

# U.S. Army Corps of Engineers (USACE) Galveston District Coastal Programs and Projects

## Joint Interim Committee to Study a Coastal Barrier System

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U.S. Army Corps of Engineers

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*"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."*



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# Coastal Risk Reduction and Resiliency

The Corps of Engineers is a leader in developing and executing large-scale programs and projects that increase resiliency and reduce risks from hurricanes and storm surge in Coastal Texas

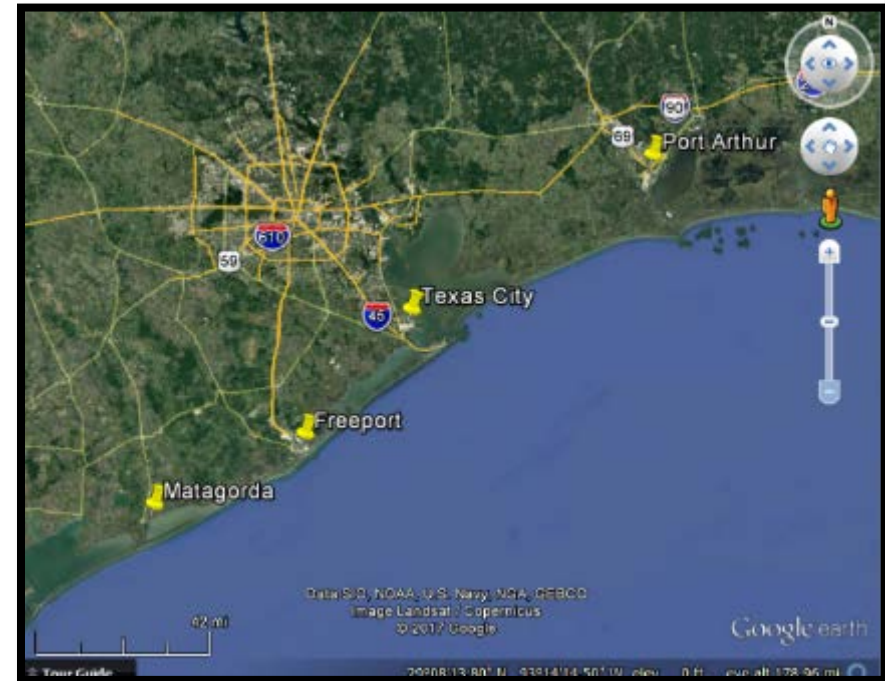
## Coastal Storm Risk Management (CSRM):

- Federal Levees
- Beneficial Use Program
- Sabine Pass to Galveston Bay Study
- Coastal Texas Study
- Ecosystem Restoration:
  - Jefferson County Study
  - Coastal Texas Study



# Harvey Impacts to Existing CSRM Levee Systems

- **Port Arthur Hurricane Flood Protection Project**
  - Pump capacity exceeded
  - Electrical motors and controls need to be replaced
  - Pre-Harvey Flood Wall failure
- **Texas City Hurricane Flood Protection Project**
  - Stone shore protection damaged
- **Freeport Hurricane Flood Protection Project**
  - One pump had mechanical failure
  - East Brazos River Levee erosion
- **Matagorda Levee System**
  - Gate operators damaged from wind
  - Minor levee erosion



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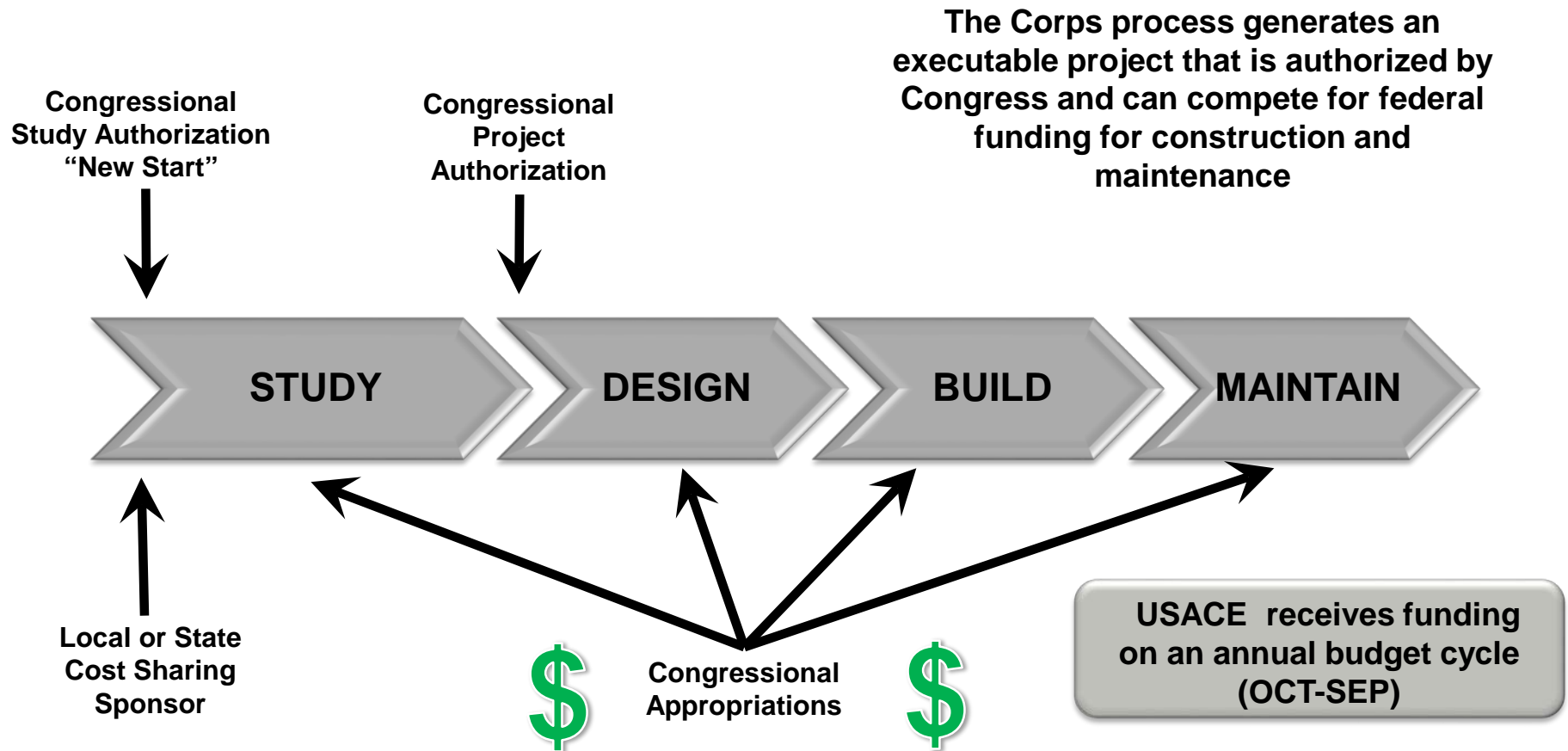


# On-going Navigation Channel Dredged Materials Beneficial Use Program



Roll-over Pass (~1YR).....	150,000 CY
Pierce Marsh (GIWW, ~3YR)....	150,000 CY
Sargent Beach (~3YR).....	100,000 CY
Sundown Island (~1YR).....	650,000 CY
San Antonio Bay BU.....	400,000 CY
South Padre Island (~1-2YR)....	600,000 CY
<b>TOTAL FY17:</b>	<b>2,050,000 CY</b>

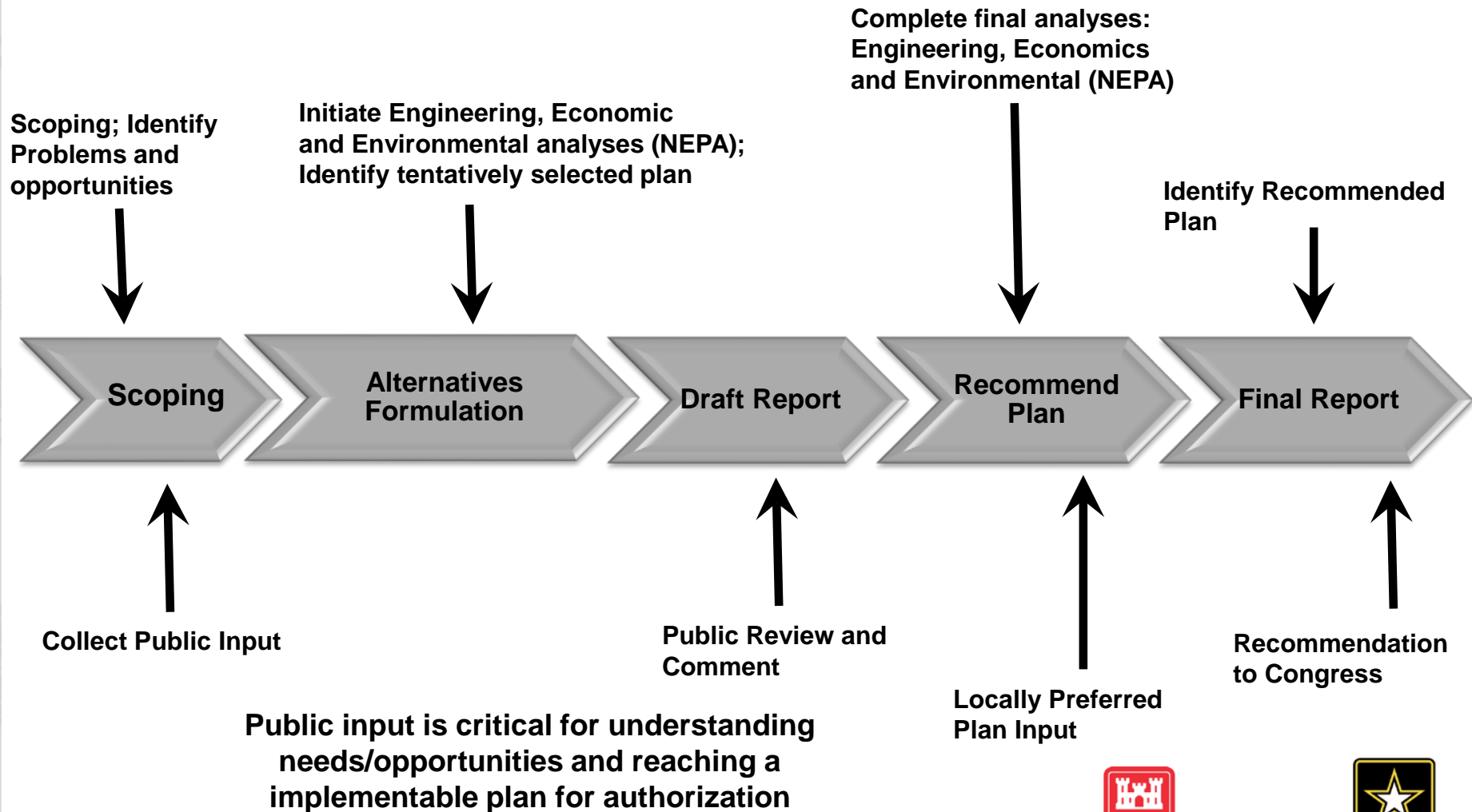
# Corps Project Development and Implementation Process



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# Corps Feasibility Study Process



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# Sabine Pass to Galveston Bay Study

## Recommended Plan

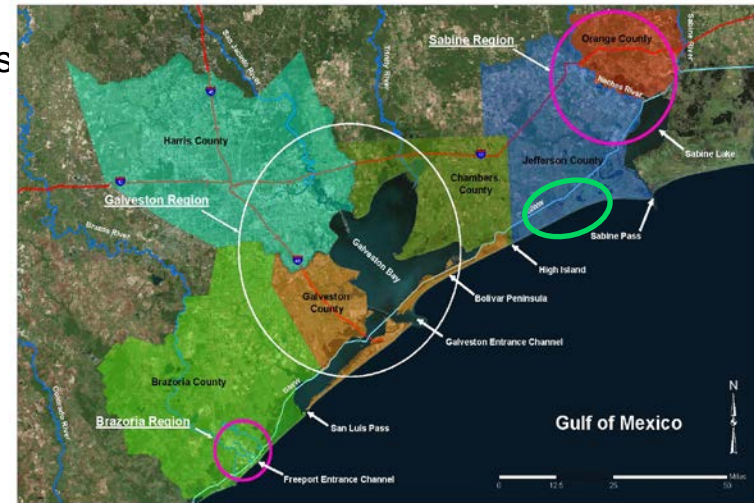
- Improvements to Freeport and Port Arthur Hurricane Flood Risk Reductions Systems and 1ft raise
- Proposed 27 miles of new levee/floodwalls in Orange County

## Costs

- Estimated First Cost: \$3,248,606,000
- NED Net Benefits: \$300,043,000
- Benefit to Cost Ratio of 3.1 @ 2.875%
- Annual O&M: \$5,467,000

## Construction Sponsors (Letters of Intent)

- Velasco Drainage District for Freeport
- Jefferson County Drainage District #7
- Orange County for Orange 3 Levee



## Freeport and Vicinity



## Jefferson County

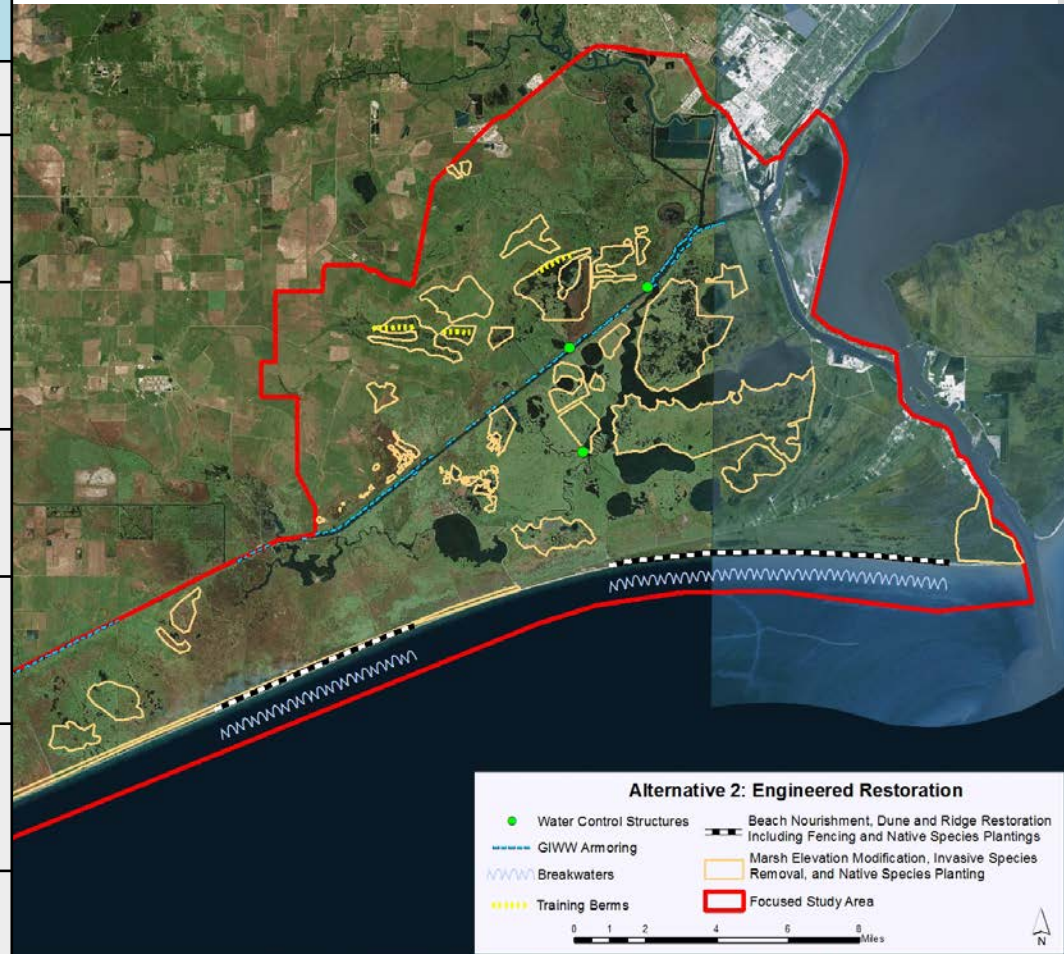


## Orange County



# Jefferson County Ecosystem Restoration Study

Milestone/Event	Current Schedule
FCSA Signed	20 JUL 2016
Study Kickoff Meeting	8 NOV 2016
Alternatives Milestone	9 MAR 2017
Tentatively Selected Plan	JUN 2018
Draft FR/EA Public Review	AUG 2018
Agency Decision Milestone	NOV 2018
Division Engineer Transmittal Memo	MAY 2019
Chief's Report	OCT 2019

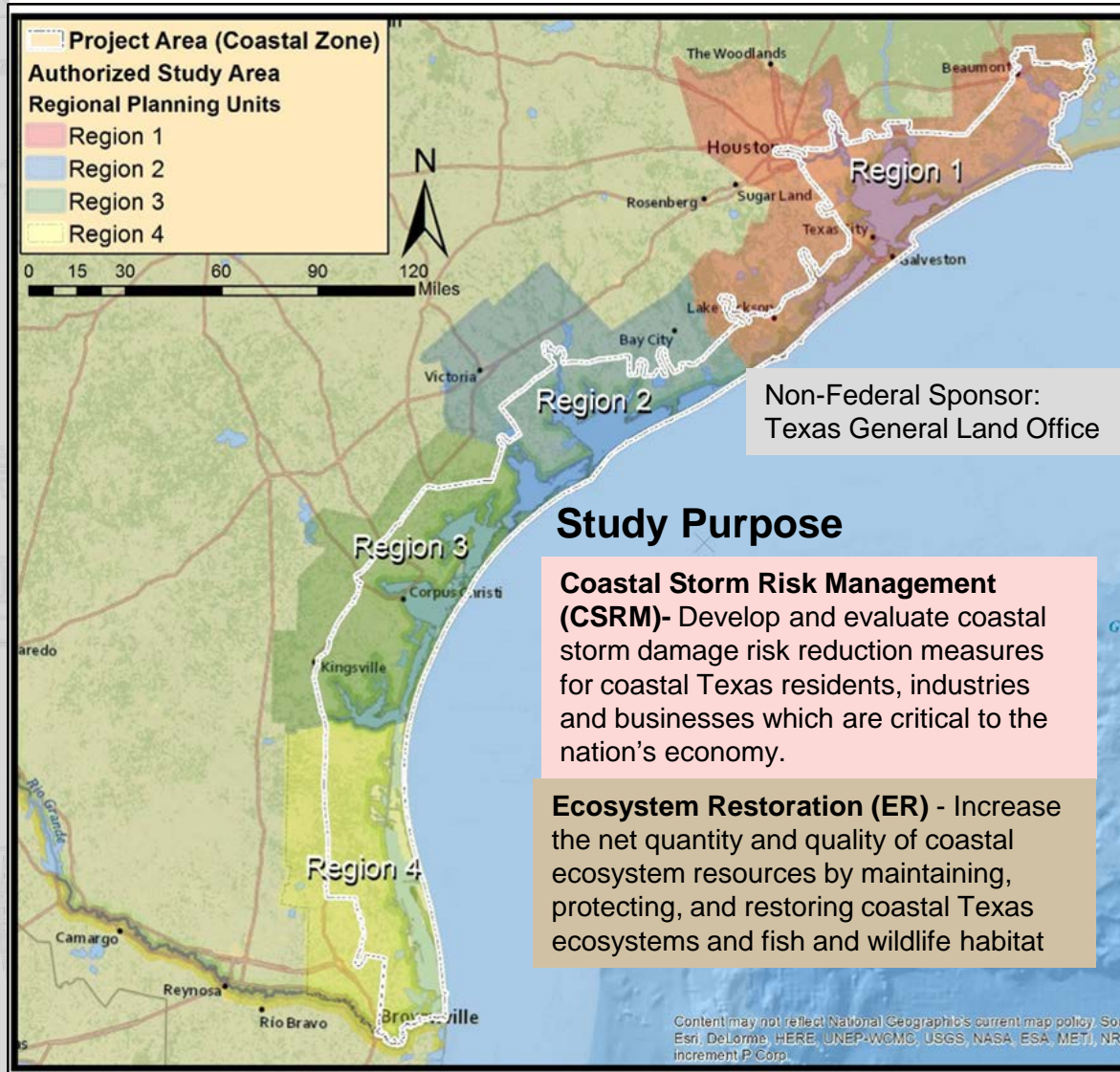


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# Coastal Texas Protection and Restoration Study



Milestone		Date
Scoping	Exemption Approval by USACE	Sep 2015
	Exemption Approval by ASA(CW)/OMB	Nov 2015
	Execute FCSA w/GLO	Nov 2015
Alt. Eval./ Analysis	Alternatives Milestone	June 2016
	Tentatively Selected Plan (TSP) Milestone	May 2018
Feasibility Level Analysis	Agency Decision Milestone (ADM)	Oct 2018
	Feasibility Report Complete	Oct 2020
	Civil Works Review Board (CWRB)	Jan 2021
	S&A Review	Feb 2021
	Chief's Report	Apr 2021

Fiscal Year*	Total Funding (\$)	Federal Funding (\$)	Non-Federal Funding*** (\$)
2016	2,506,000	1,253,000	1,253,000
2017	3,650,000	1,825,000	1,825,000
2018	3,950,000	2,175,000**	1,775,000
2019	5,350,000	2,675,000	2,675,000
2020	4,244,000	2,122,000	2,122,000
2021	100,000	50,000	50,000
Total	19,800,000**	10,100,000	9,700,000

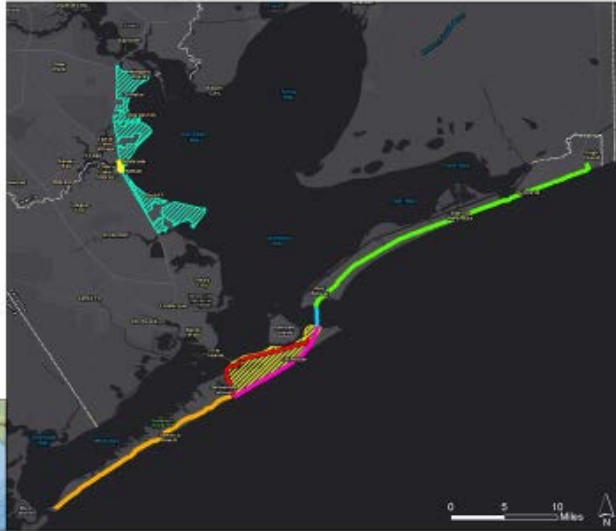
# CSRM Alternatives

## Region 1: Alternative A - Coastal Barrier/Nonstructural System

### Coastal Texas Protection and Restoration Study

#### Alternative A

- High Island to Bolivar Peninsula
- Bolivar Roads and Houston Ship Channel Gates
- Galveston Seawall
- Galveston Ring Levee\*
- Seawall to San Luis Pass
- Clear Lake Gates
- West Side of Galveston Bay Nonstructural Improvements
- Galveston Island Nonstructural Improvements\*
- \* Galveston Back Bay Risk Reduction will select one of these measures



## Region 1: Alternative B - Coastal Barrier

### Coastal Texas Protection and Restoration Study

#### Alternative B

- High Island to Port Bolivar
- Bolivar Roads and Houston Ship Channel Gates
- Existing Texas City Dike
- Existing Texas City Hurricane Flood Protection Levee (HFPL)
- West Extension of Texas City HFPL
- Galveston Seawall
- Galveston Ring Levee
- Clear Lake Gates
- West Side of Galveston Bay Nonstructural Improvements



## Region 1: Alternative C – Mid Bay

### Coastal Texas Protection and Restoration Study

#### Alternative C

- Double Bayou to Smith Point
- MidBay Navigation and Environmental Gates
- Existing Texas City Hurricane Flood Protection Levee (HFPL)
- West Extension of Existing Texas City HFPL
- Galveston Seawall
- Galveston Ring Levee



## Region 1: Alternative D Upper Bay Barrier/Nonstructural System

### Coastal Texas Protection and Restoration Study

#### Alternative D

- Baytown to Tabbs Bay
- Tabbs Bay Environmental Gates
- Hog Island
- Houston Ship Channel Gates
- Spillman Island
- Highway 140 Alignment\*
- Bay Perimeter Alignment\*
- Existing Texas City Hurricane Flood Protection Levee (HFPL)
- Extension of Texas City HFPL
- Galveston Seawall
- Galveston Ring Levee
- West Side of Galveston Bay Nonstructural Improvements\*
- \* Alternative D will select one of these measures

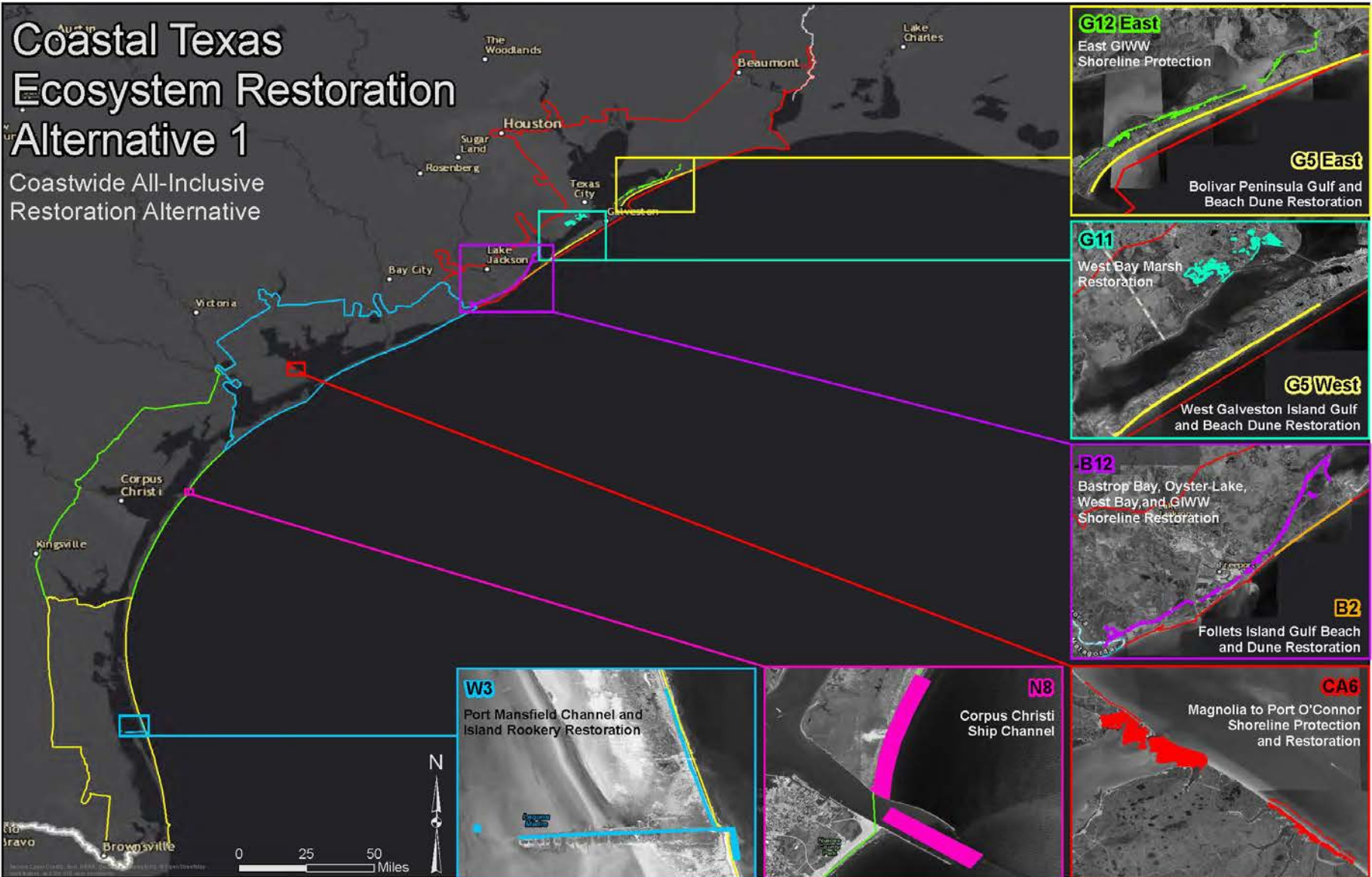




# ER Alternatives

## Coastal Texas Ecosystem Restoration Alternative 1

Coastwide All-Inclusive  
Restoration Alternative





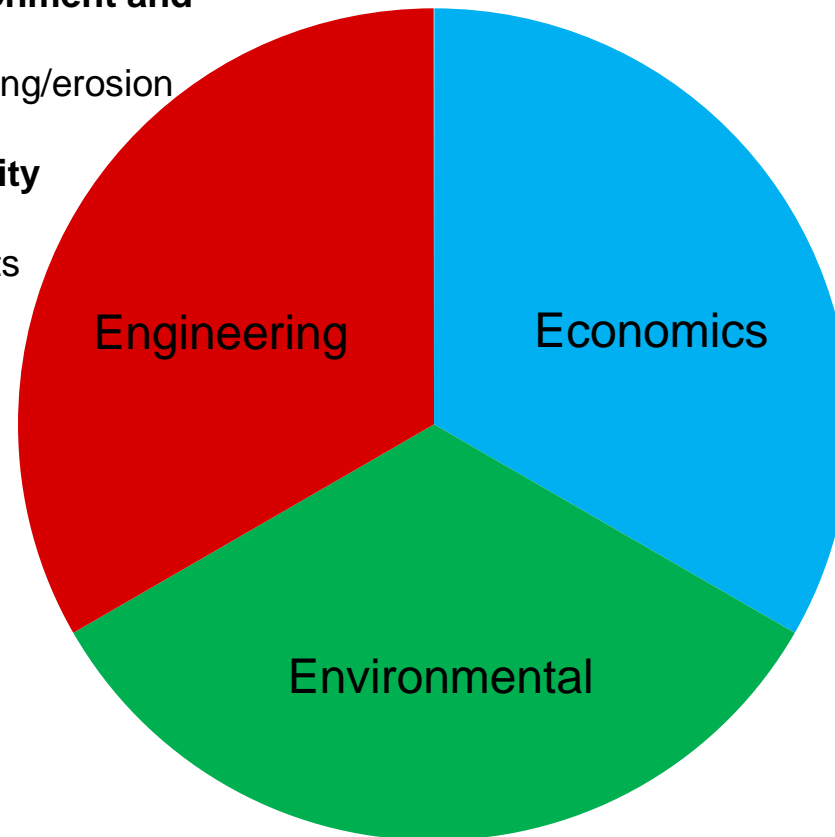
# Path Forward: Detailed Feasibility Study Analyses

## Impacts to physical environment and processes

- Circulation/salinity/flooding/erosion

## Constructability / operability

- Engineering feasibility
- Real Estate requirements



## Damages to property

- Personal and public damages from flooding

## Project costs

- Study, design, construction and O&M

## Benefit-to-cost ratio

- National Economic Development (NED)

## Life/health

- Social impacts

## NEPA compliance

Impacts to natural environment

Hazardous material spills

National Ecosystem Restoration (NER) Plan

Habitat

Fish and wildlife

Cultural Resources



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# SWG Value Proposition for Partnering and Collaboration

- ***Shared Visioning and Partnering*** for a vibrant national/regional economy, resilient coastal communities, and healthy ecosystem that support non-Federal investment
- ***Engineering Solutions on America's Energy Coast*** for addressing infrastructure challenges across navigation, flood risk management, and ecosystem restoration business lines
- Addressing authority, policy, resourcing, and business process challenges for ***Strengthening the Foundation***
- Leveraging new authorities for studies and projects to derive Value to the Nation in ***Delivering the Program***
- Competing strong for sustainable budgets to ***Achieve the Vision*** of Integrated Water Resources Management



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