Storm Resilience Partnering
Monmouth County And
Naval Weapons Station Earle

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Introduction

• What and Why
  – Background
  – Superstorm Sandy

• Joint Land Use Study
  – Justification
  – Partnership/Recommendations

• Next Steps
MISSION: Provide ordnance for all Atlantic Fleet Carrier and Expeditionary Strike Groups, and support strategic Department of Defense ordnance requirements
Pier Complex

- 2.9 mile finger pier complex ($391M replacement value)
  - 2 active piers, 4 berths, 45’ depth of water
- Direct access to the Atlantic Ocean - cross no bridges or tunnels to reach blue water (3 miles distance)
- Ability to accept large rail shipments and conduct load outs in a short time
V-Zone damage to a building at an elevation of eight feet, note Sandy Hook on the horizon to the right of the building.
Superstorm Sandy Raises Storm Resiliency Issues

• Naval Weapons Station Earle
  – Located on Raritan Bay in Lower New York Harbor, longest ammunition loading piers in the world

• Superstorm Sandy - Greatest Storm in Living Memory
  – $50M in damage at NWS Earle
  – Loss of grid power for 7-14 days
  – Ready for essential operation in five days, but repairs not completed until late 2015
  – Cost of tree clearing alone, $1M

• Resilience issue
  – Recurrent flooding in community adjacent to naval station
  – Salt marshes can absorb stormwater and lessen storm surge
  – Living Shoreline enhances protection
Recurrent Flooding

- County, Municipal, and Naval Station worked together to identify the problem and implement a fix.
Oyster Reef Project

- NY/NJ Baykeeper (a Non Governmental Organization)
- NWS Earle offered a secure test location for restoration of oyster reef habitat within the Hudson Raritan Estuary
- Baykeeper and Rutgers (CUES) demonstrated acceptable survival/growth rates in a 0.25 acre test area between the Navy piers
- Baykeeper received a “living shorelines” permit from NJ to build an artificial reef
  - 200 by 200 feet
  - Subtidal
  - 1000 marine concrete “oyster castles”
  - Placement began Summer 2016
Hurricane Sandy Raises Storm Resiliency Issues
Oyster Reef Location
Living Shoreline Concept

SCHEMATIC CONCEPT SECTION DIAGRAM

CURRENT
- Invasive Species
- Erosion

PROPOSED
- Native Plants
- Coastal Protection
- Native Fish
- Native Birds
Monmouth County Joint Land Use Study

• Scope
  – Based on NJ Watershed 12
  – 2/3rds of the county
  – 32 towns
  – 500K people

• Focus
  – Security on Ammunition Transportation Route
  – Security/Safety on Sandy Hook Bay (Pier Complex)
  – Climate Adaptation/Storm Resilience

• Funded in FY16, Final Report Dec17
• Public Meeting 7Dec17
• Likely Follow On Projects
  – Transportation Improvements
  – Stormwater Improvements
  – Energy Resiliency
1. Coordinated effort across multiple levels of government to implement a naturalized beach erosion/shoreline protection program along the Monmouth County Bayshore

2. Marsh and dune restoration with beneficial use of Navy dredge material

3. County and Local planning document revision to consider scientific/engineering data and analysis methods for flood hazard planning based on Navy guidance
Takeaways

• Storm Resiliency is an existential issue along many coastal regions

• Green Infrastructure tactics may leverage funds and multiply impacts

• Restoring natural systems through partnerships benefits multiple stakeholders and may lower lifecycle as well as initial costs
Questions?

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