Supporting the Texas Coastal Vision
8 August 2014
Purpose

**USACE Vision**
Engineering solutions for our Nation’s toughest challenges.

**USACE Mission**
Deliver vital public and military engineering services; partnering in peace and war to strengthen our Nation’s security, energize the economy and reduce risks from disasters.
Galveston Jetties

Established in 1880 to Improve Navigation
1880s – Sabine-Neches and Houston-Galveston Jetties
1885 – Corpus Christi Project
1949 – Final Section of GIWW completed
1967 – Houston to 40’
1989 – Corpus to 40’
2007 – Houston to 45’

The 1900 Hurricane
1904 – First section of Galveston Seawall
1936 – Flood Control Program
1940s – Addicks & Barker Dams
1963 – Final section of Galveston Seawall
1970s Hurricane Flood Protection Systems
2008 – Hurricane Ike

The Environmental Movement
1969 – NEPA
1972 – Clean Water Act

Civil Works Transformation
2012 – 3x3x3 Paradigm for Federal Investigations
2014 – Water Resources Reform & Development Act (WRRDA)

134 Years of Building Strong!
Galveston District Missions

Civil Works
- Navigation
- Flood Risk Management
- Environmental Restoration

Interagency Support
- Customs & Border Protection
- Immigration

Regulatory
- Section 10 and Section 404 Permits

Disaster Response and Recovery
Opportunity to support sustainable economic growth, protect ecologic health and improve community resiliency.
Briefing Agenda

Regulatory Program
• Kim McLaughlin, Chief of Regulatory Engineering Initiatives

Texas Coastal Studies
• Sharon Tirpak, Project Manager

Engineering Initiatives
• Rob Thomas, Chief of Hydrology & Hydraulics

Beneficial Use Opportunities
• Paula Wise, Operations Manager
Galveston District Regulatory Program
8 August 2014

Kimberly McLaughlin
Chief, Regulatory Division
U.S. Army Corps of Engineers
Galveston Regulatory Division

- 50,000+ square miles
- 700 miles of coastline
- 50+ Counties
- Portions of 4 Louisiana Parishes
- 16 Congressional Districts
- 40+ Staff Members
- Issues over 1,000 Permit Authorizations Annually
Regulatory Authorities

- Rivers and Harbors Act of 1899 (RHA)
  Section 7 - Danger Zones/Restricted Areas (1917 RHA)
  Section 9 - Dams and Dikes
  (Bridges, & Causeways were transferred to the USCG in 1966)
  Section 10 - Work or Structures

- Section 404 of the Clean Water Act (CWA)
  (formerly the Federal Water Pollution Control Act of 1972)

- Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA)
Multiple Permits Issued for Beach Nourishment Projects Along Texas Gulf Coast

- Galveston Island
- Surfside
- Bolivar Peninsula
- Sergeant Beach
- City Corpus Christi – North Beach
- North Padre Island – National Seashore
- City of South Padre Island
- Rock Port Beach

South Padre Island 2012
Beneficial Use of Dredged Material

- Becoming a more common practice
- Used to offset impacts to waters of the United States
- Placement areas at or near capacity
- Strong support from other Federal and state resource agencies
Regulatory Division Contact:

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USACE Galveston District Coastal Storm Damage Risk Management and Ecosystem Restoration Projects

8 August 2014

Sharon Manzella Tirpak
Project Manager
Galveston District
U.S. Army Corps of Engineers
Discussion Outline

- Review of current CSDRM and ER projects
- Review of Corps Processes
Sabine Pass to Galveston Bay Project

Non-Federal Sponsor: TXGLO

Estimated cost of study: $4.4M

Estimated completion date: Sept 2016

Inundation depths:
- Blue 2-4 ft
- Green 4-6 ft
- Yellow 6-8ft
- Orange 8-10
- Red >10ft

Hurricane Ike Path and Inundation
Regional Structural Alternatives Identified

Alternatives B2, G2, G5, and S5 - Structural Alternatives for all Regions
Sabine and Brazoria Region Focus

Evaluation of levees in Orange and Jefferson Counties & reevaluation of Port Arthur Hurricane Flood Protection Levee

Reevaluation of existing Freeport Hurricane Flood Protection Levee
Ecosystem Restoration Future Study

Brazoria Region

Houston/Galveston Region

Sabine Region
Coastal Texas Protection and Restoration Project

Study Area: Entire coast of Texas
Non-Federal Sponsor: TBD
Estimated cost of study: TBD
Estimated completion date: TBD
Coastal Texas Authorization

- Wide ranging authorization to develop comprehensive plan for Texas coast
  - Focus on flood and coastal storm damage risk management
  - Ecosystem restoration/protection
- Opportunity to develop a State plan and be positioned for future funding
Coastal Texas Project

► Reconnaissance study start in 2014
► Need to identify non-Federal Sponsor
► Look at entire Texas coastal area
  • Public Meetings scheduled for: August 11th – Palacios
    August 12th – Corpus Christi
    August 13th – South Padre Island
    August 27th – Houston/Galveston
► Develop comprehensive plan for coast with potential detailed focus on specific regions
► Will be informed by related studies for potential future action
  • GCCPRD/SSPEED Center/Texas A&M
  • GLO Infrastructure Resiliency Study
  • GLO Shoring Up the Coast
Corps Process

Identification of Problem

Reconnaissance Phase (~1 yr)

Feasibility Phase* (3 yrs)

Preconstruction, Engineering and Design (2-3 yrs)

Construction

O&M

Congressional Authorization

Must have Federal Interest and non-Federal Sponsor

Must have Feasible Project and non-Federal Sponsor

$ Non-Fed Sponsor $

*Feasibility Phase includes **alternatives analysis and NEPA compliance** to determine best plan to provide an environmentally sustainable solution which provides economic value to the nation.
Collaboration with Others

- Texas General Land Office
- Galveston
- ATM
- Drainage District
- SSpeed
- USGS
- Consolided Drainage District
- Galveston County
- Orange County
- State of Texas
- Harris County
- Flood Control District
- GCCPRD
- ASCE
- ERDC
- Coastal Storm Damage Reduction
- National Planning Center of Equivit
Questions?

For more information contact:

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Project Manager
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Engineering Initiatives

8 August 2014

Rob Thomas, P.E.
Chief, Hydrology & Hydraulics
Water Management Branch
Galveston District
U.S. Army Corps of Engineers
Federal Programs that Work for You

- Planning Assistance to States
- Flood Plain Management Services
- Hydrologic Studies
- Regional Sediment Management
- Monitoring Completed Navigation Projects
Matagorda Erosion Control and Restoration Development Plan

- Problem: Shoreline erosion/habitat loss
  - Sargent Beach
  - Matagorda Peninsula

- Methods
  - Sediment Budget
  - Data collection
  - Numerical modeling
  - Design and cost

- Structural Solutions
  - Groins at MCR
  - Breakwaters at Sargent
Monitoring Completed Navigation Projects

- Houston-Galveston Navigation Channel
  - Analysis of dredging
  - Data collection
  - Numerical modeling
    - 2D & 3D
    - Salinity, sediment transport, ship waves
  - Shoaling analysis
- Brazos Island Harbor
  - New start this year
Upper Matagorda Bay RSM

- Problem: High shoaling rates and fluid mud in upper channel
- Analyzed physical processes
- Evaluated alternatives to reduce shoaling

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GIWW: West Galveston Bay

- Problem: Barrier island erosion and critical channel shoaling
- CMS and sediment budget applied to analyze alternatives
- Prelim design and cost evaluated
Problem: Coordinating sediment needs with sediment surpluses

Regional sediment budget

Identify projects/sites with future sediment needs

Galveston Sand Management Plan

- Problem:
  - Shoaling in the Galveston Entrance Channel
    - Dredge approx 2MCY every 18-24 months
    - Funding challenges maintaining channels and PAs
  - Erosion of Galveston Island
    - Nourishment has cost as much as $40/CY
    - No long term plan for sustainability

- Leveraging RSM and PAS to develop regional solution
Maximum Sediment Saved by Implementing Each Alternative Individually

- Sand-tighten jetties: 113,000 CY/YR
- Prevention of wind-blown sand: 21,000 CY/YR
- Back-passing plant with spur dikes: 150,000 CY/YR
- Close boat cut in North Jetty: 160,000 CY/YR
- Place PA A material on beach: 300,000 CY/YR

MAXIMUM POSSIBLE SAVINGS OF ALL ALTERNATIVES:
707,000 CY/YR* ~ $2.8M/YR (based on $4/CY)

Recommendations

- Continue to work with TX GLO and Galveston Park Board of Trustees
  - Back-passing plant on East Beach
  - Option of dredging anchorage basin and/or Big Reef for nourishment material
- Conduct future studies and data collection

Proposed fencing/vegetation for reducing wind-blown sand
For more information contact:

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Operations and Maintenance
Beneficial Use Opportunities

Paula Wise
Operations Manager, Navigation Branch
GALVESTON DISTRICT
August 8, 2014
➢ Existing Memorandum of Agreement
  ➢ Allows Galveston District & TXGLO to partner in beneficial-use of dredged material projects

➢ Galveston District-TXGLO Partnerships
  ➢ Brazos Island Harbor
  ➢ Rollover Beach
  ➢ Galveston Beach
Brazos Island Harbor Navigation Channel and South Padre Island

- South Padre Island
- Gulf of Mexico
- Offshore Dredged Material Disposal Site (ODMDS)
- Near Shore Feeder Berm
- County Park
- Jetty Channel
Gulf Intracoastal Waterway and Rollover Beach
Gulf Intracoastal Waterway and Rollover Beach
Gulf Intracoastal Waterway and Rollover Beach

East Galveston Bay

Gulf Intracoastal Waterway

Rollover Bay

Rollover Pass

GULF OF MEXICO
Houston – Galveston – Texas City Navigation Complex

- Barbours Terminal
- Bayport Ship Channel
- Galveston Bay
- Houston Ship Channel
- Gulf Intracoastal Waterway
- Bolivar Peninsula
- Texas City Ship Channel
- Galveston Harbor
- Offshore Dredged Material Disposal Site (ODMDS)

GULF OF MEXICO

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- Offshore Dredged Material Disposal Site (ODMDS)

GULF OF MEXICO
QUESTIONS?

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