Resilience Planning with the U.S. Army Corps of Engineers (USACE): Multi-Jurisdictional Studies in Coastal Virginia

LTC John P. Drew
Deputy Commander
Norfolk District, USACE

Ms. Susan Conner
Chief, Planning and Policy Branch

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USACE Civil Works Mission Areas

- Navigation (NAV)
- Aquatic Ecosystem Restoration (AER)
- Flood Risk Management (FRM)
  - Coastal Storm Risk Management
USACE Climate Change Adaptation

- Climate variability and change impact all US Army Corps of Engineers (USACE) missions, operations, programs, projects, and systems of projects
- Objective: Improve the resilience and decrease the vulnerability of our missions, operations, programs, projects, and systems of projects to the effects of climate change and variability
USACE Climate Change Adaptation Priorities

- Modernizing USACE programs and policies to support climate-resilient investment
- Managing USACE lands and waters for climate preparedness and resilience
- Supporting State, local, and tribal preparedness
- Providing actionable climate information, tools, and projections
- International leadership provided by USACE supporting climate preparedness
How does USACE conduct business?

- Authorization (Study, then Construction)
- Appropriations (Study, then Construction)
How to access USACE Construction funding?

- Through Studies, which:
  - Identify a Federal Interest in investment
  - Inform the Report of the Chief of Engineers to Congress

- Favorable Reports result in Construction Authorization from Congress
17 Steps to a Civil Works Project

CW Step 1: Problem Identification

CW Step 2: Congressional Study Resolution / Authority

CW Step 3: Execute FCSA and Feasibility Funds

CW Step 4: Conduct Feasibility Study

CW Step 5: Complete Final Report for Coordination & Submission

CW Step 6: Division Engineer's Transmittal


CW Step 8: Chief of Engineer's Report (Chief's Report)

CW Step 9: Administration Review
- Assistant Secretary of the Army for Civil Works [ASA(CW)]
- Office of Management and Budget (OMB)

CW Step 10: Project Authorization (WRDA Bill or other legislation)

CW Step 11: District Executes Design Agreement

CW Step 12: District conducts Preconstruction Engineering and Design activities

CW Step 13: District drafts Project Partnership Agreement (PPA)

CW Step 14: Congress appropriates Construction Funds

CW Step 15: Execute PPA

CW Step 16: Project is Constructed

CW Step 17: Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)
USACE Studies

- Focused Portfolio of Priority Feasibility Studies
- All Feasibility Studies expected to follow 3-3-3 Rule
  - 3 Year study duration
  - $3 Million maximum per study cost
  - Vertical team integration at 3 command levels (District, MSC, HQUSACE)
  - Exemption process for very large, complex studies that cannot meet the 3-year and/or $3 million policy
- Feasibility Cost Sharing Agreement (FCSA) is first step
- Project Management Plan (PMP) and Scope of Work to be initially developed and updated throughout conduct of the study
SMART Feasibility Study Process

Up to 36 Months

**SCOPING**
3-6 months

- Identify study objectives
- Define Problems & Opportunities
- NEPA Scoping
- Inventory & Initial Forecast
- Formulate Alternative Plans
- Evaluate alternatives and identify reasonable array
- Develop PMP and Review Plan
- Initiate Exemption Process (if needed)

**ALTERNATIVE FORMULATION & ANALYSIS**

- TSP Milestone
  Vertical Team concurrence on tentatively selected plan

**FEASIBILITY-LEVEL ANALYSIS**

- Civil Works Review Board
  Release for State & Agency Review

**CHIEF’S REPORT**

- Agency Decision Milestone
  Agency endorsement of recommended plan

- Chief’s Report
  Chief’s Report Signed

- DE transmits final report package
North Atlantic Coast Comprehensive Study (NACCS)

“That using up to $20,000,000* of the funds provided herein, the Secretary shall conduct a comprehensive study 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 ....” (*19M after sequestration)

**Goals**

- Provides a **Risk Management Framework** – not a plan
- Supports **Resilient Coastal Communities** and robust, sustainable coastal landscape systems
- **Considers future sea level rise scenarios**, to reduce risk to vulnerable population, property, ecosystems, and infrastructure
- Whole of Government Approach

www.nad.usace.army.mil/CompStudy
Findings

- **Shared** responsibility of all levels of Government and partnerships
- Rethink approaches to **adapting to risk**
- Resilience and sustainability must consider a **combination and blend** of measures
Coastal Storm Risk Management Framework: Risk Management Measures

### Natural and Nature-Based Infrastructure at a Glance

**GENERAL COASTAL RISK REDUCTION PERFORMANCE FACTORS:**
STORM INTENSITY, TRACK, AND FORWARD SPEED, AND SURROUNDING LOCAL BATHYMETRY AND TOPOGRAPHY

<table>
<thead>
<tr>
<th>Natural and Nature-Based Features</th>
<th>Benefits/Processes</th>
<th>Performance Factors</th>
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<tbody>
<tr>
<td>Dunes and Beaches</td>
<td>Break offshore waves</td>
<td>Berm height and width</td>
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<td>Attenuate wave energy</td>
<td>Beach slope</td>
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<td>Slow inland water transfer</td>
<td>Sediment grain size and supply</td>
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<td>Presence of vegetation</td>
<td>Dune height, crest, width</td>
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<td>Vegetated Features: Salt Marshes, Wetlands, Submerged Aquatic Vegetation (SAV)</td>
<td>Break offshore waves</td>
<td>Performance Factors</td>
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<td>Attenuate wave energy</td>
<td>Marsh, wetland, or SAV elevation and continuity</td>
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<td>Slow inland water transfer</td>
<td>Vegetation type and density</td>
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<tr>
<td>Oyster and Coral Reefs</td>
<td>Break offshore waves</td>
<td>Reef width, elevation and roughness</td>
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<td>Performance Factors</td>
<td>Land cover</td>
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<td>Maritime Forests/Shrub Communities</td>
<td>Breach susceptibility</td>
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<td>Benefits/Processes</td>
<td>Proximity to mainland shore</td>
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<td>Barrier Islands</td>
<td>Wave attenuation and/or dissipation</td>
<td>Soil retention</td>
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<td>Sediment stabilization</td>
<td>Performance Factors</td>
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<td>Shoreline erosion stabilization</td>
<td>Vegetation height and density</td>
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<td>Soil retention</td>
<td>Forest dimension</td>
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<td>Maritime Forests/Shrub Communities</td>
<td>Platform elevation</td>
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[Image of natural and nature-based features]
Resilience: the ability of a system to **Prepare for**, **Resist**, **Recover**, and **Adapt** to achieve functional performance under the stress of disturbances through time.
Norfolk Flood Risk Management Study
Study Details

- Benefits quantified by economic damages reduced/avoided
- Life/safety benefits important
- Strong support for nonstructural & green infrastructure along with structural options
- Cost Shared 50/50 with City of Norfolk
What’s Next for Norfolk FRM?

- Completed Feasibility Report with an identified recommended plan for implementation (2019)
- Chief’s Report to Congress (2019)
- Construction Authorization
- Construction New Start Appropriations
- Preconstruction Engineering and Design
- Construction
Multi-Jurisdictional Resiliency Strategy

- Norfolk Flood Risk Management Study
- Virginia Peninsula Flood Risk Management Study
- Subsequent studies in Coastal Virginia: possibly prioritized based on damages avoided to critical infrastructure
- Close alignment with Commonwealth to study resiliency alternatives
Virginia Peninsula Flood Risk Management Study

- Next steps:
  - Letter of Intent
  - 7001 Submittal (HRPDC)
  - Budget
    - $3 Million Total
    - $1.5 Million Non-Federal Share
Other Areas of Consideration

- Eastern Shore of Virginia
  - Chincoteague
- Virginia Beach/Chesapeake
- Tangier Island
- Other?
How Can Commonwealth Help?

- Assist with Cost Sharing Challenges
  - Scope beyond political jurisdictions of individual localities, Commonwealth could serve as Sponsor
  - Some localities may not have financial capability, but have a need

- Provide Guidance/Vision on State-Level Priorities to Address Recurrent Flooding
Questions?