

# Greater New Orleans Hurricane & Storm Damage Risk Reduction System

New Orleans City Council  
Recovery Committee

Col. Robert A. Sinkler, Commander  
Hurricane Protection Office

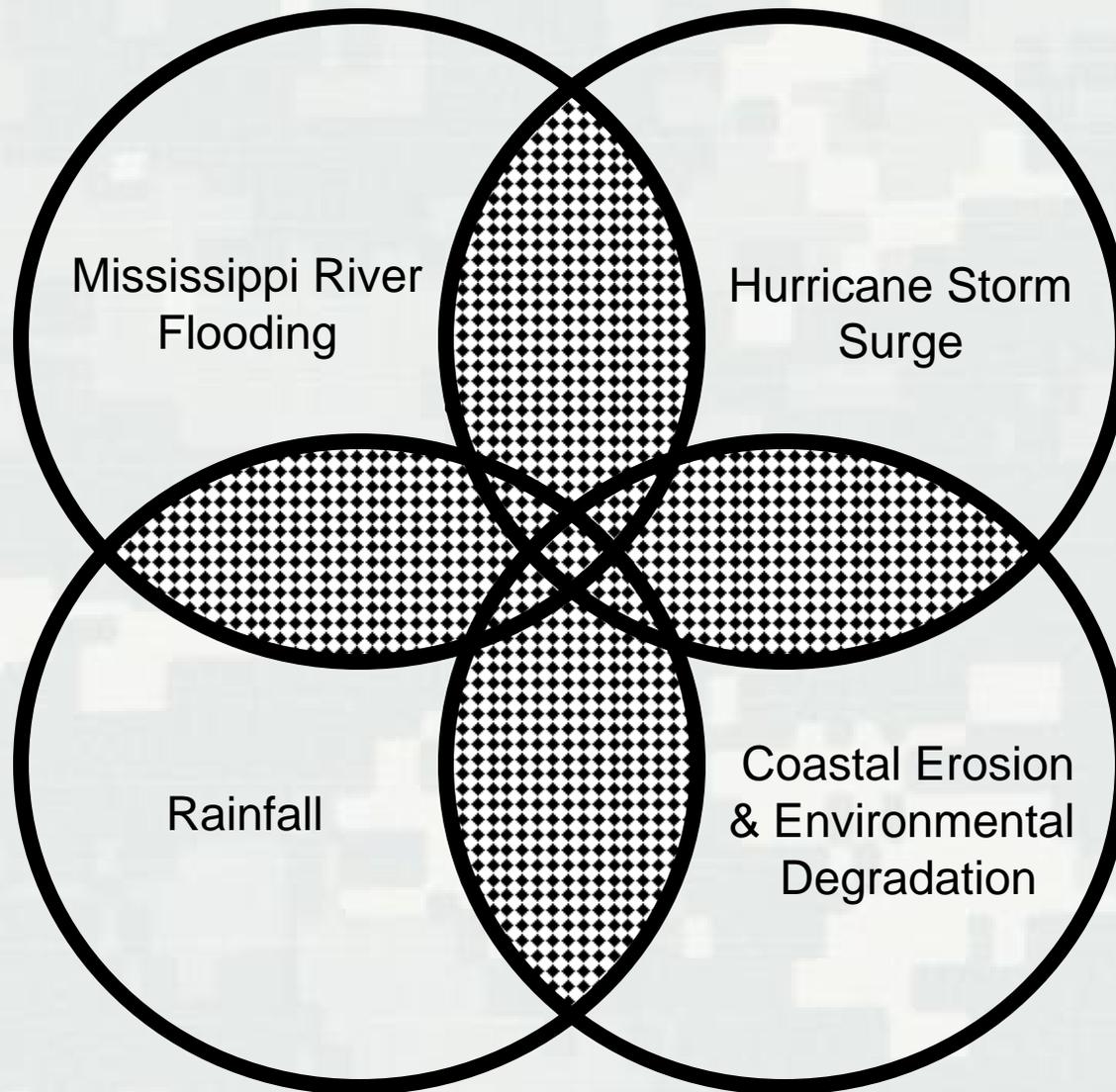


US Army Corps of Engineers  
**BUILDING STRONG**



# The Four Major New Orleans Flood Risks

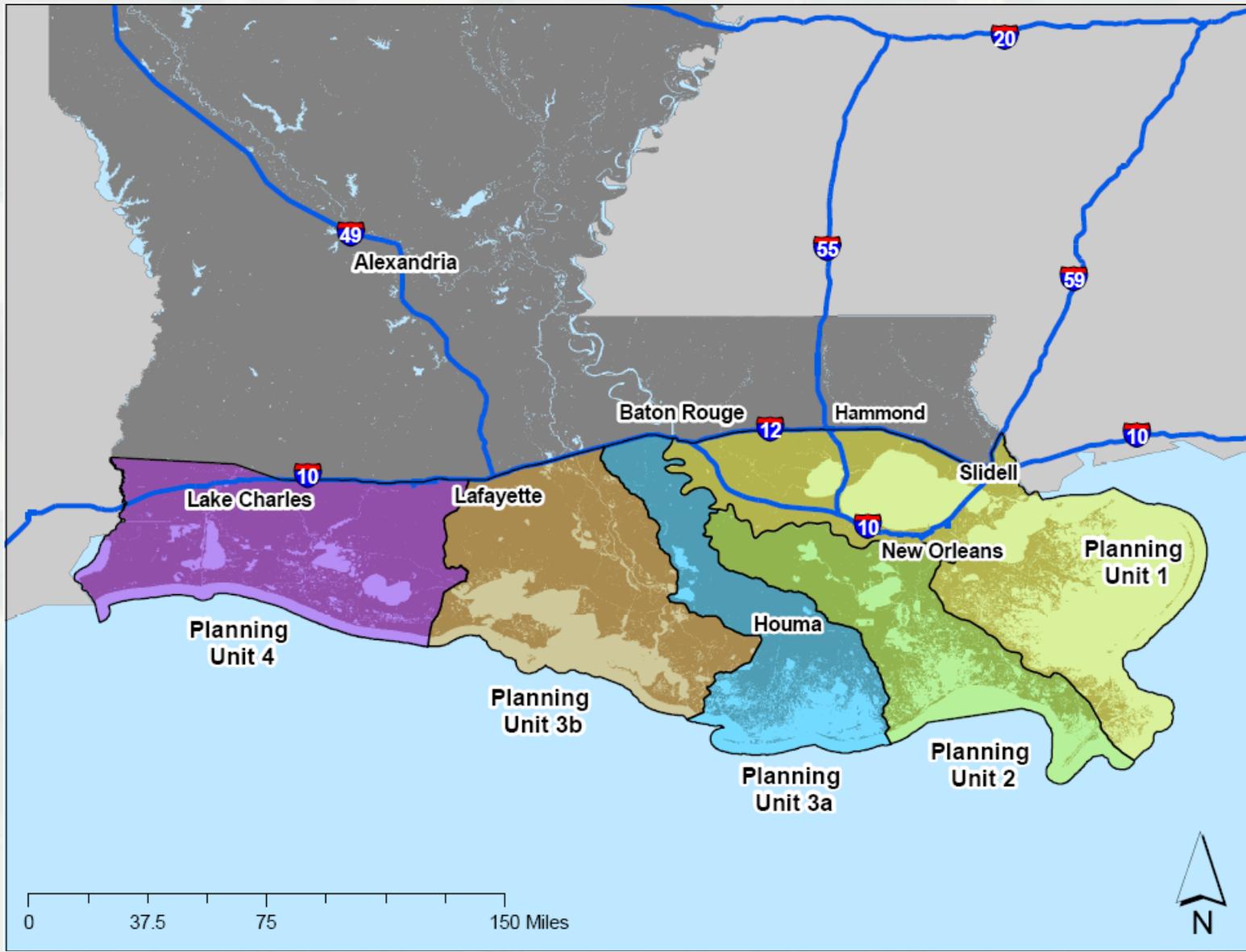
*Separate, but overlapping or related interagency systems or programs to address each!*



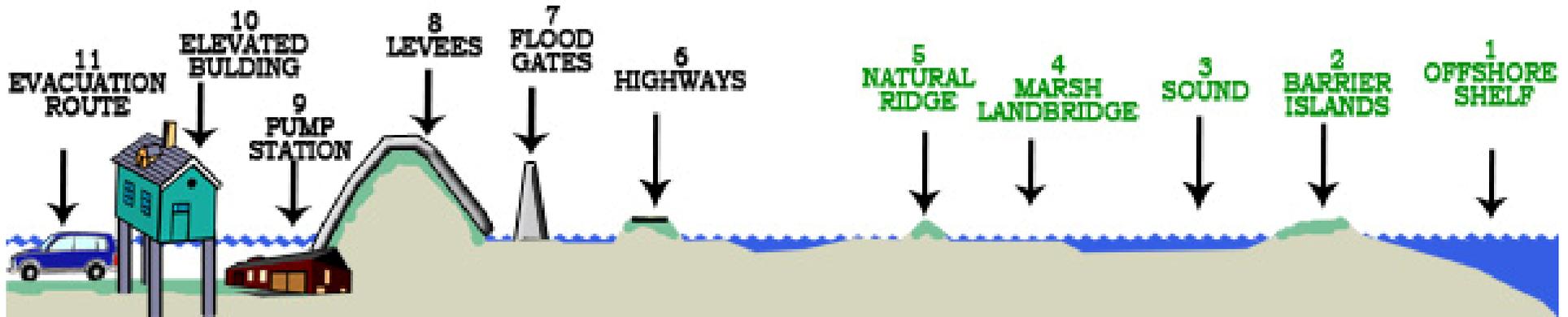
*Working  
Draft*



# Coastal Zone IWRM



# Multiple Lines of Defense



(Graphic from [www.mfods.org](http://www.mfods.org))

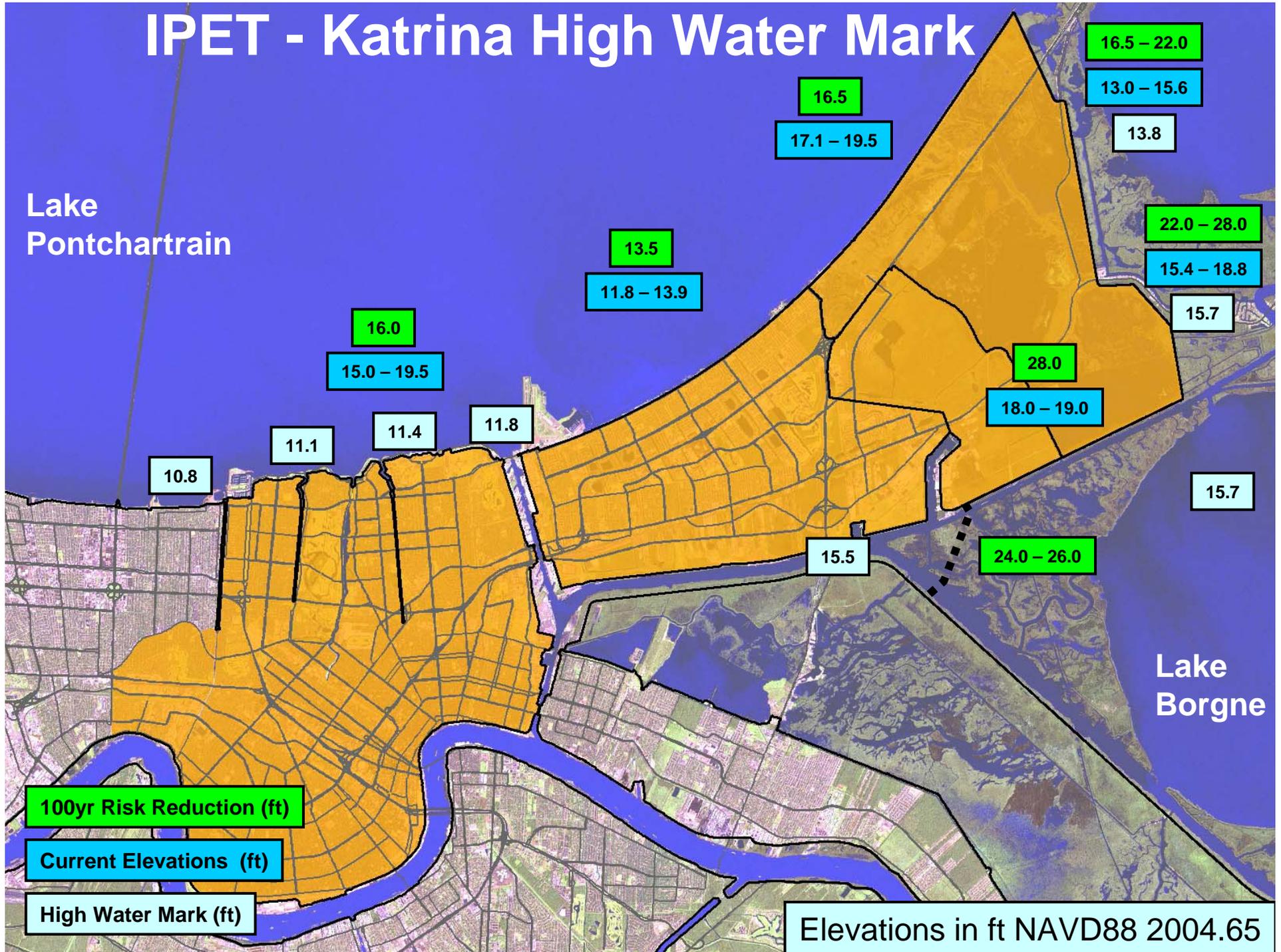
## *Elements include:*

- Coastal restoration/protection
- Structural measures
- Non-structural features



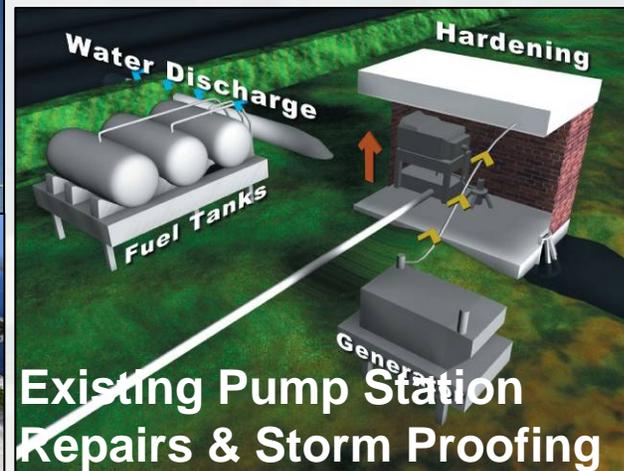
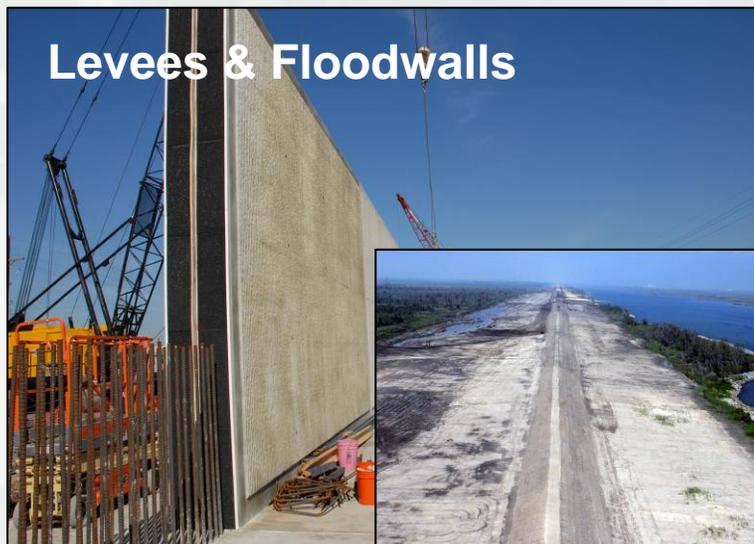


# IPET - Katrina High Water Mark



# Hurricane Protection Office Mission

Execute the fully authorized / appropriated HSDRRS program / projects in order to provide 100-year level of risk reduction by 2011. Complete Permanent Pumps / Plaquemines Parish / Grand Isle Flood Risk Management projects on a parallel / complementary timeline.



# 100-yr Contracts (East Bank)

Projected Beyond 1 June 2011

## Orleans Parish

## 100-yr Date

LPV-111.01 New Orleans East Back Levee - CSX RR to Michoud Canal

17-Aug-11

## St. Bernard Parish

LPV-146 Chalmette Loop Levee - Bayou Dupre to Hwy 46

16-Jun-11

LPV-144 Chalmette Loop Levee - Bayou Dupre Floodgate

5-Aug-11

LPV-148.02 Chalmette Loop Levee Hwy 46 to River (Verret to Caernarvon)

7-Jan-12

## Jefferson Parish

LPV-17.2 Bridge abutment and Floodwall Tie-ins Causeway Bridge -Phase 2

23-Aug-11

LPV-03.2B West Return Floodwall (Northern Segment) -Phase 2

26-Aug-11

LPV-03.2A West Return Floodwall (Southern Segment) - Phase 2

29-Aug-11

## Plaquemines Parish

LPV-149 Chalmette Loop Levee - Verret to Caernarvon Structures

11-Jul-11

as of 23 Nov 09

Awarded contracts are bold / underline



# Protests on 100-yr Contracts

## Orleans Parish

Borrow Supply – Protest decision rendered in favor of Corps on 23 Nov.

*\*Contract awarded on 4 Dec.*

Proposed Seabrook Floodgate Complex – Protest filed on 16 Nov.

*\*Will be resolved within 100 days from date of file*

## St. Bernard Parish

LPV 148.02 Verret to Caernarvon Phase II – Protest dismissed on 29 Oct.

*\*Contract has been readvertised and will be awarded in early 2010*

## Jefferson Parish

Fronting Protection, Pumping Stations 1 thru 4 – Protest filed on 18 Nov.

*\*Will be resolved within 100 days from date of file*



# Outfall Canal Pumps & Gates

*Currently provide temporary 100-year level of risk reduction*

**17<sup>th</sup> St. Canal**



**Orleans Ave. Canal**



**London Ave. Canal**



- **Pumping Capacity:  
9,200 cfs**

- 18 hydraulic pumps fully installed and tested
- 11 direct drive pumps fully installed and tested
- 14 portable pumps
- Operated during Hurricanes Gustav & Ike

- **Pumping Capacity:  
2,200 cfs**

- 10 hydraulic pumps fully installed and tested

- **Pumping Capacity:  
5,200 cfs**

- 12 hydraulic pumps fully installed and tested
- 8 direct drive pumps fully installed and tested
- Operated during: Hurricanes Gustav & Ike, Tropical Storm Ida, Rainfall event



# Congressional Authority

## 4th Supplemental

*In June 2006, Congress passed Public Law 109-234 giving the Corps **authorization** and **appropriations** to design and construct **Permanent Pumps** for the outfall canals – specifically, to “...modify the 17th Street, Orleans Avenue, and London Avenue drainage canals and install pumps and closure structures at or near the lakefront...”*



# Operable System Features of the Authorized Permanent Pump Stations

- Pump Station Substructure Intake Sill Elevation Adaptable to a Deepened Canal and Lower Water Surface Elevation
- Pump Station Substructure Designed for a Deepened Canal & Lower Water Surface Elevation Without Need for Removal
- Pump Station Superstructure Designed to Accommodate Larger Engines & Gear Boxes
- General Site Development, Access and Pump Station Foot Print sized for future upgrades
- Channel Transition Adaptable to Deepened Canals & Lower Water Surface Elevation
- Expandable Generating Station
- Bridge Crane Rails and Supports (will be estimated based on requirements of increased driver sizes necessary for deepened canals and lower water surface elevation)



# Construction Activities and Diversion

## Authorized adaptable Permanent Pump Station

- Build Pump Station
- Remove ICS

*Currently authorized  
and funded by  
Congress.*

## Possible Future Deepened Canals and Lower Water Surface Elevation with Diversion

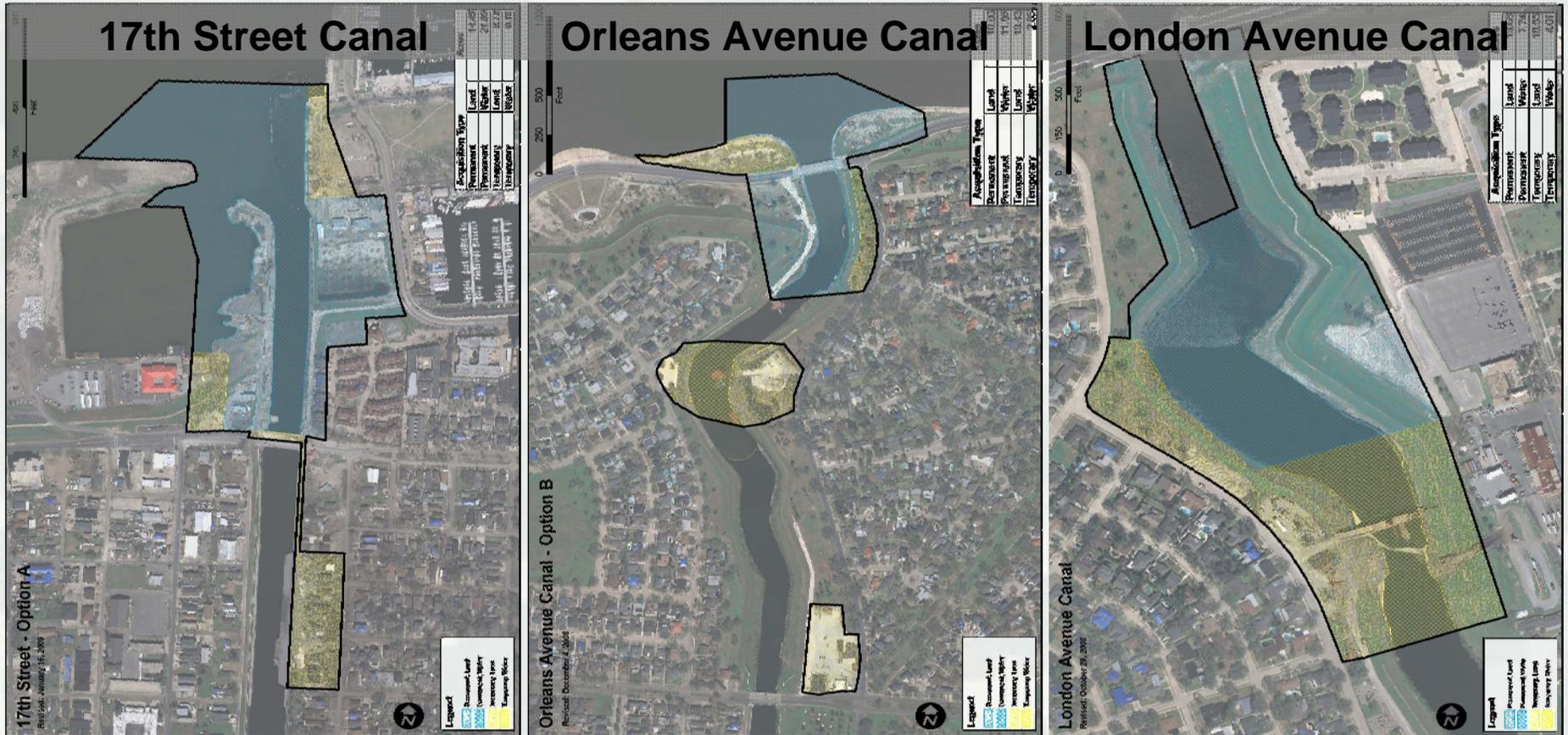
- Deepen Canals
- Bypass Drainage Pump Stations
- Pump Stations Adaptation
- Construct Diversion & Pump Station (Hoey's Basin)\*
- Floodwall and Levee Removal Along Outfall Canals

***Not authorized  
or funded by  
Congress.***

\* Current construction plans would also allow adding an interior pumping station to intercept and divert Jefferson Parish rain water from the 17<sup>th</sup> Street Canal and pump it into the Mississippi River, if that were later authorized and funded.



# Permanent Canal Closures & Pumps



The proposed site locations shown indicate a **maximum footprint** with the intent to minimize the footprint during construction.

Project Cost - \$804 M



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# Outfall Canals



## ***17<sup>th</sup> St. Canal***

- **Current Safe Water Elevation 6**
- \$25 M Floodwall Repairs
- Additional Remediation
- Safe Water Elevation Report spring 2010

## ***Orleans Ave. Canal***

- **Current Safe Water Elevation 8**
- Additional Remediation
- Safe Water Elevation Report spring 2010

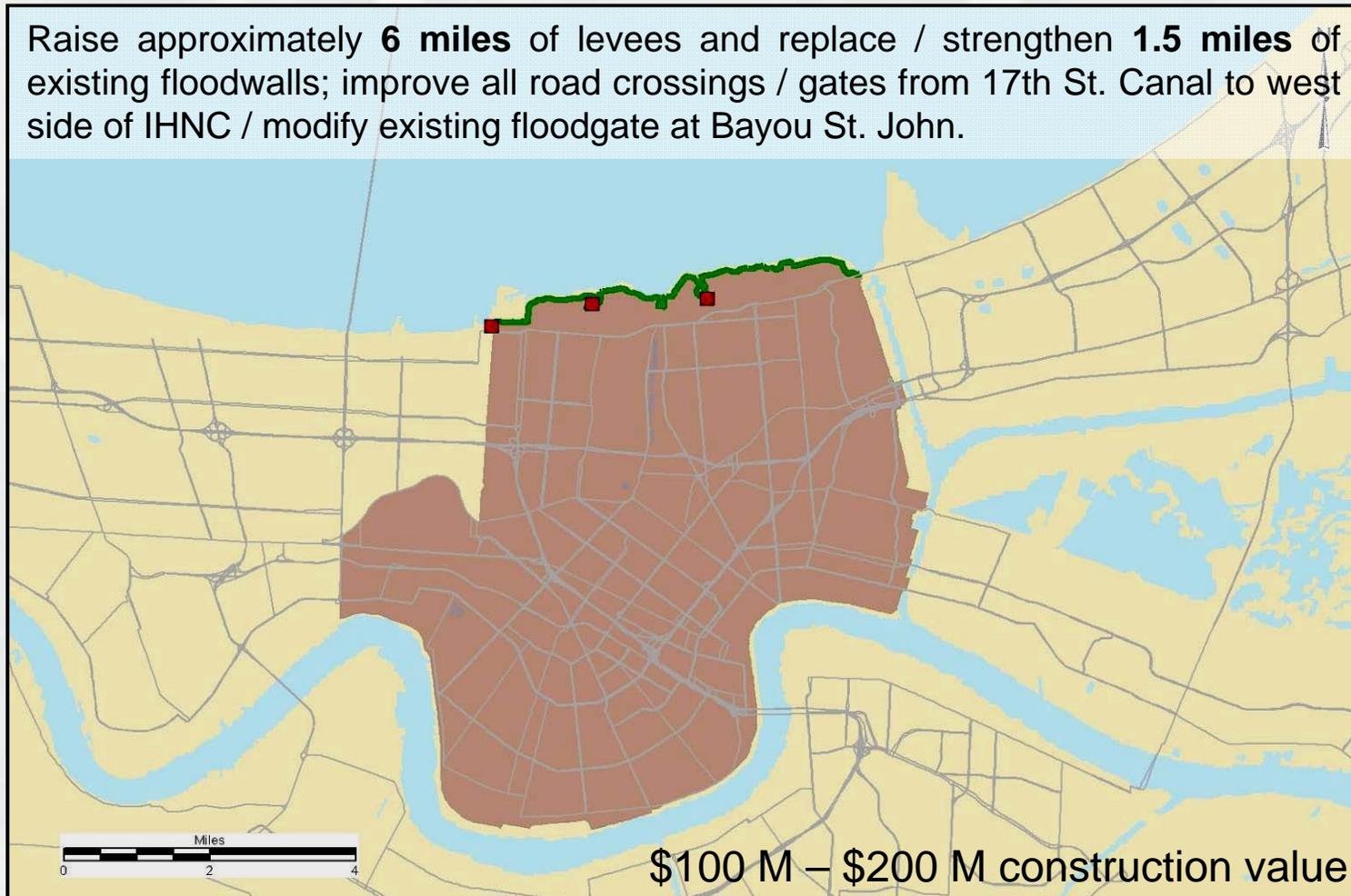
## ***London Ave. Canal***

- **Current Safe Water Elevation 5**
- \$33 M Floodwall Repairs
- Additional Remediation
- Safe Water Elevation Report spring 2010



# Orleans Metro Phase II – 4 of 5 contracts awarded

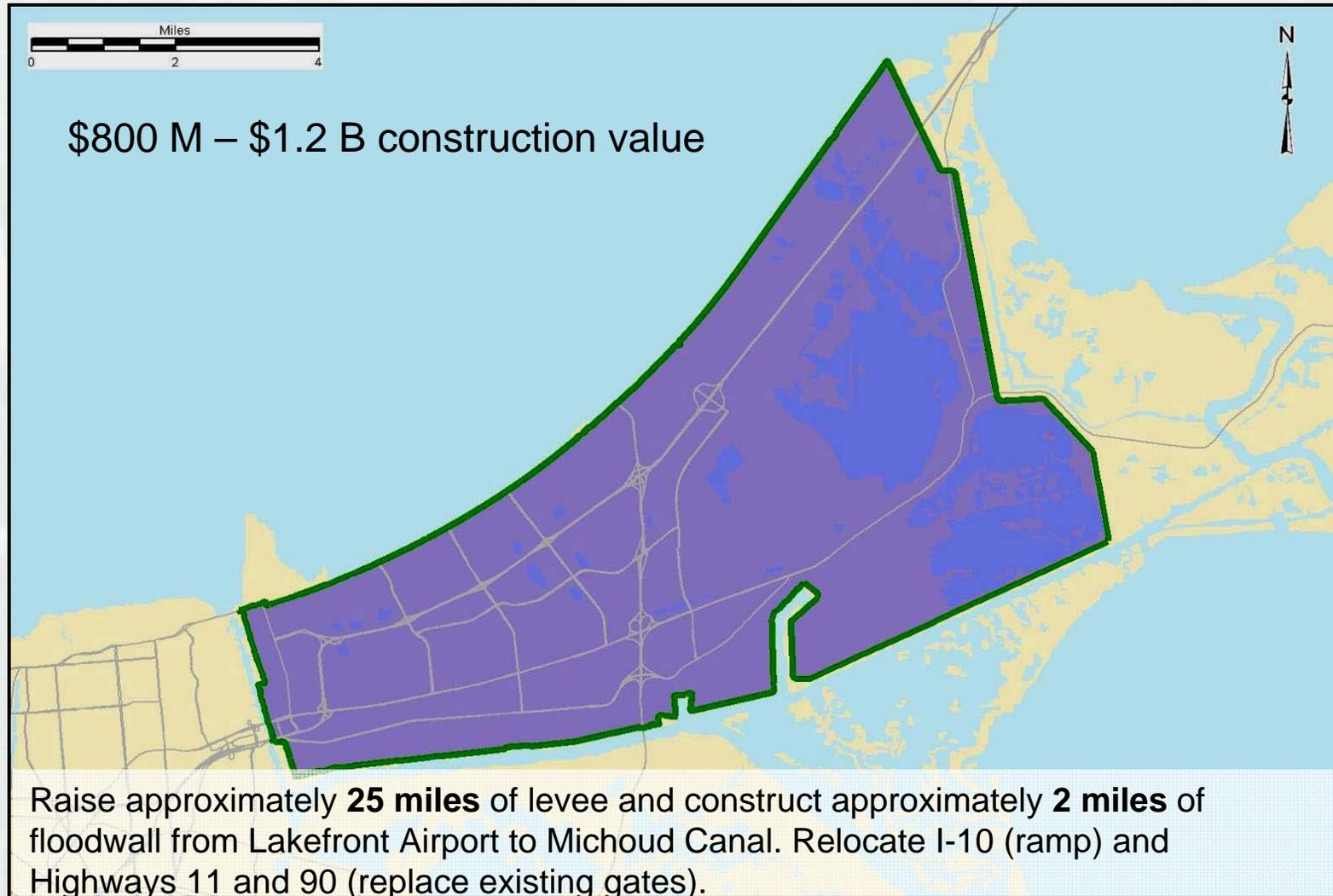
Raise approximately **6 miles** of levees and replace / strengthen **1.5 miles** of existing floodwalls; improve all road crossings / gates from 17th St. Canal to west side of IHNC / modify existing floodgate at Bayou St. John.



Phase 1 Construction - *100% complete*  
100-year level of risk reduction - *More than 90% complete*

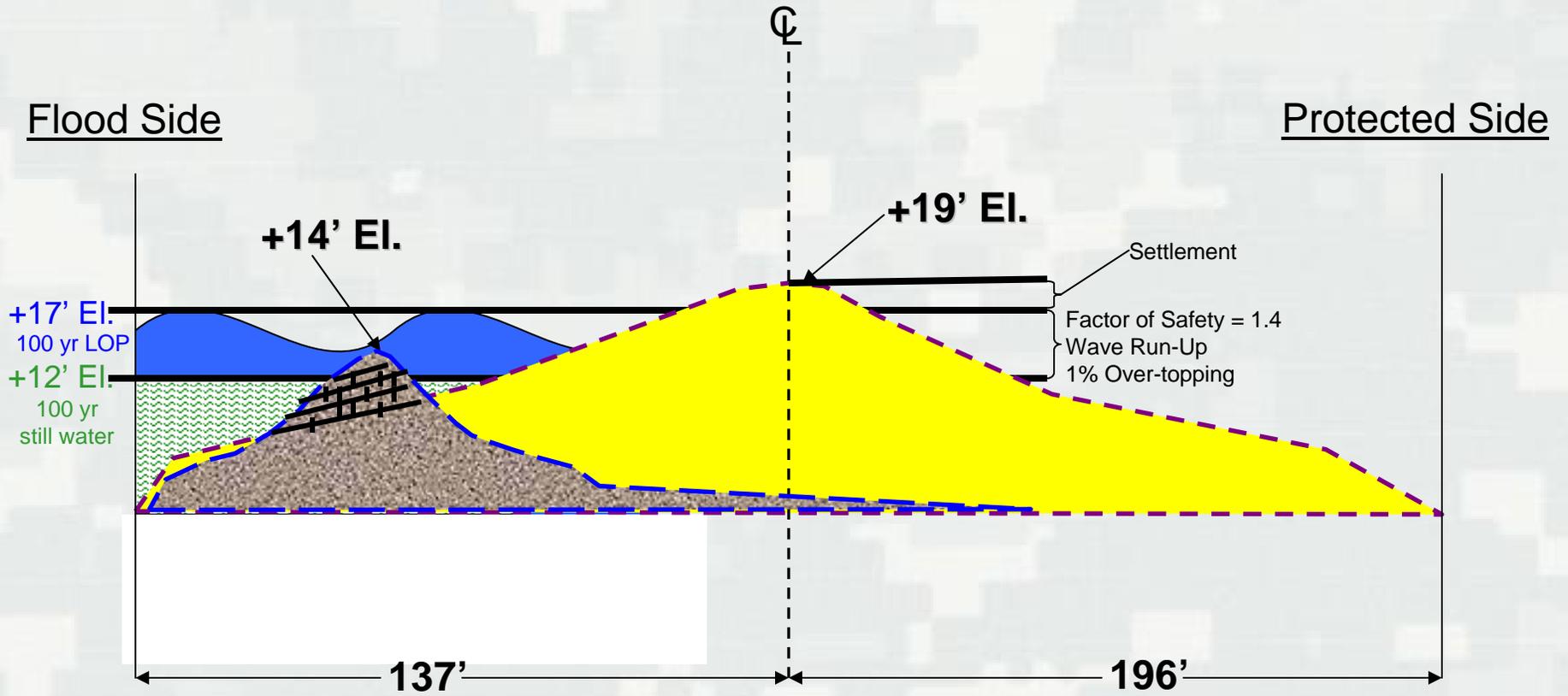


# New Orleans East – 5 of 12 contracts awarded



# LPV 109.02a

(not to scale)



**Levee Enlargement  
Between I-10 and US-90  
New Orleans East**



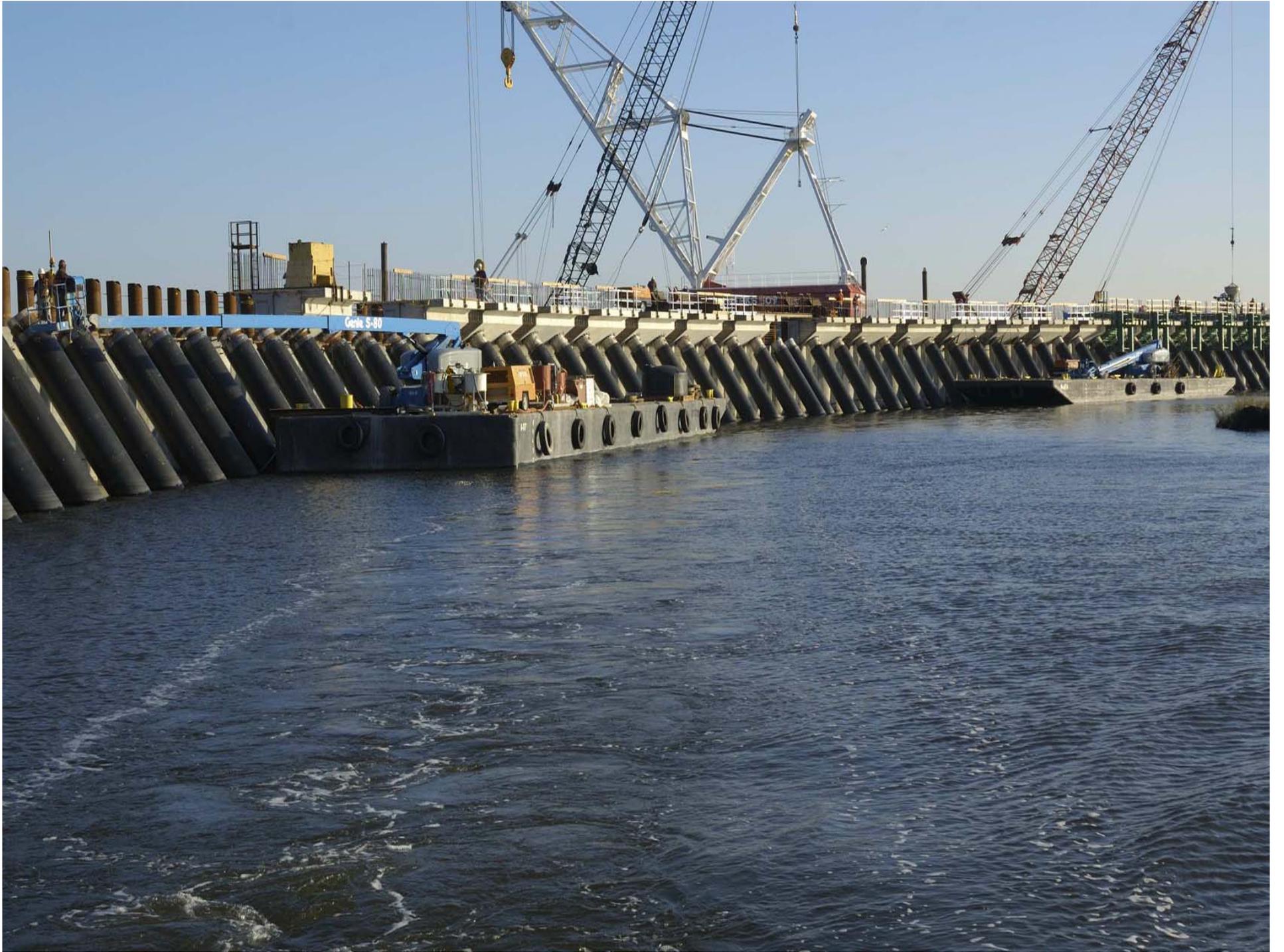
# Inner Harbor Navigation Canal

## *Lake Borgne Surge Barrier*



- **MRGO fill operation complete;**
- Completed driving 1,271 66-inch spun cast piles on 21 Oct;
- Pile driving for closure piles, batter piles, and foundation piles are exceeding expected driving rates, all **working 24/7**;
- Cap placement and casting the parapet wall is under way;
- The cofferdam at the GIWW Bypass Gate and the un-watering is complete. The tremie slab is being chipped smooth and the sill formwork operation has started.

















# Inner Harbor Navigation Canal

## *Lake Pontchartrain (Seabrook) Surge Barrier*

30 Oct 09	Awarded ECI contract – Preconstruction Services Only
9 Nov 09	CZM Consistency Determination Completed
8 Dec 09	IER 11b Seabrook out for Public Review until 6 Jan 10
15 Jan 10	NEPA Compliance IER 11b Seabrook
30 Jan 10	Right of Entry Obtained
1 Feb 10	Exercise Construction Option
1 Jun 11	100-year Level Attained



**Conceptual**





# Orleans Parish Pump Station Repairs / Stormproofing



Motor at Orleans Drive Pump Station

## Repair \$32.5 M Program

12 Construction Projects

11 Complete, 1 in Construction

- Elaine Pump Station
- *Scheduled completion  
Jul. 2010*

## Stormproofing \$204 M Program

Anticipate awarding 18 individual construction projects



# Real Estate Status

## Issues Outstanding for City of New Orleans

### Project

### Authorization for Entry

LPV 103.01a2

LPV 104.02

LPV 105.01

LPV 105.02

LPV 107

LPV 111.01

Lake Terrace & Rail Sts  
Leon Simon Right of Way

Right of Entry

Right of Entry

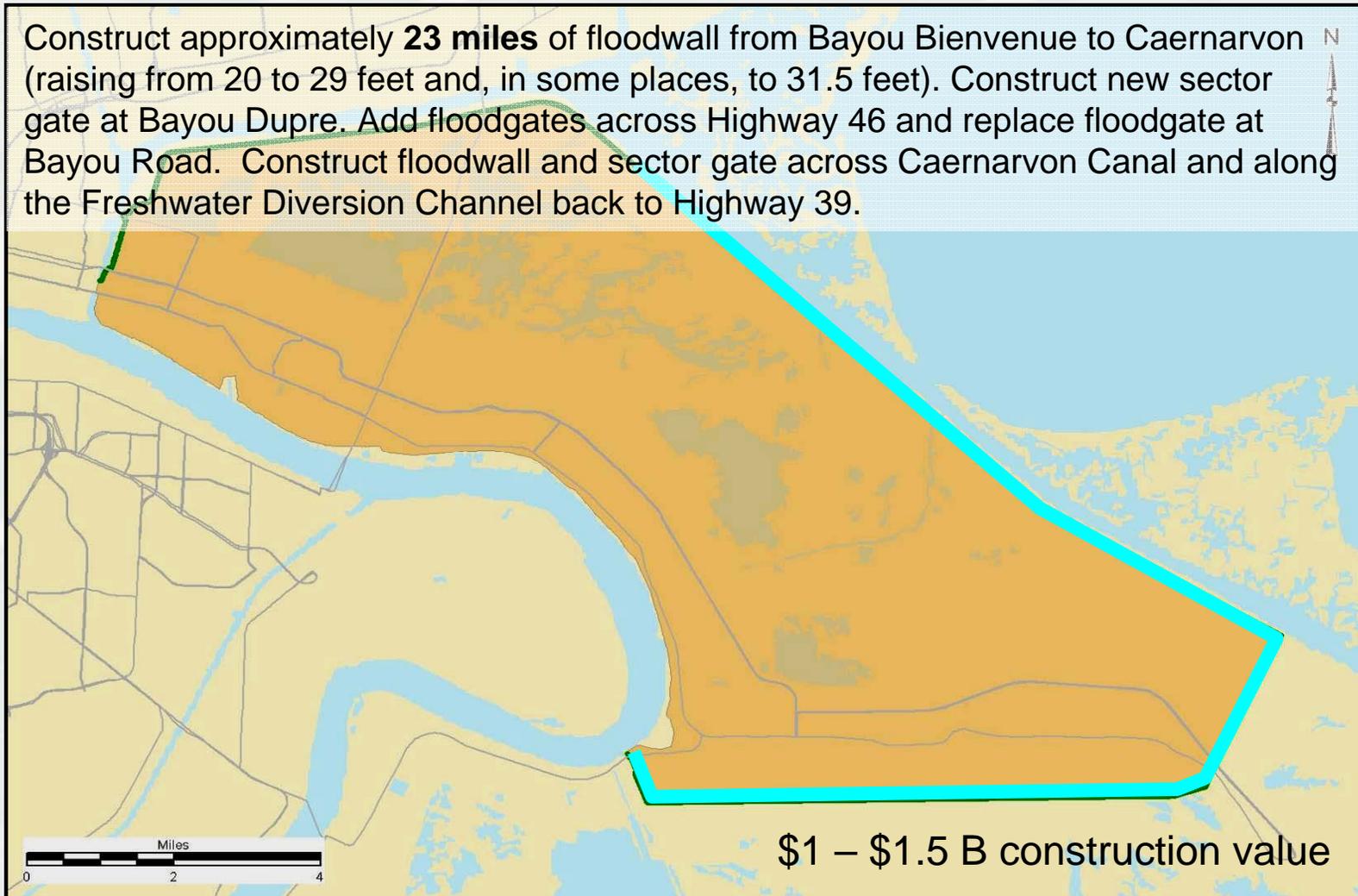
Right of Entry

Right of Entry



# St. Bernard Parish – 4 of 7 contracts awarded

Construct approximately **23 miles** of floodwall from Bayou Bienvenue to Caernarvon (raising from 20 to 29 feet and, in some places, to 31.5 feet). Construct new sector gate at Bayou Dupre. Add floodgates across Highway 46 and replace floodgate at Bayou Road. Construct floodwall and sector gate across Caernarvon Canal and along the Freshwater Diversion Channel back to Highway 39.



# Upcoming Public Meetings

*Open House 6 p.m. - Presentation 6:30 p.m.*

**Thursday, Dec. 10, 2009**

**IER 9 Caernarvon Floodwall Public Meeting (St. Bernard)**

Lynn Oaks School  
1 Lynn Oaks Dr.  
Braithwaite, LA

**Thursday, Jan. 21, 2009**

**Permanent Canal Closures & Pumps Public Meeting**

Holy Trinity Greek Orthodox Cathedral  
1200 Robert E. Lee Blvd.  
New Orleans, LA 70122

**New Orleans East Construction Update**

During week of Jan. 25  
Date / Location TBD



# Web-based Resources

<http://www.mvn.usace.army.mil/hps>

**US Army Corps of Engineers**  
Team New Orleans

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Team New Orleans Home | Risk Reduction | Index

**Hurricane & Storm Damage Risk Reduction**

**Hurricane & Storm Damage Risk Reduction System (HSDRRS)**

**Interactive Project & Contract Location Map**  
Get real-time information on U.S. Army Corps of Engineers projects and their corresponding contracts for the entire New Orleans area including contract types, construction stage, cost estimates and more.

[Launch Map](#)

**Emergency Info**  
Storm tracking, road closures, evacuation routes, river levels, recovery resources and much more ...  
[Be Prepared >>](#)

**Task Force Hope Newsletter**  
Gulf Intracoastal Waterway - West Closure Complex  
West Bank's largest project now underway  
[More >>](#)

**TOP HEADLINES**

[Corps releases environmental document on risk reduction for Westwego to Harvey](#)

3 ARRA-funded contracts

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- [Risk Depth Maps](#)
- [100 Year Design Map](#)
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- [Contracting - Doing Business With Us](#)
- [N. O. Metro Road Conditions - Cameras](#)

**MULTIMEDIA**

**Inner Harbor Navigation Canal**  
Reduces risk to New Orleans East, Metro New Orleans, the 9th Ward & St. Bernard from storm surge. [Watch >>](#)

**Seabrook Floodgate**  
Three construction site alternatives are presented in this video for a navigable surge barrier planned for the IHNC area near the Seabrook Bridge - (no audio). [Watch >>](#)

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