NATIONAL PLANNING CENTER OF EXPERTISE FOR COASTAL STORM RISK MANAGEMENT

"Coastal PCX" Update and Best Practices from Recent Studies

24 Feb 2022

U.S.ARMY

US Army Corps of Engineers®

NORTH ATLANTIC DIVISION
UNITED STATES ARMY CORPS OF ENGINEERS

Coastal Storm Risk Management
US Army Corps of Engineers
National Planning Center of Expertise
The Planning Wave Of The Future

AGENDA

- PCX Intro- Larry Cocchieri, NAD
- Early PDT Coordination/Targeted ATR – Larry Cocchieri, NAD
- Non-Federal Sponsor Coordination- Roselle Stern, NAD
- Future Without Project Conditions (FWOP) - Donald Cresitello, NAD
- Critical Infrastructure and Facilities – Donald Cresitello, NAD
- Economics Considerations - Naomi Fraenkel, NAD
- PCX-CSRM Nonstructural Update – Roselle Stern, NAD
- View from the National Nonstructural Committee - Danielle Tommaso, NAN & Nonstructural Committee
- Questions

PCX-CSRM INTRO

USACE National Planning Centers of Expertise (PCXs)

PCXs for Key Program Areas:

- ***Coastal Storm Risk Management (CSRM) – NAD***
- Inland Navigation – LRD
- Deep Draft Navigation – SAD & Small Boat Harbor Sub PCX - POD
- Flood Risk Management – SPD
- Ecosystem Restoration – MVD
- Water Supply and Reallocation – SWD
- Hydropower – NWD

PCX-CSRM: VISION & MISSION

Vision: The PCX-CSRM is a leader in coastal storm risk management planning for The U.S. Army Corps of Engineers and the Nation.

Mission: Provide Corps leadership with a diverse set of multi-discipline services to address coastal storm risk management (CSRM) and risk reduction needs. Develop, maintain and apply the best national and regional expertise to the *planning (plan formulation, economics, environmental, cultural resources and engineering disciplines)* of CSRM studies.

OUR ROLES AND RESPONSIBILITIES

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- **Strengthen core competencies** by providing lessons learned and best practices to the larger Corps Planning Community of Practice.
- Provide **consulting services** for any CSRM study, including highly complex and/or controversial CSRM studies. Seek to improve **technical services** and offer PCX resources to do so.
- **Lead ATRs, IEPRs** and **model certifications/approvals.**
- **Provide advice** to Corps Headquarters (HQ), Corps labs and stakeholders.
- Assist in establishing **R&D** priorities.
- Be a **proponent for training** to sustain technical competencies.
- **Policy** Development Support.
- **Process** Improvement.
- Advisors to USACE Coastal Engineering Research Board (CERB).

PCX-CSRM ALIGNMENT

- Leadership: NAD Planning & Policy Division, Joe Vietri, Director. Support from NAD PAB.

- Oversight not limited to: Deputy Commanding General for Civil & Emergency Operations, Director of CW, Chief, HQ Planning & Policy, HQ PAB and Chief, OWPR.

- Strong Intra-Corps relationships: Coastal Working Group, ERDC, IWR, HEC, CERB, other PCXs, other Sub-Cops, Flood Risk Management Workgroup, Coastal Strategy Workgroup, etc.

- External relationships with Academia, National & International, other Federal agencies, etc.

PCX-CSRM AT A GLANCE

- Virtual team roster of over 100 personnel available to support studies and participate on ATRs.
- Active Studies: over 38 active GI studies, including NACCS Focus Area studies & FY18 &19 Supplemental Appropriation Studies. In addition, 5 new coastal planning studies from DRSAA & IIJA work plans are expected to be initiated this FY.
- Functions:
  * Provide consulting services and advice to coastal PDT's and stakeholders.
  * Develop and administer Planning Associates (PA) Coastal Planning Class.
  * Maintain strong relationships with national coastal community, both internal (ERDC & IWR) and external (ASBPA, study sponsors, agencies, academia, etc.) including research & development and climate change initiatives.
  * Manage Coastal Planning Indefinite Delivery Contract available to support coastal planning studies across the Corps: Taylor Engineering.

BEST PRACTICES

EARLY PDT COORDINATION

- Work Plans, Supplementals and Congressional Acts supporting new Planning Studies.
  Example: DRSAA & IIJA.

- Review Plan
- Application of Planning Models
- Targeted Agency Technical Review (ATR) and District Quality Control (DQC)

  *Recommended by PCX-CSRM, PCX-FRM, E&C CoP and CPR CoP.

  * Guidance is expected to come from PCoP

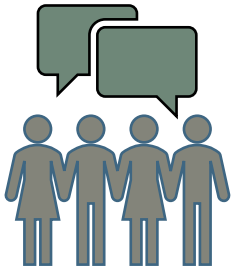
- 3x3x3 Study Exemption Requests

NON-FEDERAL SPONSOR

Non-Federal Sponsor (NFS) Support for Feasibility Studies

- Recent coastal storm risk management (CSRM) studies addressing back bay areas have recommended structural measures, such as storm surge barriers, and large nonstructural portfolios

- NFS may not be familiar with these CSRM solution sets and/or may not be prepared to commit to the required NFS responsibilities:
  - Real Estate (Lands, Easements, Rights-of-way, Relocations, and Disposal)
  - Hazardous, Toxic, and Radioactive Waste requirements
  - Coordinating implementation involving multiple levels of local government, e.g., state, county, city
  - Operations and Maintenance (long term commitments of financial investment, technical expertise, and personnel)



- Robust Communication Strategy
  - Align USACE Vertical Team and NFS levels of government
  - Never assume the NFS is knowledgeable about USACE processes
  - Deliberate consideration of Locally Preferred Plans when NFS does not strongly support the Tentatively Selected Plan

FUTURE WITHOUT PROJECT (FWOP) CONDITIONS

- Get the FWOP correct from the beginning.
- Include NFS actions in the FWP or FWOP condition? What level of detail is known? Is implementation guaranteed?
- Perform targeted ATRs to ensure that teams are making the correct assumptions and getting the modeling correct.
- Ensure that the correct coastal forcing (e.g. water levels & waves) is applied and appropriate sea level change scenarios are incorporated.

CRITICAL INFRASTRUCTURE AND FACILITIES

- Identifying coastal storm risk to critical infrastructure and facilities is not enough.
- Solutions should be included early in formulation, and potentially included in the Tentatively Selected Plan, not an afterthought later in the study.
- Involves quantifying NED benefits, but potentially also OSE and EQ.
- Must consider effects to critical infrastructure when formulating nonstructural solutions.

ECONOMICS

4 Accounts Directive – 5 January 2021

"Comprehensive Documentation of Benefits in Decision Documents"

Formulate to solve water resource problem…***evaluate*** under 4 accounts.

Realistic possibility of getting permission to select a solution that is ***not*** the most NED efficient given the priorities of the administration.

4 accounts analysis is the framework by which to make your case.

Coastal Examples –

Collier County – Life safety
Monroe County – Life safety

STILL NEED ROBUST NED ANALYSIS.

STILL NEED NED EXCEPTION PROCESSED THROUGH ASA(CW).

ECONOMICS

Models –

- *Existing USACE Models*

Beach-*fx*- **Intended for application to sandy, open coast beaches.** Probabilistic storm sequence generation. Determines coastal morphology response (erosion or accretion of beach profile). Calculates damages needed for economic analyses: Wave/Flooding/Erosion (land loss).

* *Updated model with S-Beach* engineering model inputs currently under recertification process.
* *Updated model with CSHORE* engineering model inputs currently under concurrent validation and certification processes.

G2CRM (Generation 2 Coastal Risk Model) - **Intended for application to coastal estuarine environment, including coastal structures.** Focus on flooding and inundation. Probabilistic storm sequence generation. Provides estimated damages due to inundation for coastal storm events and response due to coastal structures.

* *Updated model forecast for certification in 2022.*

LifeSim for Coastal Application - **FRM-PCX certified model which provides event-based life loss and event-based damage estimates for fluvial and inundation scenarios.**

* *Model currently being analyzed for use in coastal flooding scenarios and certification/support for coastal use to be determined FY22.*

- *USACE NextGen Modeling Effort*

- *Homegrown or COTS*

PCX-CSRM Nonstructural Update

- **Aggregation Methodology**
  - **HQUSACE Planning Bulletin 2019-03: *Structure Aggregation Methods Used in the Formulation and Evaluation of Nonstructural Alternatives* policy guidance called for logical aggregation method to be employed and described in decision documents.**
  - **National Nonstructural Committee (NNC) Best Practices Guide (BPG) 2020-06 Aggregation Methodology articulated common approaches to aggregation.**
  - **The FRM-PCX called for an update to the BPG, and development of a new, expanded informational document for PDTs is underway.**

- **FY22 Training, Omaha, NE 27 June- 1 July Agenda to be similar to the FY21 Agenda https://team.usace.army.mil/sites/IWR/PDT/nonstrucworkgrp/2021%20Virtual%20Training%20Materials/Forms/AllItems.aspx**
  - **Most seats filled but sign up for the waiting list as attendees may cancel.**
  - **Contact: NNC Chair, Lea Adams (lea.g.adams@usace.army.mil); indicate your discipline (economist/plan formulator/engineer/other) and that you have Supervisor's approval.**
  - **No tuition; students cover travel and labor.**

- **NNC Detail Assignments for FY22 are underway; new opportunities expected in FY23.**

- **Nonstructural Working Group meets on a bi-monthly basis and archives webinars along with the FY21 Training; available in the Nonstructural Working Group folder https://team.usace.army.mil/sites/IWR/PDT/nonstrucworkgrp/2021%20Virtual%20Training%20Materials/Forms/AllItems.aspx**

VIEW FROM THE NATIONAL NONSTRUCTURAL COMMITTEE

Study teams are <u>required</u> to consider nonstructural measures and plans, and include one stand-alone nonstructural only-plan in the final array of alternatives

- Requirement to consider nonstructural measures per the P&G (1983), Planning Guidance Notebook, and WRDA 1974, 1996, WRDA 1999, 2007, 2016…
- January 2021 Director of Civil Works Memorandum "Comprehensive Documentation of Benefits in Decision Documents" requires inclusion of one stand-alone nonstructural-only plan in the final array of alternatives

The scale of your nonstructural <u>analysis</u> depends on your study

- CAP vs. GI study? Large- vs. small-scale study?
- Consider your problems, needs, opportunities, constraints, and considerations

The scale of your nonstructural <u>recommendation</u> depends on your study

What considerations are important?

- Study area boundaries: regional/large vs. small study area
- Low vs. high density development
- Constraints that may drive up the cost of structural solutions (e.g., real estate)
- Difficulty in implementation (e.g., impacts to views/water usage, very high OMRR&R costs)

LEARNING FROM EACH OTHER

Large-scale Nonstructural Plans: Recent and Ongoing Studies

- New Jersey Back Bays, NJ
- Nassau County Back Bays, NY
- Miami-Dade Back Bays, FL
- Florida Keys, FL
- Fire Island Inlet to Montauk Point, NY
- South Central Coast, LA
- Coastal Texas, TX
- Rhode Island Coastal, RI
- Pawacatuck, RI

Home relocation on Fire Island, NY

There are challenges and unknowns about nonstructural plan formulation and implementation

- Structure aggregation during plan formulation
- Determining target heights for elevated structures

… and others the PCX-CSRM and NNC are working together for answers!

QUESTIONS??

Contact: PCXCSRM@usace.army.mil