Norfolk Flood Risk Management Study

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SMART PLANNING

- 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 – executed February 2016
- Project Management Plan (PMP) and Scope of Work to be initially developed and updated throughout conduct of the study
- Risk-informed Decision making which focuses on Decision focused rather than the traditional, more task oriented planning
RISK-INFORMED DECISIONS

- Reorients the planning process away from simply collecting data or completing tasks and refocuses it on doing the work required to reduce uncertainty
- Iterative sequence of planning decisions required to complete a quality study
- Level of detail required to make planning decisions will grow over the course of the study
FEDERAL INTEREST

DEFINITION

- USACE interest is consistent with our primary missions and consistent with Administration priorities
- Does the language of the study authority cover the situation?
- Is the situation related to a Corps “mission”?
- Are traditional project purposes involved?
- Is the situation within the scope of the Federal objective?
- Can the outcomes be described in terms of NED/NER benefit categories?
- Is the situation covered by other Administration policies related to the Corps‘ Program?
FEDERAL INTEREST

FLOOD RISK MANAGEMENT

- Navigable waters and their tributaries
- Watershed must have minimum area and discharge
- Structural and nonstructural measures
- Flood Plain Management (E.O. 11988)
- Residual Risk should be considered
- No minimum performance or protection
- Single property limitations
- Benefits are reduced flood damages
SMART Feasibility Study Process

**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

- Alternatives Milestone
  - Vertical Team concurrence on array of alternatives

**FEASIBILITY-LEVEL ANALYSIS**

- Agency Decision Milestone
  - Agency endorsement of recommended plan

- Civil Works Review Board
  - Release for State & Agency Review

**CHIEF’S REPORT**

- Chief’s Report
  - Chief’s Report Signed

Up to 36 Months
FEDERAL OBJECTIVE

The Federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the Nation’s environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements.
FOUR ACCOUNTS

- National Economic Development (NED)
- Environmental Quality (EQ)
- Regional Economic Development (RED)
- Other Social Effects (OSE)
NATIONAL ECONOMIC DEVELOPMENT

- Change in value of national outputs of goods and services
- NED Cost = all costs required to produce the benefits
- NED Benefit = positive change
NED COSTS

- Project Costs
- Operation, Maintenance, Repair, Replacement and Rehabilitation
- Interest During Construction
- Associated Costs
NED BENEFIT CATEGORIES

- Reduction In Physical Damages
  - Structure/Content Damage
  - Infrastructure Damage
- Reduction In Non-Physical Damages
  - Emergency/Evacuation Costs
  - Public/Private Protection Measures
ANALYTICAL REQUIREMENTS

- Systems Analysis
- Incremental Analysis (Separable Elements)
- Life-cycle Analysis
DATA

- North Atlantic Coast Comprehensive Study
- City of Norfolk Data
  - LiDAR
  - Parcel data, structure value, content value
  - Building type, first floor elevations, occupancy
  - Zoning and Building Requirements (timeline)
  - Comprehensive Master Plan

www.nad.usace.army.mil/CompStudy
# SEA LEVEL RISE

![Graph showing sea level rise trends](image)

### Relative Sea Level Change Projections - Gauge: 8638610, Sewells Point, VA (05/01/2014)

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All values are expressed in feet relative to NAVD88.
MODEL REQUIREMENTS

Planning Community Toolbox

Tool Categories
- Single Phase Feasibility Study Resources
- Model Certification
- Agreements
- Software
- Templates and Checklists
- Mapping Resources
- Civil Works Budget
- Decision Making and Planning Support Tools
- Frequently Asked Questions (FAQ)

Planning Links

Certified and other national models, guidance, and PCX links.

Certified Models
These models have met all requirements and are certified for use on planning studies.

- Beach ft. 1.0 (Certified)
  BEACH-f is a certified prototype shore protection engineering-economic software tool. The model consists of a Monte-Carlo simulation that evaluates reach erosion, physical storm impacts, and damages that occur from a storm passing a shore. The goal of this project is to produce a tool to assist engineers in coastal nourishment and rehabilitation studies.

- HarborSym (Certified)
  HarborSym is a planning-level simulation model designed to assist in economic analyses of coastal harbors. With user-provided input data, such as the port layout, vessel calls, and transit rules, the model calculates vessel interactions within the harbor. Unproductive wait times result when vessels are forced to delay sailing due to transit restrictions within the channel, HarborSym captures these delays.

- HEC-FDA : Flood Damage Reduction Analysis Software 1.4 (Certified)
  This certified software provides the capability to perform an integrated hydrologic engineering and economic analysis during the formulation and evaluation of flood risk management plans. HEC-FDA is designed to assist US Army Corps of Engineers (USACE) study members in using risk analysis procedures for formulating and evaluating flood risk management measures (EM 1110-2-1619, ER 1105-2-101).

- IWR Planning Suite 1.0.11.0 (Certified)
  This model assists with formulating plans, cost-effectiveness, and incremental cost analysis, which are required in ecosystem...
IDENTIFYING THE NED PLAN

- Without-project damages
- With project damages
- Benefits are damages reduced
- Net benefits are benefits less project costs (total life cycle costs, including environmental mitigation)
- Compare across project scales and between alternatives to determine plan that yields greatest NED benefits
- Decision-makers always have the final say
WHAT’S NEXT?
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**Release draft report for CONCURRENT REVIEW**
**DE transmits final report package**
At the Alternatives Milestone, we must have defined:

- Existing Conditions
- Future Without-Project Conditions
- Array of Alternatives
- Methods for Comparison
NEXT STEPS

- Gap Analysis of Available Data
- Continue to develop Management Measures (i.e. Building Blocks)
- Use Formulation Strategies to Develop Alternatives
- Develop Screening Criteria and Modeling Strategy
NORFOLK FLOOD RISK MANAGEMENT STUDY: POST STUDY

- Chief’s Report to Congress
- Congress authorizes the project for construction
- Preconstruction, Engineer and Design (PED) phase begins
- Project must be budgeted ("new start" construction currently very competitive)
- Once federal and non-federal funds are both available, construction can begin