New Jersey Back Bays Coastal Storm Risk Management Interim Report and Environmental Scoping Document

Virtual Meeting
14 March 2019
US Army Corps of Engineers Philadelphia District
Agenda

- Report Highlights
- Focused Array Overview
- Process Overview
- Questions & Answers
- Closing Comments
New Jersey Back Bays Coastal Storm Risk Management Study

Interim Report

The U.S. Army Corps of Engineers and the New Jersey Department of Environmental Protection announced the release of an Interim Report for the New Jersey Back Bays Coastal Storm Risk Management Study, and a virtual meeting on March 14, 2019 from 9 a.m. to 10 a.m. The Interim Report presents a focused array of alternative plans that manage risk and reduce damages from coastal storms as well as the engineering, economic, social, and environmental analyses that have been conducted to develop the focused array of alternatives outlined in the report. The Army Corps and NJDEP invite the public to comment on the report by April 1, 2019. Comments can be submitted by email or in writing to: U.S. Army Corps of Engineer Planning Division, 100 Penn Square E. Philadelphia PA 19107.

- News Release (with webinar details)
- Executive Summary
- Main Report
- Appendix A - Plan Formulation
- Appendix B - Engineering
- Appendix C - Economics
- Appendix D - Nonstructural Analyses
- Appendix E - Correspondence and Communication
- Appendix F - Environmental and Cultural

Public Meetings

The U.S. Army Corps of Engineers and the New Jersey Department of Environmental Protection hosted public meetings regarding the New Jersey Back Bays Flood Risk Management study on Sept. 12, 2018 in Ventnor City, N.J. and on Sept 13 in Toms River Township, N.J. Some of the measures that were discussed at the public meetings included structural solutions such as storm surge barriers, tide gates, levees, and floodwalls; non-structural solutions such as elevating homes; and nature-based features such as marsh restoration and the creation of living shorelines.

- Presentation for Public Meeting in Toms River, Nj (Sept. 13, 2018)
- Presentation for Public Meeting in Ventnor City, Nj (Sept. 12, 2018)
- New Jersey Back Bays Fact Card (Sept 2018)
- Public Comment Form (Sept 2018)
- Meeting Welcome Form (Sept 2018)
Interim Report Outline

• Executive Summary
• Main Report
• Appendix A - Plan Formulation
• Appendix B - Engineering
• Appendix C - Economics
• Appendix D - Nonstructural Analyses
• Appendix E - Correspondence and Communication
• Appendix F - Environmental and Cultural
Structural Measure – Floodwalls & Levees

• Main Report (Ch 9.4, p. 130)
Floodwall/Levee Screening Results

South Floodwall/Levee Screening Results

North Floodwall/Levee Screening Results
Floodwall/Levee Typical Sections

Floodwall – water construction

Levee

Floodwall – land construction
Nonstructural Measures – Building Elevation

- **Main Report (Ch 9.4, p. 137)**

- **Primary Nonstructural measures**
  - Building elevation
  - Acquisition and relocation later

- **Recommended in combination with structural measures to formulate economically justified hybrid plans**

- **The process**
  - Develop structure inventory
  - Identify Design Flood Elevation (DFE) = FEMA BFE + 3 feet
  - Approximately 30,000 structures in the 20-year floodplain
  - Additional floodplains beyond 5-, 10-, and 20-year floodplains
Structural Measure - Storm Surge Barriers

- Main Report Ch 8, 9

Seabrook - New Orleans, LA

Example at Barnegat Inlet, NJ
Interim Report Engineering Highlights

- Appendix B - Engineering

Relative sea level changes for the study area

Geotechnical boring log

NWS stage floodplains
Primary NNBF measure under consideration is living shorelines. Current criteria for this measure include:

- Unarmored shorelines adjacent to infrastructure
- Complementary to structural measures such as floodwalls and levees

NJBB study is also considering modifications that can be made to structural measures that can increase their habitat value:

- Habitat benches to restore more natural slope along shorelines
- Textured concrete to support colonization of algae and invertebrates

Conceptual diagram of habitat bench

Textured concrete

Construction of living shoreline in Camp Pecometh, MD
Alternative Screening, Evaluation, and Comparison using System of Accounts

- Main Report Ch 9; Appendix A – Plan Formulation

National Economic Development Screening (NED)

If Average Annual Net Benefits were < 0, the alternative failed the NED criteria and was screened out.

Environmental Quality (EQ) Screening

Alternatives were assessed for their impact on a range of different environmental categories on an ordinal scale from 0-6. Any score of 0 resulted in an alternative failing the EQ criteria. The EQ scores for each environmental category were averaged to create an EQ ranking.

OSE and RED Evaluation

Criteria to assess OSE included feedback from Public Meetings, Social Vulnerability Risk and Exposure indices from the NACCS, and mapped infrastructure and evacuation routes. RED evaluation is still under development.

Remaining alternatives are evaluated as part of the focused array.
Environmental Considerations of the Focused Array of Alternatives

- **Main Report Ch 6, 11; Appendix F**

**STRUCTURAL MEASURES**

**Perimeter Plans: Floodwalls/Levees**
- **Temporary Impacts:**
  - Water Quality/Turbidity
  - Habitat disturbance
  - Air Quality/Noise
  - Community
- **Permanent/Cumulative Impacts:**
  - High Direct Habitat Losses
  - High Mitigation Costs
  - Community/Visual Aesthetics

**Storm Surge Barriers: Inlet/Bay Closures**
- **Temporary Impacts:**
  - Water Quality/Turbidity
  - Habitat disturbance
  - Air Quality/Noise
  - Community
- **Permanent/Cumulative Impacts:**
  - Lower Direct Habitat Losses
  - Potential High Indirect Impacts
  - Potential High Mitigation Costs
  - Potential T & E species impacts at some locations
  - Localized Community/Visual Aesthetics

**NON-STRUCTURAl MEASURES**

**Building Raising**
- **Temporary Impacts:**
  - Water Quality/Turbidity
  - Low or no Habitat disturbance
  - Minor Air Quality/Noise
  - Community
- **Permanent/Cumulative Impacts:**
  - Low or no Direct Habitat Losses
  - Potential High Cultural Resources Impacts
  - Community

**Acquisition**
- **Temporary Impacts:**
  - Community
  - Water Quality/Turbidity if earth disturbance from building razing
- **Permanent/Cumulative Impacts:**
  - Community
  - Potential High Cultural Resources Impacts
  - Potential Beneficial Environmental Effect If Building Razing Removes Impervious Surface

**Natural and Nature Based Features (NNBF)**

**Wetlands/SAVs/Living Shorelines**
- **Temporary Impacts:**
  - Water Quality/Turbidity
  - Habitat disturbance
  - Air Quality/Noise
  - Community
- **Permanent/Cumulative Impacts:**
  - Beneficial Ecological Uplift
  - Increase in Environmental Services

Environmental Considerations of the Focused Array of Alternatives

- **Main Report Ch 6, 11; Appendix F**
Interim Report Highlights

• Appendix E - Correspondence and Communication

Local flooding profile

Detailed summaries

U.S. Army Corps of Engineers
New Jersey Back Bays
Flood Risk Management Planning Workshop

Coastal Risk Management Strategy Profile

CONTACT INFORMATION (Name, Affiliation, Email, Phone):

LOCATION (Describe the precise location of the problem; provide a map if possible):

PROBLEM (Define the problem and its general location):

• Discuss if any work has been done on analysis, repairs, advocacy for this problem:

• Provide any specific elevation information of existing management measures:
Initial Construction: $3,629,000,000
Average Annual O&M: $0
Average Annual Net Benefits: $69,000,000
BCR: 1.5
Environmental Criteria: Pass
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**Measures**

- Non-Structural
- Perimeter Plan
- Inlet Closure
- Bay Closure

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**Central Region - Alternative 4E-3**

New Jersey Back Bay Study

March 2019
Central Region - Alternative 4G-9 to 12
New Jersey Back Bay Study

March 2019

4G-9
- Initial Construction: $5,617,000,000
- Average Annual O&M: $82,000,000
- Average Annual Net Benefits: $296,000,000
- BCR: 1.9
- Environmental Criteria: Pass

4G-10
- Initial Construction: $6,006,000,000
- Average Annual O&M: $82,000,000
- Average Annual Net Benefits: $297,000,000
- BCR: 1.8
- Environmental Criteria: Pass

4G-11
- Initial Construction: $6,034,000,000
- Average Annual O&M: $88,000,000
- Average Annual Net Benefits: $299,000,000
- BCR: 1.8
- Environmental Criteria: Pass

4G-12
- Initial Construction: $6,038,000,000
- Average Annual O&M: $88,000,000
- Average Annual Net Benefits: $299,000,000
- BCR: 1.8
- Environmental Criteria: Pass
Measures
- Non-Structural
- Perimeter Plan
- Inlet Closure
- Bay Closure

Initial Construction: $1,467,000,000
Average Annual O&M: $0
Average Annual Net Benefits: $44,000,000
BCR: 1.8
Environmental Criteria: Pass

Southern Region - Alternative 5A
New Jersey Back Bay Study
March 2019
**Measures**

- Non-Structural
- Perimeter Plan
- Inlet Closure
- Bay Closure

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Southern Region - Alternative 5D-1
New Jersey Back Bay Study
March 2019
**Measures**

- Non-Structural
- Perimeter Plan
- Inlet Closure
- Bay Closure

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**Southern Region - Alternative 5D-2**

New Jersey Back Bay Study

March 2019
Feasibility Study Process

1. **APRIL 2016**
   - Study Start
   - **DECEMBER 2016**
     - Alternatives Milestone

2. **MARCH 2019**
   - Release Draft Interim Report and Environmental Scoping Document

3. **JANUARY 2020**
   - Tentatively Selected Plan Milestone
   - Draft Feasibility Report and Draft Environmental Impact Statement

4. **NOVEMBER 2021**
   - Final Feasibility Report and Environmental Impact Statement

5. **APRIL 2022**
   - Feasibility Phase Completed
Design & Construction Process

**Post Chief’s Report**

**6** 2022 Authorization & Congressional Approval

**7** 2023 Preconstruction Engineering & Design Initiation

**8** 2022 Construction Funds Appropriation

**9** 2026 Incremental Construction Commencement

**10** 2027 Monitor & Adapt

* Dates tentative pending funding
Questions & Answers
Closing Comments
Thank you for your interest!