

## **APPENDIX L**

### **PERTINENT CORRESPONDENCE**

#### **FIRE ISLAND TO MONTAUK POINT REFORMULATION STUDY**

**MEMORANDUM OF UNDERSTANDING**  
**between the**  
**THE UNITED STATES ARMY**  
**and**  
**THE DEPARTMENT OF THE INTERIOR**

**I. PURPOSE**

The purpose of this Memorandum of Understanding (MOU) is to provide a foundation for collaboration between the United States Army (Army), represented by the United States Army Corps of Engineers (Corps) and the Department of the Interior (DOI), for purposes of developing a plan that is mutually acceptable for hurricane and storm damage reduction, including identifying and evaluating natural and nature-based measures that contribute to coastal storm damage risk reduction, in the general reformulation study for the Fire Island to Montauk Point, New York project (FIMP).

**II. BACKGROUND**

The Corps and DOI stipulate that:

- A. Congress authorized the FIMP for beach erosion control and hurricane protection in section 101 of the Rivers and Harbors Act of 1960, Public Law 86-645;
- B. Section 8 of the Act establishing the Fire Island National Seashore, Public Law 88-587 directed that the authority of the Corps to undertake or contribute to shore erosion control or beach protection measures on lands within the Fire Island National Seashore lands shall be exercised in accordance with a plan that is mutually acceptable to the Secretary of the Army and the Secretary of the Interior;
- C. The Corps initiated a reformulation study of the FIMP in 1980;
- D. In 2004, the Corps, DOI, and other partners adopted a Vision Statement for the reformulation study that acknowledged a preference for measures that protect and enhance natural processes and minimize adverse environmental impacts;
- E. In 2011, the Corps in consultation with the DOI developed a Tentatively Federally Selected Plan in the FIMP reformulation study that included a combination of soft structural, nonstructural, and nature based solutions as well as monitoring and adaptive management components to address uncertainties;
- F. In 2012, Hurricane Sandy damaged portions of the FIMP project area, increasing risk and vulnerability of coastal developments in the project area to flooding; and,
- G. Congress provided funding in the Disaster Relief Appropriations Act of 2013, Public Law 113-2 to reduce future flood risk in ways that will support the long-term

sustainability of the coastal ecosystem and communities and reduce the economic costs and risks associated with large-scale flood and storm events.

### **III. MUTUAL AGREEMENTS**

Building upon previous collaboration efforts such as the Vision Statement and the Tentatively Federally Selected Plan, and, subject to applicable federal laws, regulations, guidance, policy and the NEPA public review process, the Corps and DOI mutually agree to collaboratively:

- Identify natural and nature based measures that may contribute to hurricane and storm damage reduction in the FIMP study area;
- Investigate modeling tools to quantify the contribution of natural and nature-based measures to hurricane and storm damage reduction in the FIMP study area;
- To the extent possible, formulate all hurricane and storm damage reduction measures and alternatives in a manner that avoids or minimizes adverse environmental impacts;
- Develop project monitoring protocol with the goal of assessing, and adaptively managing, project impacts and performance;
- Take into account potential changing conditions, including sea level rise and the dynamic nature of the FIMP study area, over the period of analysis when formulating all hurricane and storm damage reduction measures and alternatives; and
- Formulate land use management measures and evaluate their contributions to long-term risk reduction.

### **IV. GENERAL PRINCIPLES**

- A. This MOU is intended only to outline areas of cooperation between the Corps and DOI necessary to allow for effective project implementation, and is not intended to create any right or benefit, substantive or procedural, enforceable at law by any party against the United States, its agencies, its officers, or any person.
- B. This MOU is neither a fiscal nor funds obligation document. Any endeavor involving reimbursement or contribution of funds between the parties to the MOU will be handled in accordance with applicable laws, regulations, and procedures.
- C. The Corps and the DOI intend to conduct the activities contemplated in this agreement in accordance with existing authorities. If any of the provisions of this MOU are determined to be inconsistent with existing laws, policies, regulations or directives governing the parties, then the provisions of this MOU not affected by a finding of inconsistency shall remain in full force and effect.
- D. The parties to this MOU shall meet on a quarterly basis (in person or via conference call) to review the implementation of this MOU until the GRR/EIS for the FIMP project is completed.

- E. This MOU may be modified as necessary, by mutual agreement of both parties, by a written amendment signed and dated by an authorized representative of each party.
- F. Either party may terminate this MOU by providing 45 days written notice to the other. Otherwise this MOU will remain in force through completion of the GRR/EIS for the FIMP project and during the period of initial construction of the project.

V. **POINTS OF CONTACT.** The following individuals will be the points of contact for this MOU:

**CORPS**

Mr. Joe Vietri  
Chief, Planning and Policy, North Atlantic Division  
Building 301, General Lee Avenue  
Fort Hamilton Military Community  
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Joseph.R.Vietri@usace.army.mil  
917-613-3873

**FISH AND WILDLIFE SERVICE**

Mr. David Stilwell  
Field Supervisor, New York Field Office  
U.S. Fish and Wildlife Service  
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**NATIONAL PARK SERVICE**

K. Christopher Soller, Superintendent  
Fire Island National Seashore  
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631-687-4752

Mary Foley, Regional Chief Scientist  
Northeast Region  
National Park Service  
15 State St.  
Boston, MA 02109  
617-223-5024

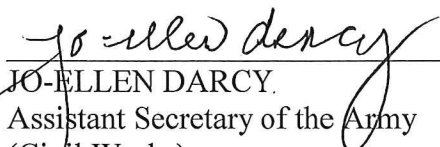
**USGS**

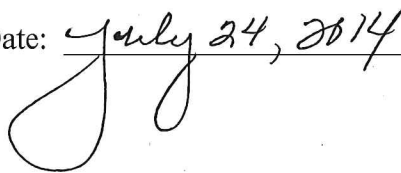
Walter Barnhardt  
Center Director, Woods Hole Coastal and Marine Science Center  
384 Woods Hole Road

Woods Hole, MA 02543  
[wbarnhardt@usgs.gov](mailto:wbarnhardt@usgs.gov)  
508-457-2211

VI. **EFFECTIVE DATE.** The parties have executed this MOU as of the last date written below

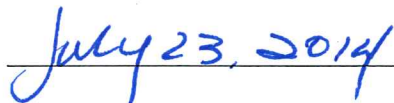
U.S. ARMY

  
JO-ELLEN DARCY  
Assistant Secretary of the Army  
(Civil Works)

Date: 

Department of the Interior

  
RACHEL JACOBSON  
Acting Assistant Secretary for  
Fish, Wildlife and Parks

Date: 



# New York State Department of Environmental Conservation

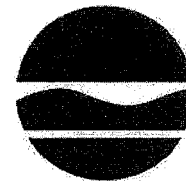
## Assistant Commissioner

Office of Water Resources, 14<sup>th</sup> Floor

625 Broadway, Albany, New York 12233-1010

Phone: (518) 402-2794 • FAX: (518) 402-8541

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Alexander B. Grannis  
Commissioner

February 26, 2009

Colonel Aniello L. Tortora  
Commander and District Engineer  
Department of the Army  
Corps of Engineers, New York District  
26 Federal Plaza  
New York, New York 10278-0090

Re: Fire Island Inlet to Montauk Point Reformulation Study

Dear Colonel Tortora:

After careful consideration of extensive information provided by your office and subsequent technical dialogues, and after consultation with the New York State Department of State, it is my pleasure to report that New York State Department of Environmental Conservation (DEC) formally supports the further development of the "National Economic Development/National Ecosystem Restoration Plan" (Plan) for the Fire Island Inlet to Montauk Point project.

DEC's understanding of the next phase of the process is that the Army Corps of Engineers will now develop and issue a draft General Reevaluation Report (GRR) and Draft Environmental Impact Statement (DEIS) based on the Plan. After technical and peer review, the Corps will release the draft GRR/DEIS for public review and will follow the various National Environmental Policy Act requirements. The Corps will then finalize the GRR/EIS, which will be a central basis for decision-making on project attribute refinements and possible project implementation. It is the DEC's understanding that no further authorizations are needed from New York State to proceed to the next step of the process.

DEC recognizes that the Corps criteria and programs are evolving. This is embodied in the Corps' "12 Actions for Change" that grew out of experiences associated with the tropical season of 2005. Moreover, the Corps is actively in the process of reviewing and revising its 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, pursuant to federal law. In this regard, New York State remains particularly interested in working with the Corps on the complex issues associated with sea level rise and heightened storm surge intensity associated with climate change as the DEIS and reevaluation process goes forward. Climate change makes all the more necessary the monitoring, modeling and long-term adaptive management concepts discussed to date.

New York agrees that the first choice in any project implementation is to achieve critical goals in a manner that comports with, or maintains, natural processes and eco-systems. Coastal wetland habitats, for example, are vital to the environment and the economy. Next, what has been termed "non-structural" measures are the preferred option to limit risk of harm to human health and property. Structural methods, of course, are viewed as the least-preferred option, with "soft" (or sand only) options strongly favored over hard structural measures.

Numerous safety reports and studies have recommended that, in general, development be directed away from near-coast and coastal flood plain areas. The implementation of intelligent land use policy and regulations, over the long-term, will be a critical component of any true solution that helps to prevent even more individuals from living in danger zones and flood plains. The Corps' expressed intention to examine state and local land use policy and issues within the reevaluation report and DEIS is welcome; this will provide critical information on a full range of problem solving options.

Indeed, any real solution must involve a broad dialogue among numerous stakeholders built upon high-quality scientific evaluations. Effective implementation of any solution will by necessity involve a partnership between local, federal and state governments.

As we go forward, DEC encourages the Corps to effectively communicate risk – to endeavor to make "real" the existing and growing vulnerability of coastal communities and eco-systems. In addition, we strongly encourage the Corps to remain cognizant of the State Coastal Management Program and Policies, in partnership with the New York State Department of State.

We look forward to the Corps considering and addressing these areas of mutual concern during the NEPA and reevaluation process.

DEC remains concerned that Corps technical and planning staff may be constrained by 25-year old principles and guidelines. It is our hope that, when the Corps completes the revision specified by the 2007 Water Resources Development Act amendments, modern-day considerations will be more effectively included in project formulation and economic valuation. There are many public benefits to our coastal resources that do not correlate to a specific economic market (or dollar price) valuation system. Somehow, we must find a way to effectively "value" such intangibles as we proceed.

Again, thank you for all the cooperation and consideration you have extended to New York State. If I can be of any assistance, please do not hesitate to contact me directly.

Sincerely,



James M. Tierney

cc: General Semonite  
Commissioner Grannis



DEPARTMENT OF THE ARMY  
NEW YORK DISTRICT, CORPS OF ENGINEERS  
JACOB K. JAVITS FEDERAL BUILDING  
NEW YORK, N.Y. 10278-0090

REPLY TO  
ATTENTION OF

Planning Division

March 30, 2009

James Tierney, Assistant Commissioner  
New York State Department of Environmental Conservation  
Office of Water Resources  
625 Broadway  
Albany, New York 12233-1010

Dear Mr. Tierney:

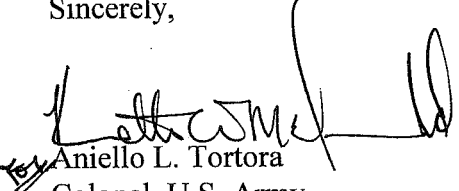
I am writing in reference to your February 26, 2009 letter regarding the Fire Island Inlet to Montauk Point, N.Y. Reformation Study. Thank you for clarifying that the NED/NER Plan is supported by the State of New York. Your letter identified several key issues that we agree are important and need to be addressed in the Reformulation Study. These include:

- 1) accounting for issues related to climate change and sea level rise,
- 2) addressing monitoring, modeling, and long-term adaptive management for the project,
- 3) examination of local land use policies, issues, and alternatives to address these issues,
- 4) the need to effectively communicate risk, and,
- 5) limitations in our Principles and Guidelines, and the need to evaluate the intangible aspects of plans that do not translate to economic valuation through direct measurement techniques.

We are currently addressing each of the items listed above in the Reformulation Study. In order to ensure that there is a common understanding of how these items are to be addressed, we would like to meet with you and your staff as soon as possible. We would also like to discuss the process and schedule for completion of the final report. Mr. Stephen Couch, Chief, Coastal Section will be contacting Mr. Mike Stankiewicz of your office to arrange this meeting.

I appreciate the leadership you have provided in solidifying the State's position. I believe that with this direction we can make a concentrated effort which will allow us to complete this important study. Please contact me at (917) 790-8000, or Mr. Couch at (917) 790-8707 if you have any questions.

Sincerely,

  
Aniello L. Tortora  
Colonel, U.S. Army  
District Engineer

cc:

General Semonite, Corps of Engineers  
Commissioner Grannis, NYSDEC





DEPARTMENT OF THE ARMY  
NEW YORK DISTRICT, CORPS OF ENGINEERS  
JACOB K. JAVITS FEDERAL BUILDING  
NEW YORK, N.Y. 10278-0090

REPLY TO  
ATTENTION OF

Planning Division

June 3, 2009

James Tierney, Assistant Commissioner  
New York State Department of Environmental Conservation  
Office of Water Resources  
625 Broadway  
Albany, New York 12233-1010

Dear Mr. Tierney:

I am writing in reference to the Fire Island Inlet to Montauk Point, New York, Reformulation Study. Based upon our meeting held with representatives of NYSDEC and NYSDOS on April 21, 2009, we have confirmed that the State of New York is supportive of the current NED/NER plan elements, which include inlet bypassing, mainland non-structural improvements and road raisings, barrier island beachfill placement with nourishments, and an overall breach response plan.

It was agreed at this meeting that the next step required for moving this study forward is to complete the Draft General Reevaluation Report (GRR) and Environmental Impact Statement (EIS) as quickly as possible to allow the start of the public review process. In order to initiate the completion of the Draft GRR and EIS, we are providing you with the Draft Formulation Report (dated May 2009) for your final review, in order to ensure that we have addressed your concerns and have your full support of the alternatives analyses and the identified recommended plan of improvement.

The Draft Formulation Report addresses many of the concerns previously raised by the State of New York and Department of Interior (DOI), and significantly expands upon the previously reviewed November 2006 report. This new report includes background information on the physical, social, environmental, and cultural conditions; presents full alternatives analysis detail; integrates the Vision statement into the development and evaluation of alternatives; and identifies the plan of improvement that best balances the objectives of Storm Damage Reduction and Habitat Restoration while achieving the Vision objectives.

Presently, this draft report is only intended for internal review by the State of New York and DOI, so it should not be released outside of your agency at this time.

In order to advance this study towards the public release of the Draft GRR and EIS, I am requesting that you complete your final review of the Draft Formulation Report by 15 July 2009 in order to maintain the overall project schedule. We will be scheduling a coordination meeting with the State and DOI for later this month in order to discuss any outstanding issues and questions you may still have.

If you have any questions, please contact Mr. Frank Verga, Project Manager, at (917) 790-8212, or Mr. Stephen Couch, Chief, Coastal Section, at (917) 790-8707.

Sincerely,

Handwritten signature of Thomas J. Hudson in black ink.

for Frank Santomauro, P.E.  
Chief, Planning Division

CC:

Mike Stankiewicz (NYSDEC)  
Fred Anders (NYSDOS)  
Peter Scully (NYSDEC, Region I)  
Eric Star (NYSDEC, Region I)  
Bob McIntosh (NPS)  
Mary Foley (NPS)  
Chris Soller (NPS-FIIS)  
Andrew Raddant (DOI-OEPC)  
David Stilwell (USFWS)



DEPARTMENT OF THE ARMY  
NEW YORK DISTRICT, CORPS OF ENGINEERS  
JACOB K. JAVITS FEDERAL BUILDING  
NEW YORK, N.Y. 10278-0090

REPLY TO  
ATTENTION OF

Planning Division

October 9, 2009

Mr. Mike Stankiewicz  
New York State Department of Environmental Conservation  
Flood Protection Bureau  
625 Broadway  
Albany, NY 12233-3507

Dear Mr. Stankiewicz:

This is in reference to your September 15, 2009 email that provided consolidated State and County comments on the Draft Formulation Report (dated May 2009) for the Fire Island Inlet to Montauk Point, New York Reformulation Study.

Attached is a response to your comments. We are now proceeding with the preparation of a GRR and EIS. In conjunction with this effort, the District intends to distribute the Formulation Report results to the various towns, interested agencies, etc. as the basis for conducting public information sessions, necessary to inform the public of the current status of the plan of improvement alternative analyses completed to date.

We are aware that New York State supports the further development of the NED/NER Plan. It is our belief that with the changes made to the report to address your comments, and changes made to address comments received from the Department of the Interior, we will have addressed all requests for further development.

If you have any questions, feel free to contact Mr. Frank Verga, Project Manager, at 917-790-8212, or Mr. Stephen Couch, Chief, Coastal Section, at 917-790-8707.

Sincerely,

*for Thomas J. Hodson*  
Frank Santomauro, P.E.  
Chief, Planning Division

CC:

Jim Tierney (NYSDEC)  
Fred Anders (NYSDOS)  
Peter Scully (NYSDEC, Region I)  
Eric Star (NYSDEC, Region I)



# United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
408 Atlantic Avenue – Room 142  
Boston, Massachusetts 02210-3334



June 3, 2008

Colonel Aniello L. Tortora  
District Engineer, New York District  
U.S. Army Corps of Engineers  
26 Federal Plaza  
New York, NY 10278-0090

Dear Colonel Tortora:

We are writing in response to your request of February 11, 2008, that the Department of the Interior (the Department) provide “agency recommendations for a mutually acceptable storm damage reduction plan.” The Department has been actively engaged in efforts directly or indirectly related to the Fire Island to Montauk Point Storm Damage Reduction Reformulation Plan (FIMP) for over 40 years. Bureaus within the Department involved with FIMP have included representation by the Office of Environmental Policy and Compliance (OEPC), the National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), U.S. Geological Survey (USGS), and the Solicitor’s Office.

The Department is participating in this effort under the authority of a number of statutes and policies including the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) (NEPA); the enabling legislation for the Fire Island National Seashore (Public Law 88-587, September 11, 1964, 78 Stat. 928, 16 U.S.C. §459e *et seq.*) (the Seashore); the Migratory Bird Treaty Act (16 U.S.C. 703 – 712 *et seq.*), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) (FWCA); the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA); and, among other National Park Service directives, the National Park Service Management Policies, 2006.

The purpose of these comments is to assist with the effort initiated by the United States Army Corps of Engineers (USACE or the Corps) in the development of an alternative which could be mutually supported by all of the key state and federal agencies involved with this effort. Any such alternative would be evaluated and presented for wider public review and comment as a part of the on-going NEPA process.

## **Plan Formulation - Draft Formulation Report**

The FIMP Executive Summary, Draft Formulation Report (DFR) was provided to us in late December, 2006. While its stated purpose is to provide a summary of the available alternatives, the DFR primarily describes traditional construction and maintenance activities with relatively less information on other alternatives. The DFR was to provide project stakeholders with a basis for having a common understanding of the alternatives that are available to reduce the impacts of storms on human life and property, and the relative effectiveness of these alternatives in the study objectives. Some additional supporting information used to develop the DFR has been provided over the past year. However, other supporting information, including the full draft formulation report, and the economic evaluation, remain withheld.

The objective of water resources project planning, we understand, is to contribute to national economic development (NED), but it must be “consistent with protecting the nation’s environment, pursuant to national environmental statutes, applicable executive orders, and other federal planning requirements as contained in Engineering Regulation 1105-2-100.” (DFR, Page 46) Further, the DFR describes how the FIMP planning process was “integrated in to a ‘Vision Statement for the Reformulation Study’ ... has been coordinated with project stakeholders, and within the Corps and has been approved as the framework for moving forward with a new approach to address storm damages.” (DFR page 47) On page 50, the DFR states: “changed planning considerations dictate that the current emphasis be ....to strive for a more complete and accurate view of flood risk. Full emphasis is now being placed on reducing risk to life property, health, safety, social well-being and the environment in a more integrated, comprehensive and systems-based approach.”

We fully concur with such an approach. But, we find that the DFR neither reflects the FIMP “Vision Statement” nor a “more integrated, comprehensive and systems-based approach.” The “Vision Statement” was developed through a collaborative, multi-agency effort *initiated by the Corps* in 2004. This text was endorsed by the Department’s Deputy Assistant Secretary of the Interior for Fish, Wildlife and Parks in 2005. The fundamental framework set forth in the Vision Statement, emphasizing the restoration of natural coastal processes and the reduction of risks through non-structural measures, was reinforced by the Assistant Secretary of the Army for Civil Works during his visit to the Seashore this April.

Since the distribution of the DFR, the Department has provided you and your staff, the Executive Steering Committee (ESC), and other agency representatives with feedback on the DFR and supportable approaches for the FIMP. The considerable effort of the Department team has been directed towards expanding the limited scope of alternatives presented in the DFR with an array of environmentally sustainable alternatives and strategies that reduce the risk of storm damage and are consistent with Department mission and policies. We have also raised pertinent science based issues that should be integrated into USACE project planning.

The USFWS has provided technical assistance directly to the Corps under the FWCA and the ESA as well as written comments on the DFR<sup>1</sup>. The Seashore has provided written comments on the Habitat Evaluation Procedures (HEP).<sup>2</sup> Information has also been conveyed through presentations, bulleted summaries, multiple informal working texts and memoranda, as well as during innumerable meetings, teleconferences, and negotiations.

As you are aware, negotiations among the interagency FIMP partners (including USACE, New York State, Suffolk County, the Department, and at times with Federal Emergency Management

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<sup>1</sup> Since 2006, the USFWS has provided a number of technical assistance documents, including: a FWCA planning aid letter making recommendations for project environmental features including habitat enhancement and restoration, identifying restoration options within the project area which we had discussed with land managers/owners, (approximately 37 sites) (October 6, 2004); formal comments on the Draft Executive Summary Formulation Report (July 9, 2007, and September 13, 2007); formal comments on the Habitat Evaluation Procedure developed for the FIMP (July 7, 2006); a planning aid letter which lays out the first parts of the 2(b) report, (principally a description of the affected environment, including the materials originally provided on October 6, 2004 identifying restoration options within the project area); a letter provided on October 12, 2007 expressing concerns that the Interagency Reformulation Group had not yet discussed project environmental impacts, (December 31, 2007); a follow-up document to our description of affected environment, describing goals for compensatory mitigation and our justification for such recommendations, (February 25, 2008); a letter conveying our recommendations for listed species conservation measures by way of listed/candidate species habitat enhancement and restoration, (February 13, 2008); and another round of comments on a draft listed species management plan for the project action area, to ensure protection of listed species from recreational activities for the life of the project (conveyed via email, May 9, 2008).

<sup>2</sup> Comment letters of July 10, 2006 and January 23, 2008.

Agency (FEMA) and other federal agencies) continues at a high level of involvement. We will refer to these agencies' field representatives as "the FIMP team."

Collectively the FIMP team has been working to develop a "mutually acceptable alternative" integrating approaches supportable by the State of New York, recent environmental initiatives of the Corps, and policies for management of national parks, as well as the other pertinent laws cited above, including the ESA. We have recently received the April 8 letter and comments provided by Mr. James Tierney, Assistant Commissioner, New York Department of Environmental Conservation. His letter reflects areas of common concern, unaddressed questions, and similar policies to those of the Department, and highlights areas that need more detailed evaluation by the FIMP team.

Underlying the challenges of FIMP are multiple State and Federal statutory requirements which must be integrated and phased to effectively implement a sustainable and effective plan. We are using the term "multi-mission" project to recognize that the authorizations or programs of multiple agencies apply to this project. Several federal and state legislative directives already define the project purposes and the FIMP team contemplates that some adjustments to current authorizations for the Corps, the Seashore, state and local agencies will be needed.

As you are aware, in 1964, merely four years after Congress first authorized the predecessor to FIMP, it addressed this project in the Seashore's enabling legislation:

"The authority of the Chief of Engineers, Department of the Army, to undertake or contribute to shore erosion control or beach protection measures on lands within the Fire Island National Seashore shall be exercised *in accordance with a plan that is mutually acceptable* to the Secretary of the Interior and the Secretary of the Army *and that is consistent with the purposes of sections 459e to 459e-9 of this title.*" 16 U.S.C. §459e-7(a) [Emphasis added.]

Thus representatives of the National Park Service and the Seashore have participated extensively assisting the FIMP team understand the purposes of the Seashore and national park policies and laws. The primary aim of these is to conserve natural resources and natural processes, including undeveloped natural dunes and beaches and the physical and biological processes which sustain them.

Policies, laws and programs of at least two important New York State agencies, several departments within Suffolk County, local governments and other federal agencies will also ultimately be involved in plan implementation. The FIMP team has recognized that integrating these programs—whether for funding, permits, or direct actions—will reinforce the effectiveness of any engineered components of FIMP and likewise that the engineered components cannot occur without being integrated or phased with these other programs.

The details about how best to accomplish these important purposes have been under discussion and over the past year and a half. Considerable progress has been achieved and a number of significant points of agreement seem to have been reached. This would not have occurred without the intense level of commitment among these agencies. However, many issues remain.

### **Problem Identification - Interagency Strategy**

Conceptually, the problem we collectively face is understood: Intensive development has taken place in hazardous, ever-dynamic coastal areas. In some cases these hazards have been



exacerbated by human interventions in natural coastal processes. Traditional Corps construction and maintenance activities along with activities conducted by others include inlet stabilization and channel dredging; groins, seawalls and revetments; beach fill; beach scraping; breach closures; and bayside bulk-heading. While intended to protect human infrastructure from storm damage or to improve reliable navigation, such actions have led to unanticipated or under-evaluated indirect adverse effects on the sustainability of a barrier island ecosystem.

In fact, these actions can indirectly *exacerbate* the problems they were designed to address. Many cause unavoidable adverse impacts to wildlife habitat and to natural processes. These natural processes sustain features which provide protection to bayside areas and buffer storm impacts, including the barrier islands, salt marshes, and intertidal and subtidal flats. Thus, these activities can have the effect of either transferring erosion to other areas or can interfere with the effectiveness of these natural features in reducing damage from storms.

Concerns of the Departmental members on the FIMP team focus on a number of fundamental areas:

- Cross-island sediment transport, as affected by the jetty-stabilized inlets and barrier management, and the long-term impacts on erosion of the bay systems' shorelines, salt marshes, intertidal and subtidal zones;
- Inlet modifications, if any;
- Breach response strategies;
- Removal of sediments from the off-shore;
- Littoral transport proposals;
- Alternatives for barrier island management;
- Effective non-structural measures including sufficient legal authority for each implementing agency to perform its needed implementation roles;
- Natural process restoration alternatives. This includes options for proactive alternatives which reflect goals of the National Ecosystem Restoration (NER) and the "Vision Statement"; options for compensatory mitigation; and options for listed species conservation measures.
- Impacts, if any, to FIMP development from WRDA 2007 section 2031, Changes to Principles and Guidelines, and constraints with current guidance.

The discussion below provides a general overview of Department-supportable approaches to long-term storm risk reduction based on our preliminary understanding of their impacts to natural resources and processes. It also gives a brief synopsis of the status of team efforts to date. A longer and more detailed description of these points will follow under separate cover. A final decision by the Department will not be made without a full analysis of project effects on the human environment, through the NEPA, the ESA and laws governing the National Park Service (NPS) and the Seashore.

### **Cross-Island Sediment Transport to the Bays:**

The three bays within the FIMP area primarily receive their sediments from ocean-side sources, as compared to other bay systems which primarily receive sediment from rivers. These sediments sustain marsh bottom elevations, provide early-successional habitats critical for many species and help buffer bay shorelines from the erosive effects of wave action, including that induced by boat wakes. In a natural system, sediments are redistributed through the bays as inlet locations shift, forming shoals and intertidal flats. In light of sea-level rise coupled with past and

proposed actions affecting sediment transport to the bays, an adequate supply of sediment is needed to maintain these features and the storm-buffering they provide.

Stabilizing inlets, filling breaches, attempting to stabilize barrier shorelines, dredging bay channels with sediment placement off-shore, and bulk-heading bay shorelines can impede sediment transfer and redistribution within the bay systems. The DFR does not address measures to prevent or mitigate for the adverse impacts from existing structures and management practices which impede cross-island sediment transport and distribution.

A Department-compatible plan must include a schedule for studies evaluating changes in bayside geomorphology and sediment availability due to historical inlet, breach and dune management practices as well as fully evaluate, manage and compensate for project impacts on cross-island processes. The DFR did not address cross-island sediment impacts from the maintained inlets and barrier island stabilization efforts. To better understand the cumulative impacts of past and future actions concerning management of the inlets and manipulation of the barriers, the Department supports initiation of a comprehensive evaluation of these activities for alternatives affecting cross-island transport.

Alternatives proposed for beach fill, breach management and inlet management must include bayside habitat and sediment transport monitoring, mitigation or restoration and adaptive management. We can support bayside habitat restoration proposals, including removal of bulkheads, placing dredged material in shallow water to provide intertidal foraging and/or marsh substrate, strengthening the integrity of the barrier island by widening the island and increasing the volume of sediment that comprises the island itself as mitigating for human-caused alterations. We support filling abandoned navigation channels to provide a similar strengthening of the barrier island. Actions that are intended to prevent natural processes including overwash, formation of intertidal flats, overwash fans, spits, etc. (see below under Barrier Island Management) will need to compensate for cross-island sediment losses via other measures to address these processes and features with equivalent functions, values or restoration of the processes which support them.

Mitigation alternatives that require the placement of sand in intertidal and sub-tidal bay environments will also require careful scientific design and close collaboration to meet State Department of Environmental Conservation regulations. Wetlands regulations or design protocols may be needed to address mitigation proposals for impacts to natural features which buffer storm impacts.

### **Modifications, if any, to inlet maintenance.**

As stated below, some measures in the DFR to reduce inlet impacts to littoral processes can be supported. For the interim, before we can endorse any long-term inlet management option, a clear commitment to the scope and time frame for the study described above is needed.

We are disappointed that the environmental effects of long term maintenance of the inlets *in situ* was not evaluated in depth and that decisions rejecting alternatives other than current practices were made using a very rudimentary ranking system. With 83% of bayside storm flooding now occurring through the inlets without any breach of the barriers, we believe that many viable alternatives were not sufficiently evaluated in the Draft Inlet Management Report.

Among the environmental effects needing additional consideration are those on Federally listed species. Three of the listed species on Long Island rely on early-successional habitat. No better

productivity can be achieved than at unarmored inlets, where colonial waterbirds can nest and feed both on the back bay and on the ocean shoreline. We understand that additional studies may be conducted by the Corps. Alternatives, including perhaps shallower configurations for the inlets, would minimize the impacts from the inlet flooding on the mainland. Once impacts to the mainland via inlet flooding are minimized, it is entirely possible that the barrier islands as barriers to flooding can be evaluated differently – perhaps overwash and temporary breaching could be allowed to provide for sediment inputs into the back bay and produce valuable wildlife habitat.

### **Breach Response Strategies:**

The Department recognizes that it may be appropriate to develop site specific breach response protocols for the many reaches across the entire project area. This includes a careful look at different response protocols for the developed areas and major public tracts, including those within the Seashore. If different breach response plans (BRP) are developed for various reaches, careful protocols and response criteria will be needed for each. Departmental staff is currently working cooperatively with your staff on these details, however each site or segment will ultimately need the commensurate advanced evaluation of effects.

Within the five major public tracts within the Seashore, pre-breach management, tapers and other manipulations are not consistent with Departmental policies. The Seashore will accept post-breach response actions where public safety emergencies exist after monitoring and site-specific evaluations and pursuant to these more specific protocols which are still under discussion. Consideration of breach response strategies in the developed areas within the Seashore is dependent upon FIMP team agreement on a barrier island management plan for these areas.

We also strongly urge the Corps to commit to fully provide for the loss of early successional habitat if BRP planning concludes that any breach must be closed and no new inlets will be allowed to form for 50 years. This includes overwash habitat and spits rising above mean high tide which would have been formed at a new inlet. These interrupted processes would have otherwise created potential colonial waterbird nesting habitat and moist soil habitat where the birds can feed. Such features provide nesting and foraging habitat in close proximity and could be protected from disturbance from humans. The Corps has provided us with detailed calculations of the amount of sediment which might find its way into the back bay at various locations in the project area, also calculated for various periods of time the breach/new inlet might remain open. This demonstrates the quantities of material which will be prevented from entering the back bay. Using information from the formation of the spit formed at the Pikes Inlet breach/new inlet formation, we can calculate how much habitat development is precluded by the BRP scenarios, and how much could be gained by either allowing a breach to stay open awhile, or artificially nourishing the back bay with additional, compensatory sediment at the time of a breach.

### **Off-Shore Sediment Removal:**

Current science cannot not adequately define the depth of closure and sediment budget for Fire Island to ascertain the impacts of sand removal from the shore-attached off-shore ridges which USACE has identified as its likely borrow sites. The Seashore and USGS are concerned that a multi-decadal beach nourishment program which relies upon the removal of sand from off-shore borrow areas south of Fire Island may impact long-term sediment availability to the island, particularly if some areas now receive infusions of sand from those sources.

Our concerns have been somewhat diminished because USACE has agreed to monitor off-shore coastal sediment processes, to adaptively manage the borrow areas, to remove limited quantities of sand for initial barrier placement from the deepest borrow areas, and not to remove sand from borrow areas south of the designated National Wilderness Area. In addition, USACE will identify additional deepwater borrow locations. At present, the parameters for the study of off-shore sediment transport processes have not yet been agreed to; resolution of the study parameters and design is critical to reach agreement on any long-term off-shore sand removal program.

### **Littoral Transport Proposals:**

The Department conceptually supports proposals to reduce interference with littoral transport processes by structures. This includes removal and shortening of groins, particularly the Ocean Beach groins which have nearly doubled the rate of dune retreat measurable as far as the Lighthouse. The Corps has indicated support for modifications to the Westhampton groin field. To the extent that modification of the Westhampton groin field and other groins in the project area restore the natural movement of sediment along the shore, we could generally support such actions, pending full analysis of environmental effects.

For the short-term, until the more comprehensive evaluation of the cross-island impacts is completed, the Department can support some inlet management proposals.

### **Barrier Island Management:**

The Department recognizes that different management approaches may be appropriate for the undeveloped public lands and communities on the barrier islands. Within the five major public tracts of the Seashore, manipulation of the barrier island is not consistent with Departmental policies. The Seashore, its neighboring public park to the west, the Robert Moses State Park, and the Smith Point County Park, all share common purposes to provide for public beach recreation. The Seashore has already begun, with the participation of staff from these other parks, to explore more sustainable approaches to providing for public recreation needs, given the dynamic nature of barrier islands. We are examining other approaches for portable, seasonal or relocated public facilities and investment in infrastructure. The beachfront will always be with us, but repetitive infrastructure costs mean that we need to be more strategic in our investment in facilities to provide for our visitors' needs.

Within the developed areas, a number of different alternatives are under active discussion. The Department supports a plan that decreases manipulation of natural processes and increases reliance on non-structural (institutional) methods to reduce storm damage risk. We support the State's stated goal of gradual reduction in reliance upon beach nourishment; however, the specific time-frames and alternatives have not yet been resolved. The Department supports an integrated approach of non-structural actions, relocation of structures and public facilities, and limited sand replenishment (including sand placed on the north side of the dunes where feasible) transitioning to a more viable and robust undeveloped primary dune.

While we have not yet been provided with the economic evaluation section of the full DFR, the breach probability information we have been given indicates that the developed areas within the Seashore presently are not expected to breach in less than a 500 year storm. Beach replenishment alternatives causally connected to mainland flooding from a breach therefore seem economically unjustified. In light of the information in the DFR that 83% of bay flood damages from a storm occur due to inlet conditions without a breach of the barrier, team conversations

have focused on acceptable transitional approaches integrated with breach response strategies. Staff discussions continue to evaluate effective alternatives phasing non-structural approaches integrated with some engineered actions. The Department supports facilitating a more resilient primary and undeveloped natural dune system south of most of the existing barrier development by funding non-structural (land use) measures **at a minimum** at the same level as perpetual renourishment alternatives. This approach, no more costly than 50 years of renourishment, could meet the State's goal of reducing dependence on renourishment and lead to environmentally sustainable approaches protecting the great majority of the island's residences. Importantly, in addition to being consistent with the environmental sustainability criteria of the "Vision Statement", USACE-NER and other initiatives, this approach would be consistent with the Seashore's legislation. If paced with bayside flood mitigation efforts, integrated strategies such as these could obviate the need for perpetual shoreline replenishment and provide justifiable levels of flood risk reduction for barrier and the mainland areas.

From a wildlife perspective, it would be advisable to construct/repair and maintain the smallest dune profile possible project-wide, so that early-successional habitat formation is not precluded. To the extent that it is precluded for the life of the project, we ask that the Corps provide compensatory habitat for early-successional habitat for wildlife and plants.

### **Non-Structural Measures and Program Integration:**

The FIMP team has recognized that the effectiveness of the "non-structural institutional" program changes are integral to the success of any FIMP plan. Governmental programs at all levels should be better integrated so that existing disincentives to effective coastal land use programs are removed. The non-structural measures (meaning land use and incentive programs, not beach fill or elevating structures) under review include a number of state and local programs already in place, needed improvements to those programs, and some amendments to various laws or regulations administered by the partner agencies.

The general term "non-structural measures" also includes a number of incentives, such as alternative capital gains methods or catastrophic insurance proposals; flexible acquisition approaches, such as retained occupancies, relocations, and exchanges; as well as acquisitions conducted by partner agencies, community organizations and conservation trusts. Collectively these approaches could advance public ownership of the primary dune area in conjunction with reduced amounts of beach fill. New legislative initiatives could amend the Seashore's dune district to allow it to utilize the same features as the State's Coastal Erosion Hazard Area (CEHA) law and could revise FEMA's programs so the County and Towns receive post-storm funds for measures consistent with sustainable storm damage reduction. A regional or County body could be created to operate a land bank similar to the Pine Barrens' model, facilitate land exchanges or implement portions of FIMP as a special area management plan bringing several government programs together to provide landscape level protection.

Many of the non-structural approaches are not confined to the Seashore or the barrier islands and apply to development in hazard areas on the mainland. The DFR proposes some \$500,000,000 in bayside flooding mitigation to elevate mainland structures within the 10 year flood plain since such substantial flooding occurs within the bays through the inlets without a breach of the barrier. The Department supports mainland flood mitigation but we believe more effective strategies are needed in addition to elevating structures and raising roads. As the State's letter notes, there is a tendency for such public incentives to foster increased private development in hazard areas. These actions may give communities a false sense of security and function as disincentives to longer term solutions for wind and flood damage.

The Department supports, with participation of local Town and County planners, development of grant criteria for these elevation subsidies integrated with local government hazard mitigation plans or FIMP-specific local implementation plans. Such criteria should reinforce local government infrastructure plans focusing the federal subsidies to town or hamlet centers or “smart-growth” areas where sewers, elevated roads and utilities already support denser development. The Department supports using half of these funds for local acquisition and relocation actions in areas unsuitable for development, such as wetlands, areas with high water tables, natural shorelines, and mainland areas most likely to be affected by a breach. Such approaches could increase “greenways” along shorelines, reduce long-term flood risk, reduce wind damage, save money over the long-term, anticipate sea-level rise and are consistent with several state and federal pro-active hazard mitigation and coastal policies.

The specifics of the transitional engineered features and how these are phased and integrated with institutional changes, post-storm response measures and incentive programs are still being worked out. However, the FIMP team recognizes that the effectiveness of FIMP as well as Departmental support rests upon this critical component. Importantly, the County has recently initiated efforts to address these issues. Since substantial work remains to resolve these matters, we encourage all partner agencies to continue to focus on these details.

### **Natural Process Restoration Alternatives**

*The Vision Statement and Environmental Restoration:* In addition to providing a plan that reduces storm damage risks to human life and property, the Vision Statement set a goal of maintaining, enhancing, and restoring ecosystem integrity and coastal biodiversity. In order to address the restoration of natural processes there must be an analysis to determine how the processes have been disrupted and the community/ecosystem impacts that have resulted from the interruption of those processes. From this assessment, alternatives that address the restoration of these processes can be developed.

Overwash, breach formation, and barrier island movement northward are all natural processes. These processes are essential to the sustainability of the barrier island and marsh ecosystem which also provides natural protection of the mainland shore. However, since these processes also have adverse impacts on human infrastructure and navigation, innovative, and sustainable mitigation measures, including habitat restoration, enhancement, and habitat management will be needed to offset the adverse impacts of measures conducted to reduce erosion that also harm the natural evolution of the ecosystem.

Habitat and natural process restoration activities should be found in three areas in a FIMP Integrated Plan:

- 1) as a proactive, forward-thinking part of the project itself, (NER alternative) and as provided by the FWCA;
- 2) as compensation for unavoidable adverse impacts to habitat and natural processes attributable to the project alternatives carried forward; and
- 3) as conservation measures to minimize the level of adverse effects of the project on Federally-listed species.

*Natural Process Restoration Options:* The Corps has indicated support for 33 restoration options. The USFWS strongly supports options that restore natural processes, provide crucial sources of habitat for species which require early-successional breeding and growing substrates;



we strongly support further research into methods for habitat restoration in this type of coastal setting, and urge the Corps to build pilot projects *as soon as possible*. We support additional sites for restoration as provided in several documents since 2004. We could support an adaptive management approach to habitat restoration/development as this type of construction has not yet been attempted in this part of the country. We support restoration project construction as part of an NER alternative, as mitigation for unavoidable impacts to habitat, and, finally, in select locations, as conservation measures to minimize the adverse effects of the project on Federally-listed species. The USFWS also provided a report in October 2003 which recommended additional sites and a justification for their selection – we request that the Corps fully consider those options which did not “score well” in the HEP scoring, over which we had expressed concerns.

*Compensatory Mitigation:* USFWS strongly urges that any compensatory mitigation for losses of natural formation and maintenance of habitat attributable to the project be provided in locations that make sense from an overall ecosystem conservation perspective – in an ecologically sound location. Restoration alternatives within the Seashore must be consistent with NPS policies. We strongly urge that any mitigation planning involve long term maintenance of the sites to ensure long term viability of the habitats. Sites identified by the USFWS in 2004, by the HEP team and by the USFWS in discussions of potential conservation measures should be evaluated for all three purposes bulleted above.

*Listed and Rare Species Habitat Enhancement, Restoration, Creation and Management Measures:* USFWS strongly supports Corps’ efforts to develop conservation measures. Conservation measures represent actions pledged in the project description that the action agency will implement to further the species’ recovery. Such measures may be tasks recommended in the species’ recovery plan (in the case of Federally-listed species), should be closely related to the action, and should be achievable within the authority of the action agency. The beneficial effects of conservation measures are taken into consideration when the USFWS concludes whether there is likely to be jeopardy or non-jeopardy to the listed species, and in the analysis of incidental take. Such measures, however, must minimize adverse effects to listed species within the action area in order to be factored into the USFWS’s analyses. Listed species conservation measures need to include long term management agreements and a funding mechanism that will seek to maintain conservation of the Federally-listed piping plover and seabeach amaranth. USFWS has provided the Corps with input into such plans and has discussed the necessity of having such agreements in place as soon as possible. USFWS has also discussed how the cost of long term monitoring and recreational activity management in listed species habitat might be covered by in-kind service components of the local cost share for the FIMP.

**WRDA 2007, section 2031, Changes to Principles and Guidelines:**

The Department is interested in the Corps’ on-going process of implementing Section 2031 of WRDA 2007, which supports revision of the Corps’ Civil Works Principles and Guidelines. This April Assistant Secretary Woodley reinforced the importance of this effort. Formal responses from the national level of the Department will be released. However, focusing on the implications for FIMP, revisions supporting multiple project objectives will facilitate developing projects consistent with the Corps Environmental Principles and with the “Vision Statement.”

In conclusion, we appreciate the USACE’s continued efforts to participate in development of a mutually acceptable alternative with the Corps’ project development team and the multiple other agencies potentially affected by FIMP. We hope that with the additional information to be

provided under separate cover on the topics identified in this letter, we will continue to make steady progress towards completion of this process.

We share the State's goal that the project area be "in an ecologically-healthier, more sustainable condition at the end of the 50-year life than it is now." We agree that "a more sustainable condition would be one where risk of storm damage has been reduced to a large degree by implementation of non-structural measures, such as land use regulation or flood-proofing, so that need for and dependency on structural measures are replaced by dependency on non-structural measures." In combination with progressive strategies to remove infrastructure and development from hazardous areas, and to remove, redesign or mitigate for engineered structures that are adversely impacting coastal processes, a more sustainable and ecologically sound condition could be achieved for Long Island. It would also be one where human activities and expectations—for conservation, recreational, residential, infrastructure and commercial activities—are better integrated with natural coastal processes to gain the benefits of these special resources, rather than attempting to work against them.

Sincerely,



Mr. Andrew L. Raddant  
Regional Environmental Officer, Northeast Region  
Office of Environmental Policy & Compliance  
Department of the Interior



Mr. Robert W. McIntosh, Jr.  
Associate Regional Director  
Planning, Construction and Facility Management, Northeast Region  
National Park Service



Mr. David Stilwell  
Field Supervisor  
New York Field Office  
U.S. Fish and Wildlife Service

cc:

James Tierney, Assistant Commissioner, NYSDEC  
Michael Stankiewicz, NYSDEC, CO  
Kenneth Markussen, NYSCDEC, CO  
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Amy Engel, Suffolk County



DEPARTMENT OF THE ARMY  
NEW YORK DISTRICT, CORPS OF ENGINEERS  
JACOB K. JAVITS FEDERAL BUILDING  
NEW YORK, N.Y. 10278-0090

REPLY TO  
ATTENTION OF

Planning Division

June 3, 2009

Bob McIntosh  
Associate Regional Director, Construction & Facility Management  
Northeast Region  
National Park Service  
15 State Street  
Boston, MA 02109

Dear Mr. McIntosh:

I am writing in reference to the Fire Island Inlet to Montauk Point, New York, Reformulation Study. Based upon our meeting held with representatives of NYSDEC and NYSDOS on April 21, 2009, we have confirmed that the State of New York is supportive of the current NED/NER plan elements, which include inlet bypassing, mainland non-structural improvements and road raisings, barrier island beachfill placement with nourishments, and an overall breach response plan.

It was agreed at this meeting that the next step required for moving this study forward is to complete the Draft General Reevaluation Report (GRR) and Environmental Impact Statement (EIS) as quickly as possible to allow the start of the public review process. In order to initiate the completion of the Draft GRR and EIS, we are providing you with the Draft Formulation Report (dated May 2009) for your final review, in order to ensure that we have addressed your concerns and have your full support of the alternatives analyses and the identified recommended plan of improvement.

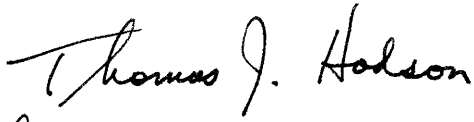
The Draft Formulation Report addresses many of the concerns previously raised by the State of New York and Department of Interior (DOI), and significantly expands upon the previously reviewed November 2006 report. This new report includes background information on the physical, social, environmental, and cultural conditions; presents full alternatives analysis detail; integrates the Vision statement into the development and evaluation of alternatives; and identifies the plan of improvement that best balances the objectives of Storm Damage Reduction and Habitat Restoration while achieving the Vision objectives.

Presently, this draft report is only intended for internal review by State of New York and DOI, so it should not be released outside of your agency at this time.

In order to advance this study towards the public release of the Draft GRR and EIS, I am requesting that you complete your final review of the Draft Formulation Report by 15 July 2009 in order to maintain the overall project schedule. We will be scheduling a coordination meeting with the State and DOI for later this month in order to discuss any outstanding issues and questions you may still have.

If you have any questions, please contact Mr. Frank Verga, Project Manager, at (917) 790-8212, or Mr. Stephen Couch, Chief, Coastal Section, at (917) 790-8707.

Sincerely,

  
*for* Frank Santomauro, P.E.  
Chief, Planning Division

CC:

Mary Foley (NPS)  
Chris Soller (NPS-FIIS)  
Andrew Raddant (DOI-OEPC)  
David Stilwell (USFWS)  
Jim Tierney (NYSDEC)  
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Peter Scully (NYSDEC, Region I)  
Eric Star (NYSDEC, Region I)



# United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
408 Atlantic Avenue – Room 142  
Boston, Massachusetts 02210-3334



August 11, 2009

(9043.1)

Mr. Frank Santomauro, P.E.  
Chief, Planning Division  
U.S. Army Corps of Engineers  
26 Federal Plaza  
New York, NY 10278-0090

Dear Mr. Santomauro:

Thank you for providing the Department of the Interior (Department) with the opportunity to review and comment on the May 2009 Fire Island Inlet to Montauk Point (FIMP), New York, Draft Formulation Report (DFR). This response conveys the collective comments of the Department participating Bureaus and Offices, including the National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS or Service), U.S. Geological Survey (USGS), Office of Environmental Policy and Compliance, and the Regional Solicitor's Office. We have expedited our review of this substantial document, the stated intent of which is "...to be used by project sponsors as a basis for a common understanding of existing conditions, future without project conditions, and the planning process applied to arrive at the final array of alternative plans that could be supported for implementation as a joint Federal, State, and local project." (DFR, p. 1)

It is our understanding that the DFR will serve as a platform for the U.S. Army Corps of Engineers' (USACE or Corps) environmental impact assessment prepared under the National Environmental Policy Act (NEPA). If agreement is reached on a mutually acceptable plan, implementation of storm damage reduction measures within Fire Island National Seashore (FIIS) would also trigger NPS' NEPA responsibilities. Thus, our agencies have a shared interest in ensuring that the DFR is a sufficient foundation for *initiating* the NEPA process, preparing an adequate impact assessment, and withstanding the rigorous peer review proposed by USACE.

From the standpoint of initiating the NEPA process, importantly, the DFR lacks an alternative that represents the local sponsor's wishes and capabilities. This need has been underscored by both of our agencies in numerous meetings. Until this is resolved we advise against moving forward in the NEPA process. We do not wish to repeat the situation described on p. 55 of the DFR concerning the Fire Island Interim Project.

The National Park Service has identified an alternative in the DFR (Alternative 3G) that may serve as a starting point for further discussions. Conceptual support is described herein for mainland building retrofits, land management measures, and adaptive management. Ensuring consistency with NPS policies, regarding interventions in natural processes, groin removal,



*implementation* of land management measures, will necessitate further modification, as will developing a strong adaptive management plan.

Additional concerns identified in more detail below include, among others: adequacy of the environmental setting characterizations, Habitat Evaluation Procedures (and results), and restoration measures; potential impacts to listed species; lack of mitigation for project impacts; sustainability, and characterization of the “Without Project Future Conditions.”

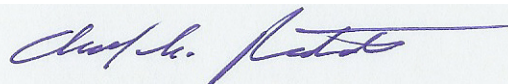
Considering the peer review process, we find that the DFR currently does not present the level of information necessary to undergo a thorough scientific review. We believe that the Department can assist the USACE substantially in this regard. Many of the concerns identified herein are also reflected in the National Research Council’s (NRC) 2009 *Final Report from the NRC Committee on the Review of the Louisiana Coastal Protection and Restoration (LACPR) Program*. For instance, our support for a regional entity to take a leadership role in land use measures, is countered by our concern that implementation has been disassociated from USACE’s engineered alternatives. Additional concerns include inadequate treatment of sea level rise acceleration; quality or presentation of data; treatment of uncertainty; treatment of coastal processes; validation and verification of model results; offshore sand supplies, and impacts to sediment transport from dredging.

We also believe that the overall tone of the DFR can be improved. We seek a more balanced presentation of the natural processes that have been crucial to the historic integrity and condition of the barrier islands, including breaching and overwash, and the adverse affects of development and human interventions in those same processes.

The following sections provide more detail on the items identified above, and include the comments of the USGS, NPS, U.S. Fish and Wildlife Service, and short section of more generic concerns.

Thank you again for the opportunity to provide input on this important document. We look forward to further collaboration between our agencies.

Sincerely,



Andrew L. Raddant  
Regional Environmental Officer

## **U.S. Geological Survey**

### **Introduction**

A team of geoscientists from the U.S. Geological Survey (USGS) has provided a limited review of the 381 page U.S. Army Corps of Engineers (USACE) Fire Island to Montauk Point New York Reformulation Study, Draft Formulation Report (DFR). In our review, we include an overview of our major findings, deficiencies, observations and recommendations. The focus of the review was the baseline science presented in the FIMP.

As background in reviewing the FIMP, it is important to realize that several fundamental policy differences exist between the missions of the USACE and the Department of the Interior's (DOI) NPS and USFWS that are germane to the FIMP project. The USACE has the mission to design and build engineering projects to: 1) mitigate coastal erosion and provide protection to human infrastructure at the coast and in the coastal zone landward of the shore, and 2) maintain boat navigation through tidal inlets and channels. Their main objective is not to maintain the beach to protect environmental resources or enhance recreational value, nor to maintain the natural processes necessary to allow coastal landforms to evolve over the long term, centuries and beyond. The USACE's project time frame is 50 yrs. In contrast, DOI agencies, the NPS and the USFWS have missions to protect natural resources and natural processes for the overall public good and for the benefit of ecosystems for the long term, virtually in perpetuity. These DOI agencies must also consider public safety and human welfare.

As a result of their mission objectives, the NPS and the USFWS must plan and manage for much longer than a 50-yr time frame (centuries to millennia and longer) and are obligated to factor in scientific data and predictions of future coastal conditions that likely will exceed past mean values and record highs. In contrast, the USACE project design mostly relies on data from the recent historical record with mean values and record highs, such as wave heights, storm frequency, flooding values, sea-level change rates, etc. That said, the USACE Vision Statement does contain the main points that decisions in the FIMP plan will be based on sound science, that preference will be given to non-structural measures to protect natural landforms and processes, and that the project will address long term demands for public resources.

With climate change, essentially all of the driving environmental values (e.g., temperature, precipitation, sea-level rise, storminess, human population increase) for the next 50 years and beyond are likely to be very different than the conditions over the past century. These rapidly changing conditions, likely to accelerate during the remainder of this century, need to be brought more fully into the cultural thinking and become integral to the coastal planning of both the USACE and the DOI.

### **Topics of Concern**

#### ***Overview***

This draft report does not provide sufficient information to conduct a rigorous scientific review. In order to request a review of the various proposed mitigation plans, the USACE must show their work, as oppose to stating "results." In its present state, the report is not transparent; assumptions are not shown, descriptions of baseline data used are generally lacking, confirmation of most modeling results are not presented, background information on model

assumptions and methods used are not presented, existing bodies of work related to the evolution/dynamics of the study area are ignored, and work presented is improperly cited, or omitted entirely. In some instances, outdated published work was cited and it is the opinion of the USGS review team that newer, more relevant information on the region or recent advances in coastal processes are not considered or incorporated.

### ***Sea Level Rise Acceleration***

There are several discrepancies found in this section where the USACE does not adhere to recommendations from their own, albeit recent, publication, USACE Circular No. 1165-2-211, "Incorporating Sea-Level Change Considerations in Civil Works Programs". Specifically, it is stated that, *Potential relative sea-level change must be considered in every coastal activity as far inland as the extent of estimated tidal influence*. This Circular goes on to state that areas already influenced by sea level rise (SLR) or where changes are predicted, predicted SLR should be an integral part of the project analysis. For future values of global SLR, the Circular recommends using the intermediate and high curve rates in NRC (1987) and doing the calculations at 5-year increments. These rates would be in addition to regional geologic subsidence, resulting in relative SLR (RSLR). It then recommends that both the performance and risk for each project design alternative be evaluated using the RSLR rates and that project designs that best accommodate RSLR be selected. For the FIMP region over the next 50 years, this could mean a RSLR value of ~ 1 meter.

Some of this is discussed on Page 69 using Figure 3.1, but it does not appear that this process has been used in the DFR and does not appear to be reflected in discussion of the alternatives. Rather, the report uses historic SLR rates from the NOS Sandy Hook, NJ gage and acknowledges that SLR is likely to increase but no values are given other than rates of 1.3 ft and 2.7 ft by year 2060. Also, the gauge data for Sandy Hook are for some reason given in English units rather than metric and the numbers presented are different than gauge data reported in Zervas (2001). In Zervas, the gauge data are 3.88 mm/yr for Sandy Hook, which is 0.0127 ft/yr and 7.62 in over 50 years. This is in contrast to the reported values (page 68) of 0.127 ft/yr and 6.35 in over 50 years.

Another source of SLR data in the study area can be obtained from the tide gauge at the Battery in New York City, which dates to 1856. Using this gauge, the linear trend in relative SLR (RSLR) from 1856-2006 is 2.77 +/- 0.09 mm/yr. Over that same time period, the global eustatic rate of SLR is about 1.7 mm/yr (IPCC, 2007). Thus, there is about 1 mm/yr subsidence in the local RSLR record.

The SLR projections used in the DFR are unrealistically low. The future SLR is likely underestimated by a factor of 2-5. As a result, the draft DFR report very likely underestimates significantly the ability to provide the desired level of performance of the stabilized barrier island, the sand volumes and costs required to do so, and the return interval, duration, and extent of future mainland flooding. The FIMP fails to recognize that future rates of SLR in the study area have no historical or even late Holocene geologic precedent and that the response of the southern Long Island coastal system to SLR may preclude effective engineering-based management.

Currently there are three published, credible projections for SLR for the 21<sup>st</sup> century:

1. IPCC (2007) – 18-59 cm by 2100
2. Rahmstorf (2007) – 50-140 cm by 2100
3. Pfeffer et al. (2008) – 78-201 cm by 2100

Two recent papers (Yin et al. 2009, Hu et al. 2009) suggest that the northeastern U.S. may experience additional SLR due to changes in the strength of the Atlantic Meridional Overturning Circulation (AMOC). As the AMOC slows, the dynamic topography of the sea surface relaxes and sea-level rises at the coast. There is also a steric component due to regional ocean warming. Yin et al. suggest 20-30 cm dynamic+steric rise for New York by 2050. Hu et al. suggest 10-30 cm for the northeastern U.S. by 2100. Finally, recent paper by Bamber et al. (2009) found that the collapse of the West Antarctic Ice Sheet (WAIS) not only adds to eustatic SLR, but also causes a redistribution of ocean mass due to the reduced gravitational attraction of the smaller WAIS. This is a global effect, and is most pronounced in a band at ~40° north latitude (i.e., ~Long Island, NY) where the sea-level rise is about 25% more than elsewhere around the globe. There is presently high uncertainty about the potential for full WAIS collapse, but the effect also applies to partial collapse.

The need to include future sea-level acceleration in DFR plans and design was a recommendation of the breach/overwash modeling review committee several years ago, but was not incorporated in the draft FIMP. Further, on Page 23 the report discusses future consequences of storms, but there is neither mention of increased SLR nor the potential of increased storminess above historic levels. It is stated on Page 138 that the potential for accelerated SLR will be addressed in the plan selected; however, there is no mention in the current plan.

#### ***Quality and Uncertainties of Mainland Elevation Data***

Models were used to report on the potential flooding effects on the barrier-island system and mainland areas of Long Island from storm surges and breaches in the barrier. These model results form the basis for the economic assessments presented in the DFR (for example, see Table 5.19 on page 183), but little to no detail on the models is presented and no indication of a validation process to include uncertainties in model results is presented. For example, the model results that illustrate the effect that changes in topography (barrier island breaching) have on the flooding conditions within Great South Bay (Page 154), suggest that if a breach remains open for 3 months it can increase flooding of the mainland from 30-46 cm above normal, with multiple breaches increasing flooding up to 61 cm above baseline conditions. Breach-open conditions for 12 months are reported to increase flooding from 46-61 cm above normal. These scenarios worsen under the 500-yr event to up to 1.6 m above normal. These magnitude results from the numerical simulations need to be validated in some way. In the “Storm History” section (Pages 10-24), the damage descriptions are focused on damage to the barrier island chain. If a key justification (cost-benefit ratio) of the FIMP plan is to protect the mainland infrastructure from storm-induced inundation, a detailed history of damage to mainland structures should be presented as a validation of the model results. The economic assessment values as presented in Table 5.19 for the conditions of inundation occurring due to tidal inlets and wave setup in the back bay need to be justified with recent historical values.

A critical question that needs to be addressed and which could place doubt on the economic assessments presented in the DFR: What elevation data were used by the USACE in their inundation analysis? The vertical resolution of the elevation data used in modeling various increments of flooding is critically important. According to Gesh and others (2009), the best

available digital elevation (DEM) data available for the Long Island mainland is USGS 10 ft and 20 ft contour data. At this vertical resolution limit, the minimum SLR increment that can be modeled is 3.64 m. If these DEM data were used in the analyses presented in the FIMP report, the values of increased flooding above baseline conditions are all in the statistical noise due to the relatively low resolution of the DEM. How does this fit with the modeling done for determining economic impacts of flooding the barrier mainland?

### ***Offshore Sand Volumes***

The report states the need for large volumes of suitable sand for nourishment, but there is little detail about the offshore borrow areas, how the areas will be dredged, how the dredge pits are likely to evolve over time (i.e., fill in or not, type of sediment fill, organic content, etc), what effect the dredging will have on benthic habitat and resources, and potential effect on the coastal system, especially shoreline change. There is also no mention of the potential of obtaining material from further offshore or from other regions or mainland sources or of stockpiling the spoil from annual inlet dredging, and using that material for beach nourishment.

Recent USGS assessment using Monte Carlo Simulation modeling techniques of sand in Holocene ridges on the inner shelf offshore Long Island by Bliss et al. (2009) suggests Holocene sand volumes of 1.4B m<sup>3</sup> at the 90<sup>th</sup> percentile, 2.9 B m<sup>3</sup> at the 10<sup>th</sup> percentile, with a mean volume of 2.2 B m<sup>3</sup>. Environmental and other factors maybe reduce the volume available for beach nourishment and/or restoration. However, older pre-Holocene sediments are also present on the inner shelf beneath the shoals or in adjacent areas and may be suitable in texture and composition for nourishment considerations. Additional discussion of offshore sand and implications of dredging and removal in the FIMP is warranted.

### ***Geology and Sedimentology***

In the description of the physical setting of the project area, the next draft or final Formulation Report should provide more detailed information by incorporating the current understanding of the coastal system, citing recent published works and presenting new information on the region or recent advances in coastal processes. For example:

- There is discussion throughout the DFR about attempting to engineer toward more natural conditions. Yet the report also seems to downplay the fact that breaching and inlet formation are critical processes in the natural evolution and maintenance of the barrier-island system. This seems to be in contrast to the attempts to engineer toward a more natural condition. Not allowing breaching to occur will result in a more vulnerable situation at the end of the project.
- The discussion of the Holocene sediment deposit and geological framework presented on Page 26 is not accurate. The map presented in Figure 3.2 (a USGS map which is not cited) is referred to as “geologic framework.” It is not. This map shows Holocene sediment thickness mapped on the inner shelf and cannot be substituted for the geologic framework and evolution of the barrier island system. There should be a detailed, properly cited discussion of the geologic framework included in the Formulation Report that stresses the hydrodynamic significance of the inner shelf and shoreface bathymetry and sediment distribution.
- A sediment budget is not used to *reflect trends in along-shore sediment transport* as presented in the DFR. It is used to understand sediment transport and processes within a

given coastal system. Long-term erosion of the coast is associated with gradients in both littoral transport and cross-shelf transport. This should be acknowledged, rather than be dismissed (see page 81). If the uncertainty of the coastal sediment budget is as great as the values presented in the DFR, then that brings into question the values themselves and leads to the conclusion that the estimates are not viable to support sound scientific guidance. A discussion of cross-shelf sediment transport needs to be included in the report. Even if observational data (physical oceanographic/sediment transport instrumentation deployments, etc.) confirming this process does not exist, there is strong indirect geomorphic evidence, plus literature from other barrier-island settings showing that it is an important component of the coastal sediment budget.

- The sediment budget used in the DFR is based on the work of Rosati, which is not referenced. This work should be cited correctly rather than refer to it as *existing conditions*. This budget does not represent existing conditions, it is Rosati's best estimate of the coastal sediment budget.
- There are updates to the shoreline change analysis for Fire Island that are not presented in the DFR. Rather, the report only seems to use the results from a 10-yr old Coastal Seds Proceedings paper by Mark Gravens and others (it wasn't referenced, but we assume this is the Gravens et al, 1999 paper they discuss). The Gravens and others (1999) report does not provide a current understanding of the system, error analysis is not provided, and the time period selected for this analysis includes the most damaging storms in decades. This work is used to stress that erosion of the barrier island system is increasing (note the erosion rates presented on Table 3.3 are useless considering the high values of standard deviation shown). If the DFR had presented updated shorelines and assessed change up through the past decade, the result would be entirely different; there are areas of pronounced erosion, termed "undulations" in the report, however the net change from 1983 to 2007 indicated an overall trend of accretion, 0.15 m/yr, as oppose to the increasing erosion rate of -0.7 m/yr cited in the DFR. In addition, it is important to note that coastal change presented in the DFR is measured using end-point rates. A linear regression for Fire Island for similar time periods to those used by Gravens and others (1999) gives dramatically different results (-0.05 m/yr WLR from 1933-1983 versus -0.4 m/yr EPR from 1933-1979).
- The most recent published analysis of coastal change (Hapke, in press) indicates that the large hotspots of coastal erosion, termed "undulations" in the DFR, are spatially persistent over a century-scale timeframe. These may be interrupted by storm processes, but in the long term, they prevail strongly supporting the interpretation of fundamental geologic control (bathymetry and wave forcing). The fact that the DFR recognizes that erosional hotspots along Fire Island exist and are *thought to be related to the condition of the nearshore bar, and* that coastal sediment transport patterns are affected by offshore bathymetry off Georgica Pond (Page 303), but does not address the impact of changing the nearshore bathymetry by borrowing sediment from within 1 km of the barrier-island system is not logical and should be resolved in the next draft or final Formulation Report.
- Rather than manufacture a *future vulnerable condition* (Page 137), why not use actual vulnerable condition topography in the form of data collected either after the October 2005 or the April 2007 nor'easters? Have the modeled erosion projections due to storms been verified (Page 145)? This would be relatively easy to do using LIDAR data from 2005 and 2007. Similarly, for the "without project annual damages" presented on Table 5.19, is there recent evidence of the \$64M in the mainland and barrier that occur on average due to present inlet conditions and wave setup in the back bay? This is critical to



justify that the cost analysis has provided a reasonable assessment of current conditions. If the values of current conditions can not be justified, then it greatly reduces the justification of the future assessment conditions and costs.

### ***Modeling***

Much of the planning is based on the results of numerical models. As mentioned in the overview, it is difficult if not impossible to analyze or review the model results when observations of physical processes/properties are not presented to verify the model results. There is an overall lack of observations of the physical processes offshore of the barrier island and in the back bay areas. The observations are critical to identify the major processes controlling coastal circulation, sediment transport, and water elevations in the back bay, AND are necessary to calibrate and verify numerical models. Many of the models used are highly empirical and must include a detailed explanation of the data used to provide the model outputs; in some cases, ignoring the inner-shelf processes actually violates assumptions of some of the models. That said, sediment transport is extremely difficult to predict, especially in coastal settings. We would suggest that there are new, state-of-the-art modeling approaches that should be applied to the FIMP plan.

Examples concerning the presentation of modeling results in the FIMP are:

- In the description of the back-bay flooding (Page 9), it is stated, *When a storm impacts the area, when the barrier island does not breach, there are approximately 9,000 mainland buildings which would be flooded by a 100-year event (a large storm with a 1% chance of occurring in any year). In one condition modeled, which considered a breach into each bay, where these breaches grow unchecked, that same storm would flood almost 10,000 additional buildings, resulting in more than 19,000 mainland buildings flooded. On Fire Island and the Westhampton Barrier, the same breach event would also cause the number of structures on the bayside of the barrier island flooded under a 100-year event to rise from approximately 2,400 to more than 3,200.* This scenario is based on “one condition modeled.” That is not statistically relevant. What does it mean that the “breaches grew unchecked”? There is always some limit. How big did they get? Please clarify.
- The WISWAVE model (Page 139) was developed 28 years ago and is a second-generation wave model. There are more modern, third-generation wave models that are available that allow different wind-wave growth mechanics with more accurate physics and allow more directional bins that can resolve the wave fields.
- There is no verification/validation of ADCIRC or SBEACH results presented (Page 140-142) in the FIMP. SBEACH is highly empirical and requires strong calibration to determine appropriate profile change rates. Additionally, it is based on an equilibrium profile assumption that does not account for controls due to geologic framework restrictions on shoreface progradation. The FIMP states that Delft3D was used in two-dimensional (depth averaged) mode on Page 140. However, on Page 141 a 3D sediment transport simulation is reported? These statements are contradicting. The ability to accurately predict the cross-shore movement of sediment in the nearshore requires a model that can resolve the vertical processes of onshore and offshore movement of sediment. A depth-integrated approach requires strong calibration of empirical coefficients to adjust the on-off shore movement of material. What physical processes

information was used to adjust/calibrate the on-offshore model coefficients for sediment transport?

- On Page 141, wave induced runup is not included in the computations. The runup of the swash is difficult to include, however the infragravity wave band may be significant to induce dune erosion. This process should be accounted for. On Page 141, It is not clear how the outputs of wave, circulation, and morphological models can provide input to determine storm occurrence. Perhaps it is meant that these outputs can provide estimates of impacts of specific storms? Please clarify.
- There is only a vague and limited description of the EST model presented on Page 141. More information is required.
- It is not clear what processes were included for the determination of the blue curves presented on Figures 5.4 and 5.5. Were these curves determined based on tides, atmospheric pressure, and wind stress? And then were the red lines showing the added effect of the waves?
- In the discussion of Post-storm recovery on Page 146, it says, *The estimated amount of beach recovery has been established for various shoreline locations. These recovery amounts have been developed in order to match the long term erosional trends for each location, and establish whether the area is erosional, stable or accreting in the long-term.* This method clearly identifies the lack of available recent physical observations of the system. If the model results are being nudged towards long-term trends, then why are the models even being run? As the system changes (evolves) the response will evolve. Clearly the models being used are not being allowed to evolve the system and use that evolution to affect future scenarios. What “trends” are being used here? The trends that did not consider offshore sources of sediment? Please clarify.
- The discussion of breach evolution presented on Page 152 states, *The analysis projects a 50% likelihood of a partial breach closing naturally during the winter months, and a 75% likelihood of a partial breach closing naturally in the summer months.* How were these results obtained? What are the error estimates of these results? Is there sensitivity analysis on these model simulations? Please clarify.
- It is not at all clear how the values presented on Tables 5.5-5.7 were derived. There is a need for an error assessment on these quantities. How is it possible to determine the amount of sediment that would be above Mean Sea Level?
- Initial screening of storm closure gates for the managed inlets was dismissed rather abruptly in the FIMP (Page 209). If ~70% of storm damage is reportedly due to the present conditions, including the managed inlets, why does the cost of this outweigh the benefits? If more realistic rates of sea level rise were considered, would the cost-benefit ratio change?

### **Summary**

The USGS review team believes the draft FIMP has a number of areas where it can be improved by adding more specific details, citing current published works, and verifying numerical models. Following resolution of the major comments and concerns as noted by the USGS review team and given sufficient time, we would be willing to provide a subsequent review.

### **U.S. Fish and Wildlife Service**

The U.S. Fish and Wildlife Service (Service) has reviewed the U.S. Army Corps of Engineers’ (Corps) draft report entitled, “*Fire Island Inlet to Montauk Point Reformulation Study (FIMP)*”

*Draft Formulation Report,*” dated May 2009, which was received by the Service via electronic correspondence on June 6, 2009. It is our understanding that the purpose of the Formulation Report is to provide the reader with an overview of the analyses undertaken and the findings to date of the FIMP Reformulation Study, and is intended to be used by project sponsors as a basis for a common understanding of existing conditions, future without project conditions, and the planning process applied to arrive at the final array of alternative plans that could be supported as a joint Federal, State and local project. This is the second version of a “formulation report” that we have reviewed, as described below. The comments provided herein are based on an evaluation of this draft report in the context of comments the Service has provided to the Corps in meetings, teleconferences, and written correspondence over the course of this planning effort, but most recently since 2006. We believe that the majority of our previous comments are still relevant and should be addressed.

### **Overview of Recent Coordination with the Service**

Below is a statement on the recent coordination between the Service and the Corps on the 2006 Draft Formulation Report, pursuant to the Fish and Wildlife Coordination Act (FWCA) of 1958, as amended (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq*) and the Endangered Species Act (ESA) of 1973, as amended (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq*). This statement appeared in a joint letter to the Corps signed by the Service, National Park Service (NPS), and the Department of the Interior (DOI) on June 3, 2008.

“Since 2006, the USFWS has provided a number of technical assistance documents, including: a FWCA planning aid letter making recommendations for project environmental features including habitat enhancement and restoration, identifying restoration options within the project area which we had discussed with land managers/owners, (approximately 37 sites) (October 6, 2004); formal comments on the Draft Executive Summary Formulation Report (July 9, 2007, and September 13, 2007); formal comments on the Habitat Evaluation Procedure developed for the FIMP (July 7, 2006); a planning aid letter which lays out the first parts of the 2(b) report, (principally a description of the affected environment, including the materials originally provided on October 6, 2004 identifying restoration options within the project area); a letter provided on October 12, 2007, expressing concerns that the Interagency Reformulation Group had not yet discussed project environmental impacts, (December 31, 2007); a follow-up document to our description of affected environment, describing goals for compensatory mitigation and our justification for such recommendations, (February 25, 2008); a letter conveying our recommendations for listed species conservation measures by way of listed/candidate species habitat enhancement and restoration, (February 13, 2008); and another round of comments on a draft listed species management plan for the project action area, to ensure protection of listed species from recreational activities for the life of the project (conveyed via email, May 9, 2008).”

Other important coordination meetings occurred on the following dates:

December 4, 2007 – Joint Service and Corps meeting with landowners in the Study Area to discuss the development of a draft management plan for threatened and endangered species.

January 7, 2008 – Interagency meeting among the Service, Corps, and NPS to discuss National Ecosystem Restoration (NER) alternatives.

October 14, 2008 – Interagency meeting among the Service, Corps, and NPS to discuss restoration alternatives for the Fire Island National Seashore (FIIS).

### **Overall Comments on the May 2009 report:**

This report presents a number of significant issues that should be addressed by the Corps in the planning process. These issues are central to our core mission of protecting and conserving fish and wildlife resources, including threatened and endangered species, migratory birds, and interjurisdictional fishes and their habitats, as well as the responsibilities of the Corps under the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. §4321 *et seq.*), the FWCA, and the ESA. Many of these comments were provided in correspondence to the Corps during informal ESA consultation, the Habitat Evaluation Procedures (HEP) planning effort, and the on-going FWCA consultation.

- (1) The Draft Formulation Report does not adequately summarize or characterize the existing environmental setting in the study area. In the introduction, an acknowledgement is made that the level of detail is limited, but then an assertion is made that the level of detail is sufficient to allow for comparison of alternatives and identification of a preferred plan. It has long been our experience that we, as an agency, need to be careful in terms of endorsing a limited range of alternatives before details of the affected environment and the alternatives' (both those carried forward and those eliminated) impact on the environment are available.
- (2) The Draft Formulation Report does not clearly identify any mitigation measures specific to the recommended alternatives that are being considered.

Sections 1502.14 and 1502.16 of the regulations for implementing NEPA (40 CFR Parts 1500-1508) require the action agency to formulate appropriate mitigation measures for the proposed action or alternatives. These regulations define mitigation to include:

1. avoiding the impact;
2. minimizing the impact;
3. rectifying the impact;
4. reducing or eliminating the impact over time; and
5. compensating for the impact.

The Service's Mitigation Policy (Federal Register Vol. 46, No. 15, January 23, 1981) adopts NEPA's definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. We believe that the draft formulation report should include statements on the mitigation alternatives so the agencies can be better informed and aware of the measures that are being contemplated by the Corps to address specific alternative derived impacts. We understand there is some relationship between the NER alternatives and the alternative for storm damage reduction, but the linkage is less than clear to us.

The Service has discussed the negative impacts that beach fill projects can have on fish and wildlife resources, including threatened and endangered species, in FWCA 2(b) Reports and Biological Opinions for Corps' projects or permitted activities (*e.g.*, Westhampton Interim Project, Fire Island Interim Project, West of Shinnecock Inlet Interim Project, Shelter Island Erosion Control Project, and Breach Contingency Plan). In those reports, we referenced peer-reviewed literature, grey literature, agency reports, and field observations to substantiate this point, and to stress the need for identifying a

number of options to address storm damage protection on the barrier island that were fully mitigated and avoided, or minimized impacts to listed species. We also provided mitigation measures that the Corps should incorporate into those projects to avoid, minimize, or compensate for the adverse impacts associated with storm damage protection projects, most notably beach fill alternatives.

As stated in our supplemental Planning Aid Letter dated February 25, 2008, because unavoidable impacts are likely to occur if the FIMP plan includes components that result in adverse habitat modification, habitat creation foregone, (*i.e.*, preventing natural processes which create and maintain habitat) over the long life of the project, then the Service will recommend that those losses be compensated by replacement of the same kind of habitat value, so that the total loss of such in-kind habitat value will be eliminated. This is consistent with our recommendations concerning some of the above listed Corps' storm damage reduction projects. Compensatory mitigation projects may include restoration, enhancement, or creation of replacement habitat to convert it to the type lost; restoration or rehabilitation of previously altered habitat; increased management of similar replacement habitat so that the in kind value of the lost habitat is replaced, or a combination of these measures. By replacing habitat losses with similar habitat, populations of species associated with these valuable habitats may remain relatively stable, despite project implementation.

The draft formulation report cites numerous instances when a proposed action will impact coastal processes and fish and wildlife resources. Consequently, the Service recommends that the Corps include specific restoration/mitigation alternatives as part of a preferred project description, identify associated costs and include the cost-benefit analyses for each alternative, and ensure that firm, written commitments are made by the Corps and local sponsors to implement these measures, if necessary, as part the mitigation planning for this project. Finally, we note that the first paragraph in this report identifies the FIMP Reformulation Study's very purpose, concluding that reducing risk of coastal storm damages is to be accomplished "while maintaining, enhancing and restoring ecosystem integrity and coastal biodiversity."

- (3) The results of the HEP analyses are skewed towards the creation of wide beaches, high berms, and dunes. That is, although we have long asserted and documented that early-successional habitat associated with overwash, inlet migration, tidal flat establishment is the habitat that, overall, is most compromised by human interference in natural processes, the HEP process takes a very narrow view. This view is as narrow as the HEP study units evaluated, favoring a "project" where multiple habitat types can be "restored" rather than recognizing what is absolutely essential at a landscape scale. Further, it is unclear to the Service how HEP restoration projects will be maintained/managed over the life of the project, given that natural processes are not being restored (e.g. overwash prevented, breaches filled, new inlet formation prevented).

A primary concern that the Service has with this HEP analysis, as stated in our July 7, 2006, correspondence, is that the analysis decreases Habitat Suitability Index (HSI) values when breaching/overwash occur, and increases HSI values when sand/dune placement occurs in an area (*e.g.*, Old Inlet) deemed of high ecological value due to the recent occurrence of overwash processes. For example, Table 9.3 on page 323 gives higher habitat unit (HU) values to sites where breach response and breach restoration alternatives (future with-action: renourishment of profile/sand and dune placement) occur than if the natural coastal cross-shore sediment transport process is allowed to occur (future no-action). To further illustrate this point, Table 9.6 (page 332) also gives higher

HU values to the restoration of dune width and height than to the creation of a sand lobe on the bayside at Atlantique to Cornielle.

There are some restoration projects supported by the HEP team that the Service agrees to, in concept. However, we find that many of the selected sites do not, as presented, include enough details concerning design, protection, and management. In some cases, we do not support restoration alternatives based on their stated purpose. Examples of alternatives which illustrate these comments are discussed below.

The report states that for alternatives involving bayside habitat improvements in conjunction with breach closure, created fore-dune areas would be planted with 40% cover (page 323). One of the Service's concerns with these restoration alternatives and how they are assessed in the HEP modeling (as stated in our July 7, 2006, correspondence) is whether post-restoration conditions will be maintained and how realistic it is to assume that local landowners would conduct maintenance activities. To the extent that these activities are being proposed as conservation measures to minimize impacts to Federally-listed species, these factors would need to be addressed in the Draft Formulation Report and in the Corps' Biological Assessment.

The Service preliminarily supports the concept of the proposed creation of subaerial and intertidal habitats on the bayside from Atlantique to Cornielle Estates (Table 9.4, alternative T-25-1, page 329). However, we indicated in meetings that more appropriate sites exist from an ecological standpoint, such as lands north of the Federal tracts within the FIIS. These areas are probably more suitable as they are more removed from recreational activities, ferry and water taxi routes, and other impacts associated with human development and transportation routes. No where in New York State would we recommend creating compensatory mitigation in landscape positions where they would be vulnerable to any number of human-caused impacts, both direct and indirect. Overall, we believe these types of mitigation alternatives located in suitable and sustainable landscape positions are necessary and should be pursued vigorously in order to address the loss of this type of habitat due to alternatives that prevent breaching and overwashing of the barrier island (e.g., beach fill and breach response alternatives), or to mitigate the impacts of existing hard structures (e.g., jetties, groins, bulkheads, etc.). Alternatives such as these should incorporate habitat and species monitoring, habitat functional management, and protection over the life of the project.

As noted above, the extent that these actions may affect listed species such as the piping plover (*Charadrius melodus*), seabeach amaranth (*Amaranthus pumilus*), or roseate tern (*Sterna dougallii dougallii*) should be fully evaluated in the Biological Assessment pursuant to 50 CFR Part 402.12. The Service also recommends that the Corps address the potential impacts of this and other alternatives on the red knot (*Calidris canutus rufa*), a candidate species for listing under the ESA.

In accordance with the Service's Fish and Wildlife Manual, part 870 FW 1 Section 1.8, subsection D., Endangered/Threatened Species, the consideration of endangered and threatened species in project planning is required by Section 7 of the ESA and related regulations. Thus, to avoid any possibility of confusion with the consultation requirements of Section 7 of the ESA, no Federally-listed endangered or threatened species should be used as an evaluation species in a HEP study.

- (4) Some recommendations for habitat restoration are not supported by existing data regarding population trends for fish and wildlife species of concern, or our understanding of the physical conditions that create and maintain habitats in the study area.

In spite of our July 7, 2006, recommendations that restoration efforts for heron rookeries be removed from consideration as a FIMP restoration alternative, due to our high concern on the status of populations of colonial waterbirds such as the common tern (*Sterna hirundo*), least tern (*Sterna antillarum*), and roseate tern, the 2009 Draft Formulation Report includes this as a restoration alternative.

Table 9.4 lists the creation of heron habitat at John Boyle, New Made, and Warner's Island East as possible restoration alternatives. As stated in our July 7, 2006, correspondence, the Service recognizes that heron rookeries are an important fish and wildlife resource. However, due to the lack of habitat management, many bay islands have undergone vegetative succession such that suitable habitat in the form of dense trees and shrubs already exist for herons in the project area – that is, this type of habitat is readily available. The Service instead recommended these bay islands for restoration (via vegetation management) to support breeding colonial ground-nesting water birds, due to their history in supporting these species. The Service has stated that the fish and wildlife habitat resources in the most peril within the FIMP project area are colonial waterbird breeding areas, specifically for the Federally listed endangered roseate tern, which only breeds in common tern colonies. Therefore, the Service does not support the restoration of the bay island sites into heron rookeries due to the more urgent need to return these areas to their previous availability as colonial waterbird breeding habitat. The Service does not agree with the values in Table 9.6 (page 332) for New Made Island in which habitat values for shorebird and heron nesting habitat creation/restoration are comparable, as these are not consistent with the long running data collected by the New York State Department of Environmental Conservation concerning the status of the tern and heron species identified above in the study area, or our recommendations provided in the Service's Planning Aid Letter (PAL).

- (5) The draft formulation report does not appear to specifically address the Service's recommendations for habitat restoration sites provided in the PAL.
- (6) The Draft Formulation Report does not incorporate any of the conservation measures for endangered species discussed at joint interagency meetings or in correspondence provided to the Corps in February 2008, and does not accurately characterize the status of efforts taken in an attempt to draft the Long Term Regional Comprehensive Planning for Threatened and Endangered Species for the FIMP action area.

In a letter to the Corps dated February 13, 2008, the Service provided 23 preliminary sites, which totaled over 600 acres and consisted of bay islands, barrier island, habitats, or back bay areas, for consideration as compensatory mitigation sites to offset unavoidable impacts to the nation's waters, sites to restore and minimize the project's adverse effects on listed species, and/or sites the Corps should pursue under its obligations and responsibilities under Section 7(a)(1) of the ESA. A presentation of these sites was given both to the Corps and NPS in joint interagency meetings. The Draft Formulation Report does not address these sites in any manner. We recommend that the Corps review our previous comments on this report as well as our comments on the negative impacts beach fill and breach response projects can have on fish and wildlife resources, including threatened and endangered species contained in the FWCA 2(b) reports and Biological Opinions for Corps' projects or permitted activities (e.g., Westhampton Interim Project,

Fire Island Interim Project, West of Shinnecock Inlet Interim Project, Shelter Island Erosion Control Project, and the Breach Contingency Plan). In those reports, we referenced peer-reviewed literature, gray literature, agency reports, and field observations, to convey this point to the Corps and to stress the need for identifying a number of options to mitigate impacts to Federally-listed species attributable, for the life of the project, to storm damage protection alternatives on the barrier island.

- (7) The Service supports the objectives of the Vision Statement; however, there needs to be a clear accounting in the Draft Formulation Report on the mitigation actions that will be undertaken relative to specific alternatives versus restoration measures that will be undertaken to address the objectives of the Vision Statement.

### **Specific Comments:**

**Study Area Development Patterns, Recreation, and Public Access, page 93:** The Service recommends that the Corps include information on the public access plan for the Reformulation Study in the revised Draft Formulation Report and discuss the public access plan in the context of “environmental setting and carrying capacity,” as noted on page 93.

**Table 3.5, page 96:** Information is lacking on brackish, freshwater ecosystems in the study area. Several major riverine systems occur at Carmans River and Connetquot River. This is an extremely important but often overlooked habitat complex in the FIMP study area.

**Marine Offshore Ecosystem, Marine Offshore, page 99:** Statistical information on seabird concentrations should be provided in order to illustrate the relative importance of this habitat to these species in a regional context.

**Marine Offshore Ecosystem, Marine Intertidal, Birds, page 102:** The red knot should be identified as a candidate species for listing under the ESA. Further, while there are generally no site specific inventories of avifauna, we recall that the Corps did produce a report on avifauna in portions of the project.

**Marine Offshore Ecosystem, Marine Beach, page 103:** This section does not provide a clear sense of the importance of the study area in regard to piping plover breeding habitat on Long Island. In 2007, the FIMP study area supported 47.5% (218 prs) of the total piping plover population on Long Island (458 prs). Examining the distribution of piping plovers on the south shore of Long Island, the FIMP study area supported 68.7% (218 prs) of the total south shore population (317 prs) in 2007. Similar analyses should be conducted by the Corps for other Federally- and State-listed species and species of high conservation concern. There are over ten major piping plover breeding sites in the study area. Further, there are a number of historic roseate tern breeding sites and several active roseate tern breeding sites in the area. Seabeach amaranth occurs throughout the project area.

In regard to seaduck populations, this section should discuss the distribution of these species relative to offshore areas, particularly those areas that are potentially subject to offshore dredging, (i.e., the sand borrow areas).

**Terrestrial Upland, Birds, page 106:** This section makes a casual reference to sightings of raptor species in Amagansett. However, the Service recommends that this section include results from over 25 years of hawk watch statistics that have been collected and compiled by the Fire Island Raptor Enumerators. They have a publicly accessible database that can be found at <http://www.battaly.com/fire>. Other sources of information that the Corps might find useful in



characterizing the avifauna in the project area include the USGS' Breeding Bird Survey data which can be found on-line at <http://www.pwrc.usgs.gov/BBS/> as well as the New York State Breeding Bird Atlas data at <http://www.dec.ny.gov/animals/7312.html>.

**Bayside Beach, page 107:** The Service recommends that the Corps quantify the amount of bayside beach habitat that has been “eliminated due to bulkhead construction, immediate development, and or severe erosion” and discuss these in relativistic terms. As it is presented now, the information is unsubstantiated, but if known, would assist in the development of mitigation alternatives for compensation of habitats lost to erosion caused by hard shoreline structures on the bayside of the barrier island, or for restoration of bayside littoral processes.

**Bay Intertidal Habitat, Birds, page 108:** This section includes a discussion of birds found in the western end of West Hempstead Bay. The revised Draft Formulation Report should clarify this.

**Sand Shoals and Mudflats, page 108:** The Service recommends that the Corps discuss the overall distribution and relative amount of these geomorphological features in the study area, as they are important habitat for a number of biota (not discussed in the section that follows this lead section, but in the Bay Intertidal Habitat). We would note that these areas can be haul out areas for seals that overwinter on Long Island, foraging sites for resident and migratory shorebirds and waterbirds and, therefore, should be discussed on their own merits.

**Salt Marsh, page 109:** The Service recommends that the Corps quantify the salt marsh acreages found in the study area.

**Salt Marsh, Birds, page 109:** Over the last 20 years or so, these habitats have been increasingly more important to less common birds such as the State-listed species common tern, and other species such as black skimmer (*Rynchops niger*) and American oystercatcher (*Haematopus palliatus*) (species of high conservation concern). The saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*), a species of highest conservation concern in Bird Conservation Region 30, is also found in saltmarsh habitat.

**Mainland Upland, Birds and Wildlife, page 112:** This section only mentions three bird species typical of the upland habitats, in some instances; however, over 60 species may be present during the breeding season. The Service recommends that the Corps provide a more accurate representation of avifauna in this particular habitat type. A good starting point for the Corps would be the New York State's Breeding Bird Atlas data found at <http://www.dec.ny.gov/animals/7312.html> and the USGS Breeding Bird Survey data at the address provided earlier in our comments.

This section describes a discussion on amphibian diversity on the barrier island system, which is not relevant to the mainland habitat discussion.

**Threatened and Endangered Species, Table 3.6, page 113:** Seabeach amaranth is listed as threatened under the ESA, not endangered as noted on this table.

**Threatened and Endangered Species, page 115:** The Service recommends that the Corps correctly characterize the status of its consultation with the Service under the ESA as informal. The Corps has not initiated formal consultation as of this date, but has coordinated from time to time with the Service on threatened and endangered species for some aspects of the study.

The Corps accurately lists the Federally-listed species under the Service's jurisdiction in paragraph 2 on page 115, but inaccurately states that they all use "essentially the same habitats." Piping plover, least tern, and seabeach amaranth do occupy early successional habitats on the barrier island system, but amaranth is restricted to the ocean shoreline beaches where cross island overwash is not present; whereas plovers and terns can utilize bayside beaches on both the barrier island and mainland. Further, these three species do not share habitat with sandplain gerardia which is an upland plant species. Note also that piping plovers and State-listed tern species may breed in early-successional habitat above mean high tide, but will only succeed in fledging chicks if there is an abundant supply of forage available in tidal mudflats in and around inlets, on flood tide deltas, in ephemeral pools on the beach front, and in wrack along the beaches and bay shorelines.

Paragraph 4 on page 115, inaccurately represents the status of several activities that the Service recommended be undertaken under the auspices of the FIMP Long-term Comprehensive Management Plan for Endangered Species (LTCMP). For instance, while a couple of meetings have been held with landowners relative to long term monitoring, management, and protection efforts that should be considered for incorporation into project, no specific plans have been developed or agreements entered into at this time. We provided the Corps with excellent examples of monitoring, management, and funding agreements developed by the Corps Philadelphia District, the State of New Jersey, and the Service's New Jersey Field Office. These were provided as conservation measures for a programmatic consultation on the Corps Federal navigation channels and inlet management and beach renourishment program. The Service would not consider this important phase of the endangered species conservation planning to be "accomplished," as depicted in the document.

**Section 4, Without Project Future Conditions, General, page 123:** Paragraph 3 of this section states the "WOPFC [without project future conditions] instead highlights the magnitude of haphazard, uncoordinated actions which are undertaken in the absence of an overall plan." The Service notes that many projects affecting the shoreline are either directly overseen or implemented by the Corps (e.g., inlet maintenance projects) or permitted by the Corps' Regulatory Branch (e.g., Fire Island National Seashore Community beach nourishment projects in 2003 and 2008-09) and, therefore, can be coordinated by the Corps in a fashion that takes a more programmatic approach to shoreline management than presently exists. We also note that projects that would be constructed within the jurisdictional boundaries of the National Seashore also benefit from National Park Service's oversight and long-term planning views associated with Park Special Use Permits and their general management plan, currently under development.

**Section 4, Without Project Future Conditions, Actions to Maintain a Threshold Condition, page 125:** In regard to statements made in paragraph 3 of this section, comments provided immediately above apply.

The last sentence of this paragraph implies that the FIMP, or a similarly designed overall plan, would be designed to protect individual residences. Please clarify.

The last paragraph of this subsection on page 126 suggests that the activities of the East Hampton Town or Southampton Town Trustees regarding the coastal ponds, such as using material deposited in the flood shoal for small dune building projects, would continue to be an activity that the Corps would characterize as uncoordinated. However, as the Service pointed out above, the Corps would have regulatory control over that activity and, therefore, through its Regulatory Branch, could begin to address these actions in an integrated fashion. These activities are also subject to State and local controls.

**Damage Results, page 175:** The revised draft formulation report should explain what percentage of the overall damages calculated in this section are from loss of landscaping and cars in the shorefront zone.

**Damage Sensitivity and Uncertainty, Damage Categories, Public Emergency, page 184:** When the Corps has determined that it can calculate Public Emergency Costs associated with storms, will the results be viewed as savings as well? For instance, someone driving their car to a designated shelter may remove that car from the category of damaged assets (see above comment).

**Section I. Summary of Problems and Opportunities, General, page 191:** Point 4 states, “The barrier island provides a high degree of protection to the mainland which could be compromised by a breach.” Please clarify this statement in relation to economic analysis data provided on page 184 which states, “...14% of the total damages are due to storms that result in breaching and overwashing,” and “[69%] of the damages [to the mainland and back bay areas] is due to flooding of the backbay areas that is likely to occur regardless of the barrier island condition.” Perhaps management of the inlets in a different way might minimize their impacts on flooding of back bay areas, allowing for incorporation of additional measures to *restore* natural processes, such as over-washing.

**Section C. Initial Screening, No Action, page 203:** The document states that the project “...assumes continuation of the Westhampton Interim Project for thirty years....” The Corps should clarify the timeline for this project as it was initiated in 1997, nearly 12 years ago, leaving only 18 years from now until its conclusion.

**Table 8.12, Breach Closure Alternative, page 248:** Row two, middle column: The last sentence is incomplete.

**Row 5:** There is no information in the document relative to this alternative that discusses how the alternative would protect and restore natural habitats, other than restoring beach widths and the artificial creation of dunes.

**Row 6:** There is no information concerning response protocols, such as time of year restrictions, environmental monitoring, etc., that would merit the “Partial” rating given to this evaluation criteria.

**Row 8:** As the goal of breach closure is to close breaches and provide dune and beach profiles which significantly limit the potential for future breaches, it is not clear from the text why the Corps gave a “Full” rating to this criteria.

**Summary of Breach Response Alternative, page 249:** The Corps should evaluate, based on coordination with its non-Federal sponsors and the cooperating agencies, “...where a greater amount of cross-shore transport...can be considered further.” Currently, this information is lacking in the Draft Formulation Report. Results of that coordination should be included in the revised report. Cross-shore transport or sediment results in reestablishment of back bay habitats, including breeding and foraging areas for listed species and other migratory birds, and essential fish habitat.

**Fire Island Inlet, page 256:** The Corps should include a discussion on the effects that would be expected at the western tip of Democrat Point by increasing the deposition basin and the dredging of the ebb shoal relative to the existing endangered species habitat at Democrat Point.

**Table 8.24, Inlet Management Measures, page 262:** The preferred alternative for each of the inlets is basically the implementation of each respective Authorized Inlet Project along with dredging of the ebb shoal. The fact that the Service has repeatedly requested and recommended that the Corps' Operations Division reinstate formal consultation for each of the inlet projects, demonstrates that the Service believes these projects continue to have adverse impacts on Federally listed species and their habitats that were not, nor are, currently evaluated and minimized. Therefore, the Service does not agree that collectively these actions to be carried forward in the FIMP should be rated as in "Full" support of the criteria found in rows 4, 5, and 6. Findings on these criteria should be deferred, until further coordination with the Service conducted pursuant to the ESA.

**Table 8.37, Non-Structural Retrofit Alternatives, page 278:** The report does not contain sufficient information that would assist the Service in understanding and agreeing to the ratings provided in rows 4, 5, and 6 related to habitats and environmental impacts. Information regarding the location of these alternatives and associated habitats (wetlands, uplands, etc.) should be included in the revised Draft Formulation Report.

**Untitled Table on page 299:** The report does not contain sufficient information that would assist the Service in understanding and agreeing that the ratings provided in rows 4, 5, 6, related to habitats and environmental impacts.

**Untitled Table 8.52, page 309:** The report does not contain sufficient information that would assist the Service in understanding and agreeing that the ratings provided in rows 4, 5, and 6, related to habitats and environmental impacts.

**Untitled Table 8.53, page 319:** The report does not contain sufficient information that would assist the Service in understanding and agreeing that the ratings provided in rows 4, 5, 6, and 8, related to habitats and environmental impacts.

### **Cross-Island Sediment Transport**

The Service concurs with statements in the document relative to the importance of cross-island transport processes in the formation of back-bay habitats and the actions that alter/impact it, and recognizes that cross-island transport is the primary mechanism for sediment introduction into the back bays (see pages 37, 130, 188). Efforts by the Corps to try to quantify the volume of sediments entering the bay during breach events are found in Table 5.5 on page 160, which can contribute to the development of mitigation alternatives for recommended beach fill and breach response alternatives. We agree with USGS that it is unclear how the Corps could calculate how much of that sediment would be above mean sea level and what the error assessments are for these calculations. We note that the spit formed in the back bay at West Hampton Dunes has been eroding, but that it has great value as both potential breeding habitat (above mean high tide) and as foraging habitat (vast intertidal mud flats surround the visible portions of the spit).

**Section 4. Sediment Management (Inlet Sand Modifications), page 205:** The Service concurs with the statements on page 205, that inlets serve as a conduit for floodwaters/storm surge to enter the bays during storm events. Measures to improve long shore sediment transport at the inlets should also include a discussion of potential environmental impacts, and mitigation plans to avoid, minimize, or compensate for those impacts.

**Section 13. Storm Closure Gates:** Information concerning the monetary costs and environmental impacts associated with this alternative should be included in the document.

## **Inlets**

The Service provided comments on the Corps' Draft Inlet Modification Report in our correspondence dated September 13, 2007.

### *Dredging of flood shoal*

The report lists the dredging of the flood shoals as a viable alternative for each of the inlets. As stated in our September 13, 2007, correspondence, the Service is still concerned with the potential impacts that this practice would have on the sediment budget and ecology of the bay environments. The practice of removing sediment from the bayside for placement on the ocean shoreline removes sand from the bay areas, where bayside shoreline processes form essential habitats, such as tidal flats/deltas, tidal wetlands, submerged aquatic vegetation beds, and early successional habitat for breeding and foraging waterbirds and horseshoe crabs (*Limulus polyphemus*). Additionally, flood shoals at each of the inlets provides important haul-out/loafing areas for over-wintering seals, as well as foraging habitat for shorebirds and terns species.

The report recognizes the impacts of flood shoal dredging, stating that dredging of the ebb shoal is preferred, due to potential environmental impacts (page 251) of flood shoal dredging, although such dredging is not ruled out.

### *Structural Measures*

The report states that structural measures (groins, breakwaters) appeared promising to reduce the requirement for beach fill and provide more reliable protection in the area west of Shinnecock Inlet (page 225). As stated in our September 13, 2007, correspondence, the Service is concerned with the impacts that these measures would have on fish and wildlife resources. These structures will harden/alter the habitat used by breeding plovers and may impede natural processes that create and maintain optimal breeding and/or growing habitats, such as ephemeral pools, overwash fans, and dune blowouts, which are features of a naturally eroding beach.

### *Maintenance dredging*

As listed in Table 8.16 on page 254, Alternative 1 for Moriches Inlet calls for the dredging of the inlet every year (1 year cycle-authorized project). This frequency appears to be based on maintaining reliable navigation. The authorized project appears to refer to the maintenance dredging authorization, while the annual dredging schedule is being developed for the FIMP - a storm damage protection project. Is the current 4 year cycle not sufficient to maintain reliable navigation or is the need for sand driving the frequency of dredging? Please clarify in the next version of the Report. Also, annual dredging limits the amount of time that the benthic community (prey for shorebirds, including the Federally-listed threatened piping plover) can recover from dredge material burial, which could take up to 6 months.

### *Restoration Alternatives*

The Service supports the restoration of bayside habitat (page 261) in proximity to inlet management alternatives to provide a mosaic of habitats, but has concerns with the restoration of ocean dune habitat that would limit/prevent cross-shore sediment transport. We have placed particular emphasis in previous comments on restoring back bay islands for colonial waterbird use and recommend that the Corps incorporate those recommendations into its mitigation alternative planning efforts.

### *Vision Statement*

Table 8.24 states that inlet management measures fully attain the evaluation criteria that “The plan or measure help protect and restore coastal landforms and natural habitat.” Although sand bypassing does help reduce or eliminate deficits in longshore transport, the stabilization of these inlets prevent the natural migration of inlets and the distribution of sediments into the bay (as stated in page 37 - unconstrained inlet processes provide back barrier sediments for marsh growth). As such, the Service does not agree that such measures fully attain these criteria.

### **Breach Response**

#### *Breach Closure*

The report states, on page 214, that it is more cost effective to close a breach immediately, and that immediate breach closure was recommended for further evaluation. This decision appears to be based solely on cost effectiveness with no consideration of environmental impacts or benefits. As stated in the Service’s September 13, 2007, correspondence, the Service supports the consideration of alternatives which allow for breaches to remain open, a protocol to determine if breach closure is warranted, and the creation of back-bay habitat as mitigation. The Draft Formulation Report does recognize the importance of breaches in the formation of back-bay habitats, and that it may be possible to construct/restore over-wash/back-bay habitats to complement breach response alternatives (page 247). The Service supports the consideration of such restoration/mitigative measures.

As stated in our September 13, 2007, correspondence, the Service supports the consideration of alternatives that are of a lower dune elevation to allow for overwash events in appropriate areas, including the 9.5 ft NGVD breach closure alternative that is being carried forward for consideration (page 242).

#### *Pro-Active Breach Closure*

The report states that triggers/threshold conditions have been established (page 243) that, once attained, would require action (renourishment of profile) to prevent a breach. The Service is concerned that in an area such as Old Inlet where natural processes are occurring, namely cross-island sediment transport, which sustains a high ecological value, could be considered an area that requires manipulation. This practice would limit/prevent the development of early successional habitat. The Service would support the consideration of alternatives that allow for the development of such habitat. Perhaps these triggers/threshold conditions could allow for the development of these habitats that are not/may not be susceptible to breaching.

#### *Restoration Alternatives*

The Service supports the compensation of bayside habitat as a mitigation measure associated with the application of a storm damage reduction measure (such as beach fill on the ocean beaches) or as mitigation for a breach fill response. The Service also supports the minimization of the impacts of hard structures in the back bay littoral processes through modification of bayside structures and bay beach nourishment in selected sites (page 247).

### *Vision Statement*

Table 8.12 states that breach closure alternatives fully attain the evaluation criteria that “Dune and beach nourishment measures consider both storm damage reduction, restoration of natural

processes, and environmental effects.” The assessment portion of the table recognizes that breach closure could cause a potential reduction in cross-shore transport. Breach closure alternatives either severely limit or prevent the natural process of cross-island sediment transport, as such, the Service does not concur that these alternatives fully attain this criteria.

### **Beach Fill**

Figure 8 (page 281) depicts areas where beach fill is under consideration. One of the areas for consideration is Old Inlet, an area of relatively high ecological value due to the presence of early successional habitat. In correspondence dated July 7, 2006, the Service expressed concerns with practices to stabilize this area and severely limit or prevent the natural process of cross-island sediment transport.

The benefit-cost ratio analysis of beach fill alternatives (page 294) indicates that each beach fill alternative (+ 13 ft., + 15 ft., +17 ft.) would be cost-effective, yet the report states that only the +15 alternative would be carried forward since it maximizes net benefits. However, the net benefits do not appear to incorporate costs associated with environmental impacts or mitigation (discussed further below). Table 8.5 (page 299) states that beach-fill alternatives only partially attain the evaluation criteria that “Dune and beach nourishment measures consider both storm damage reduction, restoration of natural processes, and environmental effects.” The Service concurs with this assessment, since it recognizes that such an alternative “reduces cross-shore transport because of higher dunes”. The environmental impact is recognized, but the need for mitigation does not appear to be addressed here, only that it is being minimized.

### **Groin Modification**

The Service is concerned with the proposed re-use of stone from groin modification alternatives for the restoration of bayside habitat (page 308). Hardening of the shoreline deflects wave/current energy and alters shoreline and back-bay habitat. The Service supports the consideration of bio-engineering (eco-gabions, bio-logs, etc.) in lieu of the use of only stone to restore bayside shorelines.

### **Phase 2, Overview of the Development of National Ecosystem Restoration (NER) Alternatives. B. Restoration of processes with the primary objective of storm damage reduction, page 320.**

**Identification and screening of potential restoration sites, page 324:** This section fails to mention the Service PAL that provided a detailed account of preliminary sites which the Service was recommending for restoration.

### **National Ecosystem Restoration Alternatives**

Overall, the document does not provide an integrated approach to addressing project impacts with proposed restoration alternatives. There is an attempt to address impacts associated with the processes outlined in the report, including longshore transport, cross-island transport, bayside, processes, and estuarine processes. The plan does not present any mitigation alternatives directly related to any of the proposed alternatives.

In a number of FWCA 2(b) Reports and Biological Opinions submitted to the Corps on related dredging and storm damage protection projects within the FIMP study area, the Service has provided mitigation measures that would avoid, minimize, or compensate for impacts related to fish and wildlife resources. For each of these types of projects, the Service has reported the

adverse direct and indirect impacts these types of projects can have on Service trust resources, including endangered species, migratory birds, and interjurisdictional fishes.

### *Bayside Shoreline Improvements*

The Service supports the concept of bayside shoreline improvement involving the creation of an over-wash lobe (alternative SPCP-2) for shorebird foraging/nesting habitat and bayside sediment input as discussed on page 322. However, this and other proposed restoration alternatives, lack information on long term habitat maintenance, protection, and management that would assist us in gauging their effectiveness. We recommend that the Corps consider replicating this alternative at the sites the Service submitted in our February 13, 2008, letter, and then provide the results to the FIMP planning team for further discussion.

## **National Park Service**

### **General Comments on Relevance of NPS Legislation and Management Policies to FIMP**

The USACE has been directed to recommend a storm damage reduction plan, a plan which requires a local financial sponsor, New York State, with local governments, Towns of Brookhaven, Islip, Easthampton, and Southampton and Suffolk County. A draft plan that lacks the necessary statements of the legally required local sponsor is not a plan. The document needs to set forth the State's position and commitment to any preferred alternatives or proposed undertakings regarding the FIMP.

The NPS has been directed to manage Fire Island National Seashore (FIIS) in a natural state. The establishing legislation does anticipate that beach nourishment and/or new inlet development may be appropriate in the future. As you correctly note in several places throughout the document, the FIMP project arises in the context of two key Congressional enactments. The USACE authorization and WRDA's, along with multiple USACE guidance documents cited at page 192 provide the basis and framework for this planning effort. Similarly, Congress has explicitly directed that any actions regarding "shore erosion control or beach protection" within Fire Island National Seashore (FIIS) must meet two criteria: (1) it must be pursuant to a plan that is "mutually acceptable to the Secretary of the Interior and the Secretary of the Army" and (2) it must be "consistent" with the FIIS legislation. The FIIS legislation further requires that any federal beach project must be done under an agreement between the Secretary of the Army and the Secretary of the Interior.

The "consistency" with the FIIS legislation mandates that multiple other concerns be integrated into the FIMP in addition to the USACE directive to reduce storm damage risk within the boundaries of the national seashore. These include, the preservation of the dunes, the Sunken Forest and the area slightly east of Davis Park (called the 8-mile zone in the original legislation and now designated as a National Wilderness Area) in their natural state; conserving and preserving for posterity unspoiled and undeveloped beaches, dunes and natural features with the "primary aim" of conserving natural resources; and in carrying out these directives, being consistent with the basic enabling laws of the national park system. Under its general authorities, the NPS has adopted management policies, most recently published in 2006. Pertinent policies include those of allowing erosion, overwash events, inlet formation and shoreline migration to occur without interference. Second, human actions which have altered natural processes should be first examined in order to restore natural conditions or mitigate for



their impacts. Third, shoreline manipulation measures need to achieve natural resource management objectives and minimize impacts outside the target area.

Within the context of the Corps' Vision Statement, it was acknowledged that long-shore sediment transport, cross-island sediment transport, dune growth and evolution, estuarine circulation and water quality, and bayside shoreline processes are the five critical processes necessary to maintain the integrity of the coastal barrier. Although storm events have societal impacts, they move large quantities of sediment into the system which not only provide sediment for the development of breeding habitat for federally-protected species but also for the development of protective features such as beaches and dunes and back bay salt marshes.

The Draft Formulation Report does present NPS policies generally (see pages 364 and 368). However, we suggest that the next version of the report needs to explain NPS policies much more carefully and specifically, as follows. This explanation should be inserted into the discussion about the park at pages 47-49.

“Fire Island National Seashore, which makes up more than 31% of the ocean shoreline included in the Reformulation Study, is a unit of the National Park System. The seashore is managed in accordance with the National Park Service Organic Act of 1916, the enabling legislation of the park itself, other applicable federal laws, and the Management Policies of the National Park System. The NPS Management Policies are articulated by the NPS Director. They set the framework and provide Servicewide direction for all NPS management decisions, and are mandatory for all NPS employees unless specifically waived in writing by the Secretary of the Interior, the Assistant Secretary, or the Director of the National Park System. The NPS Management Policies are revised at appropriate intervals to consolidate policy developments or to respond to new laws, new understanding of park resources, or other relevant changes. The most recent edition of the NPS Management Policies was issued in 2006.

“Pursuant to these Management Policies, natural geologic processes in parks, including natural shoreline processes such as erosion, accretion, and inlet formation, should be allowed to proceed without interference. The reason for this policy is that the preservation of processes in their natural condition prevents resource degradation and therefore avoids the need for resource restoration. In applying this policy, the NPS must use scientific findings and the analyses of scientifically trained resource specialists (*NPS Management Policies, Chapter 4, Sections 4.1, 4.8.1, 4.8.1.1 (2006)*).

“Therefore, the NPS will not intervene, and will not allow intervention by others, in the natural biological or physical processes in parks, except

- when directed by Congress;
- in emergencies in which human life and property are at stake;
- to restore natural ecosystem functioning that has been disrupted by past or ongoing human activities; or
- when a park plan has identified the intervention as necessary to protect other park resources, human health and safety, or facilities.

“If intervention in natural processes is deemed necessary, the NPS policy is to keep it to the minimum necessary to achieve the stated management objectives (*NPS Management Policies, Chapter 4, Section 4.1 (2006)*).

“It is also the policy of the NPS to investigate alternatives for mitigating the impacts of human structures or activities, including structures or activities outside parks, that have altered the nature and rate of natural shoreline processes in parks (*NPS Management Policies, Chapter 4, Section 4.8.1.1 (2006)*).

“A major factor in the application of these policies to a particular shoreline within the National Park System is the extent to which that shoreline is naturally-functioning or not. Naturally-functioning shorelines should generally be left alone. Any plan that interferes with a naturally-functioning park shoreline, including beach nourishment, breach closure, construction of infrastructure, or installation of shoreline control measures, and that does not meet the other circumstances spelled out in the NPS policies, would be inconsistent with the policies and could not be allowed absent a written policy waiver from the Secretary of the Interior, the Assistant Secretary of the Interior, or the Director of the National Park Service. Conversely, targeted intervention may be allowed along a park shoreline that is no longer natural (that is, it has been impacted by structures or activities in or external to the park) to restore the natural function of that shoreline, or in the other particular situations listed in the policies.

“For example, components of the plans presented in this document that would mitigate or restore natural processes in the park that have been impacted by human activities or structures may well be deemed by the NPS to be consistent with NPS policies and therefore implementable. On the other hand, the components of the plans presented in this document that would not serve a restoration purpose or meet the other circumstances in which intervention is allowed would only be implementable in Fire Island National Seashore if the NPS first obtained a written policy waiver from the Secretary of the Interior, the Assistant Secretary of the Interior, or the Director of the National Park Service.”

Discussion of FIIS at both pages 47-49 and 311, also, needs to reflect that the NPS will need to issue a special use permit to authorize implementation of those components of the final plan which impact the resources of the Seashore. It is also correctly mentioned that the Seashore is currently revising its General Management Plan to update the one that is now thirty years old. Both a permit of this magnitude and the new plan would normally require the preparation of an EIS. Therefore, the NPS hopes that its NEPA compliance can tier off a satisfactory FIMP EIS, thereby requiring compliance only for the more specific NPS action. Ultimately, this approach could lead to a more efficient use of government funds, to shortening time needed for either of these tiered processes, and to have more effective coordination in long-term NPS and USACE planning and implementation.

### **Major NPS Requirements for the USACE Plan**

The NPS is willing to support alternative 3G as the starting point of an alternative which may be mutually acceptable. As stated in the report, while not meeting all requirements of the Vision, this alternative most closely meets the requirements of the Vision document. We are supportive of several elements of this plan. However, several amendments must be made before we can fully accept this alternative and recommend that a temporary waiver of policy be requested of Department of the Interior officials to accomplish the plan objectives. Many of these comments are restated from comments made in our June 3, 2008, letter to Colonel Tortora.

## Elements of alternative 3G that we can support include:

### 1. Non-structural Building Retrofit, Land Management and Acquisition Measures

Alternatives that include building retrofits and land management on the mainland of Long Island should be the highest priorities for action under the FIMP. Assisting those homeowners and establishments which are most directly impacted by flooding from storms provides the highest long-term and permanent direct benefits. We are in complete agreement with the Corps institutional constraints which state: “*Storm damage reduction measures must consider non-structural options first, beachfill only second and structural measures only where necessary to satisfy planning objectives...*” from page 196.

2. **Adaptive Management** The Corps proposes to establish an adaptive management plan that will provide for monitoring of the system to improve understanding of coastal processes and allow for adjustments over the life of the project. Adaptive management could be related to inlet processes, breach processes and consequences, performance of beachfill, refinement of nourishment triggers, evaluation of alignment changes based upon non-structural plan implementation, assessment of effectiveness of non-structural measures, restoration measures and climate change. We are in complete agreement that critical coastal processes are poorly understood requiring extensive monitoring of the coast zone to assess the effectiveness of elements of the plan.

We are in full agreement that no action taken to reduce storm damage either on the mainland of Long Island or within the national seashore should lead to any new development or lead to any violation of the Coastal Erosion Hazard Area (CEHA). We are also in full agreement with the following recommendations:

- a) Federal Law that established Existing Fire Island NS Dune District should be amended to authorize the Dune District to align with the CEHA and to authorize changes in the Dune District boundary automatically as a result of changes in the CEHA boundary.
- b) NYS should improve mapping and monitoring of local enforcement of the CEHA.
- c) Authorize and appropriate through the Project Authorization funds to acquire from willing sellers within the CEHA developed properties, vacant parcels, or buildings at risk.
- d) Establish a regional entity such as a Suffolk County Coastal Commission with authority granted through federal and state legislation if necessary to undertake land use planning and regulation, establish priorities for land acquisition of property to be held by state or local governments and to fulfill the requirements of the local sponsor. We recommend that this be a federal, state, and local decision-making body.

A recent report issued by the National Research Council on the results of an External Peer Review (EPR) requested by the USACE on the Louisiana Coastal Protection and Restoration Program (LACPR) expresses the opinion that, “*Discouraging development in particularly vulnerable areas, whether or not they are protected by levees, is a fundamental principle of flood risk management and reduction. The LACPR should*

*strengthen its cooperation with State and local entities to ensure that the prevention of induced development is accorded a more prominent and meaningful role in future plans (NRC 2009).”* We strongly encourage the USACE – New York District to take a leadership role in flood risk management and reduction practices within the FIMP project area.

**Amendments necessary for NPS support of this alternative include:**

1. **Remove or reduce impediments of the Ocean Beach Groins** NPS will require the removal of 4 groins within the seashore boundary. We agree that any plan to remove the groins would not be a stand alone option, but would need to be a part of a comprehensive plan to address remaining risks in the area to property and facilities. This action is necessary as is pointed out that *“accelerated shoreline erosion and loss of private and federal lands west of the Ocean Beach is attributable to the groins which protect their municipal water supply but increase erosion to the west, from 2 feet/year to 3 feet/year.”* In addition to relocation of structures and facilities and beach fill, acquisition of property in fee or tenancy agreements must also be considered.

The alternatives discussion notes that one issue with removing the Ocean Beach groins is that the village’s well head is located south of the dunes. It is stated on page 306 that it will cost \$5 million to relocate the well. However, since communities both east and west of Ocean Beach are served by the Suffolk County Water District, the costs of connecting to this regional utility must be examined, as connecting to an existing system may be cheaper than drilling new wells.

2. **Non-structural Building Retrofit, Land Management and Acquisition Measures**  
The plan does not include non-structural (land management and acquisition) measures along the shorefront of the barrier that would allow for a more landward dune construction and, it is acknowledged, would reduce the potential for storm damage and help restore ecosystem integrity. Implementation of these measures, the report says, is the responsibility of the local municipalities with the State and the NPS. The plan, further states, however, that land use regulations and acquisition are critical for the Corps to be able to make a determination that the proposed project will not induce development. Construction of the project, and continued renourishment would be dependent upon this certification from the State of New York. All alternatives including acquisition which will reduce storm damages and will restore ecosystem integrity in Fire Island National Seashore, a unit of the national park system, needs to be fully explored.
3. **Adaptive Management** As stated above we are in agreement that the plan should be accompanied by extensive monitoring and an adaptive management plan. This monitoring needs to be sensitive enough to detect unanticipated outcomes from implemented strategies thereby allowing modifications to the actions if needed.

Critical to our ability to effectively implement adaptive management is the need to improve our understanding of the role of offshore sand sources. The USACE is evaluating whether extraction of sand from borrow areas located on ridges south of Fire Island would have adverse impacts on adjacent park resources. We support the approach that the USACE is taking to gain a better understanding of the current knowledge of

offshore sediments processes. It has been our understanding that a workshop held in July 2008 would produce a white paper prepared by the technical team of Federal, academic, and professional experts who were in attendance. This paper would assess the appropriateness of monitoring and adaptively managing the borrow area sediments as they are removed from offshore borrow areas or whether alternative sites further offshore need be used. This is not addressed in the plan.

A recently published paper (Hapke, et al., 2009) examines the sediment budget for Fire Island between Moriches and Fire Island Inlets. The results of this analysis indicate that there is an average sediment deficit of 217,700 m<sup>3</sup>/y between sediment entering the system and exiting the system. Although updrift shoreline erosion, redistribution of nourishment fills, and reworking of inner-shelf deposits have all been proposed as the potential sources of additional sediment needed to rectify budget residuals and are probably relevant over various spatial and temporal scales, studies indicate that an onshore component of sediment transport is likely more important along Fire Island than has previously thought. We are not only concerned that the sources identified for 50 years of beachfill (~78 million y<sup>3</sup> to 234 million y<sup>3</sup>) may be an important source of sediment for the island but are also concerned that alteration of the configuration of offshore sand resources may exacerbate storm damages to private properties within the communities. Understanding and fully considering these impacts is a critical element of the plan and to future adaptive management strategies that may be considered.

4. **Sea level Rise Scenarios** The report states that all 50-yr model simulations presented in this report are based on the historic rate of sea-level rise from the Sandy Hook-NOAA gage. Given predicted accelerated rates of sea-level rise, the report acknowledges that this is a conservative approach and there is mention that future sensitivity analyses may incorporate sea-level rise rates as predicted by the IPCC Report (2007); however, the fact that this current FIMP Formulation Report presents model simulations and discussions without recognition of predicted accelerated rates is a significant oversight. We understand that new USACE guidance as Circular 1165-2-211 will require planning documents to examine alternative sea level rise scenarios. Although the sea level rise scenarios published in the IPCC report (2007) are now thought to be very conservative estimates, it is essential for the FIMP to follow this new Corps guidance.
5. **Breach Management** The Plan suggests that as a part of the final design, a breach response protocol could be adjusted to consider establishing a higher threshold at which action is taken (i.e., waiting a period of time for the breach to close naturally in the wilderness area). If closed, the fill would simulate an overwash fan or similar natural feature. We are in agreement with this approach. Any manipulation of the Fire Island barrier in the large publicly-owned tracts should only occur as necessary.

The longstanding Breach Contingency Plan approved in 1992 has required coastal geologists and coastal engineers to determine if artificial closure of a breach was necessary outside of the developed areas. A significant problem with all the plans is that sediment delivery to the bayside of Great South and Moriches Bays is essential for the growth and maintenance of the barrier and will be decreased by breach closure practices. This effect is noted in Table 10.4 and other tables. Long-term maintenance of barrier island salt marsh habitat, and perhaps seagrass beds as well, will be dependent on cross-

island transport of sediment to the bayside and establishment of flood tide deltas – serving as platforms for new marsh development and sediment for maintenance of existing marshes. As stated by Leatherman and Allen (1985) and Roman et al. (2007) a majority of the existing salt marshes throughout the Fire Island barrier were initiated on flood tidal deltas associated with historic inlets and/or significant breaches. The long-term maintenance of salt marshes at Fire Island is tightly coupled to the preservation of inlet and breach processes. With predicted accelerated rates of sea-level rise and with adoption of management alternatives that decrease the delivery of sediment to the Bay, it is possible that the marshes will experience a sediment deficit and become submerged. The without project future condition assumes that the frequency and intensity of future storms will remain unchanged. IPCC (2007) predicts an increase in intensity of storms. This could have a significant influence on the expected projections of change, especially those environmental/habitat changes that are directly related to overwash, breach, and new inlet events.

For example, more intense storms could result in more extensive cross-island transport of sediment to the Bay and establishment of new platforms for marsh development, or sediment delivery to existing marshes thereby enhancing their ability to maintain elevation in response to sea-level rise. The NPS will allow only a post breach response plan for all major public tracts within the Fire Island National Seashore. This plan will require extensive monitoring of any breach for a period of time to assess whether the breach will close on its own. In the May 2, 2008 workshop on breach management, Dr. Nicholas Kraus, USACE, coastal engineer, suggested that breach behavior could be modeled well in advance of a breach in locations where they are likely to occur. This may be an option the USACE may want to pursue. We understand that the risks associated with breach management in the major public tracts adjacent to development will need to be assessed along with all elements of the FIMP plan and EIS. We also expect that the benefits of maintaining or restoring natural processes on natural resources and national park values will be assessed.

- 6. Beach Nourishment** NPS has repeatedly raised concerns about the NED beach nourishment alternative, (i.e., the placement of sand over any long term project life) invests in a temporary solution at best. The historic northerly migration of the dune system accentuated with even a conservative estimate of sea level rise strongly suggests that maintenance requirements and costs of the artificial beach and dune system will increase into the future. At the end of the project life the current encroachments of improved property will remain within the dune system. The project does not solve the problem, it simply defers the problem. Increased expenditures will be required to sustain the status quo into the future long-term. The alternative is initial beach nourishment gradually replaced by a focus land-use management and improved property acquisition program. NPS can concur with a beach nourishment protocol that has an initial placement with a sharply declining commitment of sand nourishment over time. All agree that beach nourishment will only provide storm damage reduction benefits as long as this action is maintained. The draft lacks the necessary non structural component committing the Corps, the NPS, the State and the local governments to essential land management and acquisition measures. Although as the Vision Statement points out “No plan can reduce all risks,” at the conclusion of the project, properties currently at risk of storm damage should be at a minimum. The NPS cannot commit to a long-term, in

perpetuity, program of beach nourishment; it would be in violation of NPS policy and under the circumstances of this project a policy requirement that we would recommend not be waived. The authorities for this project should also be conditioned to require state and local performance on specific conditions prior to the federal funding of future phases. Many federal programs do not allocate funding until compliant local or state programs meet certain criteria. FIMP should follow the models provided by the New Jersey Pinelands National Reserve, the Clean Water Act, FEMA, DOT, etc.

A land acquisition program concurrent with a beach nourishment program has the potential to extend the storm damage protection benefits many years beyond the life of the project. This will constitute a more permanent solution as well as to approximate natural dune migration over time. Such an approach will far better fulfill the Congressional intent of the national seashore. Similarly, we are in agreement that moving the Smith Point County Park bath house should be examined as an alternative to sand nourishment in front of the bath house as this will also lead to more permanent protection for these recreation resources.

7. **Inlet Maintenance** We understand the need to maintain the inlets for safe navigation. The USACE acknowledges that inlet dredging affects sediment transport on both the ocean and bayside environments of Fire Island. Sand bypassing has always been considered to be essential to maintain sediment transport on the ocean side. Similarly, sediment availability and transport processes are also important to minimize bayside erosion as well. As 69% of annualized storm damages to the mainland occur from waters passing through these inlets. The plan should develop alternatives which would minimize these damages.
  
8. **Cross Island Sediment Transport (need for bayside sediment)** Cross island sediment transport and the need for bayside sediment has been described in detail in a white paper previously provided to the USACE (Nordstrom and Jackson, 2005). The major conclusion of this paper is that although wave and current energies are low in Great South Bay, much of the bay shoreline is eroding. The greatest changes occur near maintained inlets or next to marinas and bulkheads. Sediment inputs to the bay system from overwash events, island breaching, and dune migration allow the barrier to maintain itself as it migrates landward under the influence of sea level rise. We would agree that a major study to assess long term impacts from past dredging is not necessary. However, understanding the need for bayside sediment and its importance in maintaining island integrity and reducing storm damage is central to FIMP. As we requested in the June 3, 2008, letter the FIMP needs to 1) fully evaluate, manage and compensate for project impacts on cross-island processes; 2) develop bayside habitat restoration proposals, including removal of bulkheads and placing dredged material in shallow water to provide intertidal foraging and/or marsh substrate; 3) jointly develop a schedule for studies evaluating changes in bayside geomorphology and sediment availability due to historical inlet, breach and dune management practices; and 4) carefully and scientifically design and closely collaborate with other agencies to meet New York State Department of Environmental Conservation regulations for the placement of sand in intertidal and sub-tidal bay environments. The full text of the paper referenced above can be found at: <http://www.nps.gov/fiis/naturescience/science-synthesis-papers.htm>.

9. **Resource Economics** In chapter 8 (evaluation of individual storm damage reduction alternatives), it appears that only construction costs were evaluated and not the costs associated with changes in the value of public use, including both direct and passive use values. The NPS Organic Act (1916) and Management Policies (2006) emphasize the importance of both the direct use by visitors and the passive use by the public in the management of NPS resources. Methods that are generally accepted in the economics literature are available and can be used to estimate these direct and passive use values. NPS recommends that these use values should be estimated and incorporated into the evaluation. In chapter 9 (development of national ecosystem restoration alternatives), it appears that the economic valuation of national ecosystem restoration alternatives was not evaluated. Rather, a cost-effectiveness analysis was conducted. NPS believes that the benefits of ecosystem restoration need to be estimated in order to determine the impacts on the net benefits of each alternative. Methods that are generally accepted in the economics literature are available and can be used to estimate these benefits of ecosystem restoration. NPS recommends that these benefits should be estimated and incorporated into the evaluation.

**10. National Ecosystem Restoration (NER) Alternatives** Few of the HEP alternatives restore natural processes; thus NPS does not support them. Among the few HEP alternatives we continue to support include the restoration of the Great Gun tidal marsh, removal of the Ocean Beach groins, and creating of sand lobes to mimic cross shore sediment transport at Atlantique to Cornielle and/or other locations. At an October 16, 2008, meeting with USACE and USFWS, NPS further provided comments on each alternative listed in Table 9.4. Specific comments on restoration sites that fall within Seashore boundaries are provided below. Additional detail can be found in the Memorandum for the Record from the October 16, 2008, meeting.

In HEP meetings and bayside workshops, the development of bayside beaches and wetlands in the area of the Lighthouse was dismissed due to the high energy conditions associated with Fire Island Inlet.

T-2 Sunken Forest: NPS does not support any of the alternatives. NPS currently has funding for and is proceeding with a demonstration project to restore bayside sediment transport processes in the vicinity of the marina via beneficial use of dredge material to create an erosional head.

T-3 Reagan Property: NPS supports the concepts presented in alternatives 1 and 3; however the use of coir logs, gabions or other engineering structures for restoration is not acceptable within park boundaries. NPS does not support alternative 2.

T-5 Great Gun: NPS supports alternatives 1 and 2. This is Town of Brookhaven property; thus the Town should be consulted for input on these alternatives.

T-10 East Inlet Island: NPS supports these alternatives.

T-11 John Boyle Island: NPS supports these alternatives.



T-14 Ocean Beach: NPS supports alternatives 1 and 2. NPS does not support acquisition primarily as a restoration alternative; and therefore suggests that alternative 3 be considered as a nonstructural alternative.

T-15 New Made Island: NPS supports these alternatives.

T-24 Davis Park: NPS does not support these alternatives.

T-25 Atlantique to Cornielle: NPS supports these alternatives. NPS prefers the less deterministic approach presented in alternative 1 over alternative 2.

T-26 Kismet: As previously stated, NPS does not support acquisition primarily as a restoration alternative.

T-28 Atlantique: As previously stated, NPS does not support acquisition primarily as a restoration alternative.

NPS, in correspondence to USACE dated July 10, 2006, commented at length about the HEP process. HEP was presented as a tool that could be used to represent the complex ecosystems within the FIMP Project Area; however, the HEP models developed for the FIMP are an oversimplification of the complex physical and biotic processes and interactions that define the barrier island ecosystem. Barrier islands are variable systems that undergo change temporally and spatially. In addition, a functioning barrier island does not represent one optimal community condition, as does the HEP models, but a mosaic of conditions over space and time. The static HEP models do not adequately represent the dynamic geomorphology and ecology of the FIMP Project Area. In correspondence to USACE dated January 7, 2008, we acknowledged that the Habitat Evaluation Procedures (HEP) and the matrix were the tools USACE had chosen for evaluating projects for the National Ecosystem Restoration (NER) plan. In that same correspondence NPS clarified that no NER projects can occur within the boundaries of FIIS without NPS approval. Furthermore, at the January 7, 2008, FIMP Interagency Group (IRG) meeting USACE stated that, with appropriate justification, any restoration project that did not rank highly (per HEP, the matrix, and incremental cost analysis) could be included in the NER plan.

The only land owners involved in the development of the HEP evaluated restoration alternatives were NPS and FWS; thus with the exception of projects occurring on those properties, owner support was not assessed. The final FIMP plan should provide adequate information to resolve classification as “unknown priority”. In addition, the NYDEC evaluation and approval process for listed alternatives should be documented in the final report.

**11. External Peer Review (EPR)** The plan with all its support documentation is extensive and addresses storm damages in a complex and extremely dynamic system. We congratulate the USACE in requiring a comprehensive evaluation of this study. We feel that the National Academies are uniquely qualified to undertake this task.

**12. Public Communication Plan** Although not mentioned in this plan but discussed

numerous times is the need to develop and implement a public communication plan. This plan should not only focus on elements of the FIMP but should also focus on flood risk, projected sea level rise and increased frequency and intensity of storms in the North Atlantic.

### **Specific comments on the text:**

Page 5: The Draft Formulation Report asserts that human activities have dramatically altered existing natural coastal processes, and that the Reformulation Study area is not functioning as a natural sustainable system (also see pages 32, 56, and 132). What is the scientific basis for this assertion? Is there agreement within the scientific community on this point? Please clarify.

Page 5: Add movement of sediments from the off-shore to the near-shore.

Page 5: Is the 9,000 buildings within the study area only describing the mainland or is it including the barrier island? Over 4000 buildings are within FIIS alone, so a mainland/barrier breakdown might be useful here.

Page 7: Add off-shore transport of sediments here again.

Pages 7-10: Discussion and Summary. As discussed above under “General Tone and Message” this entire discussion of the Problem Overview does not begin with a basic explanation of the natural processes that reduce storm risk, does not discuss how human infrastructure has been located in areas vital to the effective functioning of these systems, and that in addition, some actions by people intended to reduce storm impacts actually increase risk. While overwash and breaching do present risks to existing structures, no explanation is given describing the positive role that these processes play in adding sediment to the bay systems and reinforcing the barrier islands.

Page 7: Please modify “Nation Park Service” to read “National Park Service.”

Page 8: We recommend ensuring consistency in definitions throughout the report, or in clarifying to which sections of text each definition applies. For example, "breaches" are defined on page 8 as "new inlets" but the definitions on page 37 distinguish between depths and longevity of breaches. Please clarify.

Page 21: 3<sup>rd</sup> full para. “The March 1993 resulted in...” The March 1993 nor’easter??

Pages 23, 127: Please clarify if there has been any consideration of a decrease in development due to increases in flood insurance rates or inability to obtain house insurance, as happened in Louisiana when major insurance companies pulled out of the state entirely.

Page 32: Please modify the sentence in the first full paragraph, “On the other hand, dune elevations along Fire Island are remarkably similar...” Similar to what? Historic dune elevations? If the answer is historic dune elevations, why is 1938 selected for this point?

Page 39: Historic Breaching – The NPS agrees with the statement that “stable inlets have led to significant increases in bay flushing and water quality relative to pre-stabilization conditions at

Moriches and Shinnecock Bays,” however, it could also be noted that the decline in the LI duck industry also had a significant influence on improved water quality in Moriches Bay.

Page 40: The nearshore geologic framework is discussed briefly on page 73 but the dismissal of its importance on page 40 led us to believe that it would not be included. We would argue that the shallow geologic framework is very important to the island's response to individual storms. As seen at Assateague Island National Seashore (ASIS) in 1998, a shallow peat or clay layer could prevent a deep breach through the island. Furthermore, areas where nearshore shallow and surface sediments are gravel may respond very differently than nearby beaches that are fronted by thick layers of sandy sediments (see recent publications about gravel outcrops and the framework geology control on shorelines along the North Carolina and Virginia coasts, such as McNinch 2004, Browder and McNinch 2006, Miselis and McNinch 2006, and Schupp et al. 2006). Also, the shallow geologic framework as it relates to groundwater is going to be important to the island's vegetative communities (makeup, locations, and stability).

Page 83: and throughout -- The term “estuarial” is not commonly used in the scientific literature. Perhaps the term “estuarine” would be more appropriate.

Page 85: It is stated that based on SCDHS long-term water quality data, that dissolved oxygen levels in the Bays do not reach hypoxic levels; however, it should be stated that there is evidence that dissolved oxygen levels in the tributaries that discharge into the Bays probably do experience hypoxic or anoxic conditions (e.g., Forge River).

Pg 92: The total visitation to FIIS including all the communities is 4 million. The visitation to NPS FIIS facilities is 700,000.

Page 115: Essential Fish Habitat – It is stated that the study area contains essential fish habitat for 27 species of fish that are managed under the Magnuson-Stevens Act. The next version of the Formulation Report should include a table that lists these species and the specific habitat types that they utilize.

Page 123: Future conditions should consider possibilities of sea-level rise, increased competition for offshore sand resources, increase in storm intensity, and increase in storm frequency-- and how any or all of these three changes will change the island's geomorphology and resilience. Although the introduction to this section states that these changes will be considered, it is not clear which scenarios or effects were considered.

Page 124 and 125: The statement that “The only policy identified which specifically considers leaving breaches open is limited to the Wilderness Area of the Fire Island National Seashore” is incorrect. As explained above in our general comments, NPS policies require that all natural shoreline processes, including breaches, should occur unimpeded regardless of whether or not those processes are occurring in wilderness or non-wilderness areas of a park (*NPS Management Policies, Chapter 4, Section 4.8.1.1 (2006)*). Intervention in such natural processes is only allowed in the four circumstances explained above in our general comments. Wilderness status of the areas does not alter the application of these policies.

Page 195: Please reword the following sentence as indicated, “Where a potential adverse impact

is established, plans must consider mitigation or replacement measures and ~~should~~must adopt such measures, if justified.”

Pages 198-199 and 342: As stated above in our general comments, the criteria used for plan evaluation should expressly include the consistency of the plans with NPS policies.

Page 203: Number 1 No Action: It is unclear if the WOPFC or the FVC is the baseline for determining with project benefits.

Page 205: We were confused by the following sentence, “Therefore, modifications of current inlet design and dredging practices that may provide measures to limit storm surge propagation through the inlets that leads to bay flooding have also been explored.” Does this mean that such modifications are recommended for further study? Please clarify.

Page 371: The statement on this page that the plans “should” be consistent with the Vision Statement should be changed to “will.”

#### Additional Comments

The following comments are provided in addition to input on the DFR from NPS, USGS, and FWS. Several of the items were also reflected in the Department’s June 2008 input on the draft Formulation Report Executive Summary.

Page 8, first paragraph. This text presents the impression that breaches will usually grow unless people intervene. It should be stated that some breaches may grow and others may close naturally. Some of the conditions that would contribute to the likelihood of breaches closing naturally include: areas where the barrier is wide, where there is a secondary line of dunes (such as the Sunken Forest and some parts of Fire Island Pines), where bayside marshes are extensive, where the bay is shallow and navigation channels have not been dredged perpendicular to the shoreline or into the peat layer, or if several breaches have opened from the same storm.

Page 21. The discussion on page 21 does not point out that the breaching at Westhampton focused at that spot due to the combined effect of the groin field and the lack of adequate sand filling those groins. Please revise in the next iteration of the document.

Page 21-24. Correct the bases for storm damages to reflect the impacts that the groins have had on exacerbating storm damages to down-drift areas.

Pages 25-28. Again, this section does not contain a discussion of the coastal processes, both cross-island, off-shore to near-shore, or barrier and off-shore to bay, which are among the vital mechanisms sustaining a robust barrier island system.

Page 37. The text at page 37 needs to point out the positive aspects of inlet formation for prevention of risk over the long term.

Page 39. No basis is given for the suggestion that there may be an overall sediment benefit from the growth of the relatively fixed flood shoal. Please substantiate in the next draft version of the Report.

Page 51. Second paragraph. It is our understanding that no fill was installed for these 13 groins in the 1960's. Please clarify if that was the case, or when and how much fill was actually installed before 1997.

Page 53. Second paragraph. Insert the following after the third sentence, "The December 1992 storm caused two inlets to form in the badly eroded area west of the groin field." On page 22 the DFR provides illustrations of these inlets, and page 53 establishes that the groin field caused erosion and lawsuits, but the reader is never told directly that it also created the conditions which led to the narrowed barrier, the breaching and inlets.

Page 56. After the first paragraph, we suggest also adding. "Lawsuits were filed challenging the decision of the USACE to proceed directly with work on the Reformulation Study. The courts dismissed all the allegations against the government, reinforcing doctrines that beach nourishment is a discretionary federal decision, not a matter of obligation or of right, and that without any state sponsor, a federal decision was premature."

P. 151. Table 5.2, Future Vulnerable Condition. In addition to the comments from USGS noted above, the Future Vulnerable Condition (FVC) is not well defined for the reader. Without further clarification, the discussion gives the impression that the FVC conditions should be interpreted literally (e.g., Table 5.2, p. 151, maps on p. 150). Please ensure that the next version of the document gives the reader a clear understanding of the FVC.

Page 154. Please clarify what is meant by the statement that a 500 year event would be experienced by a 2-10 year storm.

P. 183. Table 5.19, Without Project Annual Damages, indicates that 69% of the bay flood damages to the mainland and the barrier happen without any breach of the barrier (see also validation concerns identified by USGS). Similarly Table 5.2 (p. 151) indicates that the developed areas within Fire Island may withstand a storm having a return level of over 500 years. This information should be presented to the reader in the opening discussion. It also indicates the need for a more clear representation of the economic justification for beach nourishment in developed areas of Fire Island.

Page 193. The DFR does reflect a greater awareness of the Vision Statement criteria for achieving a mutually acceptable plan. However, in bullets 3 and 4 the text has been changed from the original, which reverses the respective use of "priority" and "preference." Please revise, and include the entire text as an appendix to the next version of the Formulation Report.

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DEPARTMENT OF THE ARMY  
NEW YORK DISTRICT, CORPS OF ENGINEERS  
JACOB K. JAVITS FEDERAL BUILDING  
NEW YORK, N.Y. 10278-0090

REPLY TO  
ATTENTION OF

Planning Division

October 9, 2009

Mr. Andrew L. Raddant  
Regional Environmental Officer  
U.S. Department of Interior, Office of Policy and Compliance  
408 Atlantic Avenue - Room 142  
Boston, MA 02210-3334

Dear Mr. Raddant:

This is in reference to your August 11, 2009 letter that provided consolidated Department of Interior comments on the Draft Formulation Report (dated May 2009) for the Fire Island Inlet to Montauk Point, New York Reformulation Study.

Attached is a response to your comments. Please note that we have not provided a point-by-point response, but rather have consolidated the comments and responses. We are now proceeding with the preparation of a GRR and EIS. In conjunction with this effort, the District intends to distribute the Formulation Report results to the various towns, interested agencies, etc. as the basis for conducting public information sessions, necessary to inform the public of the current status of the plan of improvement alternative analyses completed to date.

In our responses we have distinguished between revisions that will be implemented prior to public release of the Formulation Report results, and revisions that will be addressed in the GRR and EIS. Many of the comments provided identify the NPS position on various plan of improvement alternatives, and are similar in nature to the conclusions of the August 22, 2008 meeting between our agencies. It is our expectation that resolution of DOI issues on specific alternatives is something that will continue on a parallel path with the public information sessions and preparation of the GRR and EIS.

If you have any questions, feel free to contact Mr. Frank Verga, Project Manager, at 917-790-8212, or Mr. Stephen Couch, Chief, Coastal Section, at 917-790-8707.

Sincerely,

A handwritten signature in black ink that reads "Thomas J. Hodson".

for Frank Santomauro, P.E.  
Chief, Planning Division



CC:

Mary Foley (NPS)

Chris Soller (NPS-FIIS)

Andrew Raddant (DOI-OEPC)

David Stilwell (USFWS)

Jim Tierney (NYSDEC)

Mike Stankiewicz (NYSDEC)

Fred Anders (NYSDOS)

Peter Scully (NYSDEC, Region I)

Eric Star (NYSDEC, Region I)

## **Big Picture Items highlighted by DOI**

### **PROCESS:**

It is our understanding that the DFR will serve as a platform for the U.S. Army Corps of Engineers' (USACE or Corps) environmental impact assessment prepared under the National Environmental Policy Act (NEPA). Thus, our agencies have a shared interest in ensuring that the DFR is a sufficient foundation for *initiating* the NEPA process, preparing an adequate impact assessment, and withstanding the rigorous peer review proposed by USACE.

The DFR lacks an alternative that represents the local sponsor's wishes and capabilities. Until this is resolved we advise against moving forward in the NEPA process.

- **NYD Response.** By letter dated February 2009, the NYSDEC has indicated that New York State supports the further development of the NED/NER Plan. That being said, based upon discussions with our sponsor, and internal coordination following the last IRG meeting, it is agreed that the preparation of a GRR and EIS should only be completed and distributed for public review when there is agreement on a plan that has local support, and it has been fully vetted through the Corps' review process. Rather than preparing the GRR and EIS for public review, the District intends to distribute the Formulation Report as the basis for local government, and public input on the alternatives. As such, in our responses we have distinguished between 1) revisions to the Formulation Report that will be implemented prior to public release, and 2) revisions that will be incorporated and addressed required in the GRR and EIS. Many of the comments provided, specifically from the NPS identify the NPS position on various alternatives. Since our intent is to solicit public input on the alternatives, it is our expectation that resolution of DOI issues on these alternatives can proceed on a parallel path with these public meetings, so long as the alternatives are included in the report.

### **PLAN:**

The National Park Service has identified an alternative in the DFR (Alternative 3G) that may serve as a starting point for further discussions. Conceptual support is described herein for mainland building retrofits, land management measures, and adaptive management. Ensuring consistency with NPS policies, regarding interventions in natural processes, groin removal, *implementation* of land management measures, will necessitate further modification, as will developing a strong adaptive management plan.

- **NYD Response.** While this sentence reads as the opinion of the NPS, does this reflect the position of DOI as a whole? It is recognized that Chapter 10 of the formulation report identified Alternative 3G as the storm damage reduction plan that most meets the most NED and Vision Criteria. Chapter 11 of the report seeks to integrate the additional components described by the NPS. This is a positive if we can agree that we can focus on refinements to Alternative 3G to identify a plan that satisfies both agencies. However, as addressed in the specific comments, with implementing Land Management, it must be recognized that there are some strong limitations in what we the Corps has legal authority to implement.

**TECHNICAL:**

The DFR currently does not present the level of information necessary to undergo a thorough scientific review

Additional concerns include: adequacy of the environmental setting characterizations, Habitat Evaluation Procedures (and results), and restoration measures; potential impacts to listed species; lack of mitigation for project impacts; sustainability, and characterization of the “Without Project Future Conditions.”

Additional concerns include inadequate treatment of sea level rise acceleration; quality or presentation of data; treatment of uncertainty; treatment of coastal processes; validation and verification of model results; offshore sand supplies, and impacts to sediment transport from dredging.

We also believe that the overall tone of the DFR can be improved

- **NYD Response.** A recurring comment is the need for additional detail in the Engineering, Economics, and Environmental existing conditions. The point-by-point comments address the particulars. It should be pointed out that this was prepared as a Planning Document to present the alternatives and was not intended to provide all of the technical back-up. In many instances (particularly the Engineering and Environmental), the back-up technical reports have previously been provided to the DOI agencies, and will be contained in greater detail in the supporting Appendices and EIS.

## U.S. Geological Survey – comments relate to technical back-up required for Report.

### Presentation of back-up data

This draft report does not provide sufficient information to conduct a rigorous scientific review. In order to request a review of the various proposed mitigation plans, the USACE must show their work, as oppose to stating “results.”

- **NYD Response.** As was explained in our July 13, 2009 meeting, this report is a planning document that was not intended to provide all of the technical back-up. Members of USGS have been part of the review team, provided with detailed information regarding the borrow source investigation, sediment budget, inlet morphology and storm surge modeling and have had the opportunity to review this information. Items previously reviewed by USGS staff include the following (1)the Draft Borrow Area Appendix (comments received from USGS on 18 May 2007, regarding the Borrow Source Investigations Draft Appendix, FIMP Reformulation Study, presently incorporated into the latest version of the Appendix), (2) multiple interim products for the Storm Surge Modeling efforts as part of the Technical Review Panel, December 2002 through August 2004, (3) the Future Vulnerable Conditions Report, dated 4 Feb 2005, with comments receive from USGS staff and replied to February 2005, and (4)FIMP Storm Surge Modeling Documentation, comments received from USGS staff, responses dated and delivered to USGS staff on 26 July 2006. This technical information, and the results of the prior review can be provided to the DOI/USGS. When the GRR and EIS are ultimately assembled, the technical appendices will also contain much of this information. At the time the modeling work was being conducted, and under the review and guidance of the Technical Review Panel, the work established the state of the art, in combining hydrodynamic and morphological modeling. That state of the art has since been built upon, and has been the impetus to the development of the Corps’ Morphos modeling system. The modeling work used for FIMP has been the subject of numerous conference papers, peer reviewed journal papers, and a PhD thesis. Notwithstanding the time lag between the conduct of the numerical modeling study and the formal preparation of the study documentation, the Corps stands behind the modeling methodology, assumptions and results.

### Background, Period of Analysis

The USACE’s project time frame is 50 yrs. In contrast, DOI agencies, the NPS and the USFWS have missions to protect natural resources and natural processes for the overall public good and for the benefit of ecosystems for the long term, virtually in perpetuity...

As a result of their mission objectives, the NPS and the USFWS must plan and manage for much longer than a 50-yr time frame (centuries to millennia and longer) and are obligated to factor in scientific data and predictions of future coastal conditions that likely will exceed past mean values and record highs.

- **NYD Response.** The Corps utilizes 50 yrs as a planning horizon for 2 primary reasons, 1) The Corps is authorized to participate in shore protection projects over a 50-yr period, and 2) In conducting or cost and benefit analysis, everything is considered against present values. Projecting beyond 50-yrs has little effect on the financial analysis.

**Sea Level Rise:**

There are several discrepancies found in this section where the USACE does not adhere to recommendations from their own, albeit recent, publication, USACE Circular No. 1165-2-211, "Incorporating Sea-Level Change Considerations in Civil Works Programs"

The Circular recommends using the intermediate and high curve rates in NRC (1987) and doing the calculations at 5-year increments. These rates would be in addition to regional geologic subsidence, resulting in relative SLR (RSLR).

It is stated on Page 138 that the potential for accelerated SLR will be addressed in the plan selected; however, there is no mention in the current plan.

- **NYD Response.** Please note that the draft report was prepared prior to the release of the current SLR guidance. Presently, the report partially incorporates the current Corps guidance. The report, in its current form, addresses RSLR for the historic trend, IPCC, and NRC curve 3, but only for the without project condition. The intent was not to run all these scenarios for all of the alternatives, but rather focus on the final array of alternatives. Now that the guidance has been finalized, the District will coordinate with the Corps' Coastal Planning Center of Expertise to determine the appropriate level of inclusion in the report. In all, it should be pointed out that the new Corps guidance provides information on which scenarios to evaluate, but does not provide specific guidance on how to include the SLR into a plan selection. We will revisit Chapter 11 of the report, which seeks to integrate climate change into the plan, but in general, it is our expectation that the incorporation of the current guidance will not alter the current findings in the report.

**Quality and Uncertainties of Mainland Elevation Data**

These magnitude results in changes in storm surge elevation from the numerical simulations need to be validated in some way.

- **NYD Response.** The description of the calibration and validation of the numerical storm surge modeling is contained in the Draft Baseline Conditions Storm Surge Modeling and Stage-Frequency Generation mentioned above, and also interim results reviewed and commented on by the Technical Review Panel, which included USGS staff.

What elevation data was used by the USACE in their inundation analysis?

- **NYD Response.** The FIMP study was initiated with a multi-million dollar mapping effort between 1994 and 1996 of the entire project area, up to either the Long Island Railroad or to the +16.0 ft NGVD contour on the mainland. The elevation data on the topographic mapping was displayed at 2.0 ft contours, with other spot elevations included. Due to the nature of the mainland topography (with a low probability of changes in elevation) this data is still valid. Regarding the barrier islands, which are more dynamic, more recent LIDAR data sets have been used for modeling efforts and volume calculations.

### **Offshore Sand Volumes**

The report states the need for large volumes of suitable sand for nourishment, but there is little detail about the offshore borrow areas, how the areas will be dredged, how the dredge pits are likely to evolve over time (i.e., fill in or not, type of sediment fill, organic content, etc), what effect the dredging will have on benthic habitat and resources, and potential effect on the coastal system, especially shoreline change. There is also no mention of the potential of obtaining material from further offshore or from other regions or mainland sources or of stockpiling the spoil from annual inlet dredging, and using that material for beach nourishment

- **NYD Response.** It is acknowledged that the report does not provide much detail on the borrow areas, required sand volumes or the monitoring that could be undertaken as part of the use of offshore deposits. We will revisit the report to include some summary information on these details. However, USGS staff has had the opportunity to review the Draft Borrow Area Appendix (comments received from USGS on 18 May 2007, regarding the Borrow Source Investigations Draft Appendix, FIMP Reformulation Study, presently incorporated into the latest version of the Appendix, including sand utilization, variety of borrow sources, and borrow area interaction regarding shoreline change). The Corps can forward this new version of the Borrow Source Appendix to the DOI/USGS

### **Geology and Sedimentology**

In the description of the physical setting of the project area, the next draft or final Formulation Report should provide more detailed information by incorporating the current understanding of the coastal system, citing recent published works and presenting new information on the region or recent advances in coastal processes. Holocene sediment deposit and geological framework – inaccurate, sediment budget - application and description, shoreline change analysis – date of the analysis

- **NYD Response.** If there are specific changes or additional data the USGS would like to provide for inclusion into the revised report, we would welcome the input. In general, the more detailed information requested by the DOI/USGS is more appropriately included in the technical appendices and sub-appendices. We can ensure that the information in the main report references these appendices. Specific items described in the DOI comments are: (1) properly cited discussion of the geologic framework of the study area, and the hydrodynamic significance of the inner shelf and shoreface bathymetry and sediment distribution; (2) more discussion on cross-shelf transport; (3) proper citation of materials referenced (Rosati sediment budget); (4) discussion of more recent trends in shoreline change rates (again, unfortunately the delay in the report process has impacted the inclusion of the most recent data, some of which are still in press) (5) references to the Woods Hole Group report regarding interaction between offshore features and transport patterns at Georgica Pond, shoreline undulations specifically at Fire Island and how these issues relate to borrow area designations; (6) The Future Vulnerable Condition, which was developed with the guidance and advice of the Technical Review Panel, and included USGS staff. The overwashing and breaching modeling was also subjected to “realism” testing based on the 1938 and 1992 storms, requested by and guided by the Technical Review Panel.

## **Modeling**

“It is difficult if not impossible to analyze or review the model results when observations of physical processes/properties are not presented to verify the model results.”

- **NYD Response.** As described in the Overview section above, the hydrodynamic and morphological modeling was scrutinized, guided and reviewed by a Technical Review Panel, which included four highly regarded coastal engineers and physical scientists (including USGS staff). Background on the TRP can be forwarded to the DOI/USGS. Documentation was developed to fully describe the work, including the physical processes, calibration and validation of each of the components of the comprehensive modeling scheme. It was deemed not appropriate to include the great detail of the coastal processes modeling in the planning/alternative-focused DFR, however backup data and reports can be sent to the USGS.

Specific comments:

- (1) The development of the breaching scenarios were empirically based, from breaches in the project area, especially the 1979 breach at Moriches Inlet, and the two 1992 breaches at Westhampton. Hydraulic modeling of the breaches was conducted to match that empirical data.
- (2) WISWAVE was the best available tool to be included in the numerical modeling scheme developed under the advice of the Technical Review Panel;
- (3) the description of Delft3D modeling, the wave modeling, the EST, development is included in the FIMP Storm Surge Modeling Documentation, comments received from USGS staff, responses dated and delivered to USGS staff on 26 July 2006. This information will be summarized in the Engineering Appendix, and the full modeling document will be included as a sub-appendix in the GRR
- (4) Other technical comments will be addressed in future correspondence and in the draft GRR, including development of future scenarios and the inclusion of life-cycle (50 year storm occurrence simulations), likelihood of partial breach closure (information supplied and discussed at meetings with NPS staff), estimated bay depositional volumes, and cost development for inlet closure gates (which would in turn need the development of significant engineering features to maintain the barrier island topography).

**USFWS – comments focus on 1) level of detail in the existing conditions, 2) need for mitigation planning, 3) concerns with HEP model, 4) concerns with restoration planning, 5) concerns with how Endangered Species are addressed. There are also several comments on alternatives or overall combined plans.**

**Level of detail**

The Draft Formulation Report does not adequately summarize or characterize the existing environmental setting in the study area. It has long been our experience that we, as an agency, need to be careful in terms of endorsing a limited range of alternatives before details of the affected environment and the alternatives' (both those carried forward and those eliminated) impact on the environment are available.

- **NYD Response.** This report was prepared as a planning document, not the full GRR and EIS. The level of detail sought by the USFWS will be contained in the EIS and supporting technical back-up. The District, in support of the Habitat Evaluation Procedure (HEP) analysis performed numerous surveys of the study area to establish a baseline condition and to document the quality and quantity of habitat. The HEP analysis will be used to compare the relative value of different areas at the same time (baseline studies) or the relative value of one area with time (impact assessment). The District identified an interagency Team (HEP Team) to assist the District in evaluating evaluating the quality of habitats in the FIMP project areas and the development of the HEP methodology. The HEP Team included representatives from the National Park Service (NPS), United States Fish and Wildlife Service (USFWS), and the NYSDEC. Other agencies, such as The U.S. Environmental Protection Agency (USEPA) and The Nature Conservancy (TNC) participated as review members only. At the initiation of the HEP process, each agency was given the opportunity to identify if there are other methods available to capture the habitat benefits, other than HEP. The HEP Team acknowledged that the Project area is comprised of a spatial and temporal mosaic of communities in varying periods of succession and geomorphologic conditions that cannot easily be captured through environmental/habitat models such as HEP. From this, the HEP was modified (from original USFWS single-species based versions) to account for this mosaic of habitats and to aid in the assessment of a landscape-level restoration approach. This modified HEP, as agreed to by the HEP team members that created it, allowed each variable in each habitat to be specifically weighted and addressed as per the unique needs of a large, multi-species use, project area. It was agreed by all the agencies that there were no other options available, and that the modified HEP is the most appropriate method for considering the habitat effects. A Final HEP Report will be available in Fall 2009.

**Mitigation Planning**

The Draft Formulation Report does not clearly identify any mitigation measures specific to the recommended alternatives that are being considered. We believe that the draft formulation report should include statements on the mitigation alternatives so the agencies can be better informed and aware of the measures that are being contemplated by the Corps to address specific alternative derived impacts.

mitigation includes:

1. avoiding the impact;
2. minimizing the impact;
3. rectifying the impact;
4. reducing or eliminating the impact over time; and
5. compensating for the impact.



Because unavoidable impacts are likely to occur if the FIMP plan includes components that result in adverse habitat modification, habitat creation foregone, (*i.e.*, preventing natural processes which create and maintain habitat) over the long life of the project, then the Service will recommend that those losses be compensated by replacement of the same kind of habitat value

the Service recommends that the Corps include specific restoration/mitigation alternatives as part of a preferred project description, identify associated costs and include the cost-benefit analyses for each alternative, and ensure that firm, written commitments are made by the Corps and local sponsors to implement these measures,

Beachfill. However, the net benefits do not appear to incorporate costs associated with environmental impacts or mitigation (discussed further below). (22)

Overall, the document does not provide an integrated approach to addressing project impacts with proposed restoration alternatives. There is an attempt to address impacts associated with the processes outlined in the report, including longshore transport, cross-island transport, bayside, processes, and estuarine processes. The plan does not present any mitigation alternatives directly related to any of the proposed alternatives.

- **NYD Response.** The potential impacts from the proposed alternatives are impacts on essential fish habitat and managed species during the dredging and sand placement portion of the operation. The impacts on surf zone communities during beach construction, significant, long lasting, population level effects are minimized (based on past monitoring efforts) as long as the sediments are similar to existing conditions. While we do not anticipate that the effects of the beach nourishment will be great enough to justify a large-scale mitigation effort, any future mitigation would need to be discussed.

In addition to the above, the District is cognizant of the potential changes of the project alternatives on natural processes. As pointed out in your letter, mitigation consists of avoiding, minimizing, rectifying, reducing, or compensating for impacts. Please note that some alternatives discussed in the DFR contain elements in their project design to minimize the impacts.

Some examples of mitigative measures are as follows:

- (a) Avoid: Adjust the time of construction activities to avoid periods of fish migration, shorebird nesting; preserve a public access point.
- (b) Minimize: Adding to the traditional storm damage reduction design a component to increase back-bay habitat, increase or develop new wetlands
- (c) Rectify: Restore flow to the back-bay.
- (d) Reduce: Control erosion (sedimentation control plan); place restrictions on equipment and movement of construction and maintenance personnel.

## **HEP Analysis**

The results of the HEP analyses are skewed towards the creation of wide beaches, high berms, and dunes.

- **NYD Response.** The District, in support of the Habitat Evaluation Procedure (HEP) analysis performed numerous surveys of the study area to establish a baseline condition and to document the quality and quantity of habitat. The HEP analysis will be used to compare the relative value of different areas at the same time (baseline studies) or the relative value of one area with time (impact assessment). The District identified an interagency Team (HEP Team) to assist the District in evaluating evaluating the quality of habitats in the FIMP project areas and the development of the HEP methodology. The HEP Team included representatives from the National Park Service (NPS), United States Fish and Wildlife Service (USFWS), and the NYSDEC. Other agencies, such as The U.S. Environmental Protection Agency (USEPA) and The Nature Conservancy (TNC) participated as review members only. At the initiation of the HEP process, each agency was given the opportunity to identify if there are other methods available to capture the habitat benefits, other than HEP. The HEP Team acknowledged that the Project area is comprised of a spatial and temporal mosaic of communities in varying periods of succession and geomorphologic conditions that cannot easily be captured through environmental/habitat models such as HEP. From this, the HEP was modified (from original USFWS single-species based versions) to account for this mosaic of habitats and to aid in the assessment of a landscape-level restoration approach. This modified HEP, as agreed to by the HEP team members that created it, allowed each variable in each habitat to be specifically weighted and addressed as per the unique needs of a large, multi-species use, project area. It was agreed by all the agencies that there were no other options available, and that the modified HEP is the most appropriate method for considering the habitat effects.

A Final HEP Report will be available in Fall 2009.

## **Restoration Alternatives**

It is unclear to the Service how HEP restoration projects will be maintained/managed over the life of the project, given that natural processes are not being restored

There are some restoration projects supported by the HEP team that the Service agrees to, in concept. However, we find that many of the selected sites do not, as presented, include enough details concerning design, protection, and management

The Service preliminarily supports the concept of the proposed creation of subaerial and intertidal habitats on the bayside from Atlantique to Cornielle Estates (Table 9.4, alternative T-25-1, page 329). However, we indicated in meetings that more appropriate sites exist from an ecological standpoint, such as lands north of the Federal tracts within the FIIS.

We recommend that the Corps consider replicating this alternative at the sites the Service submitted in our February 13, 2008, letter, and then provide the results to the FIMP planning team for further discussion.

In spite of our July 7, 2006, recommendations that restoration efforts for heron rookeries be removed from consideration as a FIMP restoration alternative, ... Table 9.4 lists the creation of heron habitat at John Boyle, New Made, and Warner's Island East as possible restoration alternatives.

The draft formulation report does not appear to specifically address the Service's recommendations for habitat restoration sites provided in the PAL

The Service supports the restoration of bayside habitat (page 261) in proximity to inlet management alternatives to provide a mosaic of habitats, but has concerns with the restoration of ocean dune habitat that would limit/prevent cross-shore sediment transport. We have placed particular emphasis in previous comments on restoring back bay islands for colonial waterbird use and recommend that the Corps incorporate those recommendations into its mitigation alternative planning efforts.

The Service supports the compensation of bayside habitat as a mitigation measure associated with the application of a storm damage reduction measure (such as beach fill on the ocean beaches) or as mitigation for a breach fill response. The Service also supports the minimization of the impacts of hard structures in the back bay littoral processes through modification of bayside structures and bay beach nourishment in selected sites (21)

- **NYD Response.** No changes required for release of the Formulation Report.

### **ESA**

The Draft Formulation Report does not incorporate any of the conservation measures for endangered species discussed at joint interagency meetings or in correspondence provided to the Corps in February 2008, and does not accurately characterize the status of efforts taken in an attempt to draft the Long Term Regional Comprehensive Planning for Threatened and Endangered Species for the FIMP action area.

The Service would not consider this important phase of the endangered species conservation planning to be "accomplished," as depicted in the document

- **NYD Response.** The District will work with USFWS to integrate additional information into the formulation report to provide information on the locations where measures could be implemented, and the types of work that could be implemented, in order to obtain input on these alternatives.

### **Existing Conditions:**

- include information on the public access plan
- Information is lacking on brackish, freshwater ecosystems
- Statistical information on seabird concentrations should be provided
- The red knot should be identified as a candidate species for listing under the ESA
- This section does not provide a clear sense of the importance of the study area in regard to piping plover breeding habitat on Long Island
- include results from over 25 years of hawk watch statistics
- quantify the amount of bayside beach habitat that has been "eliminated due to bulkhead construction, immediate development, and or severe erosion"
- Sand Shoals and Mudflats: The Service recommends that the Corps discuss the overall distribution and relative amount of these geomorphological features
- quantify the salt marsh acreages found in the study area.
- Mainland Upland, Birds and Wildlife: The Service recommends that the Corps provide a more accurate representation of avifauna in this particular habitat type

- **NYD Response.** This information is more appropriately contained in the EIS for the project.

### **WOPFC**

many projects affecting the shoreline are either directly overseen or implemented by the Corps (e.g., inlet maintenance projects) or permitted by the Corps' Regulatory Branch (e.g., Fire Island National Seashore Community beach nourishment projects in 2003 and 2008-09) and, therefore, can be coordinated by the Corps in a fashion that takes a more programmatic approach to shoreline management than presently exists.

- **NYD Response.** It is not within the Corps regulatory capacity to govern the plans that local communities decide to undertake, unless it is connected with an assessment of the impact of an ongoing Corps project.

### **Alternatives:**

Comments on the evaluation of alternatives (The report does not contain sufficient information that would assist the Service in understanding and agreeing that the ratings provided in ...)

Section 13. Storm Closure Gates: Information concerning the monetary costs and environmental impacts associated with this alternative should be included in the document.

- **NYD Response.** Additional information will be provided in support of the storm surge barriers.

### **Breach Response**

As stated in the Service's September 13, 2007, correspondence, the Service supports the consideration of alternatives which allow for breaches to remain open, a protocol to determine if breach closure is warranted, and the creation of back-bay habitat as mitigation.

The Service supports the consideration of alternatives that are of a lower dune elevation to allow for overwash events in appropriate areas, including the 9.5 ft NGVD breach closure alternative that is being carried forward for consideration (page 242)

The Service is concerned that in an area such as Old Inlet where natural processes are occurring, namely cross-island sediment transport, which sustains a high ecological value, could be considered an area that requires manipulation as a proactive plan.

- **NYD Response.** No changes required in the report to address these concerns.

## National Park Service

### Process:

The NPS has been directed to manage Fire Island National Seashore (FIIS) in a natural state. The establishing legislation does anticipate that beach nourishment and/or new inlet development may be appropriate in the future. As you correctly note in several places throughout the document, the FIMP project arises in the context of two key Congressional enactments. The USACE authorization and WRDA's, along with multiple USACE guidance documents cited at page 192 provide the basis and framework for this planning effort. Similarly, Congress has explicitly directed that any actions regarding "shore erosion control or beach protection" within Fire Island National Seashore (FIIS) must meet two criteria: (1) it must be pursuant to a plan that is "mutually acceptable to the Secretary of the Interior and the Secretary of the Army" and (2) it must be "consistent" with the FIIS legislation. The FIIS legislation further requires that any federal beach project must be done under an agreement between the Secretary of the Army and the Secretary of the Interior.

The Draft Formulation Report does present NPS policies generally (see pages 364 and 368). However, we suggest that the next version of the report needs to explain NPS policies much more carefully and specifically, as follows. This explanation should be inserted into the discussion about the park at pages 47-49.

- **NYD Response.** We can insert additional text into the report. It would be beneficial to review the proposed text to ensure a common understanding of the implications of this language, and of what is written what is the law, what is policy, and what is the interpretation of policy. For example, the NPS states that they have been directed to manage the park in a natural state. The authorizing legislation, contained in Section 8 of Public Law 88-587, however, requires "for conserving and preserving for future generations certain relatively unspoiled and undeveloped beaches, dunes ..." This does not specifically require management in a natural state. The language should also reflect the legislative history of the law, where Congress stated that Section 8 provides that the National Seashore will not interfere with shore-erosion and beach protection measures by the U.S. Corps of Engineers and / or the State of New York.

### Big Picture

The NPS is willing to support alternative 3G as the starting point of an alternative which may be mutually acceptable. As stated in the report, while not meeting all requirements of the Vision, this alternative most closely meets the requirements of the Vision document. We are supportive of several elements of this plan. However, several amendments must be made before we can fully accept this alternative and recommend that a temporary waiver of policy be requested of Department of the Interior officials to accomplish the plan objectives. Many of these comments are restated from comments made in our June 3, 2008, letter to Colonel Tortora.

Elements of alternative 3G that we can support include:

1. Non-structural Building Retrofit, Land Management and Acquisition Measures
2. Adaptive Management
3. Components of Land Management & Acquisition
  - Dune district coterminous with CEHA
  - Improved mapping and monitoring of local enforcement of the CEHA.
  - acquire from willing sellers within the CEHA developed properties, vacant parcels, or buildings at risk.
  - Establish a regional entity such as a Suffolk County Coastal Commission

- **NYD Response.** It is positive that NPS is supportive of these components of the plan. This is consistent with their prior position. It should be noted that the acquisition that DOI supports cannot be justified under our current requirements for Corps participation, although we would be supportive of its inclusion in the plan as a locally implemented component.

**Amendments necessary for NPS support of this alternative include:**

**Remove or reduce impediments of the Ocean Beach Groins**

- **NYD Response.** We agree with groin modification (shortening), as long as certain conditions are met. Chapter 11 of the report identifies the conditions upon which this could be included, which primarily include: addressing the water supply infrastructure protected by these groins.

**Non-structural Building Retrofit, Land Management and Acquisition Measures.** The plan does not include non-structural (land management and acquisition) measures along the shorefront of the barrier that would allow for a more landward dune construction and, it is acknowledged, would reduce the potential for storm damage and help restore ecosystem integrity. Implementation of these measures, the report says, is the responsibility of the local municipalities with the State and the NPS.

- **NYD Response.** Above, the NPS supports shorefront acquisition as a recommended component of the plan, but here comments that it is something that needs to be included to be acceptable. This is identified as a responsibility of other parties, since we cannot show the economic justification for this alternative.

**Adaptive Management of Sand sources**

Critical to our ability to effectively implement adaptive management is the need to improve our understanding of the role of offshore sand sources. The USACE is evaluating whether extraction of sand from borrow areas located on ridges south of Fire Island would have adverse impacts on adjacent park resources. We support the approach that the USACE is taking to gain a better understanding of the current knowledge of offshore sediments processes. It has been our understanding that a workshop held in July 2008 would produce a white paper prepared by the technical team of Federal, academic, and professional experts who were in attendance. This paper would assess the appropriateness of monitoring and adaptively managing the borrow area sediments as they are removed from offshore borrow areas or whether alternative sites further offshore need be used. This is not addressed in the plan.

- **NYD Response.** It is acknowledged that the intent to include the offshore borrow areas in adaptive management plan is presently not included in the report. This is an oversight and can be included in revisions to the formulation report. The revised Borrow Area Appendix and Monitoring Appendix will detail this further.

**Sea level Rise Scenarios** The report states that all 50-yr model simulations presented in this report are based on the historic rate of sea-level rise from the Sandy Hook-NOAA gage. Given predicted accelerated rates of sea-level rise, the report acknowledges that this is a conservative approach and there is mention that future sensitivity analyses may incorporate sea-level rise rates as predicted by the IPCC Report (2007); however, the fact that this current FIMP Formulation Report presents model simulations and discussions without recognition of predicted accelerated rates is a significant oversight.

- **NYD Response.** The current guidance on SLR was released on 1 July 2009, subsequent to preparation of the report. As is discussed in the USGS comments, we have partially addressed the SLR guidance, particularly in the WOPFC projection of damages. Since there are a large number of alternatives, the intent was not to consider SLR as applied to all alternatives, but rather to address SLR only in the final array of alternatives.

**Breach Management.** The Plan suggests that as a part of the final design, a breach response protocol could be adjusted to consider establishing a higher threshold at which action is taken (i.e., waiting a period of time for the breach to close naturally in the wilderness area). If closed, the fill would simulate an overwash fan or similar natural feature. We are in agreement with this approach. Any manipulation of the Fire Island barrier in the large publicly-owned tracts should only occur as necessary.

The NPS will allow only a post breach response plan for all major public tracts within the Fire Island National Seashore. This plan will require extensive monitoring of any breach for a period of time to assess whether the breach will close on its own. In the May 2, 2008 workshop on breach management, Dr. Nicholas Kraus, USACE, coastal engineer, suggested that breach behavior could be modeled well in advance of a breach in locations where they are likely to occur. This may be an option the USACE may want to pursue. We understand that the risks associated with breach management in the major public tracts adjacent to development will need to be assessed along with all elements of the FIMP plan and EIS. We also expect that the benefits of maintaining or restoring natural processes on natural resources and national park values will be assessed.

- **NYD Response.** It is true that the plan recognizes opportunities to fine-tune the implementation procedures for the breach response alternatives. We will continue to work with NPS to define the implementation criteria that are acceptable to the NPS, the Corps, the State, and The County. If the NPS seeks to impose these limitations on the Suffolk County Park property, there likely will be concerns from the County. As part of this process we can review the discussions that took place at the May 2, 2008 meeting, on information needs that could be assembled as part of the long-term monitoring and adaptive management plan.

**Beach Nourishment** NPS has repeatedly raised concerns about the NED beach nourishment alternative, (i.e., the placement of sand over any long term project life) invests in a temporary solution at best. The historic northerly migration of the dune system accentuated with even a conservative estimate of sea level rise strongly suggests that maintenance requirements and costs of the artificial beach and dune system will increase into the future. At the end of the project life the current encroachments of improved property will remain within the dune system. The project does not solve the problem, it simply defers the problem. Increased expenditures will be required to sustain the status quo into the future long-term. The alternative is initial beach nourishment gradually replaced by a focus land-use management and improved property acquisition program. NPS can concur with a beach nourishment protocol that has an initial placement with a sharply declining commitment of sand nourishment over time. All agree that beach nourishment will only provide storm damage reduction benefits as long as this action is maintained. The draft lacks the necessary non structural component **committing** the Corps, the NPS, the State and the local governments to essential land management and acquisition measures. Although as the Vision Statement points out “No plan can reduce all risks,” at the conclusion of the project, properties currently at risk of storm damage should be at a minimum. The NPS cannot commit to a long-term, in perpetuity, program of beach nourishment; it would be in violation of NPS policy and under the circumstances of this project a policy requirement that we would recommend not be waived. The authorities for this project should also be conditioned to require state and local performance on specific conditions prior to the federal funding of future phases. Many federal

programs do not allocate funding until compliant local or state programs meet certain criteria. FIMP should follow the models provided by the New Jersey Pinelands National Reserve, the Clean Water Act, FEMA, DOT, etc.

A land acquisition program concurrent with a beach nourishment program has the potential to extend the storm damage protection benefits many years beyond the life of the project. This will constitute a more permanent solution as well as to approximate natural dune migration over time. Such an approach will far better fulfill the Congressional intent of the national seashore. Similarly, we are in agreement that moving the Smith Point County Park bath house should be examined as an alternative to sand nourishment in front of the bath house as this will also lead to more permanent protection for these recreation resources.

- **NYD Response.** Please note that beachfill is not recommended in perpetuity. As described earlier. The report considers placement of beachfill for up to 50 years. Chapter 11 of the report identifies three different approaches for addressing this concern, as have been discussed by the Corps, the DOI and NYS. These include 1) A shorter duration for renourishment, followed by a breach response plan (transitional plan), 2) A moving dune, where renourishment would depend upon acquisition (translational dune), and 3) Adaptive Management Plan, where the renourishment would be analyzed for 50-yrs, but subject to modification based upon monitoring and adaptive management decisions. It is acknowledged that there are strengths and weaknesses of each of these approaches. It is recognized that the NPS has concerns over these issues. It would be more useful to understand the NPS position on the three different approaches that have been identified to address this issue, or if there are details that need to be developed further.

**Inlet Maintenance** We understand the need to maintain the inlets for safe navigation. The USACE acknowledges that inlet dredging affects sediment transport on both the ocean and bayside environments of Fire Island. Sand bypassing has always been considered to be essential to maintain sediment transport on the ocean side. Similarly, sediment availability and transport processes are also important to minimize bayside erosion as well. As 69% of annualized storm damages to the mainland occur from waters passing through these inlets. The plan should develop alternatives which would minimize these damages.

- **NYD Response.** It is acknowledged that there are 3 inlet issues, with possible solutions:
  - 1 – maintaining alongshore transport along the ocean coast. It is positive that the NPS supports the continued maintenance of the inlets and sand bypassing.
  - 2 – maintaining sediment transport along the bay shoreline. As was discussed in our August 22, 2008 regional meeting, and captured in the MFR – the issue was captured as “regardless of the cause, the DOI sees the need to address the bayside sediment issues”. As was concluded at the meeting, we do not see this as an inlet issue, but rather as a restoration issue. If there are solutions that involve inlet material we would be agreeable with using inlet material.
  - 3 – alternatives to reduce the level of flooding in the bay, due to water that comes in through the inlet. It should be pointed out that non-structural alternatives on the mainland address the damages due to this source. It is acknowledged that the report does not present all of the technical information that was recently developed to further address this issue. The detailed information will be provided to you, and summarized in the report. The analysis conducted specifically looked at the reduction in flooding that could be achieved by narrowing the inlet in order to reduce the cross-sectional area of the inlet. This analysis shows no significant reduction in flooding of the inlet, unless the inlet bottom was stabilized with rock to prevent scouring.



### **Cross Island Sediment Transport (need for bayside sediment)**

We would agree that a major study to assess long term impacts from past dredging is not necessary. However, understanding the need for bayside sediment and its importance in maintaining island integrity and reducing storm damage is central to FIMP. As we requested in the June 3, 2008, letter the FIMP needs to 1) fully evaluate, manage and compensate for project impacts on cross-island processes; 2) develop bayside habitat restoration proposals, including removal of bulkheads and placing dredged material in shallow water to provide intertidal foraging and/or marsh substrate; 3) jointly develop a schedule for studies evaluating changes in bayside geomorphology and sediment availability due to historical inlet, breach and dune management practices; and 4) carefully and scientifically design and closely collaborate with other agencies to meet New York State Department of Environmental Conservation regulations for the placement of sand in intertidal and sub-tidal bay environments.

- **NYD Response.** This comment appears to contradict itself, where it says that a major study is not needed, but then describes a need for a study. There is also overlap with the following comment on NER alternatives. In Chapter 9 of the report we have recommended that the restoration alternatives be implemented in a phased approach that will allow for lessons learned, and adaptive implementation to address the local, regulatory concerns. As is pointed out in the following comment, we have had multiple meetings to identify additional restoration alternatives, but these meetings have not identified additional alternatives of interest to the NPS.

**National Ecosystem Restoration (NER) Alternatives** Few of the HEP alternatives restore natural processes; thus NPS does not support them. Among the few HEP alternatives we continue to support include the restoration of the Great Gun tidal marsh, removal of the Ocean Beach groins, and creating of sand lobes to mimic cross shore sediment transport at Atlantique to Cornielle and/or other locations. At an October 16, 2008, meeting with USACE and USFWS, NPS further provided comments on each alternative listed in Table 9.4. Specific comments on restoration sites that fall within Seashore boundaries are provided below. Additional detail can be found in the Memorandum for the Record from the October 16, 2008, meeting.

- **NYD Response.** There are continual references to the need for additional restoration alternatives. As a follow-up to the August 22, 2008 workshop, we held a meeting on October 16, 2008, which is specifically referenced. The conclusion to that meeting is summarized in the MFR excerpt below:

The meeting concluded with the Corps asking the NPS if there were any additional locations for bayside habitat restoration, or bayside sediment placement that should be considered (consistent with the discussion held at the Interagency Meeting on August 22, 2008). The NPS replied that there were no additional sites they were interested in pursuing, and that the scope of the proposed restoration measures were satisfactory to address their concerns regarding the long-term need for bayside sediment placement

We looked to identify if additional alternatives need to be considered. While NPS apparently disdains most of the alternatives being considered, USACE must proceed under the assumption that NPS is unable to add alternatives to the range under consideration.

### **HEP**

the HEP models developed for the FIMP are an oversimplification of the complex physical and biotic processes and interactions that define the barrier island ecosystem. Barrier islands are variable systems

that undergo change temporally and spatially. In addition, a functioning barrier island does not represent one optimal community condition, as does the HEP models, but a mosaic of conditions over space and time. The static HEP models do not adequately represent the dynamic geomorphology and ecology of the FMP Project Area.

- **NYD Response.** As was provided in the response to USFWS comments, at the initiation of the HEP process, each agency was given the opportunity to identify if there are other methods available to capture the habitat benefits, other than HEP. It was agreed by all the agencies that there were no other options available, and that HEP is the most appropriate method for considering the habitat effects. The District, in support of the Habitat Evaluation Procedure (HEP) analysis performed numerous surveys of the study area to establish a baseline condition and to document the quality and quantity of habitat. The HEP analysis will be used to compare the relative value of different areas at the same time (baseline studies) or the relative value of one area with time (impact assessment). The District identified an interagency Team (HEP Team) to assist the District in evaluating the quality of habitats in the FIMP project areas and the development of the HEP methodology. The HEP Team included representatives from the National Park Service (NPS), United States Fish and Wildlife Service (USFWS), and the NYSDEC. Other agencies, such as The U.S. Environmental Protection Agency (USEPA) and The Nature Conservancy (TNC) participated as review members only. At the initiation of the HEP process, each agency was given the opportunity to identify if there are other methods available to capture the habitat benefits, other than HEP. The HEP Team acknowledged that the Project area is comprised of a spatial and temporal mosaic of communities in varying periods of succession and geomorphologic conditions that cannot easily be captured through environmental/habitat models such as HEP. From this, the HEP was modified (from original USFWS single-species based versions) to account for this mosaic of habitats and to aid in the assessment of a landscape-level restoration approach. This modified HEP, as agreed to by the HEP team members that created it, allowed each variable in each habitat to be specifically weighted and addressed as per the unique needs of a large, multi-species use, project area. It was agreed by all the agencies that there were no other options available, and that the modified HEP is the most appropriate method for considering the habitat effects.

**External Peer Review (EPR)** The plan with all its support documentation is extensive and addresses storm damages in a complex and extremely dynamic system. We congratulate the USACE in requiring a comprehensive evaluation of this study. We feel that the National Academies are uniquely qualified to undertake this task.

- **NYD Response.** Noted. We will consult with the Corps' Planning Center of Expertise on the appropriate entity to oversee the Peer Review.

**Public Communication Plan** Although not mentioned in this plan but discussed numerous times is the need to develop and implement a public communication plan. This plan should not only focus on elements of the FIMP but should also focus on flood risk, projected sea level rise and increased frequency and intensity of storms in the North Atlantic.

- **NYD Response.** We agree that the outreach plan that has been developed to date needs to be updated and implemented. We agree that the plan needs to account for the heightened awareness of climate change; but also needs to recognize what is known and what is unknown with respect to climate change. We are not aware of a firm prediction that storm intensity or frequency would increase.

**FIRE ISLAND INLET TO MONTAUK POINT, NY (FIMP)  
REFORMULATION STUDY  
ISSUE RESOLUTION CONFERENCE (IRC)  
AUGUST 22, 2008**

**Introduction:** Representatives from the Army Corps of Engineers (ACE) the Department of the Interior (DOI), the State of New York, Suffolk County and other interested parties<sup>1</sup> participated in an Issue Resolution Conference (IRC) at the Suffolk County Office Building to discuss issues concerning the Fire Island Inlet to Montauk Point (FIMP) area, and paths to resolution.

At the completion of the IRC, all participants walked away with a common understanding of the issues and agreement that nothing discussed at the IRC required immediate elevation to each agency's leadership at this time. Some of the further action discussed will be dependent on the decisions from the New York State Executive Branch concerning its preferred approaches to FIMP management. In anticipation of those decisions, the group agreed that a similarly-staffed meeting, or smaller working sub-group meetings, should be held in October to maintain momentum on the FIMP Reformulation Study.

Interim steps include:

- Presentation of issues and recommendations to the NYS Governor's office (anticipated for late September), in order to determine the level of interest and potential support for local government sponsorship of COE recommendations; and report back on results;
- Development of a "white paper" suggesting alternative incentives to transition private structures/holdings into the public domain;
- Drafting of language for legislative authority to evaluate the "back bay erosion problem" (that is, longer term implications of breach remediation);
- Potential joint legislation enabling COE and DOI to align their authorities;
- Initial investigation of establishing a "coastal commission"-type authority to manage cross-governmental, multi-constituent issues concerning the FIMP area, long term.

There was agreement that in every case there must be ongoing discussion, and action, on options to mitigate the impact of *every* decision that is made and implemented.

The following section summarizes issues, discussion and follow up agreed to by the participants.

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<sup>1</sup> See attached "Participant List"

## Inlet Maintenance

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(**Note** – inlet issues were broken into 2 categories of issues, with a 3<sup>rd</sup> issue identified as an offshoot. The 3 issues are described below as inlet maintenance, inlet management, and bayside management.)

**Problem Statement:** How will the three congressionally mandated inlets within the FIMP area be maintained in the future in the absence of the FIMP Project?

### **Discussion**

This issue was originally included as a discussion topic, since in the DOI letter to the Corps, the DOI indicated that they could not support the assumption that inlets would continue to be maintained in the without-project condition. In their opening remarks, the DOI indicated that they had revised their position, and the DOI did not object to the assumption that inlets would be continued to be maintained in the without project condition.

As a result of the change in the DOI position, there was little discussion, and it was agreed that the USACE will continue to maintain the three existing, Congressionally-authorized inlets, in their current locations, dependent on continuing future appropriations. This is inherent in the USACE's navigation role.

The discussion, regarding opportunities for improved inlet management is described further below.

**Next Steps** No next steps, this issue is resolved.

## Inlet Management

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**Problem Statement:** The FIMP Study is seeking to identify opportunities for improvements in inlet management in the future. How is the FIMP Study addressing the issues related to: 1) improved bypassing of the inlets, 2) the contribution of the inlets to bayside flooding, 3) the problems and opportunities associated with erosion and habitat degradation along the bayside shoreline. As a subset, what are the science and data collection needs to support this, is there agreement on what needs to be done.

### **Discussion**

There was significant discussion regarding the management of the inlets.

USACE clarified that in the formulation of alternatives, inlet management measures were looked at as a means to reduce storm damages.

It was generally recognized that the recent work done for alternative development, included an interagency team in the development of alternatives, but focused more on opportunities for the improved management of the inlets in order to accomplish objective 1, which is to improve sediment transport associated with the management of the inlets, in the alongshore.

USACE further clarified that the formulation of alternatives was undertaken in a manner, which gave a priority to alternative measures that accomplished the desired objectives with a minimum amount of change, and could be readily reversed or modified based upon improved understanding of the inlets.

As a result of this analysis, the recommendation at each of the inlets is continuation of the authorized navigation project, plus additional dredging from the inlet ebb shoals to bypass the equivalent amount of material that is trapped within the inlet. This plan includes a monitoring and adaptive management plan to establish the exact bypassing needs, and to provide improved information that could allow for future changes in inlet management.

Examples of alternatives that could be considered in the future, when greater information is available to more reliably predict the effects of the alternatives, include: shortening of the east Jetty at Shinnecock Inlet to improve bypassing, and measures that could be implemented to restrict the cross-sectional area of the inlet to reduce mainland flooding. These are two alternatives, that if implemented are not readily reversible, and could have unintended consequences, that with the present state of knowledge would be difficult to forecast.

There was general acceptance of the inlet management approach, and conclusions as it relates to measures to improve sand bypassing; however, there were still significant remaining concerns regarding inlet management measures, and the relationship to measures to address bayside flooding, and opportunities for bayside sediment placement.

With respect to data collection needs, there was general agreement that any monitoring and adaptive management would need to be further defined, and would be developed as a forward-looking plan, and should not be geared towards characterizing past influences associated with inlet stabilization and maintenance activities.

**Next Steps** Convene a technical group discussion on the content and scope of a monitoring and adaptive management plan for the inlet activities. Further discussion on bayside habitat restoration measures is discussed below.

## **Bayside Management**

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**Note** The topic of Bayside Management was established as an offshoot of the Inlet Management discussion. The topic was identified as its own, since the issue was identified as a problem that the inlets may contribute to, but is not exclusively an inlet problem.

### **Problem Statement:**

Regardless of the cause of the degradation, there is a long-term need to address conditions along the bayside of the barrier island in order to address the long-term problems of storm damages and habitat degradation. We need to identify the best way to manage bayside management and restoration.

### **Discussion:**

**DOI** and **County** expressed concern about the lack of bayside sediments, and bayside erosion of the shoreline. Although this discussion started as an inlet-related issue, there was a general recognition that the problem of bayside erosion and bayside flooding is not solely due to inlet management activities, but that there are other contributors to the problem. It was generally recognized that the problems of bayside erosion are less severe than the ocean-side, and may require longer-term solutions.

**There were several proposed approaches for addressing bayside erosion issues:**

**Solution 1.** It was discussed, that if there is a concern regarding the impact that the existing inlets are having on the bay shoreline, that a separate Section 111 study (Project to offset impacts associated with Navigation Projects) could be initiated to identify the magnitude of the impact of the inlets, and to identify if solutions are available to address this problem.

**Solution 2.** It was discussed that the issues of bayside erosion and habitat degradation could be addressed with a separate authority (such as the existing South Shore of Long Island, Ecosystem Restoration Authority) to address the problem.

**Solution 3.** It was acknowledged that a number of the issues being discussed are presently being evaluated in the restoration alternatives being developed under the Reformulation Study. At this point there remain regulatory concerns that could restrict the implementation of these restoration measures. One solution could be an implementation plan that calls for phased implementation of the restoration measures, in conjunction with an intensive monitoring plan for the constructed sites and an adaptive management plan that helps to identify the sequencing of the restoration efforts.

**Next Steps:**

- For FIMP, proceed with the evaluation of restoration alternatives as per solution 3.
- County/State agencies to ask their County/State government counterparts to write resolutions requesting that the Corps study a particular area of concern.
- All participants agreed that language for legislative authority to evaluate the “back bay erosion problem” should be drafted.

**Integration of Non-Structural Measures**

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**Problem Statement:** How will the various Non-Structural Land Management Measures be linked with Structural Measures within the Collaborative Plan? Are they independent, integral or contingent to each other? What implications does this the nature of the linkage have for the level of analysis conducted in the EIS? Are there also cost-sharing implications?

**Discussion:** The question of how the Non-Structural (N-S) Land Management Measures, will be linked with Structural measures and how this might effect their presentation in the EIS was discussed. There were 3 categories of actions that had been discussed at prior meetings and were touched upon here, including: 1) actions likely to occur in the future without project condition, 2) actions that are integral to the recommended plan (where the plan cannot function without action), and 3) complementary actions, which are not necessary for the plan to function, but could improve the effectiveness of the plan.

All actions associated with the FIMP Alternatives will be evaluated for direct, indirect, and cumulative effects. Similar actions in the region will also be evaluated for cumulative effects. If it can be determined with a reasonable degree of certainty, that an N-S measure (such as NYS’ stated intent to revise/strengthen aspects of the CEHA program) will be implemented completely independent of a FIMP recommendation, then it would be would be discussed as part of the Future Without Project Condition (FWOPC), and analyzed as part of Cumulative Effects. If the N-S measure (such as establishing a Coastal Commission) is integral to a FIMP recommendation, and required to compliment or strengthen other aspects of the Plan, or if it is a contingent action (such as the acquisition of property from willing sellers prior to shifting beach nourishment landward)

then it would be presented as part of the Alternative, and analyzed for direct, indirect, and cumulative effects. Complementary actions, which could improve the functioning of the overall plan, but are not necessary for the plan to function would need to be acknowledged and discussed as part of indirect and cumulative effects, depending on the certainty of its implementation and the amount of information available about the actions.

New York State indicated that their preference would be to integrate the non-Structural measures (primarily regulatory measures) with the structural measures, but had recognized the concerns raised at prior meetings that doing so would increase the scope of the EIS and could increase the difficulty in processing the EIS. The Corps is clarifying that these actions can be addressed in relation to the FIMP collaboration plan, but there may not be sufficient information currently available to fully evaluate all aspects of the proposed action(s). In many instances, such as change in to the CEHA program, there will likely be a need for a separate compliance process evaluating all aspects of the proposed changes, not just aspects that would complement the FIMP plan.

As many of the N-S measures will be phased in over time and space, the analysis of indirect and cumulative effects will have to be based on reasonable expectations or assumptions concerning their for their context and intensity. For some N-S measures, (such as retrofit/elevations), additional investigations (such as site specific cultural resource or HTRW surveys) may be conducted programmatically as specific implementation actions (home-owners entering into retrofit/elevation agreements). Also, many of the measures may be controversial warranting consideration of whether the effects are potentially significant. The input of the Local Governments participating in the FIMP Study will be useful in gauging anticipated stakeholder concerns so that they may be presented in the DEIS for full public comment (with the acknowledgement that the proposed regulatory changes will require their own, independent environmental reviews independent of FIMP).

The USACE is continuing to work with the FIMP Study Partners to develop statements defining these actions in terms of their geographic context and intensity (or rate of implementation over time) and collate pertinent available information for their analysis.

#### **Next Steps:**

- Utilize the information from prior meetings to define the N-S Measures as specifically as possible (with an emphasis on the land use / regulatory measures). Obtain input from the participating agencies on the classification of the non-structural measures (FWOPC Action, Integral Action, or Complementary Action), including the underlying rationale to support this classification. Identify the scope of the analysis for each of these measures, depending upon their classification, and identify the responsible party for preparing this information. The FIMP Study Partners, as part of the County-led Non-Structural TMG, have indicated they will assist in drafting these descriptions and USACE has developed a description of N-S Retrofit Measure as a template.
- Determine if the N-S measure will be implemented programmatically, and if so, what additional investigations will be conducted and how that information will be evaluated and impacts avoided, reduced, or mitigated.
- Assemble the integrated plan indicating whether the proposed N-S measures are independent or integral to the Collaborative Plan native so that direct, indirect, and cumulative effects can be delineated appropriately.

- Analyze Direct, Indirect and Cumulative Impacts (adverse and beneficial). The FIMP Partners will be asked to assist in providing input on likely stakeholder participation for some of these analyses.

## **Breach Response**

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**Problem Statement:** What are the agreed-upon protocols for closing a breach within non-populated areas of the public tracts on Fire Island?

### **Discussion:**

It was generally recognized that there have been ongoing discussions at the staff-level to develop the specific response strategy for each of these locations. This issue was raised for discussion because of the concern that there is a preference for immediate closure of a breach, and in some instances a proactive response, where the park has taken the position that breach closure would be implemented when it is clear that the breach is not likely to close naturally.

- **DOI:** Breach response in large, natural areas needs to take into consideration the potential for breaches to close naturally, and breach closure templates should be designed to achieve the desired overwash regimes.
- **COE:** A protocol is being developed to include the range of acceptable and practical possible pre- or post-storm actions that may be taken
- **All participants** agreed that breach response in populated areas is not an issue, and that there are many factors that influence how quickly a particular breach can and will need to be addressed. There was also agreement that if a monitored breach in a natural area was found to be growing out of control, that it would be closed.

### **Next Steps:**

The group agreed to review the protocol being designed by COE for breach response in large, natural areas. A smaller technical group shall meet to discuss the protocols. (*Lead: Lynn Bocamazo, USACE*)

## **Long-Term Land Management and Acquisition Strategy to Complement and Reduce the Need for Beach Nourishment**

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**Problem Statement.** It is recognized that the Project stakeholders are interested in identifying and developing an approach which could allow for a transition from a beachfill plan to a plan that requires a lesser commitment for renourishment, and relies on non-structural measures, so as to reduce the need for perpetual renourishment beyond the 50 year project life.

### **Discussion:**

- It was acknowledged that there are a number of ways by which the underlying rationale could be laid out.



- The Corps identified 2 somewhat different approaches that could be undertaken, based upon the objectives.
  - Approach 1 – If the intent of the transitioning plan is to achieve a plan that provides comparable levels of risk reduction, it is difficult to forecast the rate of implementation of the voluntary non-structural plans and the effectiveness of these plan alternatives in reducing the level of risk to the point where a change in the structural protection could be implemented. Under this scenario a recommendation would be to recommend a plan that could be continued for 50 years, but modified at any time, based upon the rate of implementation of the non-structural measures. This approach was not favored by the participating agencies. A shorter duration was identified as preferable to serve as an incentive for participation. It was recognized that under this scenario the threat of being exposed to storm damages would not serve as an incentive, and that other incentives for participation would be necessary, including more favorable acquisition strategies, or flood insurance disincentives.
  - Approach 2 – If the intent of the transitioning plan was not to provide a consistent level of risk reduction, but rather to accept the fact that the intent is to transition, regardless of the level of risk reduction afforded, one could establish a plan that ensures that adequate time is available to offer acquisition and to implement improved regulatory measures and more strongly link the scheduled renourishment to these activities. Developing a plan under this criteria would require a firm schedule for these activities to proceed, and a commitment to implement these actions consistent with this schedule.
- The group agreed that this is a difficult issue, within the Corps it was unclear if either of the 2 approaches presented would be supported by HQUSACE.
- Because there has been no effective approach to motivating owners to leave on a long or short-term incentive schedule; decisions now involve whether to work with or around house placement. Study is required to determine the most cost-effective areas to target for acquisition.
- It was recognized that the FIMP Study is attempting to address issues that are beyond the scope of many typical Corps studies. One suggestion was that some of the issues related to land management measures, particularly related to Federal initiatives could be advanced on a path independent of, and in advance of the FIMP Study. It was suggested that the recent Secretary-level involvement could be used as a basis for developing joint Agency recommendations for legislation to establish the land management and acquisition opportunities.

### **Next Steps:**

All participants agreed that it will take some study to determine the best approach and most cost-effective way to transition land in the flood plain from the private sector to the public sector, as a means to transition from structural protection to non-structural protection measures.

- DOI and the Corps agreed that there is a need for mutual legislation, supported by the Secretaries of the Army and Interior, related to the land management and acquisition strategy.
- All participants agreed that a “white paper” suggesting alternative incentives to transition private structures/holdings into the public domain should be drafted to further describe and evaluate the 2 scenarios that were identified. (*Lead: Steve Couch, ACE*)

### **Establishment of a Coastal Commission**

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**Problem Statement:** There is a recognized need for a more unified local entity to take on the local responsibilities for land acquisition and regulatory enforcement in order to achieve the objective of a plan that includes both structural and non-structural measures. There is a concern that in the absence of such an entity that the structural measures will proceed, but that the non-structural measures would not be implemented.

**Discussion:** This topic had been discussed previously in other meetings. The group collectively agreed that an ongoing management body similar to a “coastal commission” would be an effective way to accomplish the non-structural objectives of the Reformulation study. This commission could take on many roles, including: enforcement, acquisition, a taxing entity to raise funds for the mainland retrofit program, and non-state sponsor for the overall project.

It was generally acknowledged that the establishment of a Commission is a means to implement the overall plan, rather than a specific plan alternative that could be developed independent of the alternative development process

**Next Steps:**

Prepare a paper that provides an overview of the functions that a Commission could undertake as a means for establishing the framework of a Commission, in order to obtain acceptance / support for the approach. (*Lead: Carrie Meek Gallagher*)

### Accounting for Climate Change

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**Problem Statement:** How will the effects of climate change be incorporated in the reformulation study analyses?

**Discussion:** There was some discussion that the DOI ASA was informed that the analyses would not consider climate change or the potential for accelerated sea level rise.

It was clarified that the present analyses done to date, in the life cycle simulations uses the historic rate of sea level rise, with a range of uncertainty, based upon the historic trends. The current Corps guidance states that projects should be formulated based upon historic rates of sea level rise, but that the final plan selection take into consideration the potential for sea level rise, and the adaptability of the plan to account for this.

The existing Corps guidance is currently being revised as guidance that would be consistent for Federal agencies that have a responsibility for constructing long-term infrastructure projects that could be impacted by climate change. This draft guidance recognizes that climate change could impact 1) sea level rise, 2) storm intensity, and 3) storm frequency. The proposed guidance is similar to the existing guidance, and 1) recognizes that due to the uncertainty in climate change projections, projects should be formulated on historic trends; projects should NOT be altered up-front solely to account for climate change, and 2) project formulation should take into account the need for adaptability, and plan for adaptive management and anticipatory engineering as the means to address climate change over the project life.

The reformulation report will acknowledge the potential for climate change, and the impacts of accelerated sea level rise rates. Similarly, the report will recognize the potential for, and the impact

of, additional climate changes, such as increases in storm frequencies.; with a general discussion of how this would be accounted for in the lifecycle management of the project. Agencies agreed that this is acceptable.

**Next Steps:** None, issue is resolved.

Sincerely,

[Appropriate signatories-the Corps, DOI, the State of New York, Suffolk County, etc.]

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## **Fire Island to Montauk Point (FIMP) Reformulation Study**

**Preface:** The purpose of the FIMP Vision Statement is to articulate the goals and strategies of the Reformulation Study so that all decision-makers, stakeholders, and study team members may share a common understanding in this multi-faceted study. It is hoped that the FIMP Reformulation Study will serve as a model for addressing similar coastal issues elsewhere on Long Island, the Northeast, and the United States as a whole.

## **Vision Statement**

The vision for the Fire Island to Montauk Point Reformulation Study is to prepare an implementable, comprehensive, and long-term regional strategy for the 83 mile portion of the south shore of Suffolk County, Long Island, New York that will reduce risks to human life and property, while maintaining, enhancing, and restoring ecosystem integrity and coastal biodiversity. This will require an assessment of at risk properties within the 71 square mile floodplain, present and future sea level rise, restoration and protection of important coastal landforms and processes, and important public uses of the area. The Reformulation Study will lead to a project that provides New York State and its residents with lower storm damage risks and a full range of future options for coastal zone management.

The Reformulation Study is taking an innovative approach using the best available analyses tools for addressing coastal storm risk reduction and pre- and post-storm shoreline management along both barrier and mainland shorelines. The U.S. Army Corps of Engineers and the State of New York, in their lead project planning and cost sharing roles, are developing innovative management and restoration measures working with a wide range of stakeholders to establish comprehensive, consensus-based solutions. The final plan will recommend measures for implementation by federal agencies, New York State, Suffolk County and local governments through the exercise of all applicable governmental authorities to the maximum extent practical to achieve national, state and local objectives.

- No plan can reduce all risks. On-going monitoring will evaluate the effectiveness and impacts of implemented policies. The monitoring results will serve as the basis for adaptations and adjustments to improve the project's effectiveness and respond to the dynamic nature of the FIMP study area.
- Collection, analysis, and independent technical review of scientific data will be conducted to improve understandings of complex and dynamic, regional hydrologic, geomorphic, and ecological factors and interrelationships while simultaneously facilitating the building and sharing of an integrated scientific, economic, and social knowledge base.
- Efforts will be undertaken to reduce mainland and barrier island flooding through site specific measures that address the variety of causes of flooding throughout the study area, consistent with applicable agency laws and missions.
- Priority will be given to measures that reduce risks and provide protection to human life and property, restore and enhance coastal processes and ecosystem integrity, and are environmentally sustainable.
- Preference will be given to measures that protect and restore coastal landforms and natural habitats, aid in recovery of threatened and endangered species, enhance public recreation and use, and ensure perpetuation of essential physical and biological processes.
- Measures that avoid or minimize adverse environmental impacts and adequately address long-term demands for public resources will be used wherever and whenever appropriate and required, while continuing to accept and embrace governmental responsibility and accountability under the law.
- Dune and beach replenishment will be optimized to balance storm damage reduction and environmental considerations. Sand nourishment will be considered where it will create conditions suitable for restoration of natural processes and where appropriate to protect important uses. Active intervention will be considered where it is possible to achieve balance and synergy between human development, economic activities, and natural systems.
- Existing shore stabilization structures, inlet stabilization measures, dredging practices, and other coastal area modifications past and present, including bay and estuarine shorelines, will be assessed to examine their impacts and, as appropriate, recommended to be altered, mitigated or removed to help restore important physical and biological processes.

**The FIMP Web Page:**

**<http://www.nan.usace.army.mil/fimp/index.htm>**