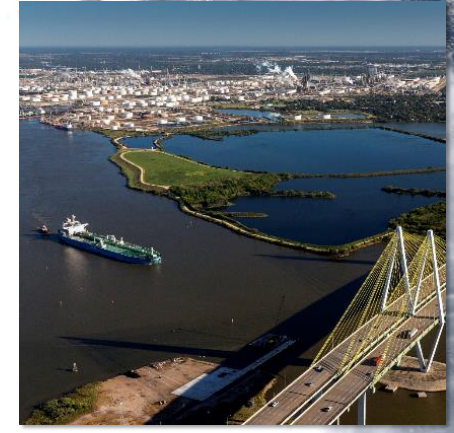
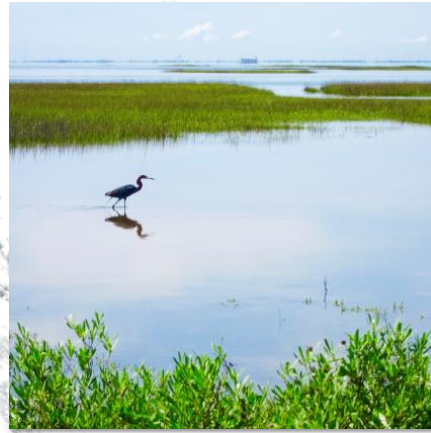


COASTAL **TEXAS** STUDY

Storms, Flooding & Sea Level Defense

November 18, 2020

Website: CoastalStudy.Texas.gov | Email: coastaltexas@usace.army.mil | Facebook: [@CoastalTXStudy](https://www.facebook.com/CoastalTXStudy)



Along the Texas coast, vital resources critical to the social, economic, and environmental welfare of the nation are at risk.

The Need



Historically and currently, the Texas coast is vulnerable to tropical storms and hurricanes that take human life, flood homes and businesses, and damage coastal ecosystems.

About the Study

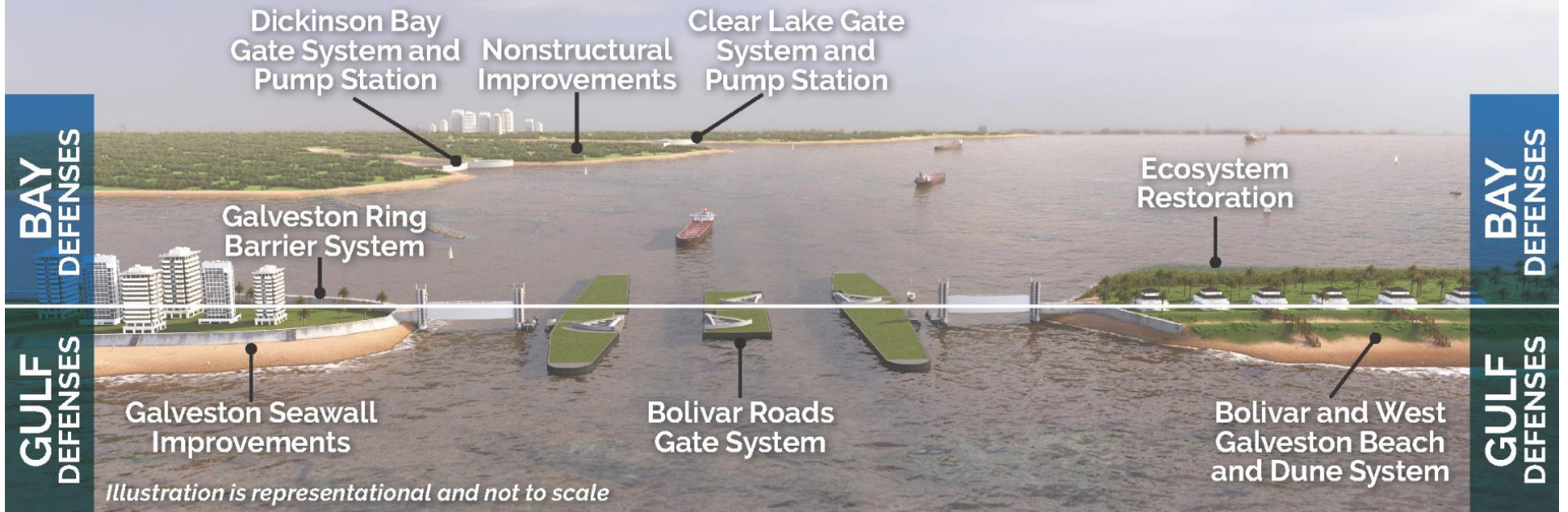
- **Study Name:** Coastal Texas Protection & Restoration Feasibility Study
- **Authorization:** Sec. 4091, Water Resources Development Act (WRDA) of 2007 Public Law 110-114
- **Start Date:** 2014
- **Budget:** \$20.18 Million (\$12.282 Federal: \$7.898 Cost-shared)
- **Non-Federal Sponsor:** Texas General Land Office
- **Purpose:** to evaluate large-scale coastal storm risk management and ecosystem restoration actions aimed at providing the coastal communities of Texas with multiple lines of defense from a wide array of coastal hazards.



Draft Proposal Summary

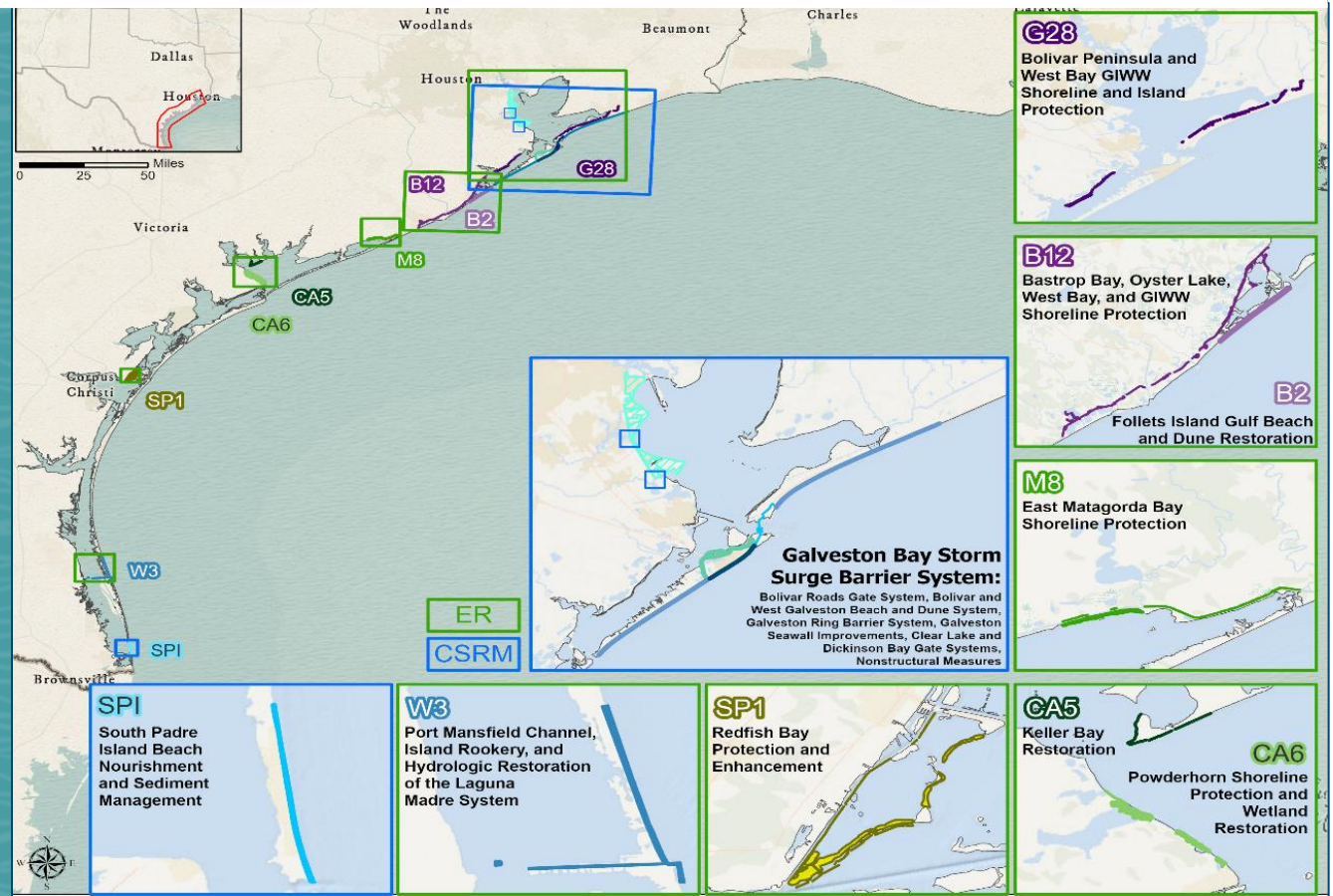
MULTIPLE LINES OF DEFENSE ON THE TEXAS COAST

The Recommended Plan includes a combination of ER and CSR features that function as a system to reduce the risk of coastal storm damages to natural and built infrastructure and to restore degraded coastal ecosystems through a comprehensive approach employing multiple lines of defense. Focused on redundancy and robustness, the proposed system provides increased resiliency along the Bay and is adaptable to future conditions.



Draft Proposal Summary

- Upper Coastal Storm Risk Management
- Lower Coastal Storm Risk Management
- Coastwide Ecosystem Restoration

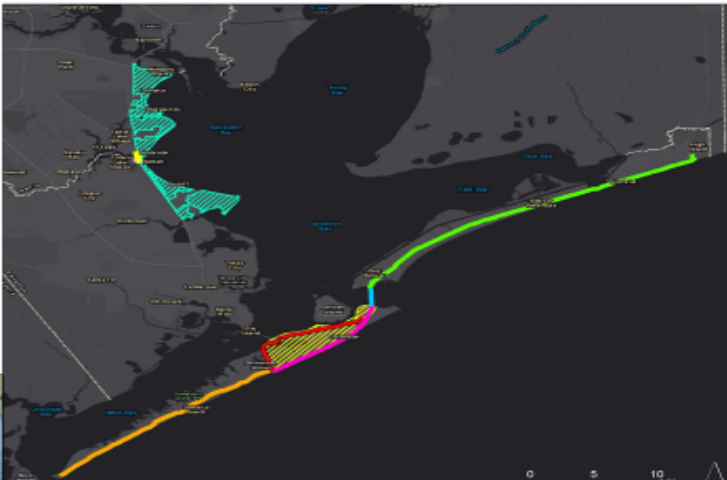
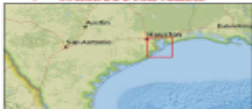


Region 1: Alternative A - Coastal Barrier/Nonstructural System

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 Bay Risk Reduction will select one of these measures

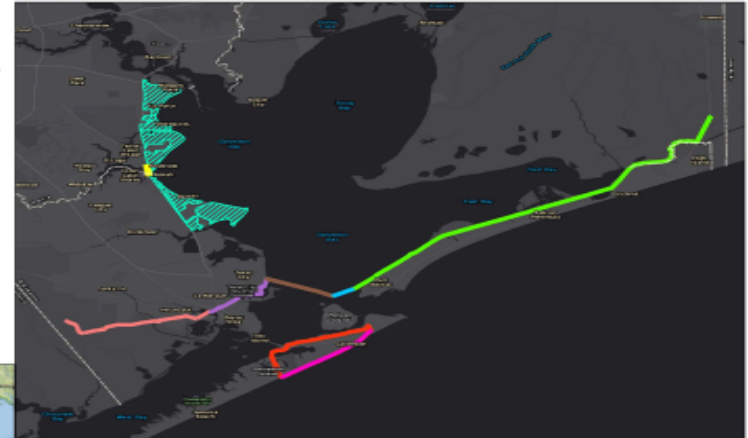


Region 1: Alternative B - Coastal Barrier

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

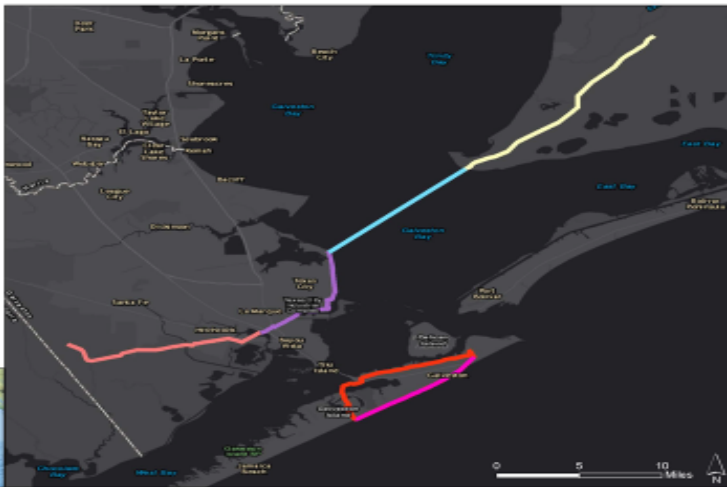
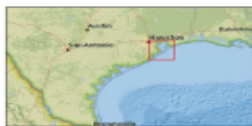


Region 1: Alternative C – Mid Bay

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

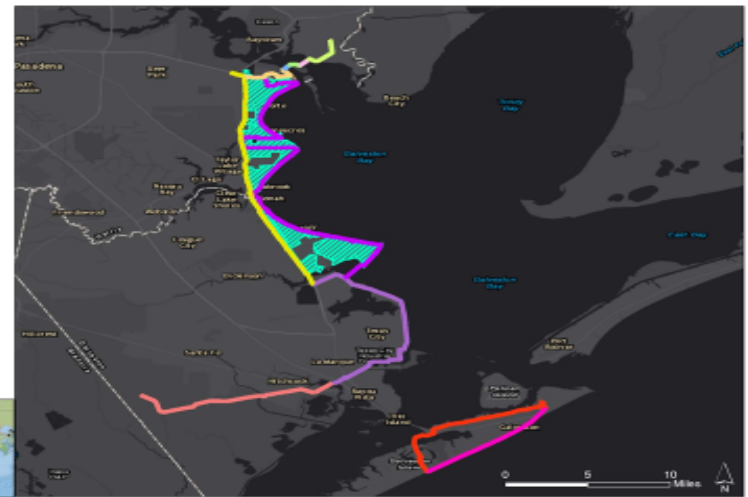


Region 1: Alternative D Upper Bay Barrier/ Nonstructural System

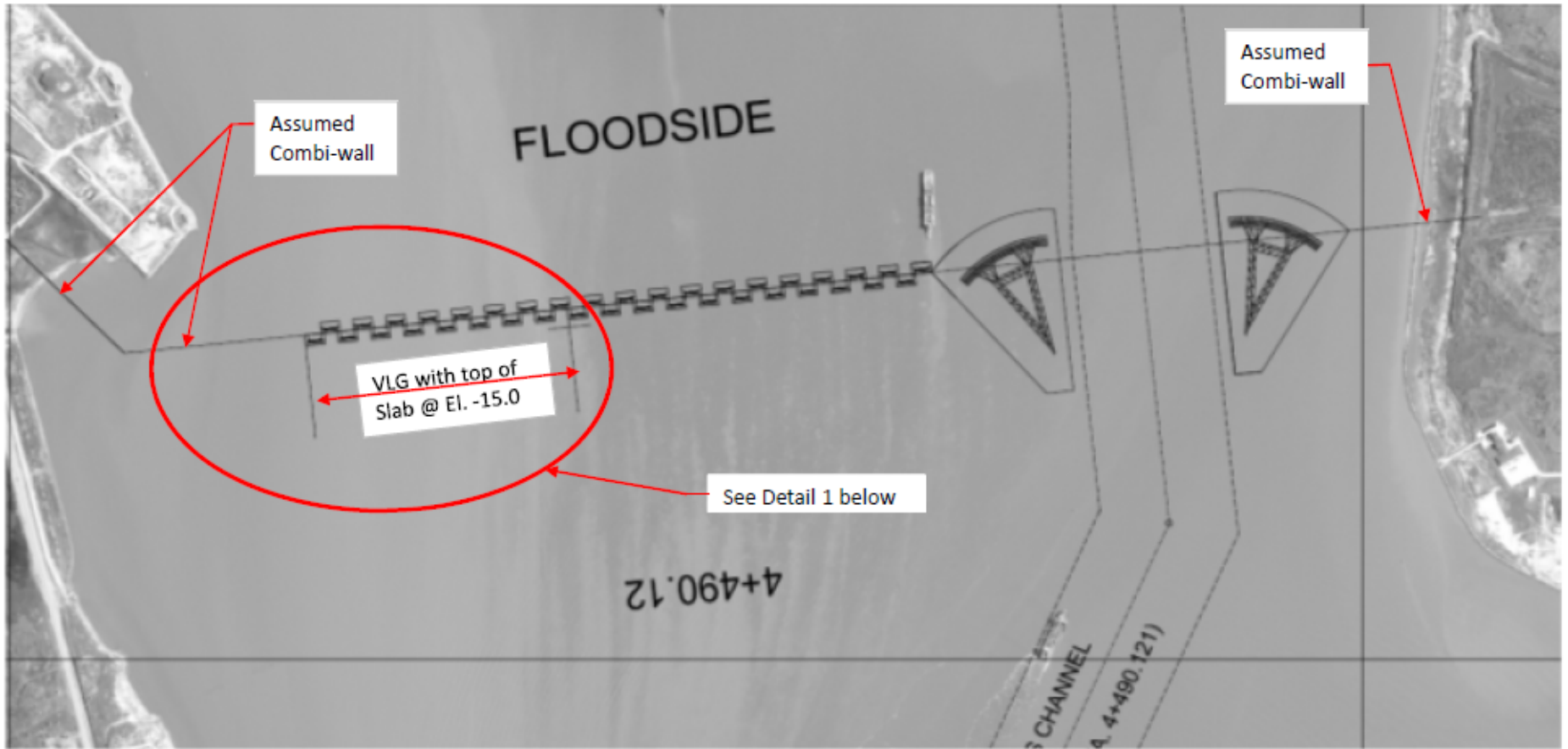
Coastal Texas Protection and Restoration Study

Alternative D

- Baytown to Tabbs Bay
- Tabbs Bay Environmental Gates
- Hog Island
- Houston Ship Channel Gates
- Spillman Island
- Highway 148 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



2018 Gate Design



Draft Proposal Summary



West Galveston & Bolivar Peninsula Beach & Dune System



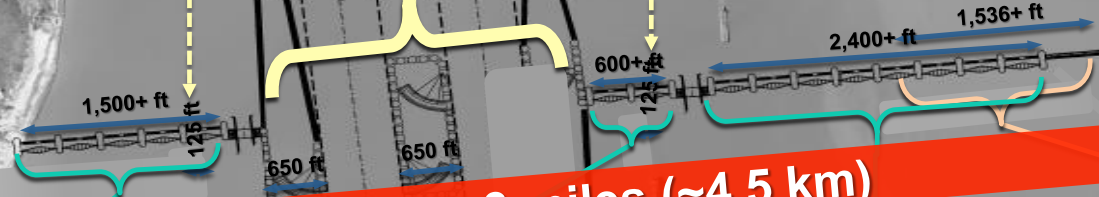
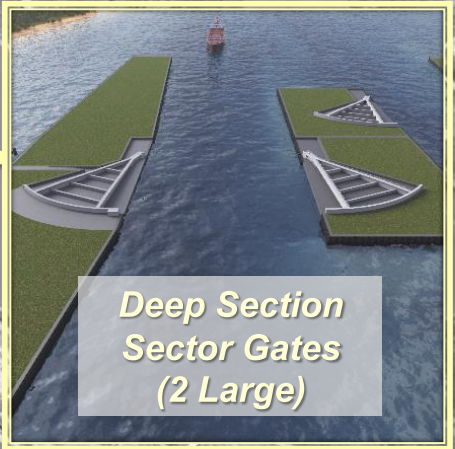
Conceptual rendering for illustrative purposes only

Bolivar Roads Gate System

Galveston Bay

Galveston Island

Smaller Sector Gates
(2 Small)



~3 miles (~4.5 km)



Bolivar Peninsula



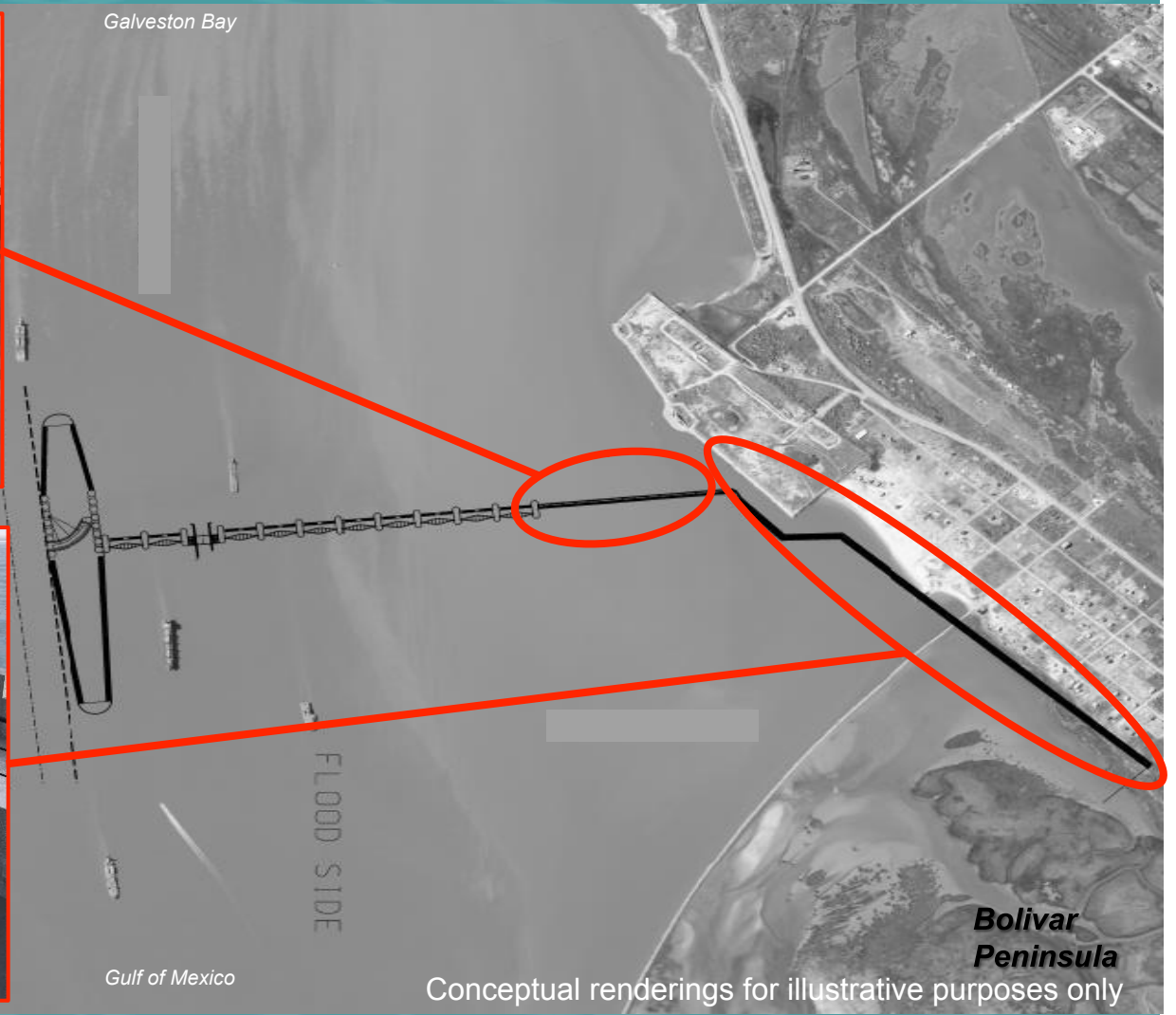
Intermediate Sections
(15 Vertical Lift Gates)

Gulf of Mexico

FLOOD SIDE

Gates)

Galveston Bay

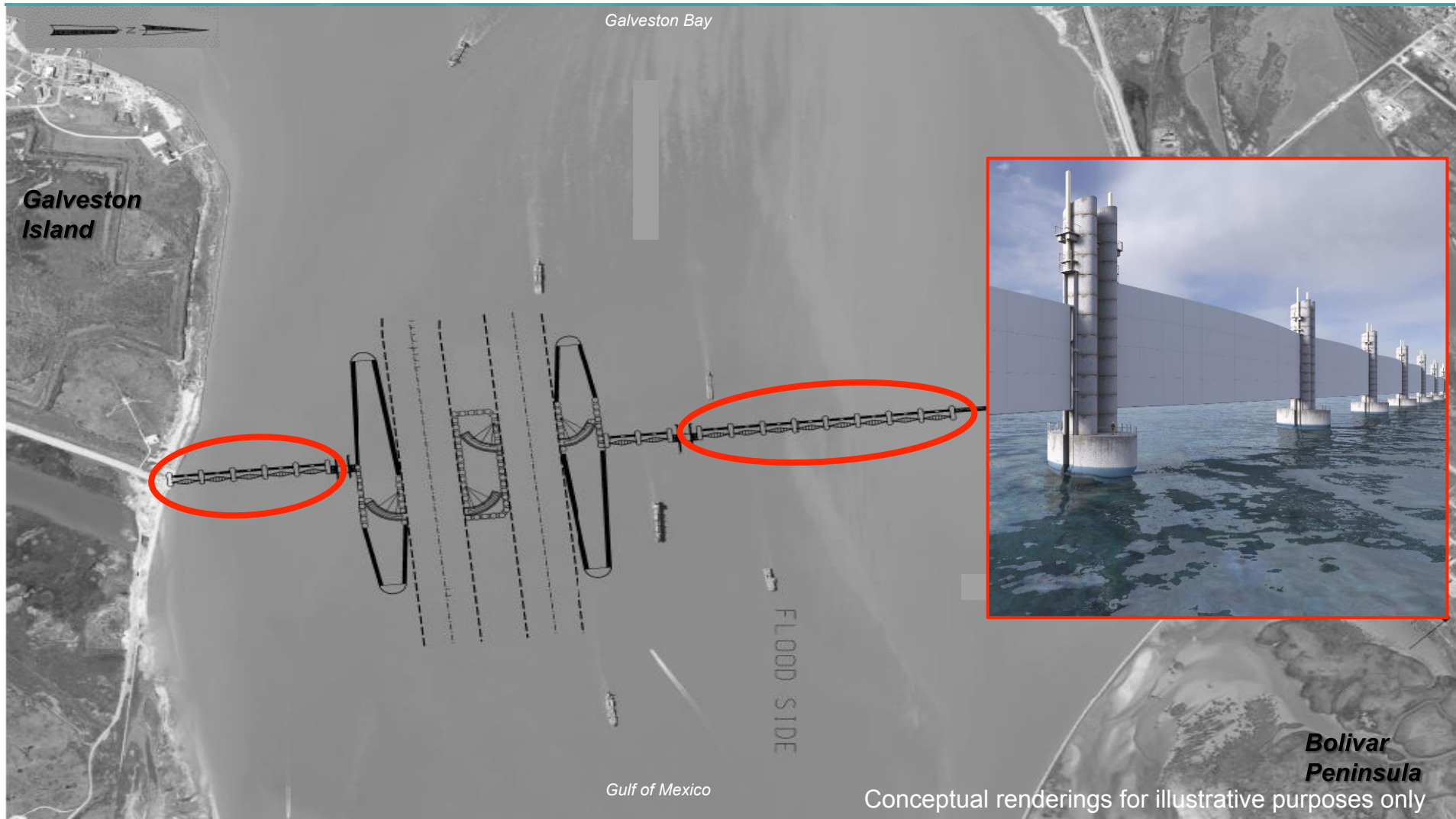


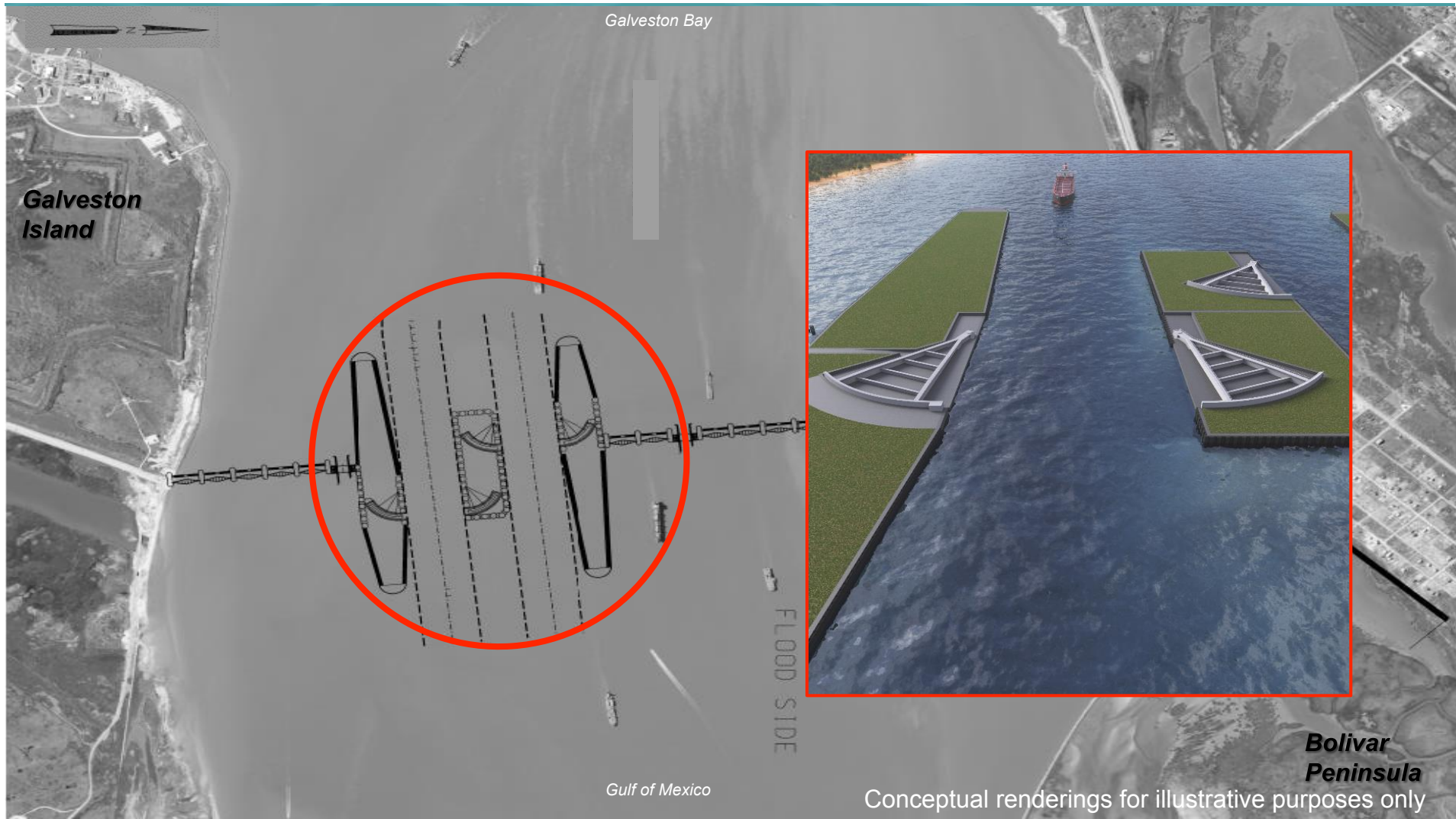
FLOOD SIDE

Gulf of Mexico

Bolivar Peninsula

Conceptual renderings for illustrative purposes only





Galveston Bay

**Galveston
Island**

FLOOD SIDE

Gulf of Mexico

**Bolivar
Peninsula**

Conceptual renderings for illustrative purposes only

Draft Proposal Cost

Projected Costs

Gulf Defense: **\$17.7B**
(Bolivar Roads Gate System + Bolivar/West Galveston Beach & Dune Systems + SPI + Mitigation)

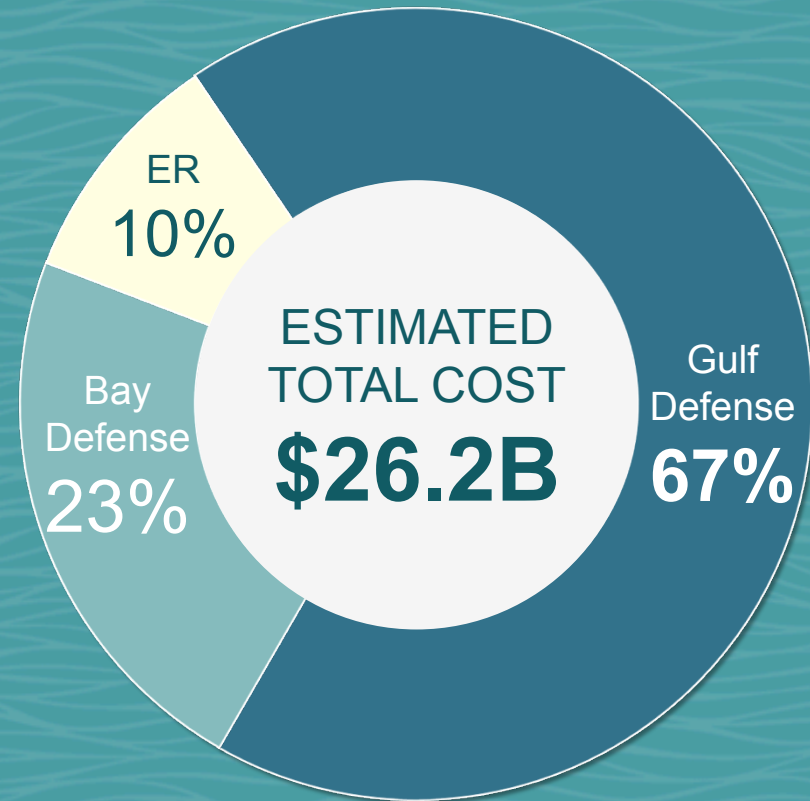
Bay Defense: **\$ 5.9B**
(Galveston Ring Barrier + Seawall Improvements + Clear Lake + Dickinson Bay + Non-Structural Improvements)

Ecosystem Restoration: **\$ 2.6B**

TOTAL: \$26.2B

Recovery Costs for Storms of the Past:

Hurricane Ike (2008): **\$38B**



COASTAL **TEXAS** STUDY

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Facebook: [@CoastalTXStudy](https://www.facebook.com/CoastalTXStudy)

Tony Williams, Texas General Land Office

tony.Williams@glo.Texas.gov