

Raritan Bay and Sandy Hook Bay, Highlands, NJ Coastal Storm Risk Management

Public Meeting

USACE - New York District
March 20, 2017



US Army Corps of Engineers
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Purpose & Agenda

Purpose: Provide information to the Highlands Council and public, to determine the local support for proceeding with detailed design and construction.

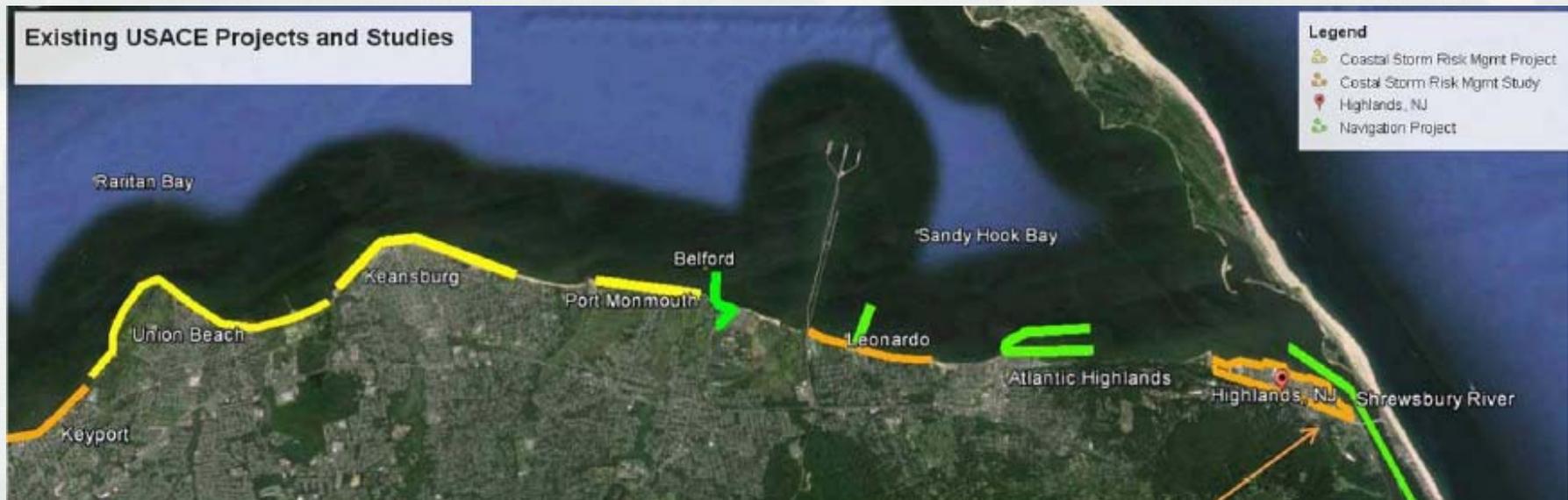
Agenda:

- NJDEP - The State of New Jersey's Shore Protection Program
- Overview of USACE Process
- Study Findings & Recommended Plan
- Washington Approval of Final Report
- Detailed Design and Construction



Study Authority

- Study Resolution adopted by House Committee on Public Works and Transportation, on 1 August, 1990, to
“...provide erosion control and storm damage prevention for the Raritan Bay and Sandy Hook Bay.”



Civil Works Process

- Study Authority & Appropriations
- Reconnaissance Phase
 - ▶ Determine Federal Interest
 - ▶ Identify Local Partner to Cost Share 50/50
- Feasibility Phase
 - ▶ Determines the Recommended Plan
 - ▶ Congressional Project Authority to Proceed to →
- Pre-Construction Engineering & Design (PED)
 - ▶ Detailed Design the Authorized Plan
- Construction
- Operation & Maintenance



Reconnaissance Phase

- Raritan Bay and Sandy Hook Bay Reconnaissance Report - 1993
 - ▶ Focus on Port Monmouth, NJ
- Pre-Feasibility for Highlands – 2000
- Feasibility Cost Sharing Agreement with NJDEP – 2001
- Study stalled in 2003 due to lack of support.



“Sandy Bill”, Public Law 113-2

- Sandy Disaster Relief Appropriations
 - ▶ \$5.34B to USACE from Maine to Virginia for “***necessary expenses related to the consequences of Hurricane Sandy...***” including:
 - **Complete Existing Studies**
 - Construct Authorized Projects
 - Operations & Maintenance of Completed Projects
 - Emergency Rehabilitation of Damaged Projects

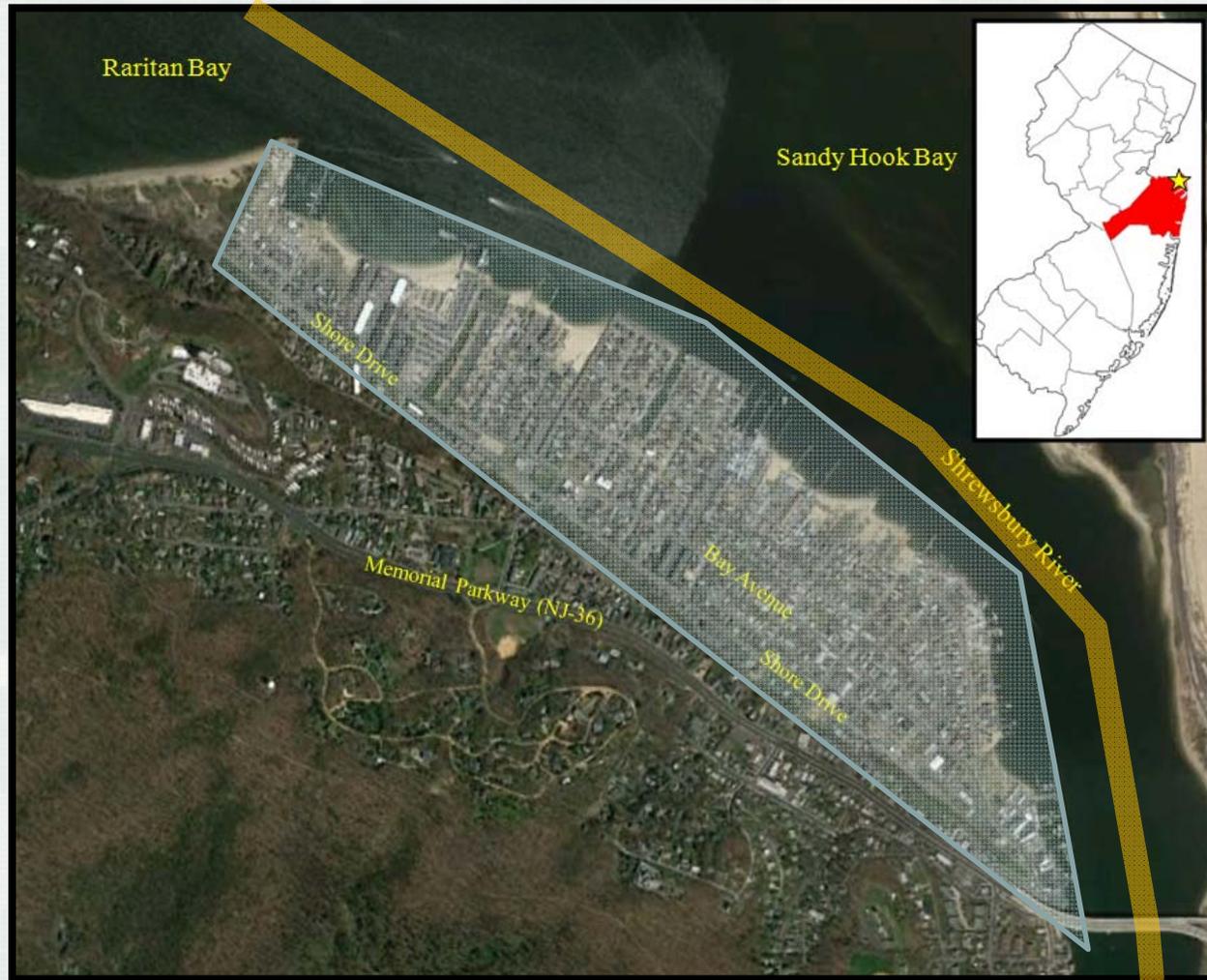


Implications of PL 113-2 for Highlands

- Highlands included as an ongoing “Sandy” feasibility study.
 - ▶ Remaining \$1.5M in Federal funds to complete study at full Federal expense, accounting for post-Sandy conditions.
 - ▶ PL 113-2 provides funding for the detailed design phase.



Study Area



 Highlands Study Area

 Federal Navigation Channel



Study Area



Status of Feasibility Work

- *Existing Conditions and Problem ID*
- *Future Without Project/No Action*
- *Alternatives Developed*
- *Analysis of Alternatives*
- *Draft Report / Public Input*
- **Completion of Feasibility Report**



Hurricane Sandy Damages



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Future Without Project Conditions

- Future conditions predicted, based on past events.
- Hurricane Sandy was estimated to be a 190 yr storm at Highlands
 - 1,200 out of 1,500 structures damaged by Hurricane Sandy
 - Sea level rise: 0.7 ft increase expected over next 50 years
- Long history of flood damages will continue.



Alternative Plans

- Alternative 1 – Update of Pre-Feasibility Plan
- Alternative 2 – Non-Structural Plan
- Alternative 3 – Offshore Closure Plan
- Alternative 4 – Beach and Dune Plan
- Alternative 5 – Hybrid Plan
 - Several variations of Alternative 5 - Alternative 5e Selected

- Alternative 5e – Recommended Plan
 - Approximately 8000-ft. Shoreline, Includes:
 - Sheetpile I-Wall Floodwalls
 - Concrete T-Wall Floodwalls
 - Road Closure Structure
 - Raised Ground elevation
 - Optimized to elevation 14' NAVD88
 - Estimated Cost: \$120M.
 - Benefit to Cost Ratio (BCR): 2.7



Response to Previous Public Meetings

TWO MAJOR TAKEAWAYS:

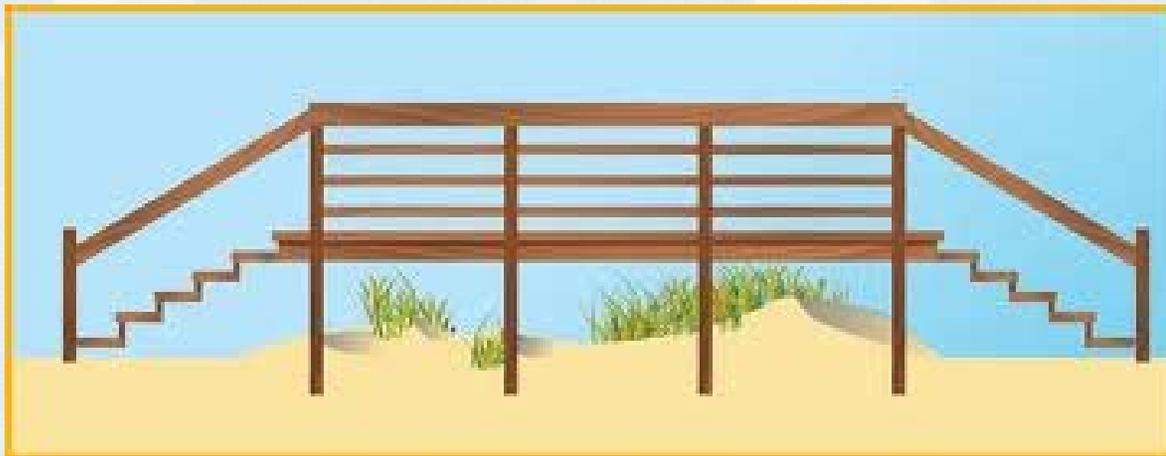
- ***Maintain Waterfront Access!***
- ***What will the project look like?***

Public Comment Period – Summer 2015

- ***35 Unique Comments from Residents***
 - Support and opposition for the project.
 - Concerns about losing waterfront characteristic of Town.
 - Concerns about implementation before next big storm.
 - Questions about the cost-share.



➤ **Waterfront Access**



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➤ Waterfront Access



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➤ Waterfront Access



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Levee with road access



Waterfront Access



➤ ***What will the project look like?***



Raised Roadways



Floodwall & Raised Ground Surface (grass berm with interior floodwall)



➤ *What will the project look like?*



Road Closure Gate



Road Closure Gate

8/28/2011 4:19pm

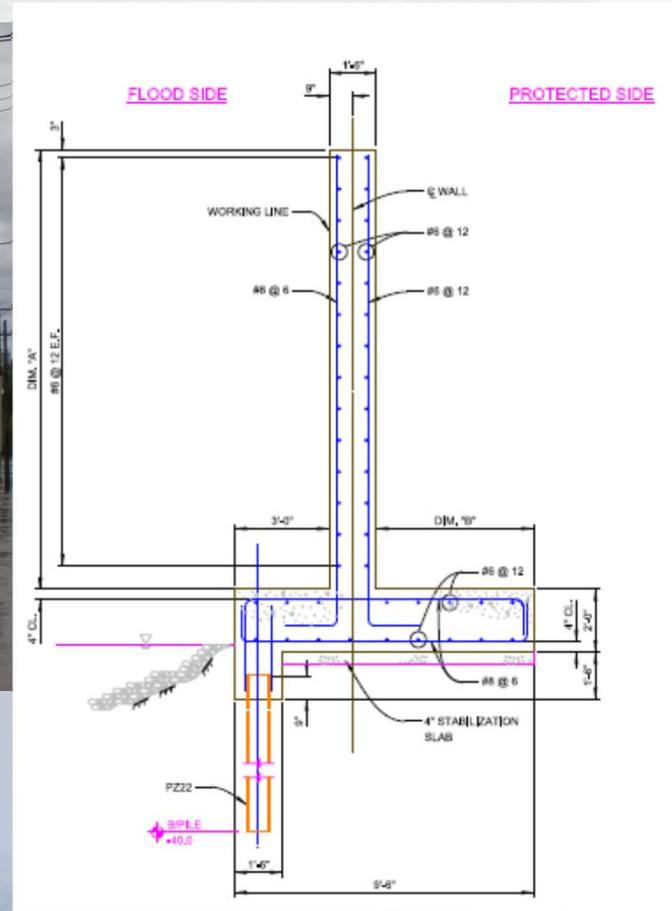
Floodwalls



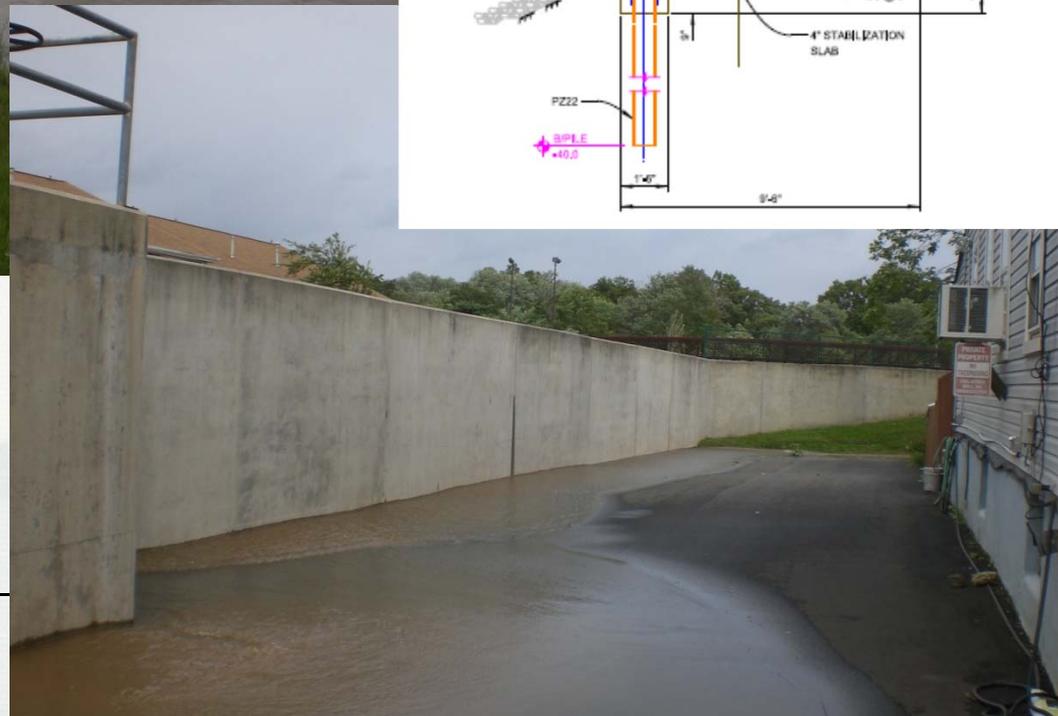
Floodwalls



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Floodwalls



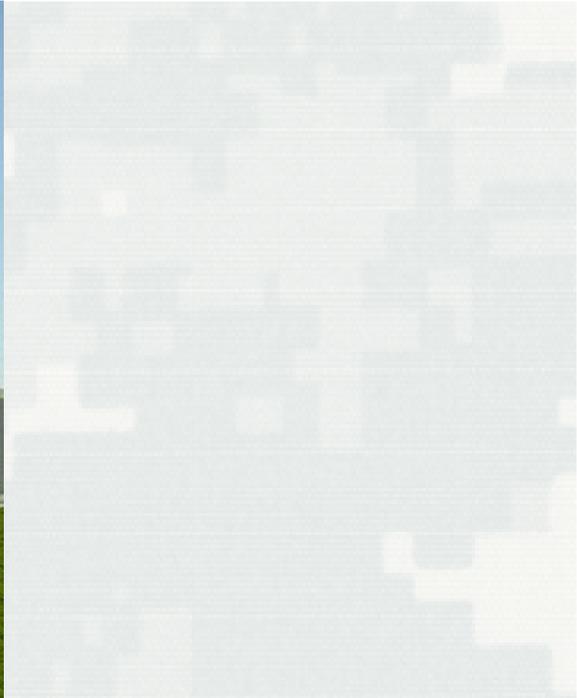


Floodwalls

Floodwalls



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Floodwalls



Floodwalls





HATFIELDS

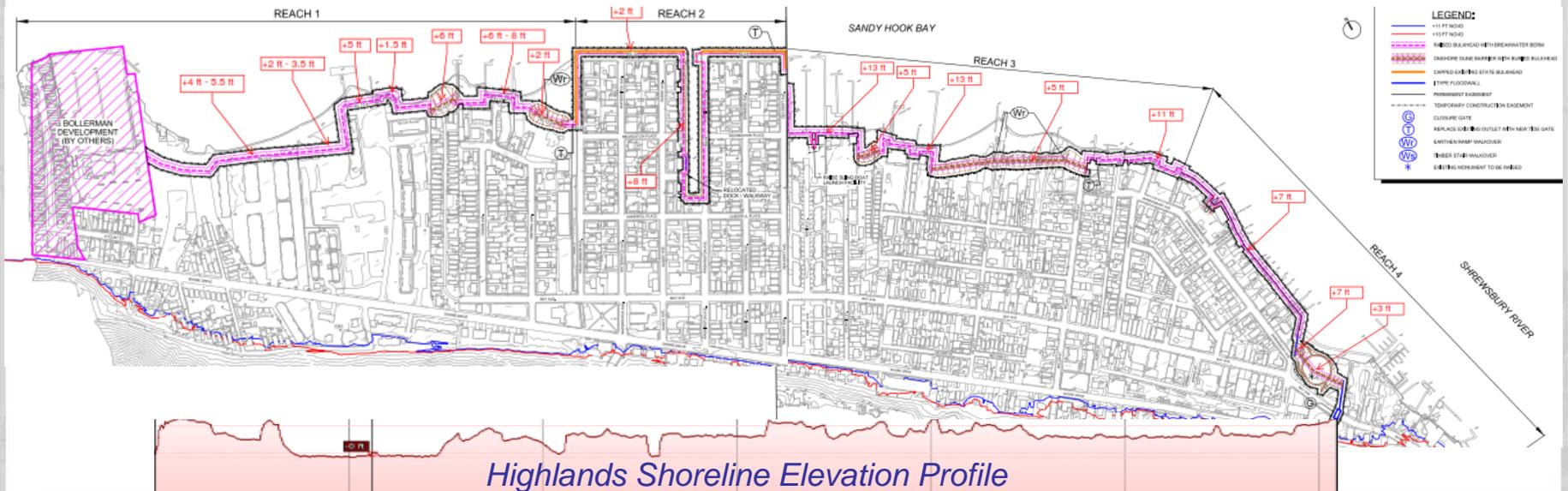
1878 - 1890

MCCOYS

Interior Drainage Structures



Recommended Plan



Highlands Shoreline Elevation Profile

Design - 1% chance probability of exceedance (100yr event)

Economics

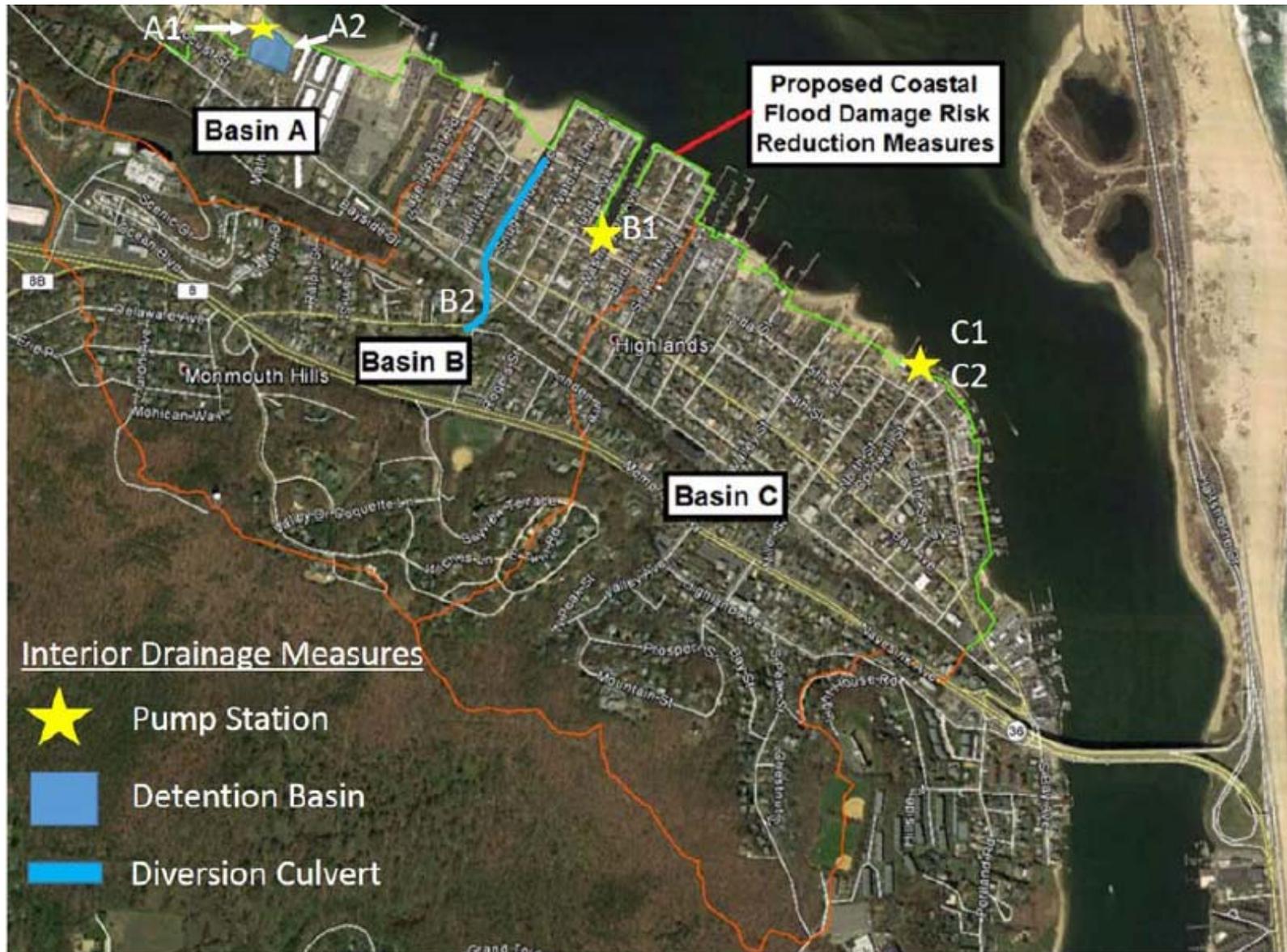
- Project First Cost: \$119,473,000
- Annual O&M: \$253,000
- **BCR 2.7**

Features

- 10,700 ft. of floodwall (T type and I Type)
- Elevation +14 feet NAVD88
- Pump Station (300 cfs)
- Detention Pond (1.6 acres)
- Pressurized Pipes (1600 lf)
- 1 x 55 ft closure gate



Interior Drainage Analysis



Alternative 5E Reach 1



LEGEND:

- - - - - CONCRETE T-WALL TYPE "A"
- - - - - CONCRETE T-WALL TYPE "B"
- - - - - CONCRETE T-WALL TYPE "C"
- SHEETPILE WALL
- PL — PERMANENT EASEMENT
- - - - - TEMPORARY CONSTRUCTION EASEMENT
- G CLOSURE GATE
- + EXISTING MONUMENT TO BE RAISED



REACH 2

SCALE 1" = 100'



Alternative 5E Reach 2



LEGEND:

-  CONCRETE T-WALL TYPE 'A'
-  CONCRETE T-WALL TYPE 'B'
-  CONCRETE T-WALL TYPE 'C'
-  SHEETPILE WALL
-  PERMANENT EASEMENT
-  TEMPORARY CONSTRUCTION EASEMENT
-  CLOSURE GATE
-  EXISTING MONUMENT TO BE RAISED



REACH 3

SCALE 1"=100'



Alternative 5E Reach 4

LEGEND:

-  CONCRETE T-WALL TYPE "A"
-  CONCRETE T-WALL TYPE "B"
-  CONCRETE T-WALL TYPE "C"
-  SHEETPILE WALL
-  P L PERMANENT EASEMENT
-  TEMPORARY CONSTRUCTION EASEMENT
-  CLOSURE GATE
-  EXISTING MONUMENT TO BE RAISED



REACH 4

SCALE: 1" = 100'



Next Steps

- Complete Final Report - April 2017
 - ▶ Letter of Support Required – Commitment to Project
 - ▶ Completion Environmental Coordination
 - ▶ Agency Technical Review
- Washington Level Approval – July 2017
- Begin Detailed Design – August 2017
 - ▶ Design Agreement – Financial Commitment to Design
- Project Partnership Agreement – January 2018
 - ▶ Financial Commitment to Construction



COMMENTS / QUESTIONS

USACE

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Draft Report (Final to be posted upon approval):

<http://www.nan.usace.army.mil>

NJDEP

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