

Southwest Coastal Louisiana Draft Integrated Feasibility Report and Programmatic EIS

**Public Meeting
January 7, 2014
Lake Charles, LA**

**U.S. Army Corps of Engineers
New Orleans District**

**Coastal Protection and Restoration
Authority of LA**



**US Army Corps of Engineers
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Agenda

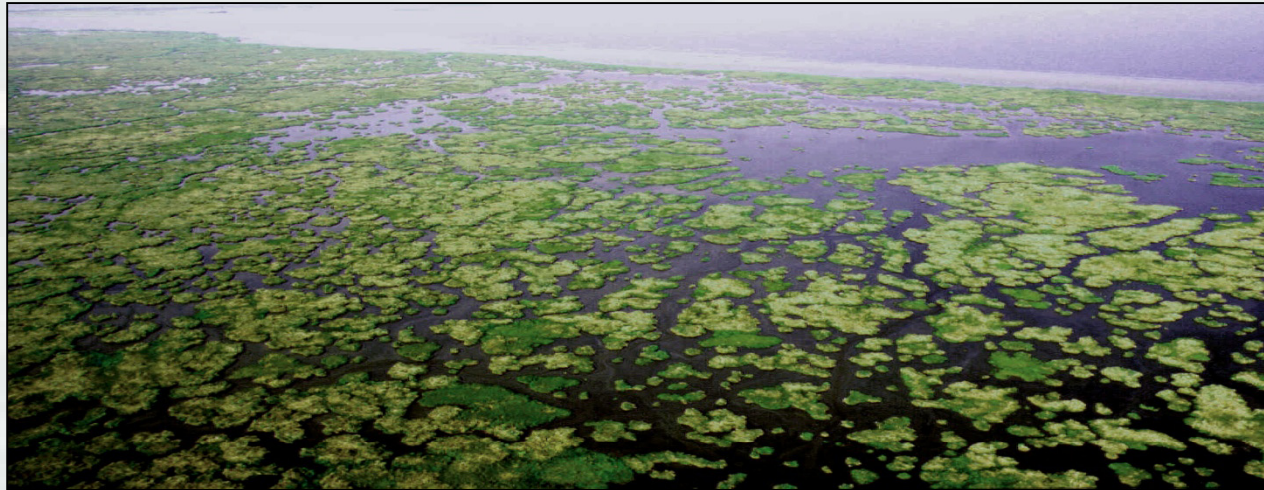
- Why We Are Here
- Study Overview
 - ▶ National Economic Development (NED) TSP
 - ▶ National Ecosystem Restoration (NER) TSP
- National Environmental Policy Act
- Public Comments



Why are we here?

To update the public on the Southwest Coastal Feasibility Study and provide a venue for public comment per NEPA on the Tentatively Selected Plan for reducing risk and restoring coastal ecosystems.

We welcome your comments!



Public/Agency Review



- 45-day review period
- Began **December 13th** and will conclude on **January 26th**
- Comments
 - Agency & Public input informs decision
 - All are fully evaluated prior to decision
 - Ensures decisions are based on best available information



Southwest Coastal Study Overview

- Purpose is to identify a plan to provide hurricane and storm damage risk reduction (NED) and coastal ecosystem restoration (NER) in the southwest portion of the state
- Study focuses on 4,700 square mile study area located in Calcasieu, Cameron and Vermilion Parishes
- Southwest Louisiana is at risk due to flooding from tidal surge and waves associated with tropical storms
- Land subsidence combined with sea-level rise is expected to increase potential for coastal flooding, shoreline erosion, saltwater intrusion, and loss of wetland and Chenier habitats in the future



Southwest Coastal Study Overview

- Reconnaissance study completed in 2007 and recommended moving to feasibility phase
- Cost-Share Agreement signed January 2009 with CPRA
- Scoping meetings hosted in March 2009



Study Authorities

- The NED purpose was authorized on December 7, 2005 – Committee on Transportation and Infrastructure, U.S. House of Representatives, Resolution Docket 2747.

“Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, that, in accordance with Section 110 of the River and Harbor Act of 1962, the Secretary of the Army is requested to survey the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes to include the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway.”

- The NER purpose was recommended in the 2005 Chief’s Report for the Louisiana Coastal Area (LCA) Ecosystem Restoration Program.

The Chenier Plain Freshwater and Sediment Management and Allocation Reassessment Study was one of six large-scale restoration concepts to “significantly restore environmental conditions that existed prior to large-scale alteration of the natural ecosystem.” The LCA Program was authorized in Title VII of the Water Resources Development Act of 2007.



Study Objectives

1. Reduce the risk of damages and losses from hurricane and storm surge flooding in southwest Louisiana.
2. Manage tidal flows to improve drainage and prevent salinity from exceeding 2 ppt for fresh marsh and 6 ppt for intermediate marsh.
3. Increase wetland productivity in southwest coastal Louisiana in fresh and intermediate marshes to maintain function by reducing time that water levels exceed marsh surfaces.
4. Reduce shoreline erosion and stabilize canal banks in southwest coastal Louisiana areas to protect adjacent wetlands.
5. Restore landscapes, including marsh, shoreline, and cheniers in southwest coastal Louisiana, to maintain their function as wildlife habitat and improve their ability to serve as protective barriers.



National Economic Development Tentatively Selected Plan

Water Resources Development Act of 2007,
Title VII



NED Measures Analyzed

- Earthen levees.
- Floodwalls.
- Ring levees.
- Floodgates.
- Highway and levee armoring.
- Nonstructural measures, including flood proofing, structure relocations, flood warning and preparedness system, and regulating flood plain uses.



Screening of NED Measures

- Preliminary costs.
- Preliminary benefits.
- Net benefits less than zero are screened out.



Focused Array of NED Alternatives

Plan 0: No Action Plan

Plan 1: Lake Charles Eastbank Levee

Plan 2: Lake Charles Westbank/Sulphur Extended Levee

Plan 3: Lake Charles Westbank/Sulphur South Levee

Plan 4: Delcambre/Erath Levee

Plan 5: Abbeville Levee

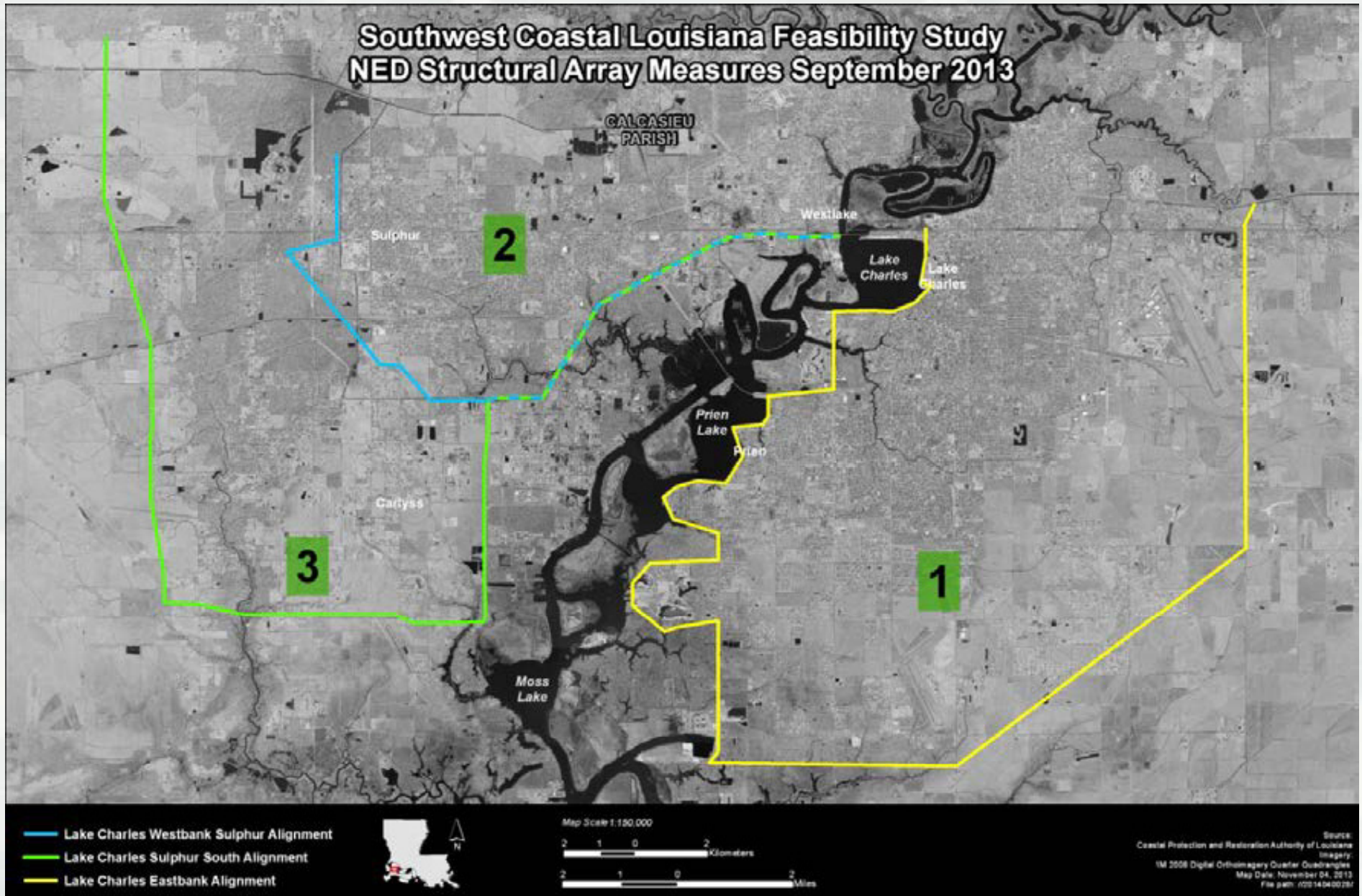
Plan 6: Abbeville to Delcambre Levee (Hwy 330)

Plan 7: Nonstructural Plan (subset of reaches)

Plan 8: Nonstructural Plan (all reaches)

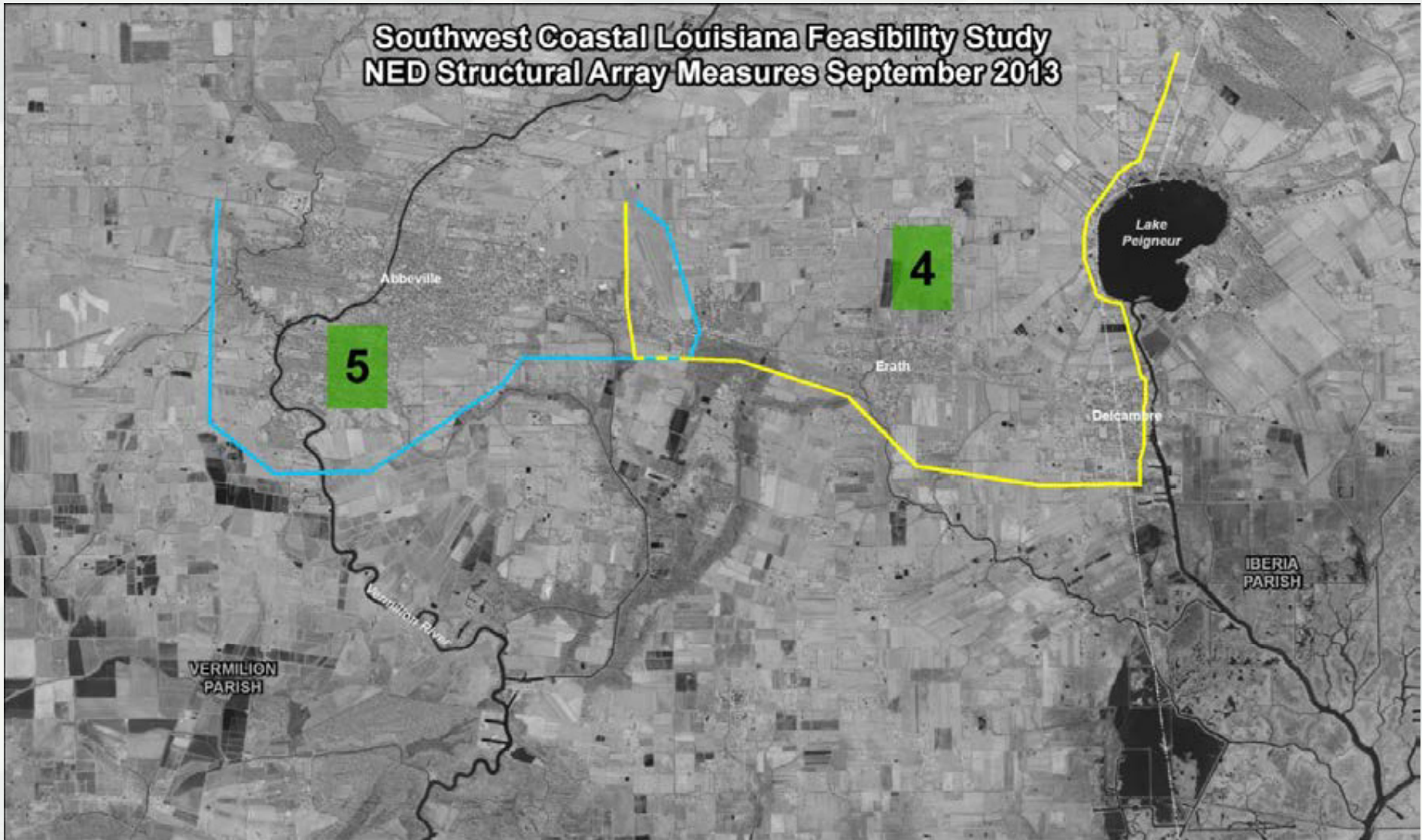


Lake Charles Alignments



Abbeville/Delcambre/Erath

Southwest Coastal Louisiana Feasibility Study
NED Structural Array Measures September 2013



- Abbeville Alignment
- Delcambre Erath Alignment
- Parish Boundary



Map Scale 1:110,000

1.5 0.75 0 1.5 Kilometers

1.5 0.75 0 1.5 Miles

Source:
Coastal Protection and Restoration Authority of Louisiana
Imagery:
© 2008 Digital Orthorectified Quarter Quadrangles
Map Date: November 14, 2013
File path: /02/14/04/00/28/

Abbeville to Delcambre Combined

Southwest Coastal Louisiana Feasibility Study
NED Structural Array Measures September 2013



Abbeville to Delcambre Alignment (Hwy 330)



Map Scale 1:110,000

1.5 0.75 0 1.5 Kilometers

1.5 0.75 0 1.5 Miles

Source:
Coastal Protection and Restoration Authority of Louisiana
Imagery:
1M 2008 Digital Orthoimagery Quarter Quadrangles
Map Date: January 06, 2014
File path: //2014/04/0028/

Comparing and Screening Structural Plans

- Screened based on 50, 100, and 200 year levels of risk reduction.
- Increased resolution of damage assessments.
- Determined interest during construction using construction costs with expenditure schedules.
- Accounted for subsidence and intermediate RSLR with levee lifts.



Nonstructural Plan Analysis

- Structures with first floor elevations (FFE) below 100 year event were identified and considered.
- Costs compared to damages at the reach level.
- Economic justification determined by comparison of average annual benefits to average annual costs.
- Economically justified 11 of 90 reaches.



Net Benefits of the Focused Array

Alternatives	50 Yr (\$M)	100 Yr (\$M)	200 Yr (\$M)
Plan 1: Lake Charles Eastbank	-14.0	-17.1	-37.9
Plan 2: Lake Charles Westbank - Sulphur Extended	-5.0	-5.2	-8.4
Plan 3: Lake Charles Westbank - Sulphur South	-17.7	-20.4	-25.5
Plan 4: Delcambre/Erath	-4.4	-5.8	-8.5
Plan 5: Abbeville	-8.4	-7.3	-11.1
Plan 6: Abbeville to Delcambre (Hwy 330)	-10.3	-8.2	-10.2
Plan 7: Nonstructural (Justified Reaches Plan)	N/A	4.3	N/A
Plan 8: Nonstructural (100-Year Floodplain Plan)	N/A	-64.3	N/A

Draft NED Tentatively Selected Plan

- **11 nonstructural reaches**
 - ▶ 3,915 total structures
- **Structural alignments**
 - ▶ No alignments with positive benefit-cost ratio
- **Preliminary Estimated Cost: \$419 million**



Potential Nonstructural Features

- **Non-Structural Measures *include but are not limited to:***
 - ▶ Elevation of residential structures up to 13 ft BFE
 - ▶ Acquisition/buy-out of residential structures if:
 - Would require elevation over 13 feet
 - Are too fragile for elevation
 - Value of structure is less than cost of elevation
 - ▶ Physical relocation of structures
 - ▶ Construction of small floodwalls, ring levees, and berms (3-7 ft high)
 - ▶ Dry flood proofing of commercial and public structures
 - ▶ Enforcement of building code requirements



Nonstructural Program General Requirements

(details not yet fully developed)

- Property owner participation is completely voluntary
- Property owners will need to provide clear title
- Property will be appraised
- Property will be inspected for HTRW/structural and decision made as to what will be done (elevation, buy-out, other measures)
- Easement will be acquired allowing entry/construction and prohibiting future construction below the 100 yr flood elevation
- Because the program is voluntary, the law does not allow temporary relocation assistance for property owners (49 CFR Part 24).
- Decision will be made whether to request that Congress consider providing authorization to provide relocation assistance to owners whose homes are being elevated or acquired.

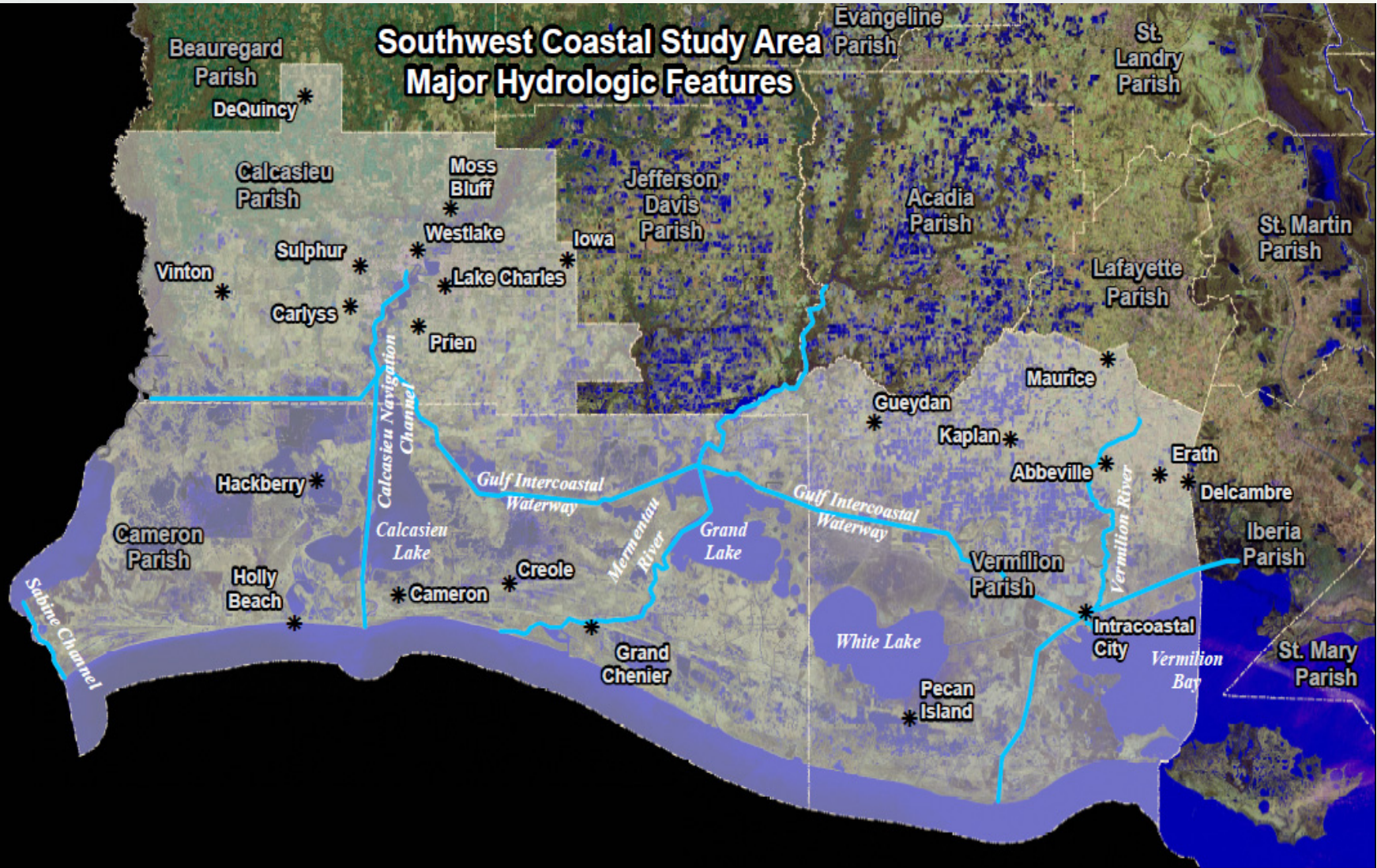


National Ecosystem Restoration Tentatively Selected Plan

Water Resources Development Act of 2007,
Title VII



Southwest Coastal Study Area Major Hydrologic Features



Parishes in Study
 Parish Boundary

Map Scale 1:576,000

7 3.5 0 7 14 21
Kilometers

7 3.5 0 7 14 21
Miles



U.S. ARMY CORPS OF ENGINEERS
NEW ORLEANS DISTRICT

Engineering Office

Imagery:
Louisiana LANDSAT Imagery 2002
Map Date: October 10, 2013

NER Measures

- Marsh Restoration
- Bank and Shoreline Protection/Stabilization
- Hydrologic and Salinity Control Structures
- Chenier Reforestation
- Oyster Reef Preservation



Initial Array of NER Alternatives

- Hydrologic and Salinity Control: 49 Features
- Marsh Restoration: 52 Features
- Shoreline Protection/Stabilization: 50 Features
- Chenier Reforestation: 14 Features
- Oyster Reef Preservation: 10 Features
- Integrated Restoration Across Basins: Numerous features from previous 5 categories



Initial Array Feature Screening

- Reinforcement of Critical Landscape Features
- Reinforcement of Critical Infrastructure
- Synergy with other Projects
- Scarcity/Diversity
- Robustness/Sustainability
- Implementability Issues
- WVA's



Focused Array of NER Strategies

0. No Action Plan
1. Large Integrated Restoration (SMP)
2. Moderate Integrated Restoration (Hydrologic Emphasis) (SMP)
3. Moderate Integrated Restoration including Gum Cove (SMP)
4. Small Integrated Restoration (SMP)
5. Interior Perimeter Control
6. Marsh and Shoreline (Minimal Hydrologic & Salinity Control)
7. Entry Salinity Control (Measure H&S #7, alt A)

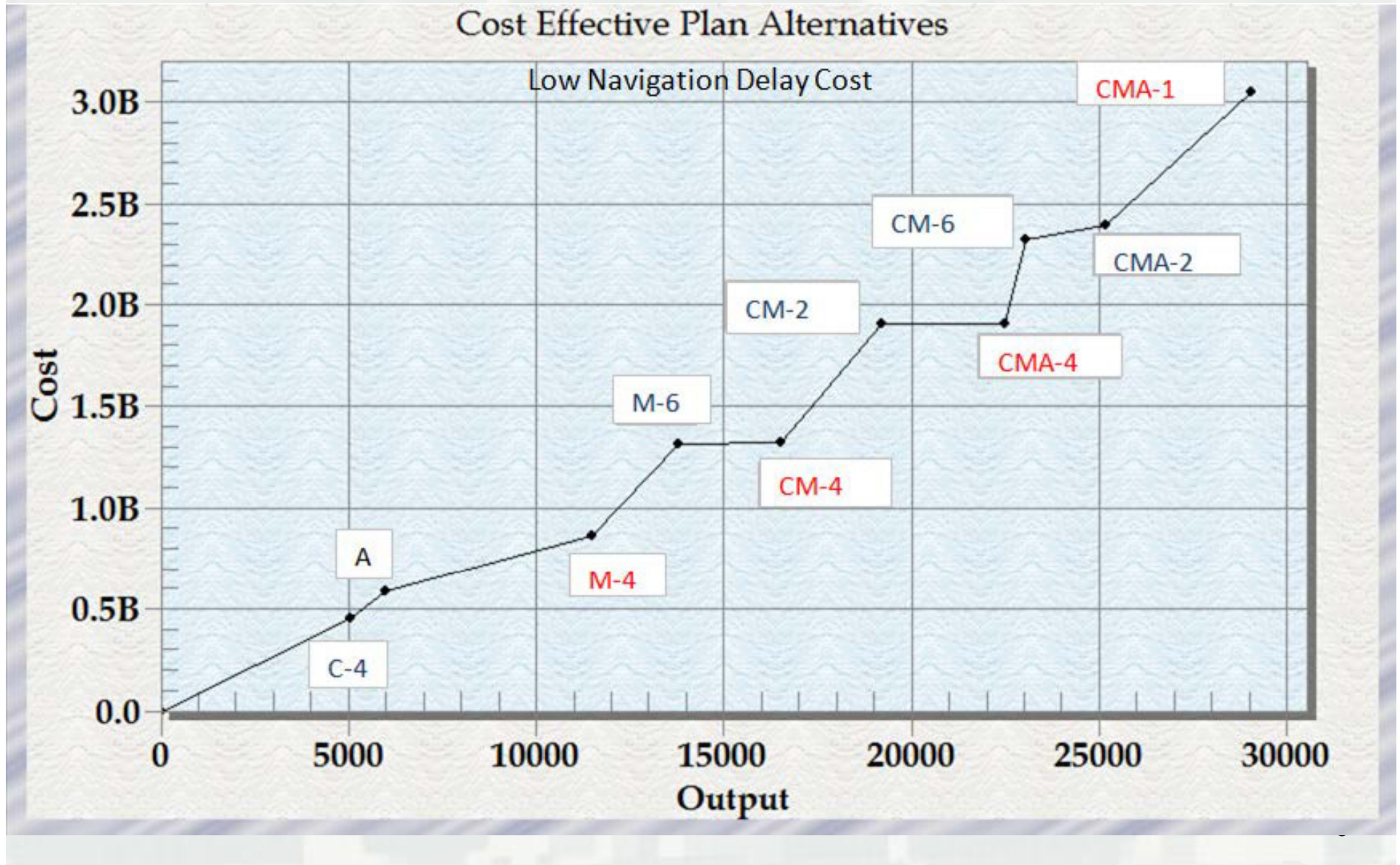


Focused Array Screening

- **IWR Cost Effectiveness/Incremental Cost Analysis**
(Assess Alternative Performance)
- **Habitat Unit Benefits** (Wetland Value Assessments)
- **Preliminary Costs** (including O+M)
- **Navigation Costs** (Alternative Plan A, Calcasieu Ship Channel Salinity Control Feature)



CE/ICA Analysis (Low Nav Cost)



Identifying the NER TSP

- Alternative CM-4 is the NER TSP.
- Alternative Plan M-4 is a “Best Buy” plan, however it does not address the entire system and therefore does not meet study objectives.
- Alternative Plan CMA-4, is a “Best Buy” plan, and has the potential to provide significant additional environmental benefits, however:
 - ▶ Due to the potential navigation impacts it come with significant additional risk to regional commerce.
 - ▶ The extra benefits must also be purchased at significant additional cost.



NER TSP

- **Nine marsh restoration features**
 - ▶ Create 8,579 ac & nourish 4,026 ac, resulting in net 8,714 acres.
- **Two hydrologic and salinity control measures**
 - ▶ Create 6,092 net acres.
- **Five shoreline protection measures**
 - ▶ Protect 5,509 net acres that span 266,884 linear feet.
- **Preservation of Sabine Lake oyster reef**
- **Chenier reforestation program**
 - ▶ Plant trees on 1,413 ac in Cameron & Vermilion parishes.
- **Preliminary Estimated Cost: \$1.1B**



Southwest Coastal Louisiana Feasibility Study Measures Calcasieu-Sabine Basin - Draft NER TSP

ORANGE
COUNTY, TX

Vidor
Orange

Measure ID	SWCLA Measure Name
124c	Marsh Creation at Mud Lake
124d	Marsh Creation at Mud Lake
3a1	Beneficial Use of Dredged Material from Calcasieu Ship Channel
3c1	Beneficial Use of Dredged Material from Calcasieu Ship Channel
416	Chenier Ridges: Grand Chenier Ridge
510a	Restore Blue Buck Ridge
510b	Restore Hackberry Ridge
510d	Restore Front Ridge
5a	Holly Beach Shoreline Stabilization
604	Preservation of Historic Sabine Oyster Reefs
74a	Cameron: Spillway structures at East Calcasieu Lake

JEFFERSON
COUNTY, TX

Port Arthur

Sabine
Lake

CAMERON

CALCASIEU

Hackberry

Calcasieu
Lake

Cameron

Holly
Beach

Creole

416

Calcasieu-Sabine Basin

Map Scale 1:400,000

6 3 0 6 Kilometers

6 3 0 6 Miles

- Hydrologic/Salinity Control
- Bankline/Shoreline Stabilization
- Ridge Restoration
- Marsh Creation
- Preservation of Historic Sabine Oyster Reefs
- Calcasieu-Sabine Basin
- Southwest Coastal Study Boundary
- Parish Boundaries



Source:
Coastal Protection and Restoration Authority of Louisiana
Imagery:
1M 2008 Digital Orthoimagery Quarter Quadrangles
Map Date: October 25, 2013
File path: //2014040017/

CALCASIEU

Southwest Coastal Louisiana Feasibility Study Measures Mermentau/Teche-Vermilion Basin - Draft NER TSP

Gueydan

Kaplan

Abbeville

Delcambre

CAMERON

Grand Lake

VERMILION

Intracoastal City

White Lake

Vermilion Bay

Grand Chenier

Pecan Island

IBERIA

Mermentau Basin

Teche-Vermilion Basin

Measure_ID SWCLA Measure Name

- 127c3 Marsh Creation at East Pecan Island
- 13 Freshwater introduction/retention structure or sill on Little Pecan Bayou
- 16b Fortify Spoil Banks of GIWW & Freshwater Bayou
- 306a1 Rainey Marsh Restoration - Southwest Portion (Christian Marsh)
- 416 Chenier Ridges: Grand Chenier Ridge
- 47a1 Marsh Restoration Using Dredged Material South of Highway 82
- 47a2 Marsh Restoration Using Dredged Material South of Highway 82
- 47c1 Marsh Restoration Using Dredged Material South of Highway 82
- 509c Restore Bill Ridge
- 509d Chenier Ridges: Cheniere au Tigre
- 510d Restore Front Ridge
- 6b1 Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou
- 6b2 Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou
- 6b3 Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou

- Hydrologic/Salinity Control
- Bankline/Shoreline Stabilization
- Ridge Restoration
- Marsh Creation
- Mermentau and Teche-Vermilion Basins
- Southwest Coastal Study Boundary
- Parish Boundaries

Map Scale 1:475,000

5 2.5 0 5 Kilometers

5 2.5 0 5 Miles



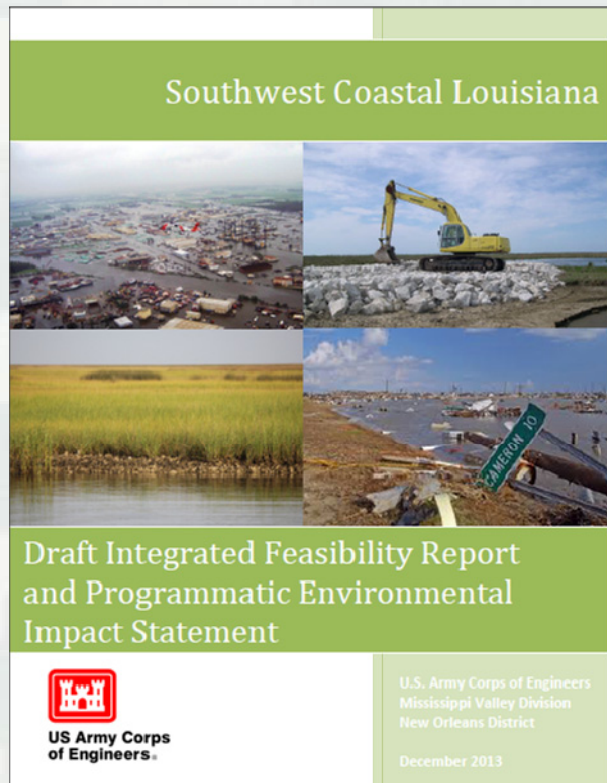
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National Environmental Policy Act of 1969, as amended (NEPA)

Ensures environmental information is available to the public and decision-makers **before** decisions are made and **before** actions are taken.



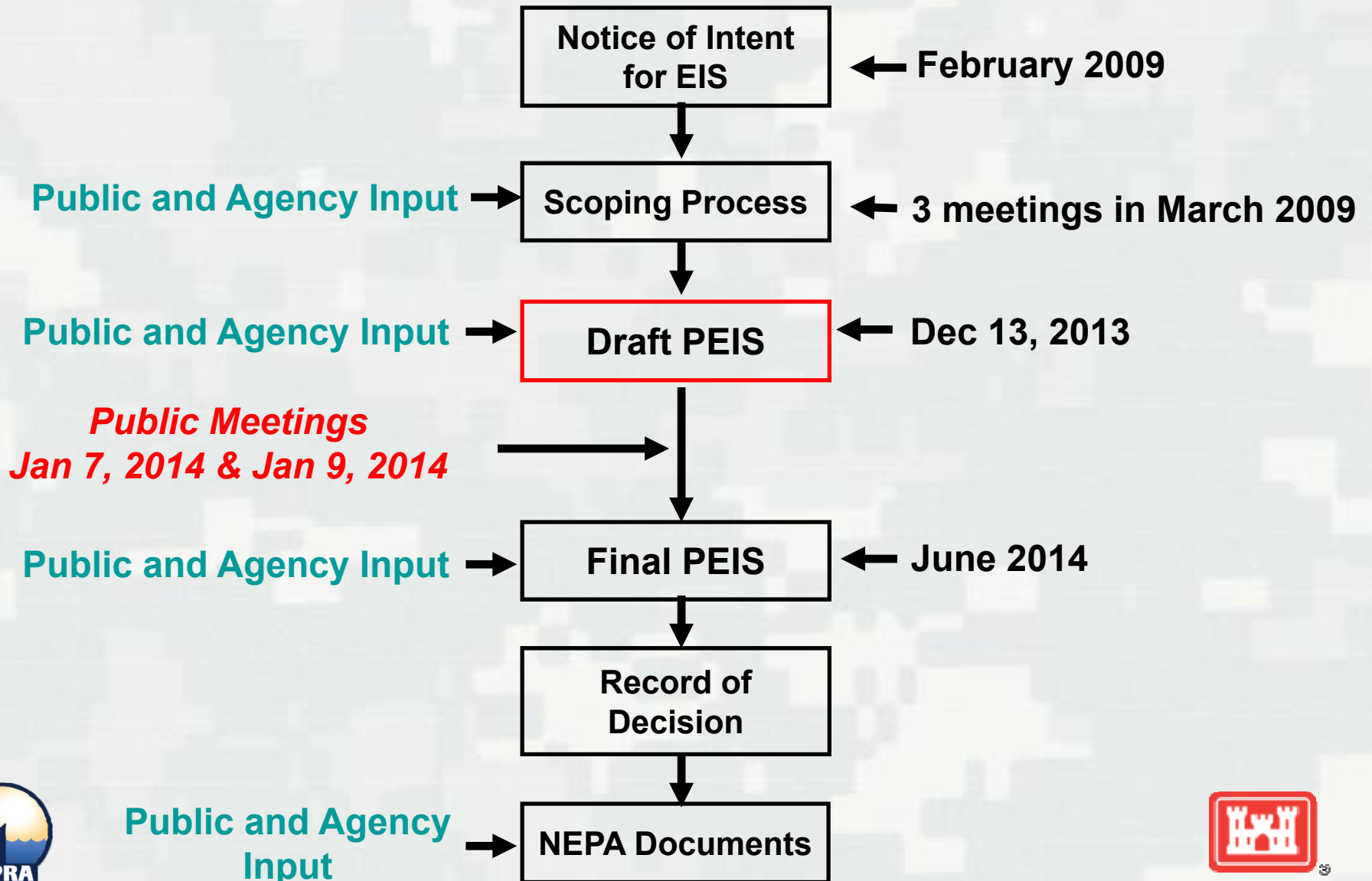
Draft Integrated Feasibility Report and Programmatic Environmental Impact Statement (EIS)



Whenever a major Federal action significantly affects the environment, a detailed environmental impact statement of the proposed action shall be prepared.



Schedule for Programmatic EIS



Providing Public Comments

- **Verbal or written comments are accepted tonight** and by the following means:
 - ▶ E-mail SWCoastalAdmin@usace.army.mil
 - ▶ Letter postmarked no later than Jan 26, 2014, to:
 - U.S. Army Corps of Engineers, New Orleans District
 - ATTN: Sandra Stiles
 - P.O. Box 60267
 - New Orleans, LA 70160-0267



Formal Submission of Public Comments

