

Working with Nature to Restore Coastal Terrebonne Parish



National Conference on Ecosystem Restoration

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TPCG Coastal Restoration and Preservation

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13 ft -Max height above sea level


2,100 sq. miles (1M acres)

5 bayou ridges separated by wetlands

92% environmentally sensitive

 Houma Nav. Canal

 GIWW

 Barrier Islands

Terrebonne's "*Lines of Defense*" Strategy to Restore Its Ecosystem Thereby Reducing Vulnerability and Increasing Resiliency:

1. *Barrier Islands*
2. *Coastal Marsh and Bay Rims*
3. *Morganza to Gulf Hurricane/Storm Surge Levee*
4. *Interior Marsh/Wetlands*
5. *Redundant Flood Risk Reduction Levees/Pumps*
6. *Structure Elevations*

Terrebonne's "*Lines of Defense*" Strategy to Restore Its Ecosystem Thereby Reducing Vulnerability and Increasing Resiliency

1. *Barrier Island Restoration:*

- a. A critical line between the coast and the Gulf.*
- b. Help to maintain the estuarine gradient important to marine fisheries habitat; controlling salinities in coastal marshes*
- c. No longer built and nourished naturally; must be maintained by man.*
- d. Sand pumped from Ship Shoal (Whiskey Island)*
- e. Segmented rock barriers (Raccoon Island)*
- f. Back island marsh restoration; vegetative plantings; sand fencing*







Raccoon Island



Terrebonne's "*Lines of Defense*" Strategy to Restore Its Ecosystem Thereby Reducing Vulnerability and Increasing Resiliency

2. *Coastal Marsh and Bay Rim Restoration:*

- a. *Most challenging; great deal of open water.*
- b. *Efforts to protect shorelines underway*
- c. *Eastern Terrebonne Parish is critical, but efforts to date not promising (poor soil conditions); CWPPRA model may not be best approach.*







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3. *Morganza to the Gulf Hurricane Protection Levee System ("spine"):*

- a. *Complex system: a 98-mile levee, 13 flood gates, 2 roller gates (over state highways), 3 locks (in E&D), 10 water control structures, and a diversion channel (in E&D)*
- b. *Authorized by WRDA years ago, but no federal \$; all local and state*
- c. *Goals: storm surge protection AND reduction of saltwater intrusion; diversion of freshwater; facilitating marine traffic/commerce (locks)*
- d. *Designed to be "leaky;" normal tidal exchange, but can be closed to keep salt water out.*
- e. *This feature, along with freshwater inputs, is causing reestablishment of freshwater vegetation in areas previously more brackish.*

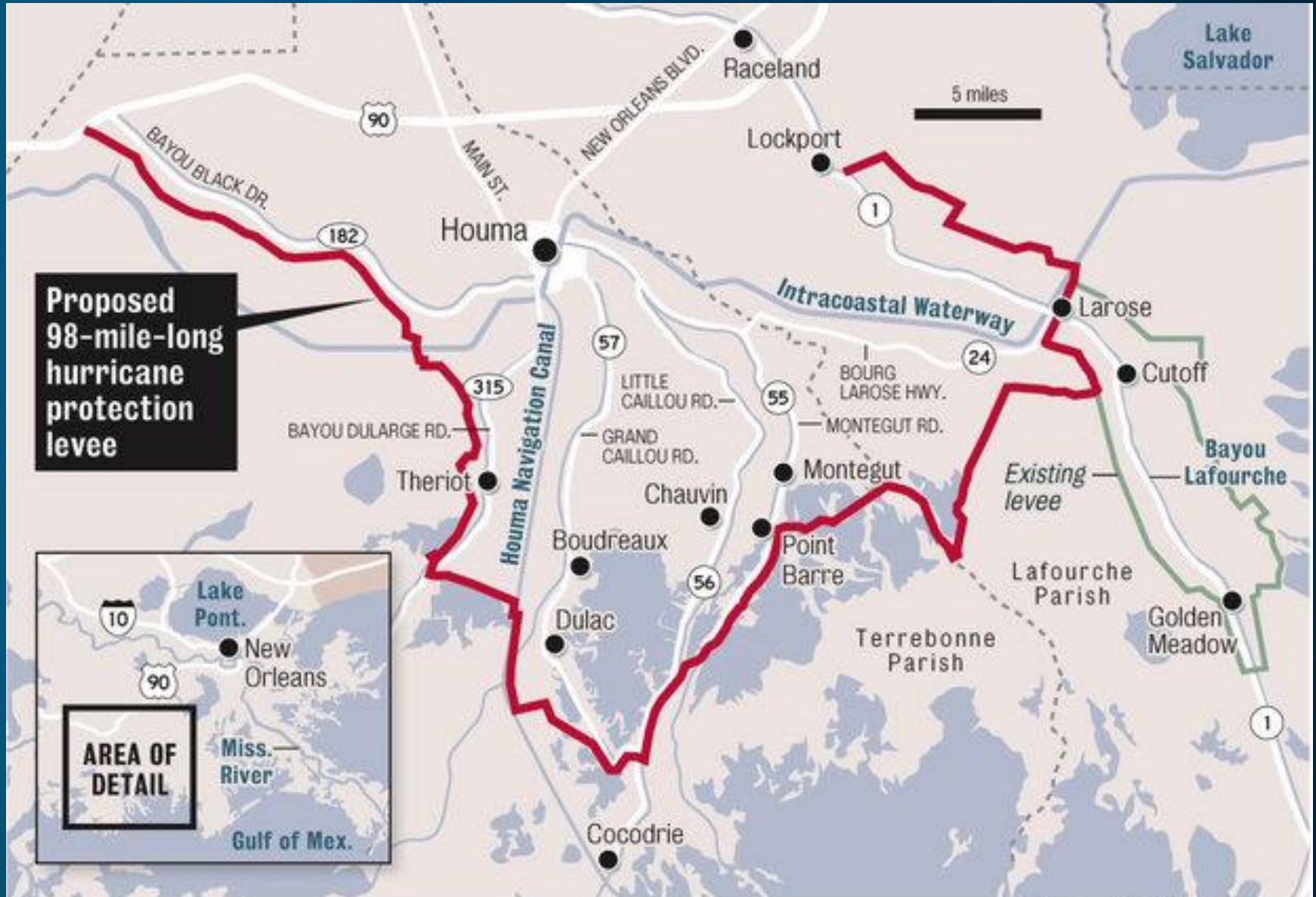
2007 PAC WMA (Before)



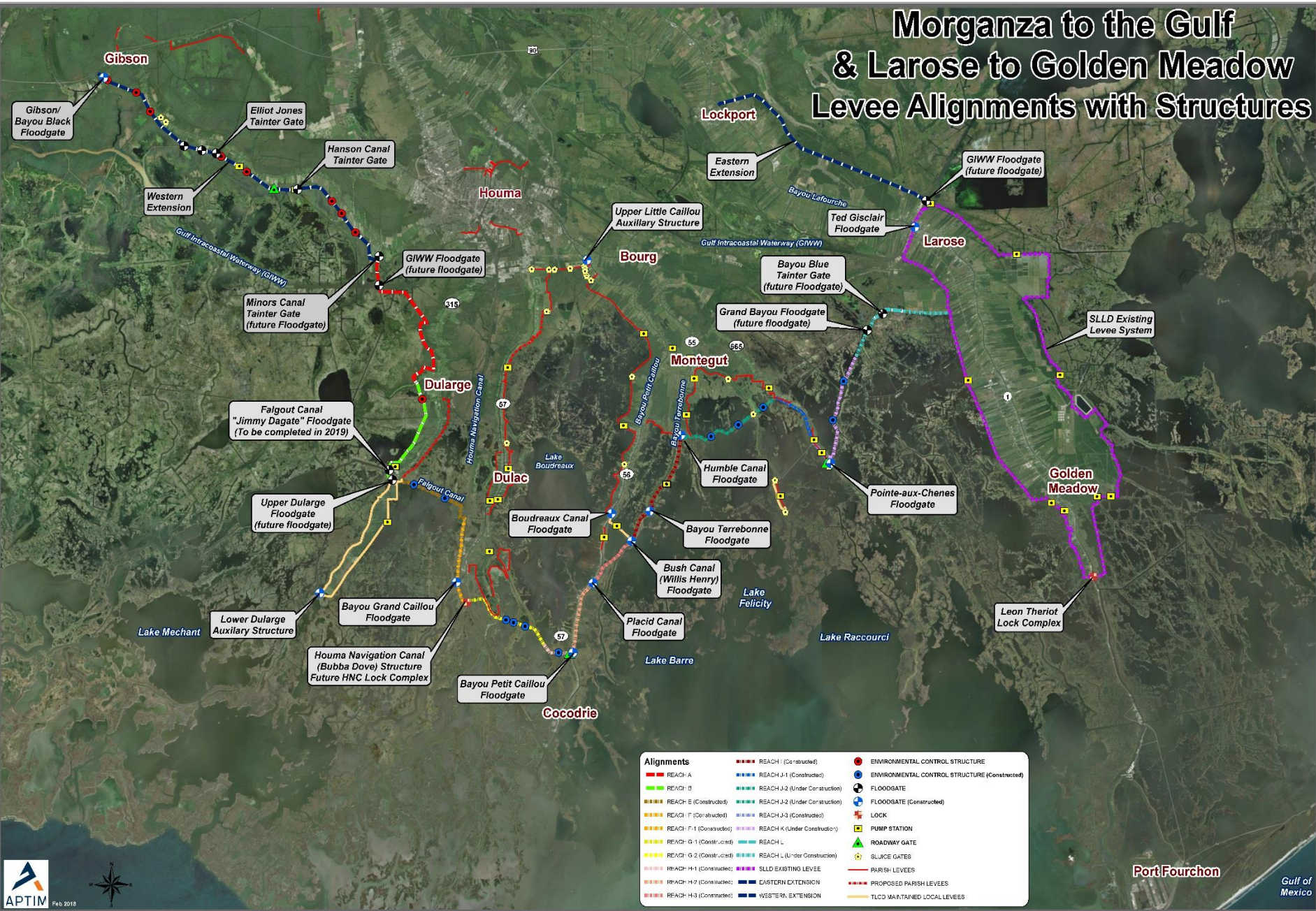
2016 PAC WMA (After)



Morganza to the Gulf Levee System



Morganza to the Gulf & Larose to Golden Meadow Levee Alignments with Structures



Alignments		ENVIRONMENTAL CONTROL STRUCTURE	
REACH-A	REACH-I (Constructed)	ENVIRONMENTAL CONTROL STRUCTURE (Constructed)	FLOODGATE
REACH-B	REACH-J-1 (Constructed)	FLOODGATE (Constructed)	LOCK
REACH-C	REACH-J-2 (Under Construction)	PUMP STATION	ROADWAY GATE
REACH-D	REACH-J-2 (Under Construction)	SLUICE GATES	PARISH LEVEES
REACH-E	REACH-J-3 (Constructed)	SLUICE GATES	PROPOSED PARISH LEVEES
REACH-F	REACH-K (Under Construction)	SLUICE GATES	TLCD MAINTAINED LOCAL LEVEES
REACH-G-1	REACH-L		
REACH-G-2	REACH-L (Under Construction)		
REACH-H-1	REACH-L (Under Construction)		
REACH-H-2	WESTERN EXTENSION		
REACH-H-3	EASTERN EXTENSION		

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4. *Interior Marsh Restoration/Creation:*

- a. *Most through CWPPRA projects.*
- b. *Many involve hydrologic restoration and/or ridge restoration*
- c. *Typical: TE -72, Lost Lake Marsh Creation and Hydrologic Restoration*





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5. Redundant Flood Risk Reduction Levees with Pump Stations:

- a. Many of these systems protecting communities and neighborhoods around Terrebonne.*
- b. Freshwater pumped out of these systems benefits interior marshes*

6. Structure Elevations

- \$82M in federal funds committed
- Over 1,000 Units Elevated
- Funded by individuals and insurance as well



- May help to reduce flood velocities



Terrebonne's "*Lines of Defense*" Strategy to Restore Its Ecosystem Thereby Reducing Vulnerability and Increasing Resiliency

Takeaways:

- 1. No one component of our "Lines of Defense" strategy is sufficient to reduce vulnerability, increase resiliency or restore our coastal ecosystem;
ALL components are vital.*
- 2. These components, except Structure Elevations, work synergistically to strengthen our coastal wetland ecosystem with freshwater and sediment inputs, or by restricting saltwater intrusion.*
- 3. Terrebonne was built with freshwater and sediment from the Mississippi River; we are trying to use these same elements (from other sources) to rebuild it.*

Questions?

- Terrebonne Parish Department of Coastal Restoration and Preservation

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