

# Sabine Pass to Galveston Bay, TX, Coastal Storm Risk Management and Ecosystem Restoration Feasibility Study

Public Comment Meetings

October 6, 2015 – Beaumont, TX

October 8, 2015 – Freeport, TX

Sharon Tirpak, Project Manager

Lauren Kruse, Planning

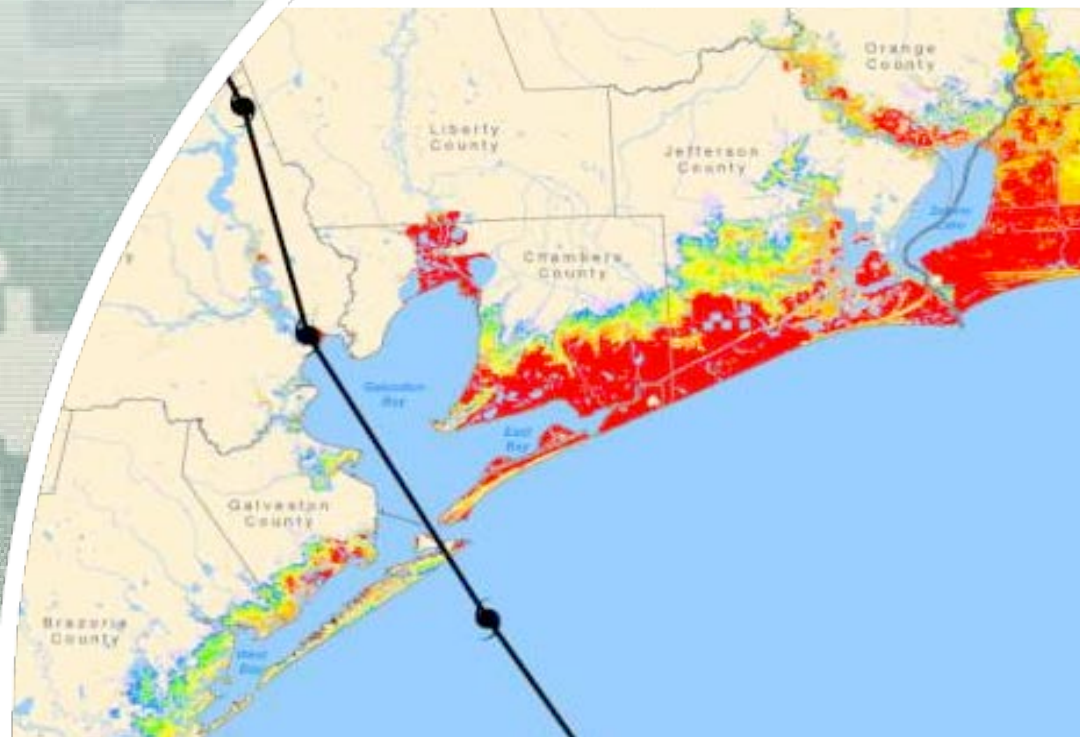
Jodie Foster, Economics

Jon Plymale, Engineering

Janelle Stokes, Environmental



US Army Corps of Engineers  
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# Purpose of Public Meeting

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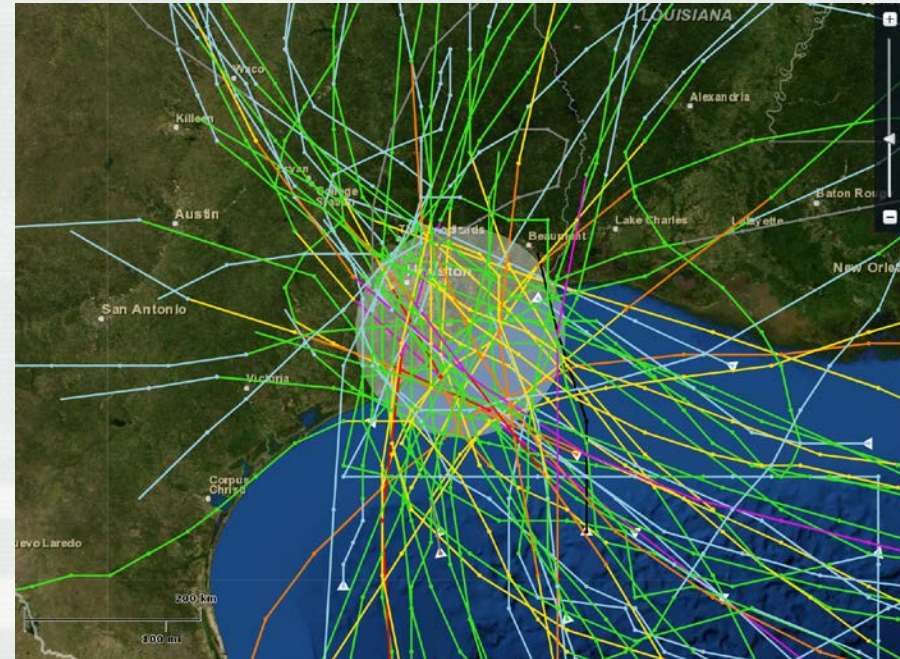
- Present the Tentatively Selected Plan (TSP)
- Gather comments from the public on the TSP and its environmental impacts



# Threat to Health and Well Being

Since 1854, 61 tropical storms have hit the Upper TX Coast

- 2008 Hurricane Ike
  - 3<sup>rd</sup> most destructive in US history
  - 112 deaths
  - Thousands of homes destroyed
  - \$29 billion in losses
- 2005 Hurricane Rita
  - 111 deaths/\$10 billion in losses
- Tropical Storm Allison
  - 41 deaths/\$5 billion in losses
- 1900 Galveston Storm
  - 6000 deaths/\$20 million in losses



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# Study Background

## **Authority:**

Feasibility study conducted in response to the 2004 “Coastal Texas Protection and Restoration Study” resolution from the House of Representatives’ Committee on Environmental and Public Works

## **Sponsors:**

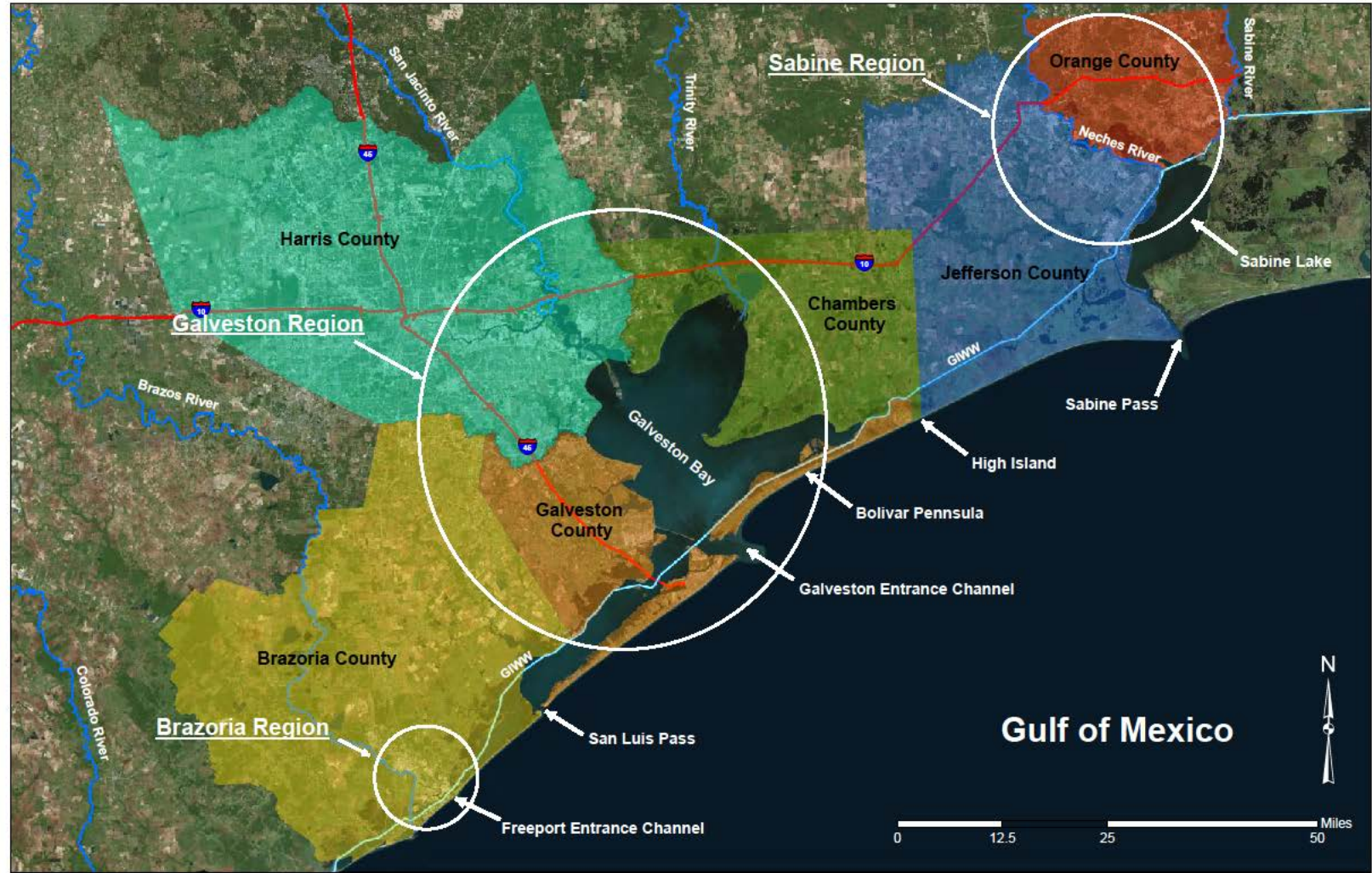
U.S. Army Corps of Engineers (USACE), Galveston District  
Texas General Land Office

## **Purpose:**

Recommend Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) projects for Congressional approval in the six counties on the upper Texas coast (Orange, Jefferson, Chambers, Harris, Galveston and Brazoria).



# Sabine Pass to Galveston Bay Project Areas

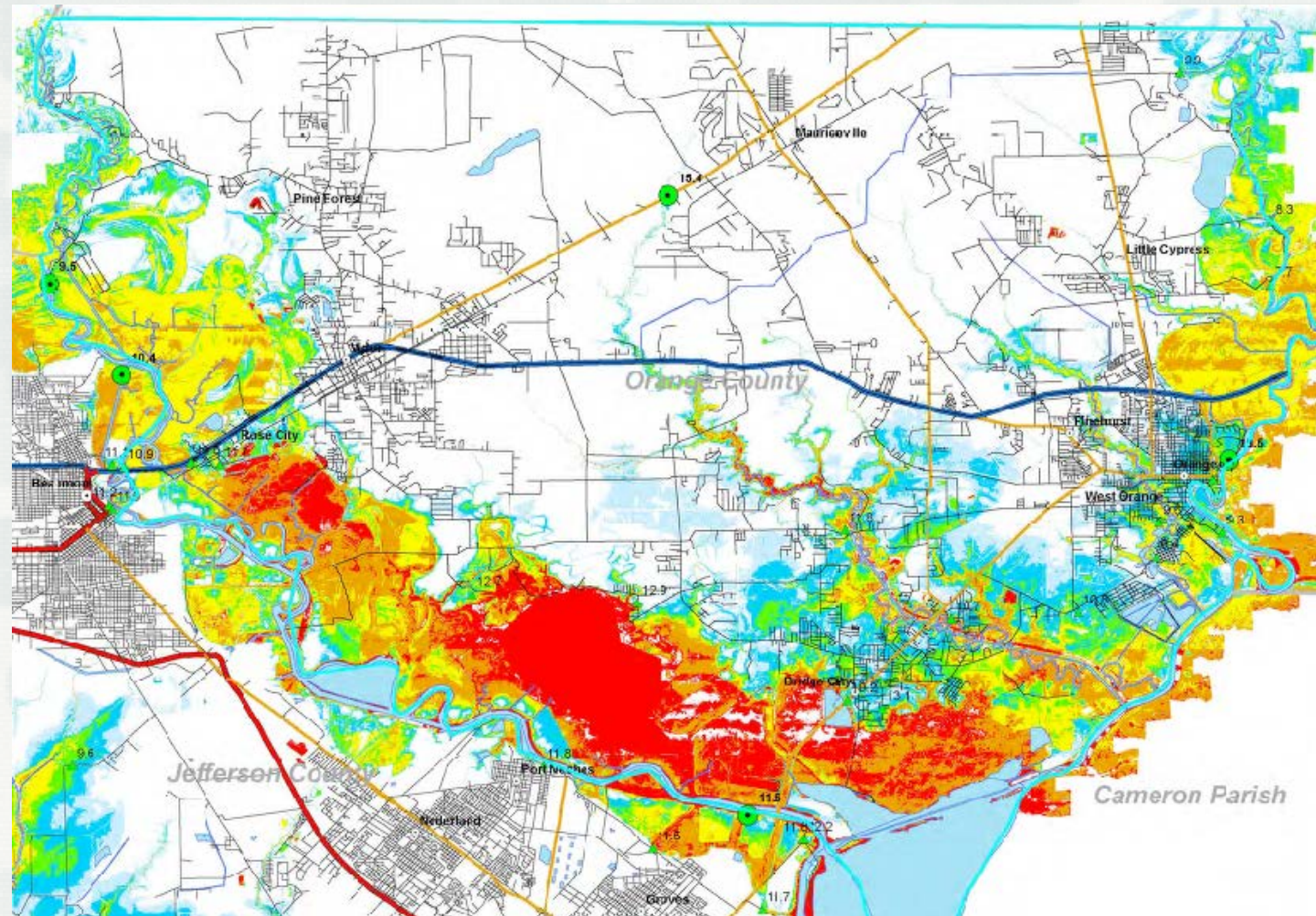


# Revised Study Scope

- Programmatic discussion on entire six-county area
- Focused study effort on Sabine and Brazoria Regions for \$4.4 million and 3.9 years
- CSRM problems evaluated and projects recommended for:
  - ▶ Sabine Region (Orange and Jefferson Counties)
  - ▶ Brazoria Region (Freeport area)

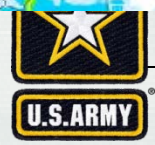


# Hurricane Ike Surge Impacts Orange-Jefferson Counties



## Inundation (Feet)

- >10 Feet
- 8-10 Feet
- 6-8 Feet
- 4-6 Feet
- 2-4 Feet
- < 2 Feet
- No Inundation
- Measured Water Level
- FEMA High Water Marks



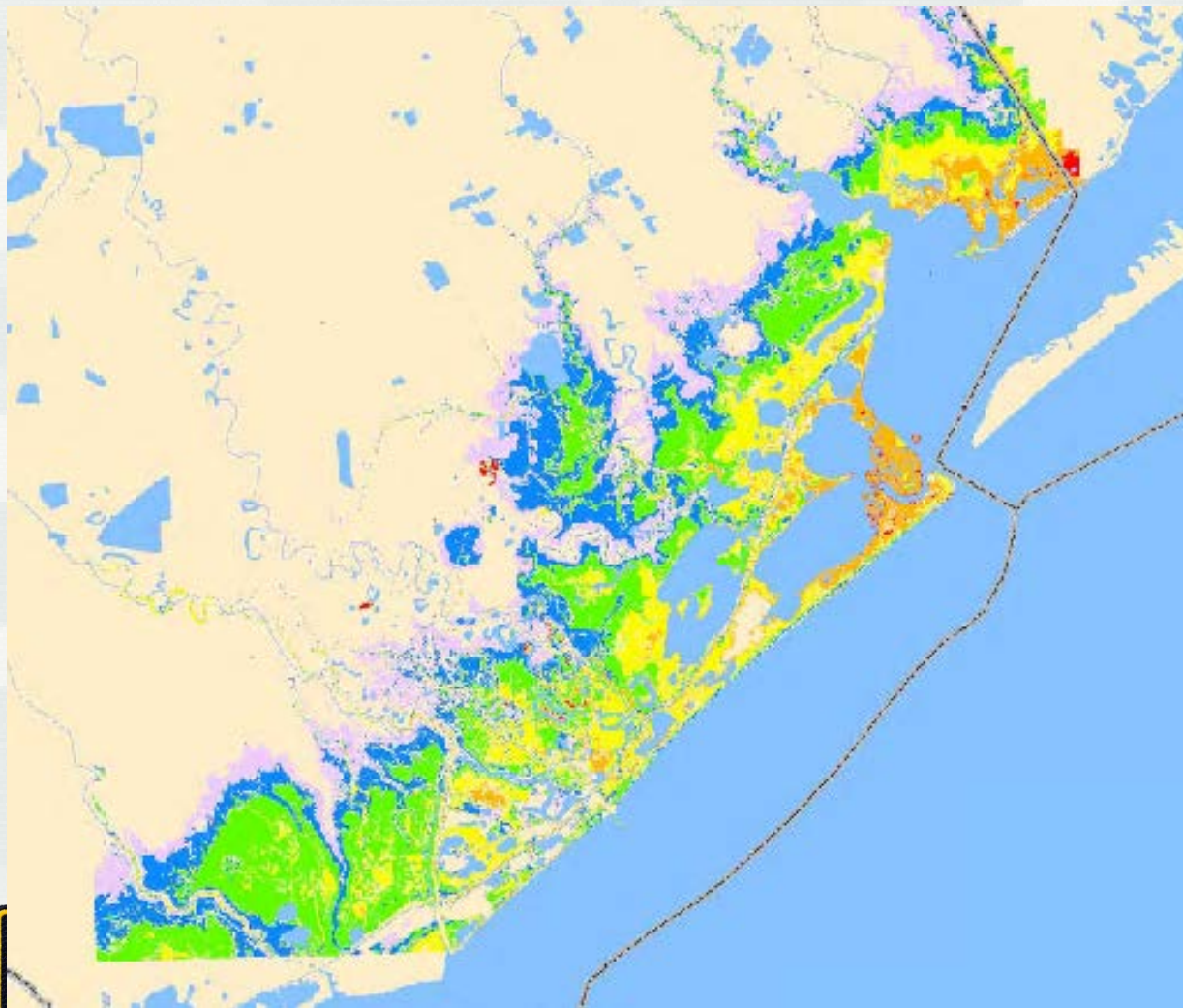
# Existing Port Arthur and Vicinity Hurricane Flood Protection Project



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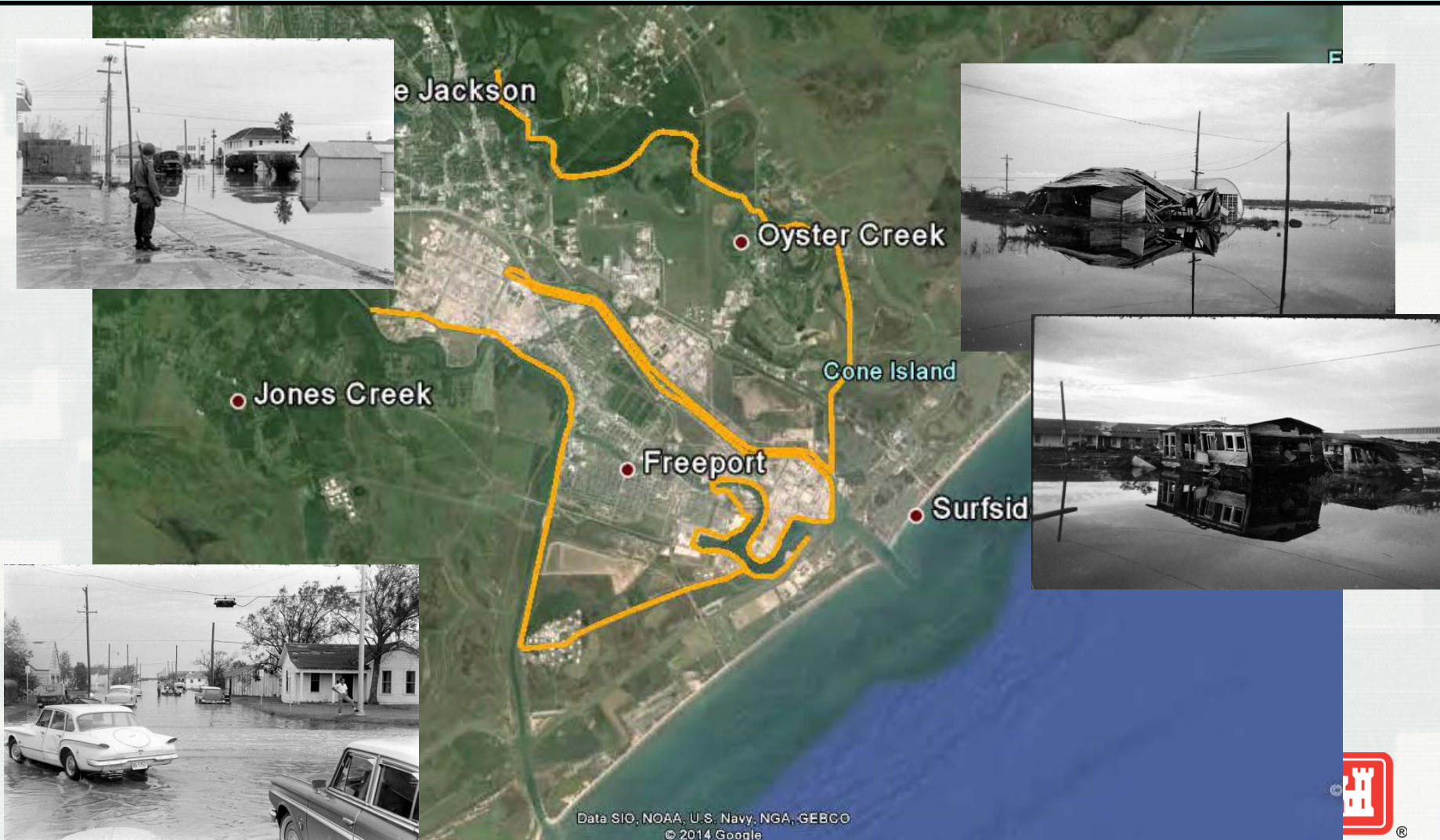
# Hurricane Ike Surge Impacts Brazoria County



## Inundation (Feet)

- >10 Feet
- 8-10 Feet
- 6-8 Feet
- 4-6 Feet
- 2-4 Feet
- < 2 Feet
- No Inundation
- Measured Water Level
- FEMA High Water Marks

# Existing Freeport and Vicinity Hurricane Flood Protection Project



# Evaluation of Alternative Plans

## No Action or Future Without Project (FWOP) Alternative

### Sabine Region Alternatives

- Sabine Inland Barrier CSRM Focus (new Neches Surge Gate/new Sabine and Neches Levees/existing Port Arthur Hurricane Flood Protection Project (HFPP))
- Sabine Nonstructural Alternative (Buyouts)

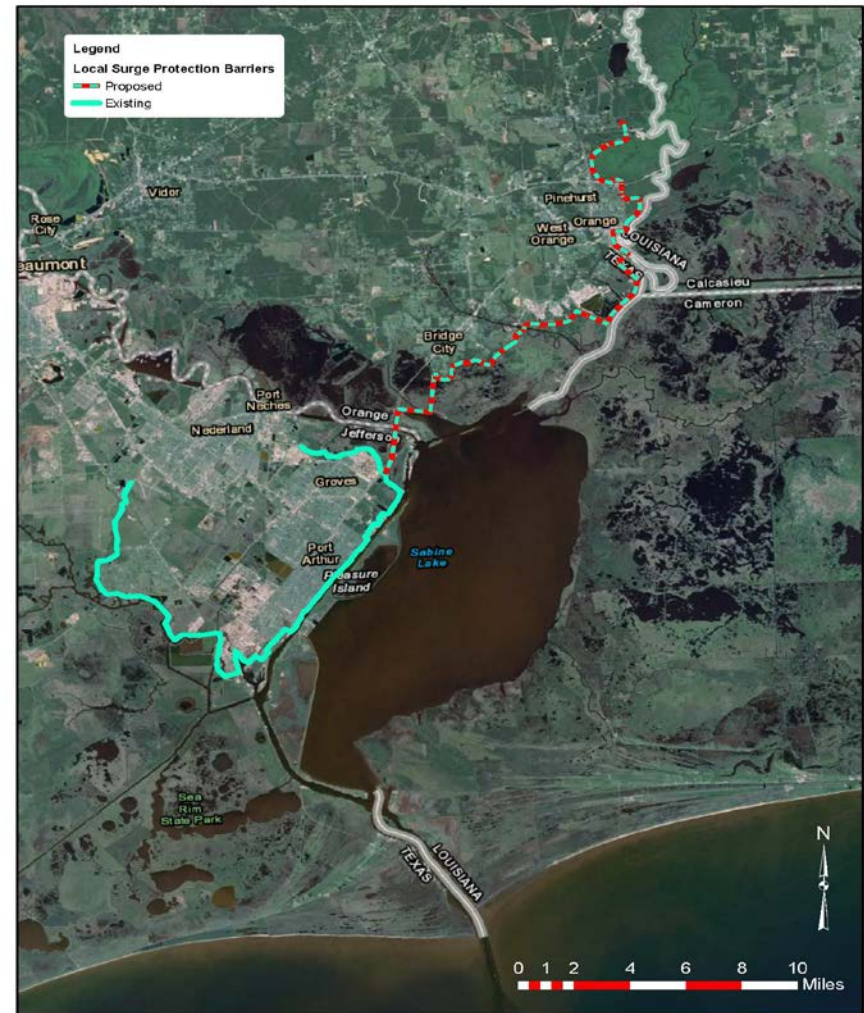
### Brazoria Region Alternatives

- Brazoria Coastal Barrier CSRM Focus (existing Freeport HFPP)
- Brazoria Nonstructural Alternative (Buyouts)



# Neches River Surge Gate Alternative

- New levee/floodwall system along the Sabine River and Sabine Lake
- Large, navigable surge gate in the Neches River
- Improvements to Port Arthur HFPP

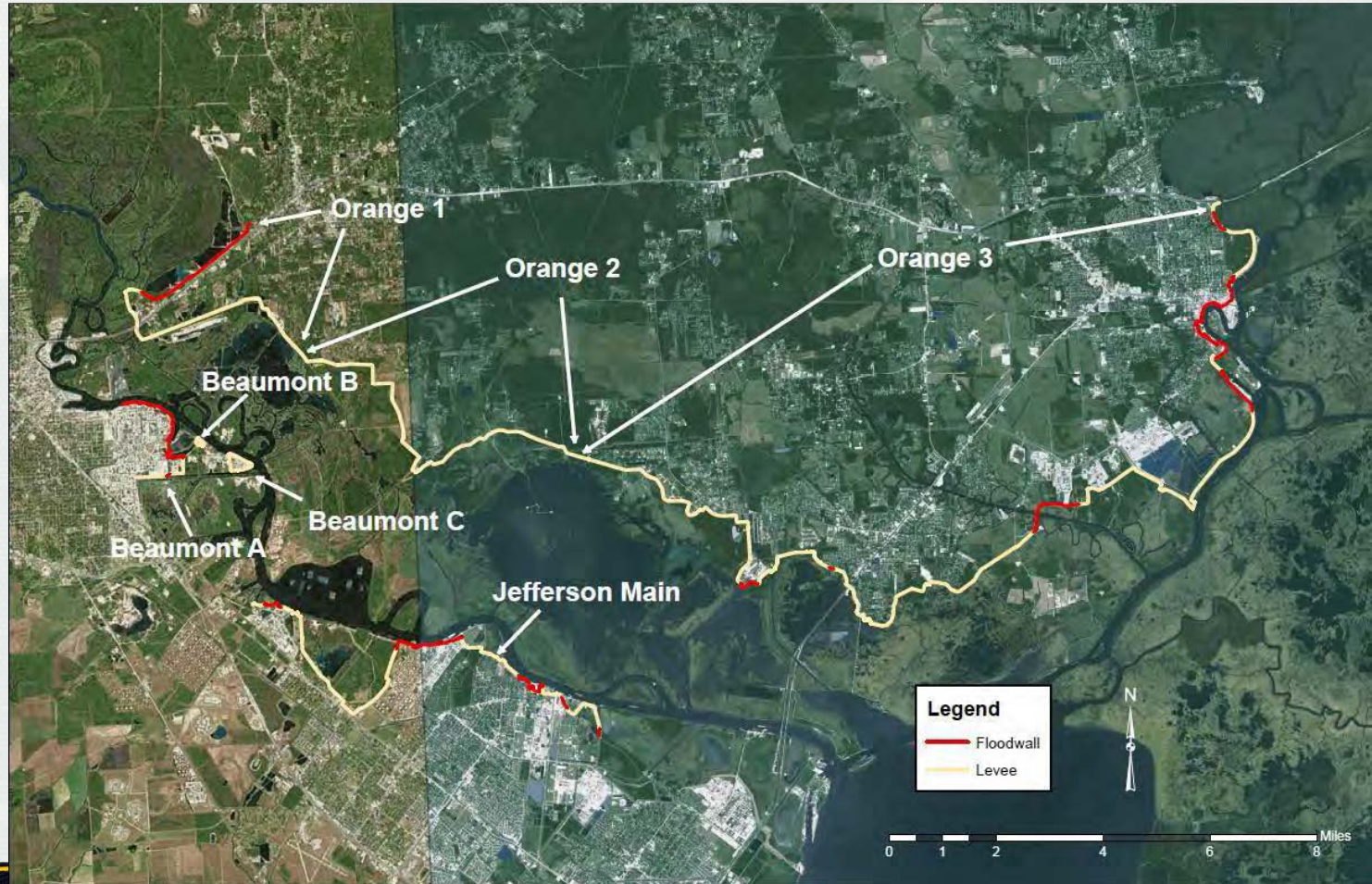


# Final Array Alternatives

Project Area	Final Array
	No Action or Future Without Project (FWOP)
<b>Sabine Region Alternatives</b>	
Orange-Jefferson CSRM	•New Levees/Floodwalls in Orange and Jefferson Counties
Port Arthur and Vicinity CSRM	Improvements to existing Port Arthur HFPP
	Sabine Region Nonstructural
<b>Brazoria Region Alternatives</b>	
Freeport and Vicinity CSRM	Improvements to existing Freeport HFPP
	Brazoria Region Nonstructural



# Orange-Jefferson CSRM: Alternative Reaches Evaluated



# Proposed TSP for Orange-Jefferson CSRM



# Proposed TSP for Port Arthur and Vicinity CSR





# Proposed TSP for Freeport and Vicinity CSRMM



# Environmental Impacts of TSP

- Port Arthur and Freeport CSRM Plans have negligible environmental impacts
- Orange-Jefferson CSRM Plan avoids and minimizes wetland impacts to greatest extent possible
  - Direct impacts about 300 acres of wetlands
  - Indirect fisheries access impacts to about 2,200 acres of marsh in Adam's and Cow Bayou floodplains
  - Value of direct and indirect wetland impacts determined with Wetland Value Assessment Model in coordination with resource agencies
- No known hazardous or toxic waste releases, violations, or sites of concern
- No significant cultural resource impacts
- No endangered species impacts

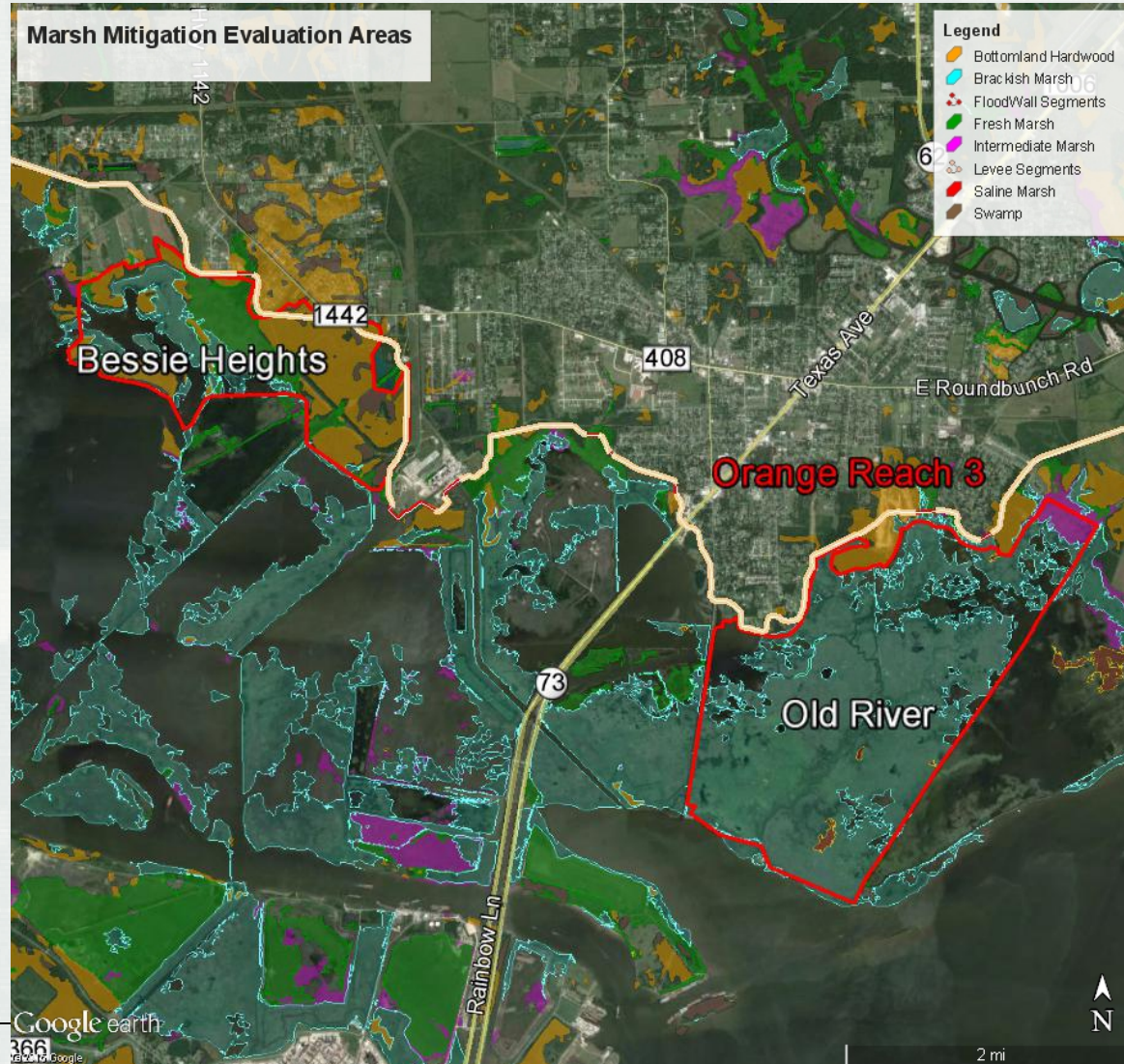


# Conceptual Mitigation Plan

- All impacts fully mitigated as required by law and USACE regulations
- Impacts to marsh compensated with marsh restoration
- Impacts to forested wetlands compensated by preservation and improvement of wetland forest
- Impacts to wetlands on Texas Parks and Wildlife Department (TPWD) property will be mitigated on TPWD property

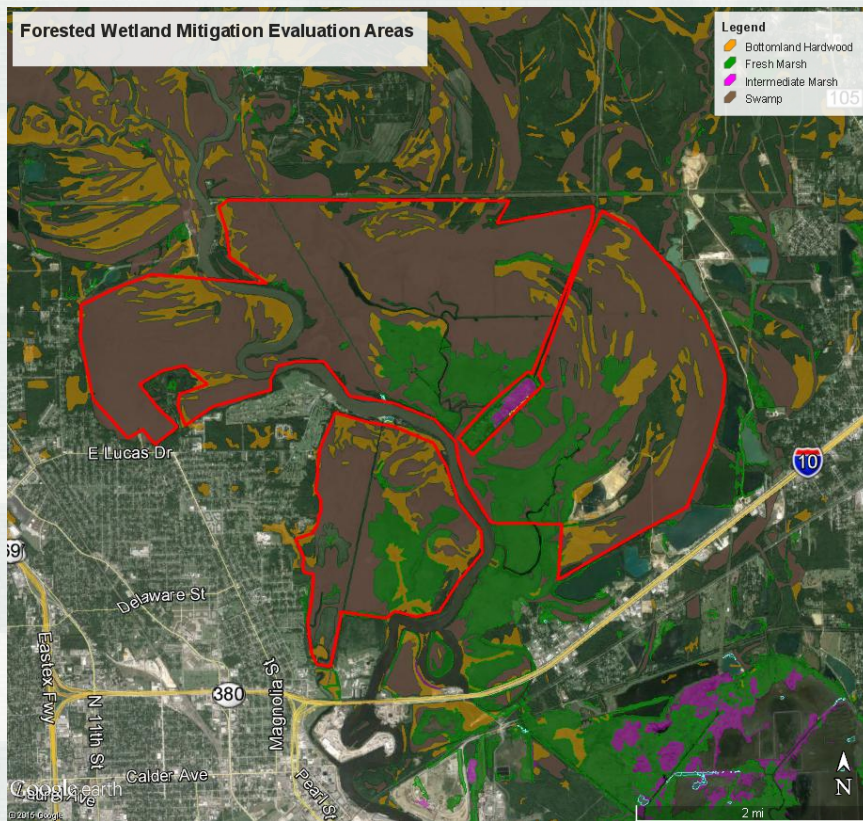


# Marsh Mitigation Evaluation Areas



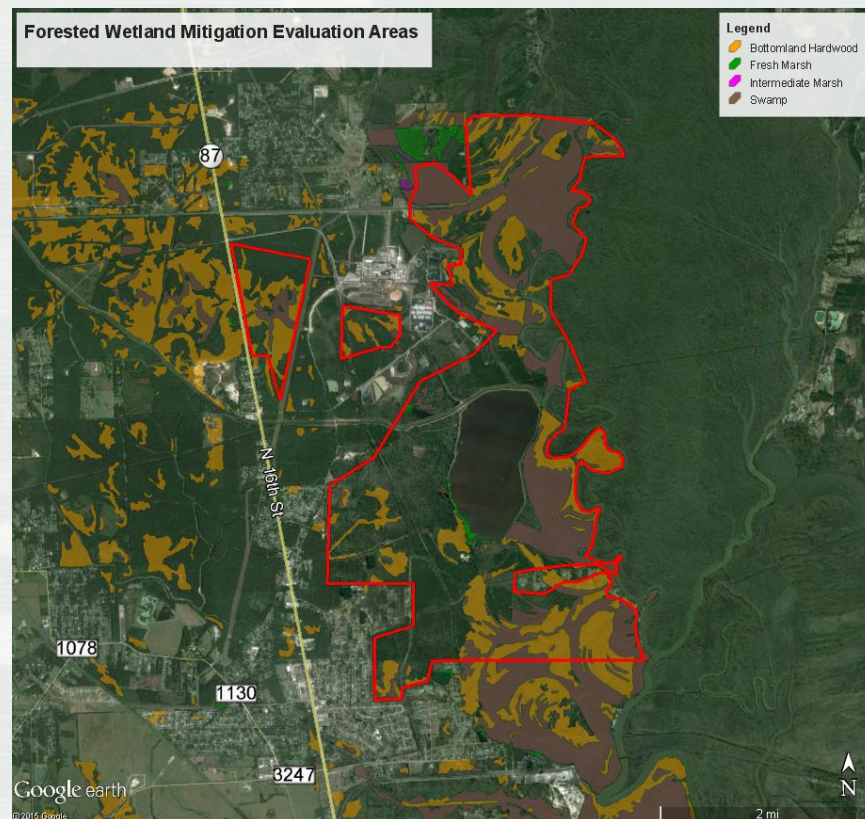
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# Forested Wetlands Mitigation Evaluation Areas



Neches River

Sabine River



# Preliminary Project Cost

Orange-Jefferson CSRM Plan	\$382,739,000
Port Arthur and Vicinity CSRM Plan	\$ 33,144,000
Freeport and Vicinity CSRM Plan	\$156,343,000
<b>Total</b>	<b>\$572,226,000</b>



# Next Steps

- Final Feasibility Analysis
  - ▶ Potential changes in levee alignment location
  - ▶ Development of feasibility-level engineering design
  - ▶ Analysis of effects of relative sea-level rise could result in increases to the recommended height and width of new Orange-Jefferson CSRM plan, and Port Arthur and Freeport CSRM plans
  - ▶ Analysis of potential changes in environmental impacts
  - ▶ Development of environmental mitigation and monitoring plan



# Relative Sea Level Change (RSLC)

Estimated RSLC over the first 50 years of the project life  
(2030 – 2080)

Tide Gage	Measured Relative SLR Rate	Low (ft)	Intermediate (ft)	High (ft)
Sabine Pass, TX	0.22 in/yr	0.93	1.49	3.26
Freeport, TX	0.17 in/yr	0.72	1.27	3.05





# Schedule for Study Completion

- Concurrent Review Oct/Nov 2015
- Recommended Plan Jan 2016
- Final Feasibility Report Apr 2016
- Civil Works Review Board Jul 2016
- State and Agency Review Aug 2016
- Chief of Engineer's Final Report Sep 2016



# Comments

- Galveston District Website  
<http://www.swg.usace.army.mil/>
- Comments must be submitted by October 26, 2015
- Submit comments to:  
U.S. Army Corps of Engineers, Galveston District  
Attn: Janelle Stokes, SWF-PEC-TN at SWG  
P.O. Box 1229  
Galveston, Texas 77553  
[Janelle.S.Stokes@usace.army.mil](mailto:Janelle.S.Stokes@usace.army.mil)



# Public Comments Will Now Be Accepted

