



Brazoria County Erosion Response Plan



May 24, 2011



COAST & HARBOR
ENGINEERING

Meeting Agenda

- ◆ Background on Erosion Response Plan (ERP)
- ◆ Objectives of ERP
- ◆ Development of ERP
 - Development of set-back line (SBL)
 - Criteria for construction seaward of SBL
 - Mitigation and Preservation of beach access and dune
- ◆ Future Work

ERP Background

- ◆ Pursuant to the authority granted by Texas Natural Resources Code, local governments must develop plans (Erosion Response Plans) for reducing public expenditures for erosion and storm damage losses to public and private property, including public beaches.
- ◆ Funding provided by a CMP grant acquired by Brazoria County.

Objectives of ERP

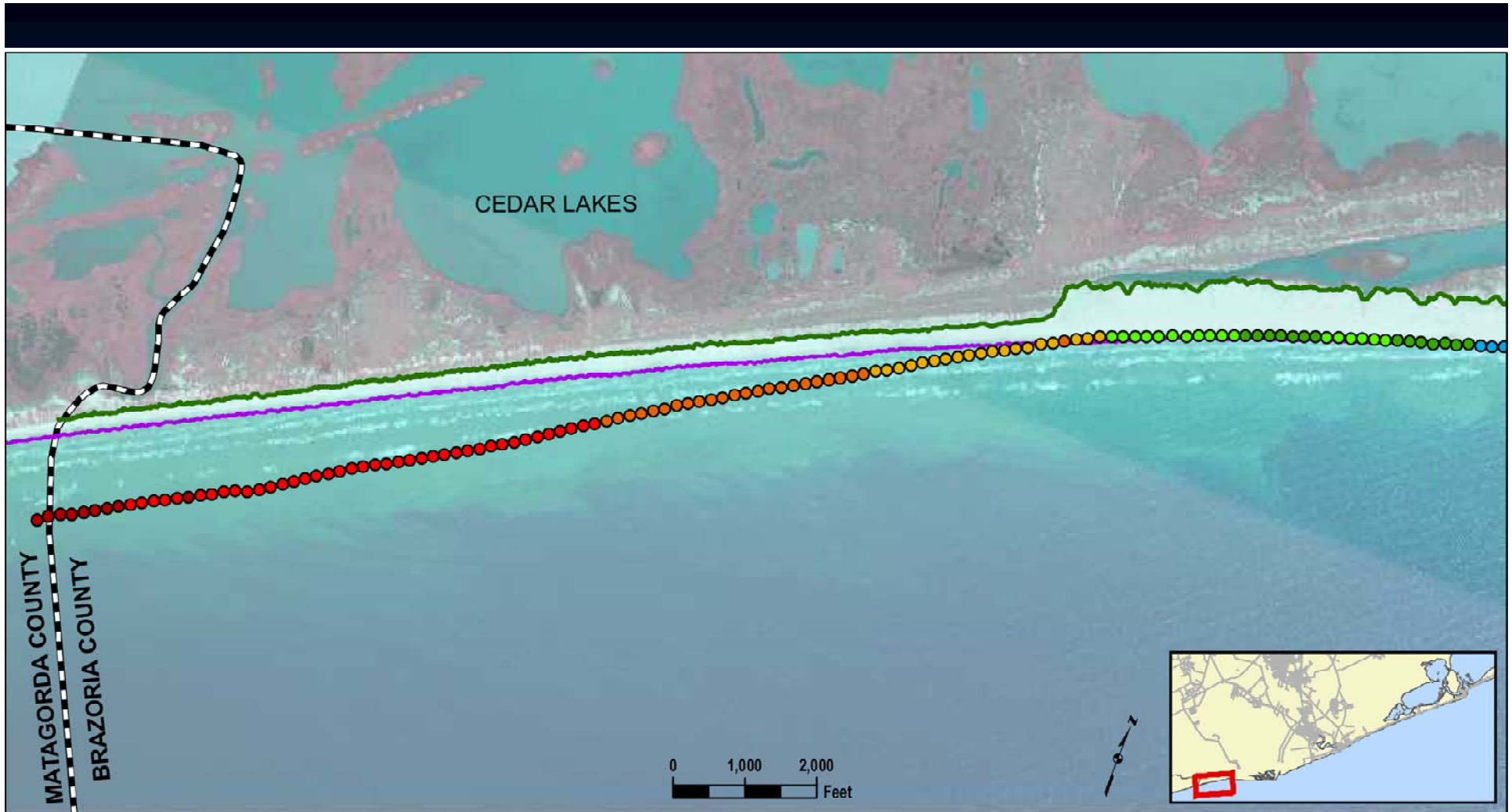
- ◆ Development of set-back line (SBL)
- ◆ Develop criteria for construction seaward of SBL
- ◆ Identify opportunities for mitigation and preservation of beach access and dune
- ◆ Incorporate ERP in Beach Access Plan

Steps in developing ERP

- ◆ Assemble data and develop County Base Maps
- ◆ Establish the Set-back Line (SBL)
- ◆ Establish Criteria & Exemption Considerations for New Construction
- ◆ Public Beach Access: Preservation & Enhancement
- ◆ Critical Sand Dune: Preservation & Enhancement

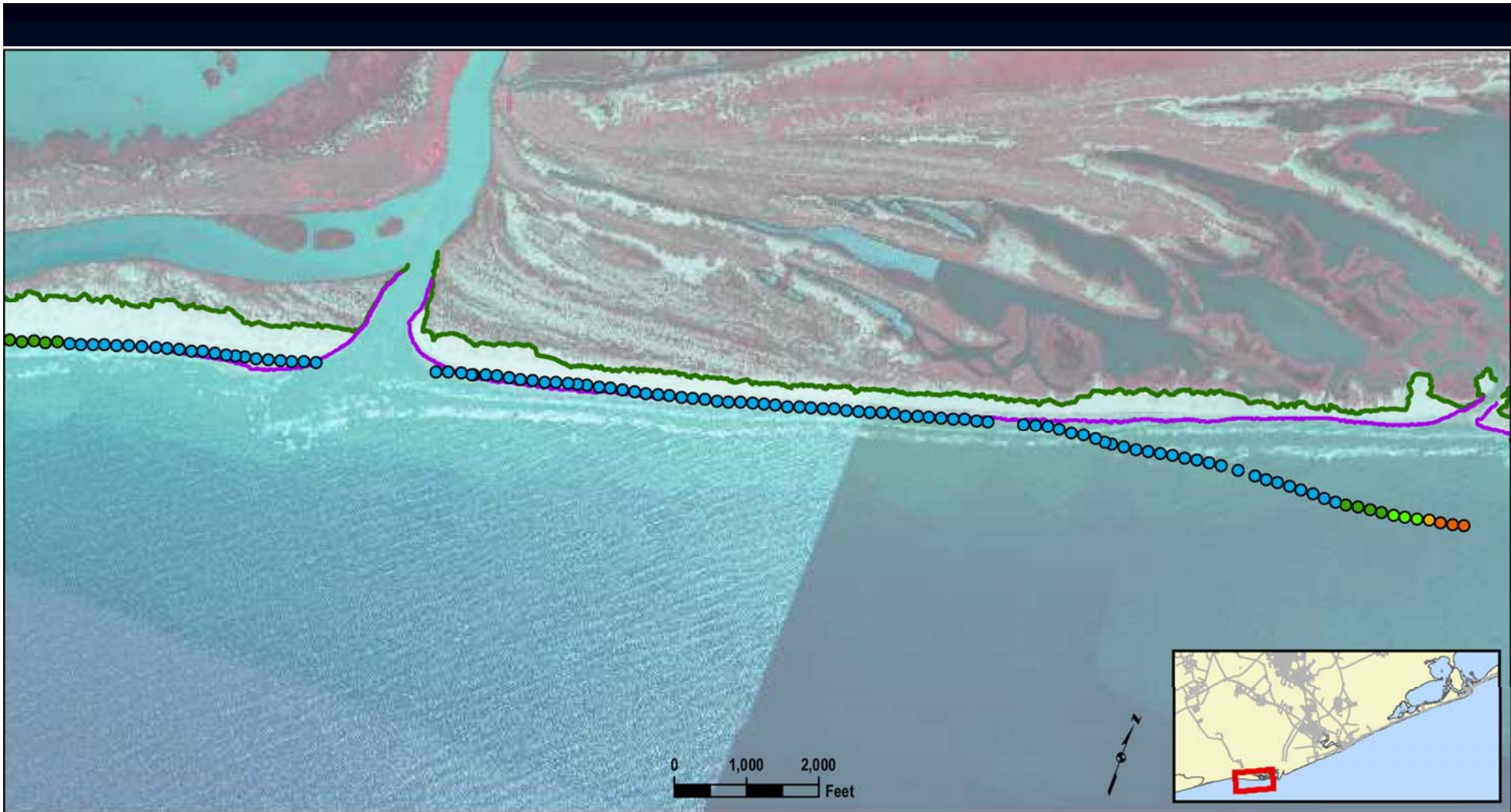
Data Collected

ITEM	SOURCE
2010 Aerial Photograph	GLO & TNRIS Website
BEG Erosion Rates (New Rates Released 4/2011)	BEG
BEACH ACCESS PLANS:	
- Surfside	Brazoria County
- Brazoria County	Brazoria County
- Quintana	Town of Quintana
- Freeport	City of Freeport
DUNE PROTECTION LINE:	
- Surfside	Digitized from Beach Access Plan
- Brazoria County	Digitized from Beach Access Plan
- Quintana	Digitized from Beach Access Plan
- Freeport	Digitized from Beach Access Plan
Line of Vegetation	Digitized from 5/2010 Aerial Photography
FEMA - Base Flood Elevation (BFE)	Michael Baker Jr., Inc. c/o County
Mean Higher High Water (MHHW)	Digitized from 4/1010 Lidar (GLO)
Coastal Boundary Survey	GLO



ERP Base Map

LEGEND	
● -15' to -20'	— MHHW [Elev.+1.90FT NAVD88]
● -10' to -15'	— Line of Vegetation [2010]
● -5' to -10'	— Set-Back Line / Dune Protection Line
● 0 to -5'	— Brazoria County Line
● 0 to +5'	Coordinate System: NAD 1983 UTM Zone 15N
● +5' to +10'	Aerial Photography Shown was acquired on
● +10' +	5/3/2010 by the National Agriculture Imagery
	Program (NAIP)



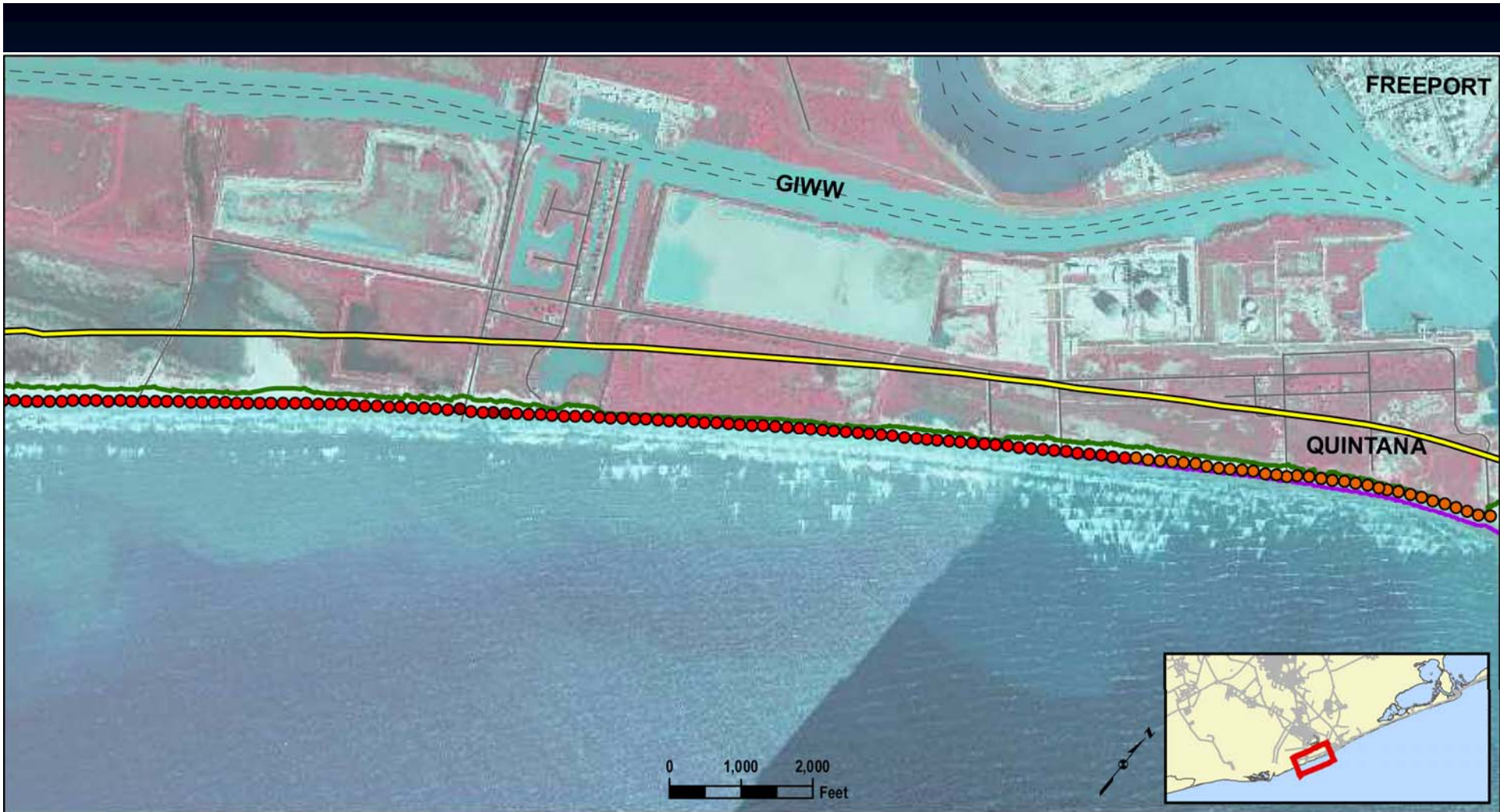
ERP Base Map

LEGEND	
● -15' to -20'	— MHHW [Elev.+1.90FT NAVD88]
● -10' to -15'	— Line of Vegetation [2010]
● -5' to -10'	— Set-Back Line / Dune Protection Line
● 0 to -5'	▬ Brazoria County Line
● 0 to +5'	Coordinate System: NAD 1983 UTM Zone 15N
● +5' to +10'	Aerial Photography Shown was acquired on
● +10' +	5/3/2010 by the National Agriculture Imagery
	Program (NAIP)



ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on
+5' to +10'	5/3/2010 by the National Agriculture Imagery
+10' +	Program (NAIP)



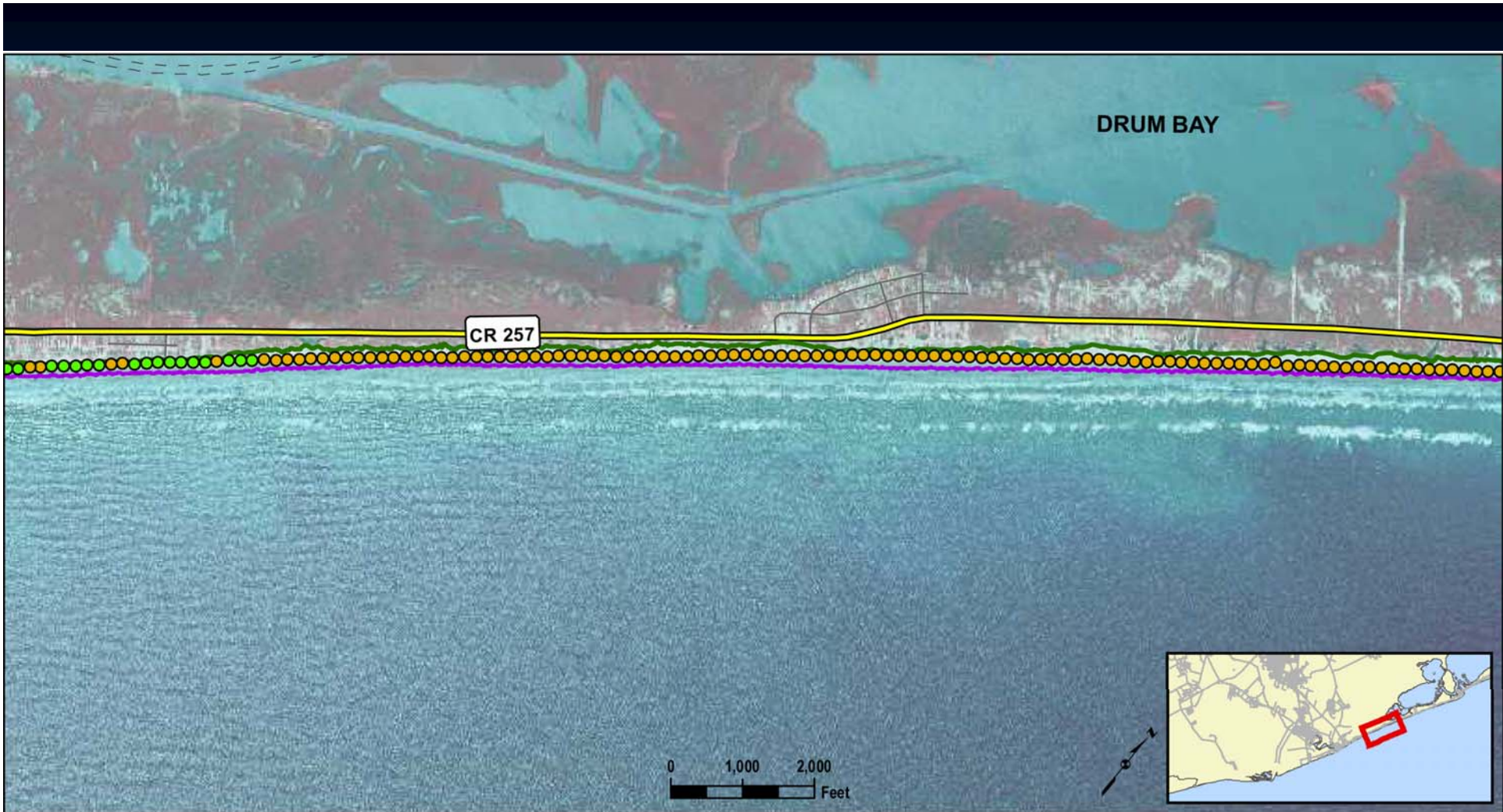
ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on
+5' to +10'	5/3/2010 by the National Agriculture Imagery
+10' +	Program (NAIP)



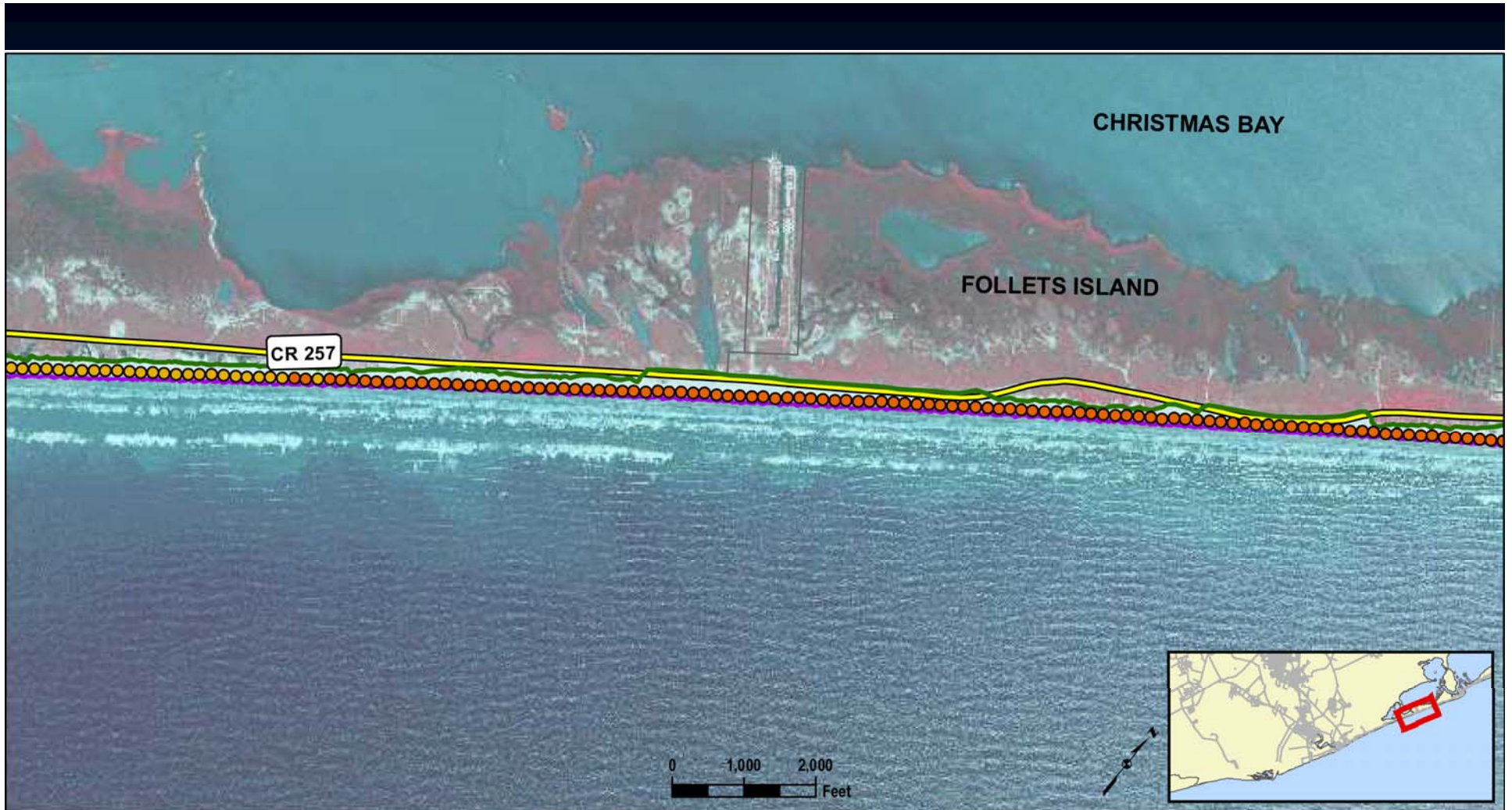
ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)
+5' to +10'	
+10' +	



ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)
+5' to +10'	
+10' +	



ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)
+5' to +10'	
+10' +	



ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on
+5' to +10'	5/3/2010 by the National Agriculture Imagery
+10' +	Program (NAIP)

Establishing the **Set-back Line** (SBL)

◆ **Guidelines:**

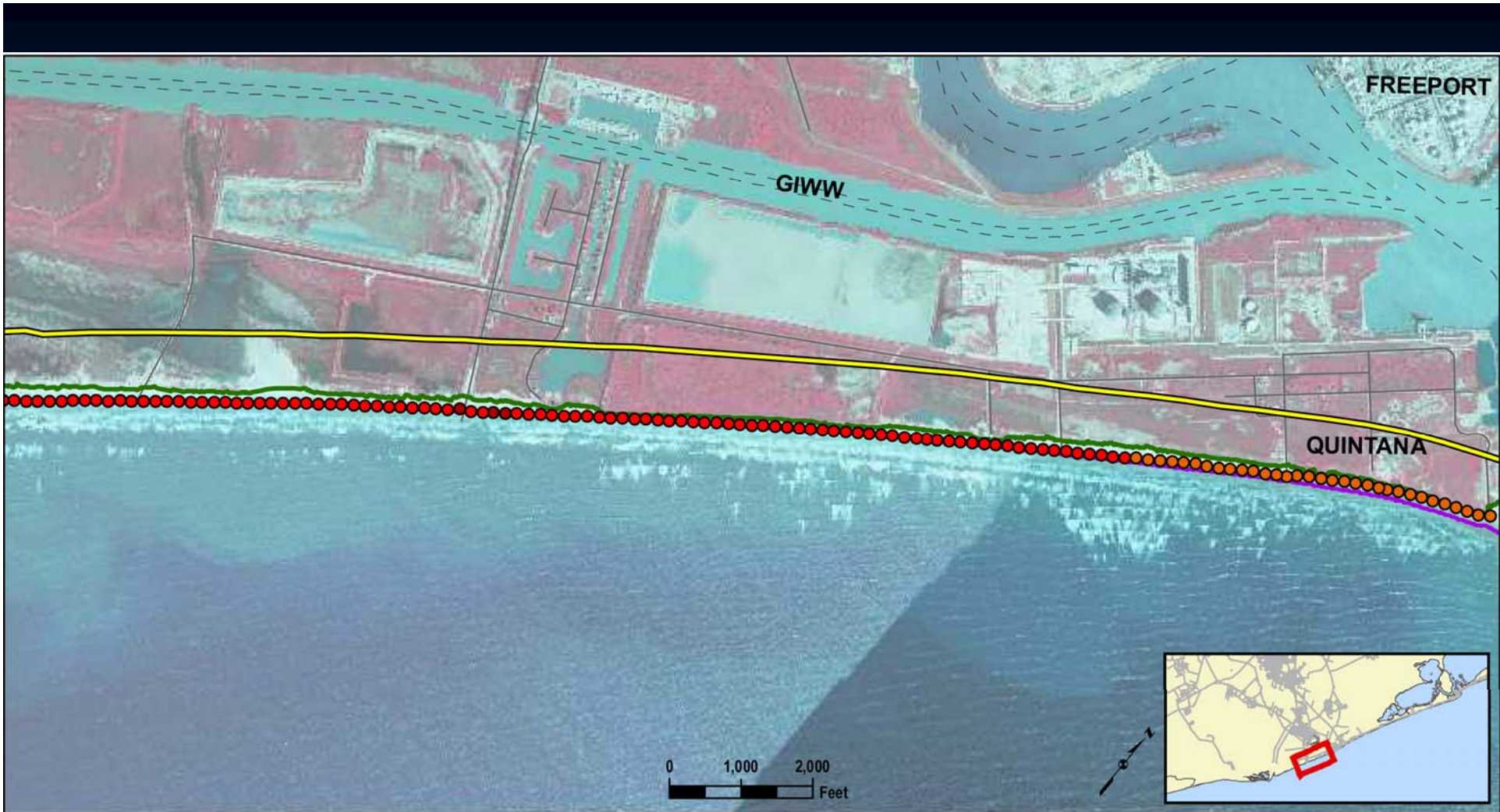
- Accommodate shoreline retreat.
- Seaward of Dune Protection Line.
- Protect as much Critical Dune Area as practicable.

◆ **Criteria Considered:**

- Historical Erosion Rates (provided by BEG 04/2011)
- Reference Points:
 - Line of Vegetation
 - *Delineated from 5/2010 Aerial Photography*
 - Mean Higher High Water (MHHW)
 - *Extracted from 4/2010 Lidar Data*
- Dune Protection Line (established by local governments - current Beach Access Plans)

Prohibitions on New Construction, seaward of SBL:

- ◆ **Minimum criteria required by the TAC:**
 - To the maximum extent practicable new structures should be constructed landward of the SBL.
 - **Exemption Considerations:**
 - Owner demonstrated that no practicable alternatives exist.
 - Properties which construction is permitted under a beach access plan prior to the effective date of the ERP.
 - Structures seaward of the set-back line prior to the effective date of the ERP where the footprint of the structure does not increase. (50% damage exception)



ERP Base Map

LEGEND	
● -15' to -20'	— MHHW [Elev.+1.90FT NAVD88]
● -10' to -15'	— Line of Vegetation [2010]
● -5' to -10'	— Set-Back Line / Dune Protection Line
● 0 to -5'	▬ Brazoria County Line
● 0 to +5'	Coordinate System: NAD 1983 UTM Zone 15N
● +5' to +10'	Aerial Photography Shown was acquired on
● +10' +	5/3/2010 by the National Agriculture Imagery
	Program (NAIP)



ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)
+5' to +10'	
+10' +	



ERP Base Map

LEGEND	
2011 Draft BEG Erosion Rates [FT/YR]	MHHW [Elev.+1.90FT NAVD88]
-15' to -20'	Line of Vegetation [2010]
-10' to -15'	Set-Back Line / Dune Protection Line
-5' to -10'	Brazoria County Line
0 to -5'	Coordinate System: NAD 1983 UTM Zone 15N
0 to +5'	Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)
+5' to +10'	
+10' +	

New Construction for exempt property: Requirements

- ◆ Plans and certifications for the Structure must provide evidence of the following by a registered engineer:
 - A Minimum 2-foot Freeboard above base flood elevation (BFE).
 - No Enclosures below BFE.
 - Design according to Flood Resistant Design and Construction (ASCE 24-05)
 - Feasible Relocation of any habitable structure.
 - Designed to minimize impacts on natural hydrology.
 - Construction should be landward of the landward toe of the foredune ridge where practicable.

Future Work

- ◆ Finalize SBL
- ◆ Finalize criteria for construction seaward of SBL
- ◆ Identify preservation and mitigation components for beach access and critical dunes
- ◆ Present to public
- ◆ Finalize Draft ERP
- ◆ Submit Draft ERP to County for approval
- ◆ Present Draft ERP to the GLO
- ◆ Submit Draft ERP to local communities for approval
- ◆ Finalize ERP
- ◆ Include ERP as an amendment to the local dune protection and beach access plan



Brazoria County Erosion Response Plan



May 24, 2011



**COAST & HARBOR
ENGINEERING**