

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

Breakout Session Information

June 2016



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

21 June 2016, 8:30AM – 2:45PM

**Stockton University
101 Vera King Farris Drive, Galloway, NJ 08205
Campus Center Theater (Main Level)
Park in Lots 2 and 3**

Agenda

- 8:30 – 9:00 Check-in
- 9:00 – 9:15 Introductory Remarks
- 9:15 – 10:00 USACE Presentation
- 10:00 – 10:30 Discussion
- 10:30 – 10:45 Break/Proceed to Break Out Session Rooms
- 10:45 – 11:30 Break Out Session #1: Problems, Objectives and Constraints
- 11:30 – 12:30 Lunch
- 12:30 – 12:45 Discussion
- 12:45 – 1:30 Break Out Session #2: Existing/Potential Management Measures
- 1:30 – 2:30 Working Groups Report Out/Discussion
- 2:30 – 2:45 Meeting Wrap-up

New Jersey Back Bays Coastal Storm Risk Management Feasibility

- **Authority:** U.S. House of Representatives and U.S. Senate Resolutions in December 1987
- **Congressional Districts:** NJ-2, NJ-3, NJ-4, NJ-6
- **Non-Federal Sponsor:** New Jersey Department of Environmental Protection
- **Date of Project Agreement:** April 2016
- **Target Completion Date:** April 2019
- **Total Estimated Cost:** \$3M
- **Locations:** Sections of Monmouth, Ocean, Burlington, Atlantic and Cape May Counties



U.S. Army
Corps of Engineers



New Jersey Department of
Environmental Protection



Historic storms, including Hurricane Sandy, have severely impacted the back bay communities of coastal New Jersey. The New Jersey Back Bays (NJBB) Study developed out of the larger North Atlantic Coast Comprehensive Study (NACCS) which identified nine high-risk areas on the Atlantic Coast for further in-depth analysis.

The NJBB study area is located behind the New Jersey barrier islands of Monmouth, Ocean, Burlington, Atlantic and Cape May Counties and includes the set of interconnected water bodies and coastal lakes that are separated from the Atlantic Ocean.

The purpose of the study is to investigate Coastal Storm Risk Management (CSRМ) strategies and solutions to reduce damages from coastal flooding affecting population, critical infrastructure, critical facilities, property, and ecosystems. The NJBB Study is being performed to align with the goals of the North Atlantic Coast Comprehensive Study (NACCS), which are to:

- Provide a risk management framework, consistent with and NOAA/USACE Infrastructure Systems Rebuilding Principles; and
- Support resilient coastal communities and robust, sustainable coastal landscape systems, considering future sea level and climate change scenarios, to reduce risk to vulnerable populations, property, ecosystems, and infrastructure.

New Jersey Back Bays Coastal Storm Risk Management Feasibility

Project Opportunities:

- Flood risk is increasing for coastal populations and supporting infrastructure.
- Improved land use, responsible evacuation planning, and strategic retreat are important and cost-effective actions.
- Combinations of solutions: nonstructural, structural, natural/nature-based
- Communities must identify acceptable level of residual risk to plan for long-term
- Opportunities to improve risk management, including collaboration, building new partnerships to strengthen pre-storm planning.
- Resilience through use of a CSRM framework and commitments to advance sea level and climate change science, storm surge modeling and related themes.

Study Process

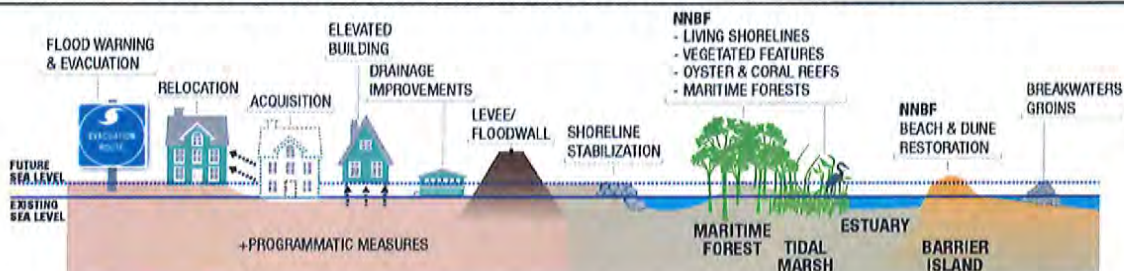
The study will consider past, current, and future coastal storm risk management and resilience planning initiatives and projects underway by the USACE and other Federal, State, and local agencies. Three overarching efforts will be performed:

- Assess the study area's problems, opportunities and future without project conditions;
- Assess the feasibility of implementing system-wide coastal storm risk management solutions such as policy/programmatic strategies, storm surge barriers at selected inlet entrances, or tidal gates at selected lagoon entrances;
- Assess the feasibility of implementing site-specific perimeter solutions such as a combination of structural, non-structural, and natural and nature-based features; and
- Assess the impacts of back bay strategies and solutions on the Atlantic Coast CSRM Program towards developing recommendations within a systems context given likely future scenarios.

The end product of this study will be a decision document in the form of a Chief's Report authorizing comprehensive USACE design and construction opportunities using the full array of CSRM strategies and measures.

Also included in the report: recommendations of actionable and policy implementable items for non-USACE entities, potentially including floodplain management, landscape architecture, hurricane evacuation plans, and Community Rating System enhancement opportunities. Additional recommendations will be provided for incorporating existing USACE and external programs, projects, plans and actions into the NJBB framework. Environment impacts will be assessed through the National Environmental Policy Act.

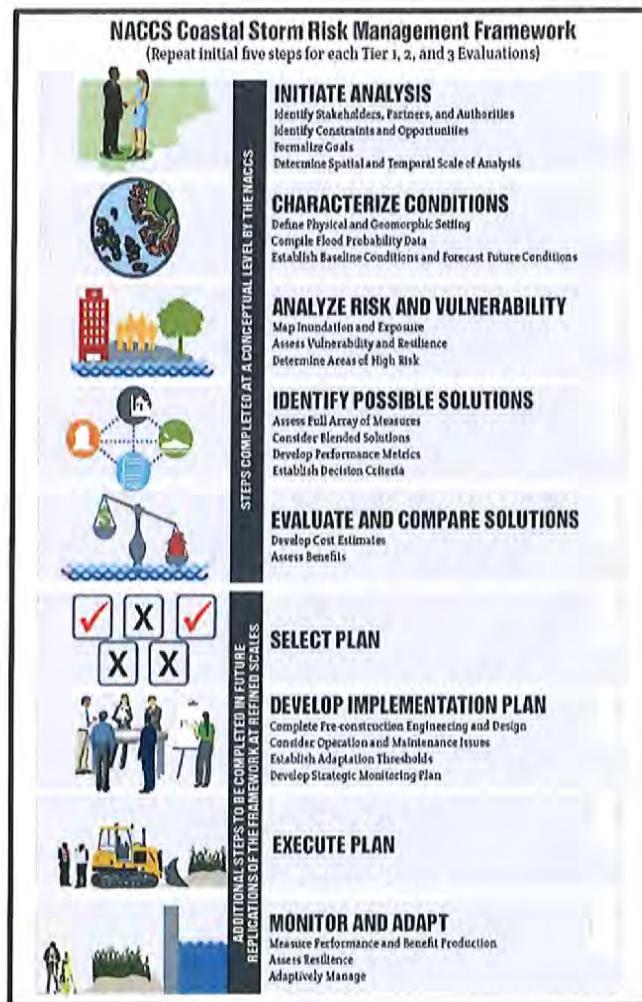
Full Array of Coastal Storm Risk Management Measures



North Atlantic Coast Comprehensive Study (NACCS) Overview

The NJBB FRM study was identified as a “focus area” within the NACCS study. The NACCS was conducted to address the flood risks of vulnerable coastal populations in areas that were affected by Hurricane Sandy within the boundaries of the North Atlantic Division of the Corps. The goals of NACCS was to provide a framework, consistent with USACE-NOAA Rebuilding principles and to support resilient coastal communities and robust, sustainable coastal landscape systems, considering future sea level rise and climate change scenarios, to reduce risk to vulnerable population, property, ecosystems, and infrastructure. The findings of the NACCS included a recognition that addressing these issues will be a shared responsibility of all levels of Government including partnerships, that we must rethink our approaches to adapting to risk, and that resilience and sustainability must consider a combination and blend of measures. The Coastal Storm Risk Framework identified within the NACCS is provided below:

Figure 3. NACCS Coastal Storm Risk Management Framework



Source: USACE, 2013.

Additional information on the NACCS can be found at <http://www.nad.usace.army.mil/CompStudy.aspx>.

**U.S. Army Corps of Engineers
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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:

Example Statements

➤ Problem

Coastal flooding of low elevation roads and residences for our municipality during coastal storm conditions with water levels greater than 1 foot above Mean High Water.

➤ Objective

Manage risk from coastal flooding and sea level rise to reduce risk to human life and infrastructure through the use of the full array of coastal risk management measures for our municipality; Maintain economic viability of the working coastline.

➤ Constraint

The coastal risk management strategy may: 1) increase flooding in an adjacent community; 2) be complicated/prohibited by ordinance.



Management Measure List

The full array of coastal storm risk management measures will be considered in the NJBB FRM Study.

Figure 4.



A list of individual management measures, including structural, non-structural, and natural and nature-based features, is also provided below.

Structural

- 1) Seawall/Revetment
- 2) Groins
- 3) Detached Breakwaters
- 4) Berms / Levees
- 5) Multipurpose Berms/Levees
- 6) Floodwalls and Bulkheads
- 7) Flood/Tide Gates
- 8) Portable Floodwalls
- 9) Portable Berms/Cofferdams
- 10) Storm Surge Barrier
- 11) Road, Rail, or Light Rail Raises
- 12) Beach and Dune Restoration
- 13) Stormwater System Improvements
- 14) Bridge Trash Racks

Non-Structural

- 1) Acquisition / Buyouts / Retreat
- 2) Early Warning Systems
- 3) Elevating Structures
- 4) Floodproofing
- 5) Increase Storage
- 6) Public Engagement and Education
- 7) Relocating Utilities and Critical Infrastructure
- 8) Preservation
- 9) Resilience Performance Standards
- 10) Emergency Response Systems
- 11) Modify/Remove Structures for Better Channel Function

- 12) Design or Redesign and Location of Services and Utilities
- 13) Surface Water//Stormwater Management
- 14) Building Codes and Zoning
- 15) Strategic Acquisition
- 16) Emergency Plans/Hazard Mitigation Plans
- 17) Wetland Migration
- 18) Regional Sediment Management (RSM)
- 19) Coastal Zone Management

Natural and Nature-Based Features

- 1) Green Stormwater Management
- 2) Constructed or Rehabilitated Reefs
- 3) Salt Marshes
- 4) Freshwater Wetlands
- 5) Vegetated Dunes and Beaches
- 6) Vegetated Submerged Aquatic Vegetation (SAV), Salt Marshes and Wetlands
- 7) Oyster and Coral Reefs
- 8) Barrier Island Restoration
- 9) Maritime Forests / Shrub Communities
- 10) Living Shorelines

Additional information and description of coastal storm risk management measures can be found at <http://www.nad.usace.army.mil/CompStudy.aspx> and in “Coastal Risk Reduction and Resilience: Using the Full Array of Measures” (USACE, 2013) located at http://www.corpsclimate.us/docs/USACE_Coastal_Risk_Reduction_final_CWTS_2013-3.pdf.