to obtain early buy in on impacts and mitigation.

6. Martine Culbertson, Meeting Facilitator, presented the community outreach process.

(a) A project specific web site will be developed to maximize information dissemination on the project. Presently the Deck Rehabilitation Project is posted under the Construction Updates. The design project will be posted under "in the Works" which will contain the project description and images, the schedule and community outreach meeting reports.

(b) To access information on transportation projects, go to: www.njcommuter.com
This NJDOT site has information on many construction projects in the State and those under study and design.

(c) Regarding the Deck Rehabilitation Project, select Construction Updates
from the list, select the Route 72 Manahawkin Bay Bridge Deck Rehabilitation Project

(d) There will be additional smaller meetings to coordinate with local officials and community stakeholders in developing the proposed design elements. Local Officials' Briefings will be held to present the progress of the project when results are ready for review and to obtain resolution of support for the Preferred Alternative to be carried forward to the Final Design phase.

(e) Public Information Center meetings will be held at the appropriate time to present the project, answer questions and obtain input from the general public on the proposed design improvements as well as possibly a Public Hearing will be held if required for the EA document.

(f) If there are any interest groups such as the Southern Ocean County Chamber of Commerce that the team should/could gain feedback from please let the team know.

7. During the presentations, questions and comments were raised and during the open group discussion period issues were identified and suggestions made. The following comments were noted:

• *Question:* Was the Deck Rehab Project to take place only between 6 pm and 9 am?
Response: The Deck Rehab Project is a separate construction project, but the understanding is that in the off season from October through May, there would be daytime work with lane closures needed for safety and to complete the work as soon as possible.

* Question: Why are they doing various patches? Won't that cause more cracks and did it not last as long as it should have?
Response: The cracks and spalls are due to the effects of normal wear and weathering. The contractor can identify the areas that require repair by sounding the deck and then will place an impervious overlay that will seal the deck and will provide deck protection for 7 to 10 years.

• Comment: The connections made from the sidewalk on the north side to south side points of interest may include pedestrian walk ways under the trestle bridges. As part of the environmental mitigation process, it will be considered to provide fishing access off the bulkheads.

• Comment: Bicycle access would be in the roadway shoulders and may include paint striping indicating bike lane if recommended by the communities or cycling interest.

• Question: Will a copy of preliminary design plans be given to Borough of Ship Bottom?
Response comment: PB provided a set of plans to the Borough Engineer, Frank Little.

• Question: Will a copy of preliminary design plans be given to Ocean County?
Response comment: PB will send a set of plans to Ocean County Engineering Department.

• *Question:* What will happen at the Medical Arts building?
Response: There is a sliver of property to be acquired by the State to put in a curb return at 9th Street. The northwest corner with the Luk Oil at 8th will also have a curb return. A conventional T section will be designed and the area will become a grass area.

• *Question:* The existing drainage was never maintained by the State and doesn't work so how will the pumping station work?
Response: The existing drainage system is small and is clogged with debris, silt and back-ups. The new drainage and pumping station will be designed as an Archimedes pump with a tide gate so at high tide the water once pumped will spill over into the bay and the gate acts as flap preventing the water from returning.

• *Question:* With the roundabout at Bay Avenue how will people ever make a left traveling from Marsha Drive to go west on Bay Avenue?
Response: With the double lane capacity on Marsha Drive at the Route 72 intersection, traffic flow should be improved and queing reduced, and with the free right turn movement at the roundabout, vehicles within the circle have right of way and will alternate.

• *Question:* Do you plan to straighten out the curve at the Route 72 exit to Bay Avenue?
Response: With the stop sign along Bay Avenue to prevent conflicts with incoming vehicles from Route 72, it was felt that straightening the curve could lead to higher vehicle speeds coming off of Route 72, which would not be favorable, so the roadway geometry may remain as is.

• *Question/Request:* Could a VMS sign be placed eastbound to warn motorist when there is flooding in Ship Bottom?

Response: A VMS sign placed in that direction was not indicated by NJDOT Traffic Operations, however a recommendation can be made based upon the need expressed by Ship Bottom police and Emergency Management Service providers.

• *Question/Request:* Could the cameras once installed share the feed line with municipal OEM providers?

Response: NJDOT Traffic Operations maintains the lines, however they can link the web cams to other sites. The project web site will also be linked to the municipal web site so the live web cam images can be viewed at all times.

• *Question:* Does NJDOT Traffic Operations run 24 hours?

Response: Yes, NJDOT Traffic Ops is a 24/7 operation with service 24 hours 7 days a week.

• *Question:* Will the improvements to the traffic signals in Ship Bottom all be State controlled? Will it be coordinated with the County traffic lights on the island?

Response: The traffic signal lights on Central are County jurisdiction and so the phasing of the traffic signals needs to be coordinated between the State and the County as well as with the local officials/police. County noted that the signal timing during peak hours is very difficult to handle the traffic flow in this area.

• *Question:* Is the Ship Bottom drainage project now part of the Bay Bridges project?

Response: Yes, the Ship Bottom Drainage and Operational Improvements Project has now been added to the Route 72 Manahawkin Bay Bridges Project and will be incorporated in the design and construction phases. It is anticipated that it will begin with the Marsha Drive intersection improvements the first contact phase of construction.

• *Question:* Who will operate and maintain the proposed pumping station?

Response: The State will operate and maintain the pumping station.

• *Question:* Will there be night work during construction?

Response: Some work may be done at night to minimize traffic impacts.

• *Question:* Is the Deck Rehab Project aware of the December 5th Holiday Parade in Ship Bottom?

Response: The Project Manager will follow-up to confirm with the NJDOT Resident Engineer that the Contractor is aware of the event and will have all lanes open.

• *Comment:* In response to the question on additional groups to meet with, it was suggested that a traffic meeting be held with the Township engineers, police, county and State SMEs.

8. In summary, Martine noted that meeting minutes will be provided and asked for any feedback on the contact list or additional stakeholders to be added to the list. In closing, Pankesh Patel thanked everyone for their participation and input. The meeting adjourned at 2:30 p.m.

KEY ACTION ITEMS

1. Attendees to review Stakeholder Contact List and provide names of any missing stakeholders or organizations interested in the project that would like to be on the mailing for future public meetings.

2. Attendees to review Project Summary and handouts from the Project Portfolio and share project information with their constituents.

3. PB team - to provide preliminary design plans to Ship Bottom Borough Engineer and to send plans to Ocean County Engineering.

4. PB team - Stewart Gordon to review ITS facilities and determine if an additional VMS can be added in the area requested by LBI police and OEM.

5. NJDOT - Pankesh Patel will coordinate with the NJDOT Resident Engineer on the Deck Rehab Project to confirm with contractor that all lanes are open, and they are aware of the December 5th Holiday Parade.

6. Martine Culbertson - to create a form for future use in communicating between the municipalities and the Resident Engineer on any special event updates.

7. Martine Culbertson to draft and distribute meeting report to attendees once approved and will provide meeting notification for future public meetings.

We believe the foregoing to be an accurate summary of discussions and related decisions. We would appreciate notification of exceptions or corrections to the minutes within three (3) working days of receipt. Without notification, these minutes will be considered to be record of fact.

Martine Culbertson
RT72 Facilitator

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE 72 MANAHAWKIN BAY BRIDGES PROJECT
STAFFORD TOWNSHIP AND BOROUGH OF SHIP BOTTOM, OCEAN COUNTY, NJ

Local Officials' Briefing

November 16, 2009

Stafford Township Municipal Bldg, 10:00 a.m. / Borough of Ship Bottom Municipal Bldg, 1:00 p.m.

AGENDA

The purpose of this meeting is to present an overview of project status and schedule; review proposed design elements; describe the environmental documentation process and environmental constraints; and discuss community interests and issues.

I. WELCOME AND INTRODUCTION
- Welcome (Tony Marsella, *NJDOT, Community Relations*)
- Project Status (Pankesh Patel, *NJDOT, Project Manager*)

II. PROJECT PRESENTATION
- Project Overview (Joe Mumber, *PB Americas, Project Manager*)
  - Marsha Drive
  - New Bay Bridge
  - Rehabilitated Trestle Bridges
  - Rehabilitated Bay Bridge
  - Traffic Control During Construction
  - Pedestrian and Bicycle Access - sidewalk continuity
  - Design Project Surveys and Lane Closures
  - Ship Bottom Drainage and Operational Improvements
  - Construction Schedule
- Traffic Engineering (Stewart Gordon, *PB Americas, Traffic Lead Engineer*)
  - Marsha Drive Intersection
  - Roundabout at Bay Avenue and Marsha Drive Intersection
  - Improvements at Route 72 and Bay Avenue Intersection
  - ITS Facilities
  - String of Pearls Lighting
- Environmental Resources (Judy Burton, *PB Americas, Env. Team Lead*)
  - Environmental Documentation
  - Environmental Constraints Mapping and Impacts Quantification
  - Permitting and Mitigation

III. DISCUSSION AND NEXT STEPS
- Community Involvement (Martine Culbertson, *M.A. Culbertson, LLC, Facilitator*)
- Issues and Opportunities - Group Discussion
- Project Schedule and Feedback (Pankesh Patel, *NJDOT, Project Manager*)

MINUTES OF MEETING

Date: August 11, 2009

Time: 9:30 PM

Location: Toms River Yacht Club

Attendees: See Attached Sign-in Sheet

Project: Route 72 Manahawkin Bay Bridges

Purpose

The purpose of the meeting was to present the Route 72 project to the Barnegat Bay Estuary Program's (BBEP) Science and Technical Advisory Committee (STAC) for exploring and defining the range of mitigation options that will likely be required by the permitting agencies. These options may include on-site, some off-site and some payment in lieu of mitigation. The project team is soliciting help in identifying high value sites that may have already been identified by various parties having interest in the Barnegat Bay. The FHWA has encouraged state transportation agencies like the NJDOT to collaborate on watershed need based mitigation opportunities within the administrative limitations of the NEPA/permitting process (see attached meeting agenda).

Project Overview

The project consists of four (4) Route 72 bridges (over Manahawkin Bay, Hilliards Thorofare, West Thorofare and East Thorofare) roadway sections between the structures and the Marsha Drive intersection located in the Township of Stafford and Borough of Ship Bottom, Ocean County, New Jersey. The bridges are structurally deficient due to their deteriorated condition and the Marsha Drive intersection needs capacity and operations improvements. NJDOT-Capital Program Management (CPM) is currently in the Preliminary Design Phase of the Project's Design Development. The team indicated that it is possible that in the near future the project might be expanded to include an ongoing separate project to correct flooding and traffic problems in Ship Bottom.

The overview was conducted using a power point presentation given by Marshall Robert that gave information on project schedule, alternatives, range of impact for resources and the anticipated mitigation requirements. Marshall indicated the need to identify watershed based mitigation that is supported by scientific studies.

Key items of the presentation were:

- Description of the proposed 3 mile long project including a sidewalk from Marsha Drive to LBI
- Anticipate the start of construction in 3 years
- Construction cost is estimated to be $160 million
- An explanation of emergency evacuation needs was provided in response to the need for 4 lanes
- Description of how utilities to north of existing bay bridge affects siting of the proposed new bridge

Discussion items

Some of the issues generated by the audience during and following the presentation included the following:

- Has the project mapped erodible slopes within the project corridor and are living edge alternatives being considered?

- The team considered erodible slopes only within the corridor. There have been some slope failures that are mostly associated with failing bulkheads. These bulkheads are deteriorating and some are too low and are frequently over-washed. Vegetation is lacking behind the bulkheads possibly due to high salt content in the soil.
- What is the status of hydrodynamic mapping to determine the effect of sediment movements around piers?
    - Hydrographic survey of the bay within the project corridor is the only mapping to be performed—there is no component of the project design to determine historical sediment movements at the existing piers.
    - Scour analysis will be performed of the Bay Bridge to evaluate the impacts of the new conditions on the hydrologic and hydraulic characteristics of the bay at the Bay Bridge, to help design scour protection of the abutments if needed.
    - The Bay Bridge abutments are scour critical; however, the piers are not. Scour critical means that additional measures need to be taken to protect the structure from undermining.
    - There will be no impact to the opening for the intra-coastal waterway. Longer spans will be used on the new bridge if possible to reduce impact.
- Is the LBI pump station a part of this project? If so that would be critical to the bay—a pump station associated with Route 35 (Point Pleasant Beach) discharges untreated runoff directly into the ocean beach creating a scour hole. Members of the STAC were particularly concerned with the pump station outfall and the effects on the bay. The team briefly informed the STAC of its limited understanding of the pump station design and it would include:
    - Water discharge at the current location of existing outfalls near a marina at East Thorofare.
    - Re-working design to make system more efficient.
    - Adding roadway/intersection improvements.
- Potential watershed based mitigation opportunities in the estuary include Modicai Island and Flat Island because significant studies have been conducted there.
- The NEPA process can be maximized with the EPA as a cooperating agency.
- The project schedule has only 6 months to accommodate the identification and consideration off site watershed based mitigation options. Afterward, the NJDOT would have to focus on onsite and near site mitigation options that will satisfy NJDEP and USACE mitigation regulations despite having less overall watershed values.
- Mitigation budget, including access to the waterfront was estimated during the Feasibility Assessment phase to be $3-4 million. The actual mitigation will be dependent on actual impacts yet to be designed.
- The State can consider the watershed based mitigation opportunities, only if, the project get full mitigation credit(s) from the environmental agencies.

Since there was no opportunity for follow-up subsequent to the presentation, Marshall Robert contacted Dr. Stan Hales from the BBNEP by phone to coordinate next steps that include:

- BBNEP is interested in considering watershed based needs to help identify and screen mitigation opportunities.

- Stan has already initiated informal conversations with BBNEP partners and has begun to develop a shortlist of opportunities. Some of the ideas include an effort to do the public access where it will give the public the most effective experience. He mentioned that he is interested in collaborating with Steve Atzert of the NWR on this concept.

- The Route 72 project has been included as an agenda item on an upcoming BBNEP executive committee meeting. Stan will send us an agenda so we can keep the NJDOT in the loop (see attached agenda).

- Stan is in conversations with Joe Sweger at NJDOT. Stan asked if the abutments could be pushed back on the existing bay bridges to increase the open span to increase circulation in the bay. Marshall indicated that would not be possible for the existing bridge but is likely on the new bridge.

- Stan envisions presenting a list of promising opportunities put forth by the partners and will include the restoration basis behind them.

- Marshall will follow up with Dr. Hales by August 21, 2009 to get an update.

Action Items:

- STAC will convene a work group to explore opportunities
- STAC to develop initial list of recommended projects and circulate for review
- Marshall Robert will follow-up with Dr. Hales to get status.
- NJDOT is to contact the owners of the pump station in Point Pleasant to get lessons learned.

REVIEW AND COMMENTS OF MINUTES:
We believe the foregoing to be an accurate summary of discussions and related decisions. We would appreciate notification of exceptions or corrections to the minutes within one week of receipt. Without notification, these minutes will be considered to be record of fact.

cc: Attendees
PB Team
File: 52105A-3.0 Meeting Minutes

Meeting Agenda

Meeting Topic:	Route 72 Bridge Replacements Barnegat Bay Estuary Program, STAC Meeting	
Date	Time:	Location:
August 11, 2009	9:30 am	Toms River Yacht Club
Organizers: Mary Judge BBNEP Judy Burton , PB Americas Marshall Robert, Rowbear Consulting, PC		Phone Number: (732) 255-0472 (609) 734- 7012 (609) 571-8381

Discussion

- Project Overview
- Project Schedule
- Project Alternatives
    - Bay Bridge (Main Span)
    - Trestle Bridges (Short spans)
    - Marsha Drive Intersection
    - Ship Bottom Approaches (potential independent project consolidation)
- Identify Impacted Resources
- Anticipated Mitigation Requirements
- Barnegat Bay Watershed Needs
- Potential known Mitigation Opportunities
- Open Discussion
- Action Items

August 11, 2004
SITAC Meeting
Toms River Yacht Club

Sign-In Sheet

Name	Affiliation
Mary Judge	BBNEP
[illegible] Flinden	RCE
Marshall Robert	Rowsbear Consulting, P.C.
Kuldip Singh	SINGH @ PBWORLD.COM
[illegible]	BANEP
BRENDAN K. BROCK	NJDOT E-Team
MICHAEL BORGATTI	MICHAEL.BORGATTI@GMAIL.C
TOM BELTON	NJDEP - OT
Louise Wolfe	Georgian Court
[illegible]	[illegible]
Vinny Turner	U.S.F.W.S. - E.B. Forsythe NWR
Bethany Bearmore	NJMA Edwin Forsythe Center
DAVID FRIEDMAN	OCSCDrors
JOE SWEGER	NJDOT - ENVIR. TEAM
DAVE PALLISEN	BBWEF
Richard C. Kunze	OCUA
Judy Burton	PB Americas, Inc
Scott Ackerman	NJ-DOT - Environmental
Cyndy Kopitsky	EPA
Helen Henderson	Helen@littoralsociety.or
Willie deCamp	Save Barnegat Bay
DAVID ERTLE	OCUA
STEVEN MARS	USFWS - NJFO

fax cc to Marshall

ROUTE 72
MANAHAWKIN
BAY BRIDGES

IMPROVEMENTS
PROJECT
Township of Stafford &
Borough of Ship Bottom
Ocean County, New Jersey

ENVIRONMENTAL AGENCY COORDINATION TEAM MEETING NO. 1 REPORT

DATE: May 19, 2009

TIME: 9:00 a.m. – 11:30 a.m.

LOCATION: NJDOT, E&O Building, Multi-Purpose Room, Trenton, NJ

ATTENDEES:

First Name	Last Name	Representing	Phone	Email
		Agencies		
Rich	Ambrosio	NJDEP, Water Compliance	609-584-4200	richard.ambrosio@dep.state.nj.us
Thomas	Baum	NJDEP, Shellfisheries	609-748-2020	tom.baum@dep.state.nj.us
Brian	Braudis	U.S. Fish and Wildlife Service	609-652-1665	brian_braudis@fws.gov
Michael	Celestino	NJDEP, Fisheries	609-748-2040	mike.celestino@dep.state.nj.us
Kelly	Davis	NJDEP, Lebanon Fisheries Lab	908-236-2118	kelly.davis@dep.state.nj.us
Becky	Ehrenfeld	NJDEP, Roadways & Infrastructure	609-292-8262	becky.ehrenfeld@dep.state.nj.us
Ruth	Foster	NJDEP, Permits and Env Review	609-292-3600	ruth.foster@dep.state.nj.us
Karen	Greene	NOAA, Fisheries Service	732-872-3023	karen.greene@noaa.gov
Melissa	Hornsby	NJDEP, Water Compliance	609-584-4200	melissa.hornsby@dep.state.nj.us
Jonathan	Kinney	NJDEP, State Historic Preservation	609-984-0141	jonathan.kinney@dep.state.nj.us
Ken	Koschek	NJDEP, Permits and Env Review	609-292-2662	ken.koschek@dep.state.nj.us
Kevin	Koslosky	NJDEP, Green Acres	609-292-6579	kevin.koslosky@dep.state.nj.us
JoDale	Legg	NJDEP, Land Use	609-777-0454	jodale.legg@dep.state.nj.us
Nunzio	Merla	FHWA	609-637-4233	nunzio.merla@dot.gov
Charlie	Welch	NJDEP, Roadways & Infrastructure	609-292-8262	charlie.welch@dep.state.nj.us
		NJDOT		
Scott	Ackerman	NJDOT, Environmental Team	609-530-5685	scott.ackerman@dot.state.nj.us
David	Ahdout	NJDOT, Environmental Resources	609-530-2283	david.ahdout@dot.state.nj.us
Brendan	Brock	NJDOT, Environmental Team	609-530-4901	brendan.brock@dot.state.nj.us
Pamela	Garrett	NJDOT, Environmental Resources	609-530-2721	pamela.garrett@dot.state.nj.us
Brenda	Hammer	NJDOT, Landscape Architecture	609-530-5672	brenda.hammer@dot.state.nj.us

Bruce	Hawkinson	NJDOT, Environmental	609-530-4272	bruce.hawkinson@dot.state.nj.us
Dave	Lambert	NJDOT, Project Management	609-530-4235	dave.lambert@dot.state.nj.us
Pankesh	Patel	NJDOT, Project Management	609-530-2367	pankesh.patel@dot.state.nj.us
Sharad	Rana	NJDOT, Project Mgmt.	609-530-2196	sharad.rana@dot.state.nj.us
Joe	Sweger	NJDOT, Environmental Team	609-530-2985	joseph.sweger@dot.state.nj.us
		Consultants		
Paul	Bologna	Montclair State Univ Biology	973-655-4112	bolognap@mail.montclair.edu
Judy	Burton	PB Americas, Inc.	609-734-7012	burtonj@pbworld.com
Martine	Culbertson	M. A. Culbertson, LLC	856-795-8485	maculbertson@verizon.net
Amy	Greene	Amy S. Greene Environmental	908-788-9676	amygreene@amygreene.com
Joseph	Mumber	PB Americas, Inc.	609-734-7071	mumber@pbworld.com
Sharon	Paul Carpenter	Paul Carpenter Associates, Inc.	973-822-8221	sharonpc@pcairnoise.com
Marshall	Robert	Rowbear Consulting, P.C.	609-571-8381	mrobert@rowbearconsulting.com
William	Romaine	Amy S. Greene Environmental	908-788-9676	bromaine@amygreene.com
Kuldip	Singh	PB Americas, Inc.	609-734-7025	singh@pbworld.com
Tim	Wilson	Arora and Associates, P.C.	609-844-1111	twilson@arorapc.com
Eric	Yermack	Arora and Associates, P.C.	609-844-1111	eyermack@arorapc.com

PURPOSE OF MEETING

To present the project status and schedule; to address environmental compliance and mitigation efforts for EA and preliminary design (PD) phase; to discuss permitting procedures, restrictions and timing; and to establish an Environmental Control Team needed for this project. (Agenda attached)

MEETING SUMMARY

1. Martine Culbertson, Facilitator, welcomed everyone to the meeting and after introductions, reviewed the agenda and the project information contained in the project portfolios.
(a) The blue list contains contact information for members of the project team including NJDOT support staff, sub-consultants, and PB support staff.
(b) The green list contains contact information for the environmental agencies involved in this project.
(c) Meeting reports and updated contact lists will be distributed via email.
(d) Martine then asked participants to note on the blue index cards if they are the key representative from their agency and to add any additional representatives or agency, which should be included. The white index cards were available to note any issues during the presentation for assistance during the discussion period and to be collected at the end of the meeting. The yellow index cards were available for other comments or questions.

2. Pankesh Patel, NJDOT Project Manager, provided the project overview. He noted the importance of this improvements project to replace the deteriorated structural elements and recognized that it is the only access to and from Long Beach Island. There is one contract for the design, however there will be four contract phases for construction:

(1) Improvements to Marsha Drive and the Bay Bridge structural rehabilitation
(2) New parallel bridge to be constructed
(3) Rehab of the trestle bridges
(4) Final Rehab of the Existing Bay Bridge

The Feasibility Assessment phase is complete and the project is currently in the Environmental Assessment and Preliminary Design phase. During FA, the CED process was approved by FHWA, however NJDOT has decided to conduct an EA given the environmental resources involved.

3. Joe Mumber, PB Project Manager, presented information on the project schedule, the draft purpose and need statement, goals and objectives for the project, details on the deficiencies and the alternatives studied to date. The power point presentation was distributed in hard copy at the meeting. It will be made into a pdf file and distributed via email for review and reference.

4. Judy Burton, PB Environmental Team Leader, provided information on the environmental constraints, indicating the environmentally sensitive areas with the project limits. She also noted the permitting procedures graphically showing the timing restrictions. The images and information shown in the power point presentation will be available for viewing on the pdf file.

5. Marshall Robert, Environmental Team Coordinator from Rowbear Consulting, P.C., presented information on the mitigation challenges and opportunities. He noted the on site mitigation limitations and the possible off site opportunities with the National Wildlife refuge and the Barnegat Bay National Estuary Program as well as the NJ Land Trust Program. This project may pose an opportunity for collaboration on the NEPA process and permit commitments. An article entitled, "Working Together to Build a Better Environment, Plowed Terracing Technique to Reduce Erosion from Wave Impacts" was distributed at the meeting as an example from FHWA of a new form of collaborative partnering between agencies used to mitigate transportation impacts effectively providing benefit for State regulatory agencies and meeting permitting requirements.

6. The meeting was then opened for discussion and comment. The comments were noted and are listed under the topics: the review process, the project goals, draft purpose and need statement and the mitigation requirements for EA and E-Team objectives. The following comments were noted:

<u>Environmental Resources/Agency Review Comments</u>

- Essential Fish Habitats
  - Winter flounder
  - Impacts on Hard Clam
  - SAVs
  - Some impacts must be mitigated on-site

- Watershed may have opportunity for offsite, but other aspects must be done on site

- Discussion for Means and Methods is needed
  - Technical Review
  - Regulations and Limitations

- Mitigation of Federal Property - limited under NJDEP rules (freshwater)

- Restoration of land has been done and then donated to National Wildlife Refuge

• Possible to acquire right-of-way funds to use for local or regional programs as part of habitat restoration (mitigation)

• Construction techniques should be considered as part of write up for EA document
  - use of Environmental Plan Sheets (example RT18F)
  - discussion of techniques within EA, not restrictions or details

• Use as model - the Route 52 Causeway Replacement Project
  - the coordination with the community early on for support
  - on-going discussions with review agencies

• Mitigation discussions should be up front in preparation of the EA

• E-Team meet early to discuss mitigation options and changes in regulations

• Stormwater drainage, water quality, flood hazard are important considerations
  - also have early on discussion of issues
  - non-point turbidity / brown tide

• Fish / shell fisheries / habitat
  - early discussion of issues for on-site mitigation

• Must mitigate Riparian Buffer Zone, temporary permit

• Army Corps has new mitigation plan for permits - should be included in discussion

• 2005/2006 SHPO recorded "no consultation required", now that it is 2009 and the bridge structure is past the 50 years old mark, what is the status of the cultural resource requirements
  - SHPO to review documentation to make determination
  - review prior survey work on file

• In completion of the FA, FHWA would allow NJDOT to follow a CED process, however NJDOT has decided to conduct an EA; as such, the EA documentation for this project should be concise and not filled with regulations but will reference other regulatory and support documents

• Alternative Technologies to be considered in EA
  - solar panels, heat elements, improve utility and augment supply
  - Brigantine Estuary Program

• Public Access and Enhancements
  - Fishing and Crabbing
  - Add access on Cedar Bonnet Island
  - NJDOT Maintenance installed guardrails limiting access

• Keep NJDOT Maintenance in the loop and coordinate with them on access issues
  - Add Department representation to the NJDOT support contact list

Comments on GOALS & OBJECTIVES

- Last bullet - use terminology "Particulars"

- First bullet - Add after Natural, "and Cultural"
  - EA will breakdown discussions on Natural and Cultural Resources

- Bullet #8 - Add to Target statement, "and to Offset Project Impacts"

- Bullet #5 - Add to end of statement ", Public Access to the Waterfront"

- Consider adding two other bullets,
  - Support from local officials of LBI communities
  - Provide safety improvements for motorists, pedestrians and cyclists

Other EA or E-Team Comments

- Charlie Welch will send copy of NJDEP land use rules (to Judy Burton)

- Freshwater/Coastal Regulations under review - need to clarify options (JoDale Legg to assist)

- Army Corps - new process and possible changes in regulation (Mike Hayduk to assist)

- Manahawkin Bay Bridge is a fracture critical bridge
  - Project Need does indicate structurally deficient elements
  - Consider adding additional text to bullet or in the EA documentation to indicate need for structural redundancy or use of additional support structure to existing bridge and a reason to support building of new parallel structure

- Ship Bottom drainage project is on an indefinite hold due to high design cost and limited funding

- Ship Bottom recently added two new stop signs once entering the Borough of Ship Bottom, which may cause back-ups or safety concerns on Route 72 (NJDOT and PB to examine)

Summary & Feedback Comments

- Importance of bike and pedestrian access
- Green Acres - detailed process, identify properties and impact on Marsha Drive
- Clarify mitigation options - NJDEP identify what is ruled out
- Wildlife and Endangered Species determination and part of EA
- Interest in obtaining any disposal of any concrete material (for artificial reef creation)

- Determine if surveys were done regarding cultural resource requirements
- Environmental studies to be done by end of second to third week of June
- Provide map revisions
- Riparian Grants needed
- Stormwater Management + + +
- Public Information Center to be held when
- Conduct dialogue with local officials - provide briefing when information ready from studies and the new administration is in place
- Need for CAD file of Tidelands - contact NJDEP Ken Ratzman
- Consider appropriate coordination with Resource Protection Non-Profit organization - consult with Land Trust Program representative
- Project does lie within the Pinelands National Reserve, but not in the Pinelands Commission review zone, however they are is a commenting agency - add to the agency contact list

7. In summary, Martine reviewed the next steps and action items as listed below. She noted that the E-Team Leader and point person is Judy Burton for providing any information or have any questions concerning environmental items. Martine collected the blue index cards (stakeholder info) and white (issues) index cards. (*The issues collected on the white index cards are transcribed as an attachment to this meeting report.*) The meeting minutes, updated contact information, and power point presentation pdf file will be distributed via email.

8. In closing, Pankesh Patel thanked everyone for their participation. Meeting adjourned at 11:45 a.m.

KEY ACTION ITEMS / NEXT STEPS

1. Project Schedule and Timing Restrictions will provided in color and 8 ½ x 11 as a pdf file so easier to read and can be printed out and placed in project portfolio. (MAC)

2. The power point presentation will be provided in pdf format for review and printing as needed. (PB)

3. Meeting logistics were discussed for next Environmental Control Team Meeting - discussions needed soon, before summer vacations and for ample time to meet again in the fall prior to the draft EA. It was agreed to meet at the NJDEP office on Tuesday, June 23, 2009 (Charlie and JoDale to assist in reserving meeting room) (MAC-will send notice)

4. Send regulations and new rules to Judy Burton, E-Team Project Leader. (Welch/Legg/All)

5. For next E-Team meeting, Environmental Constraint Maps should be prepared for the mitigation discussion. (PB/Amy Greene/LGA)

6. For next E-Team meeting, agenda items: are mitigation, essential fish habitat impacts, and stormwater management. (PB/E-Team)

7. SHPO to review bridge survey and cultural resource status. (Kinney/PB/NJDOT)

8. PB would like to obtain CAD files for Tidelands (PB to contact Ken Ratzman, NJDEP)

9. Add Pinelands Commission representative to the Environmental Agency list and NJDOT Maintenance to the Project Team NJDOT Support Staff list. (MAC)

10. Meeting minutes and next E-Team meeting notification to be sent via email. Project Portfolios will be mailed to those agency representatives who were unable to attend or send an alternate. (MAC)

NEXT MEETING - Environmental Team Meeting No. 2

Date: Tuesday, June 23, 2009

Time: 9:00 am - Noon (*to be confirmed*)

Location: NJDEP Land Use, Conference Room, Trenton, NJ (*to be confirmed*)

We believe the foregoing to be an accurate summary of discussions and related decisions. We would appreciate notification of exceptions or corrections to the minutes within three (3) working days of receipt. Without notification, these minutes will be considered to be record of fact.

Martine Culbertson
RT72 Facilitator

ENVIRONMENTAL AGENCY COORDINATION
MEETING NO. 1

AGENDA

Tuesday, May 19, 2009
NJDOT E&O Building, Multi-Purpose Room, Trenton, NJ
9:00 a.m. – 11:30 a.m.

Objective: To present the project status and schedule; to address environmental compliance and mitigation efforts for EA and preliminary design (PD) phase; to discuss permitting procedures, restrictions and timing; and to establish an Environmental Control Team needed for this project.

9:00 a.m. I. Welcome and Introductions

- Agenda and Goals
- Project Overview

9:30 a.m. II. Environmental Agency Coordination Items

- Project Status and Schedule
- Draft Purpose and Need Statement
- RT 72 Bridges and Marsha Drive Improvements
- Environmental Constraints - FA and EA
- Permitting Procedures
  - *Restrictions and Timing*
- Manahawkin Bay Resource Limitations
  - *Mitigation and NEPA Process*

10:15 a.m. Discussion Items

- Environmental Resources/Agency Review Issues
- Environmental Control Team Objectives/Goals

11:00 a.m. III. Summary and Close

- Action Items / Next Steps
- Closing Comments

ROUTE 72 MANAHAWKIN BAY BRIDGES IMPROVEMENTS PROJECT
Township of Stafford & Borough of Ship Bottom, Ocean County

ENVIRONMENTAL AGENCY COORDINATION MEETNG NO. 1
REPORT ATTACHMENT NO. 1
ISSUES (*White Index Cards*)

Will initial conclusion from SHPO still hold or will a new evaluation need to be done?

Will the "String of Pearls" have LED lights?

Opportunities for alternative energy (solar panel to heat roadway, wind turbine, etc…)?

Wind Turbine Projects – Dr. MAS from NJIT has had some work with these ideas.

-Scott Ackerman, NJDOT Environmental Team

NMFS

Issues – EFH, SAV mitigation must offset impacts

Should review new Federal mitigation rules published in 2008.

Note – BBEP and JCNERR are not environmental regulatory agencies.

-Karen Greene, NOAA

In assessing impacts to shellfish and SAV habitat it is important to include historically mapped areas as being impacted (and not just the foot print of shellfish or SAV encountered during the TES). (See definitions of habitat at NJAC 7:76 -3.2 and NJAC 7.7E – 3.6).

- Mike Celestino, NJDEP, Bureau of Shell Fisheries, Div. Fish & Wildlife

---

For project correspondence include NJDOT's Bicycle / Pedestrian Office.

- Elise Bremer-Nei, NJDOT Bike-Ped

I am new to the project and need to go back and review previous cultural resource reports that were conducted for this project.

If the bridges, which are now 50+ years old, were not surveyed for historic register eligibility, they will need to be. Call me to discuss 609-984-0141.

Jonathan Kinney – NJDEP, NJ State Historic Preservation Office

---

Sidewalk location on south side will allow opportunities for easy water access via Edwin B. Forsythe National Wildlife Refuge. See proposal handout.*

Bonnet Island is an old dredge spoil site and if fill is needed, this is a potential source.

Please continue communicating with Refuge staff; we appreciate your efforts.

- *Brian Braudis, Edwin B. Forsythe National Wildlife Refuge*

A suggestion: Pedestrian & Bicycle Connectivity.

The connectivity aspect is paramount when there are potential recreational opportunities on Bonnet Island given constraints of parking. A majority of the public that would use the Island are locals looking for a recreational outlet.

- *Brian Braudis, Edwin B. Forsythe National Wildlife Refuge*

---

* *Bonnett Island Proposal Handout was scanned and included with this Report Attachment.*