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U.S. Army Corps of Engineers

New Orleans *Hurricane Protection System* *Repair and Restoration Update*

Louisiana Transportation Engineering Conference

13 Feb 2007



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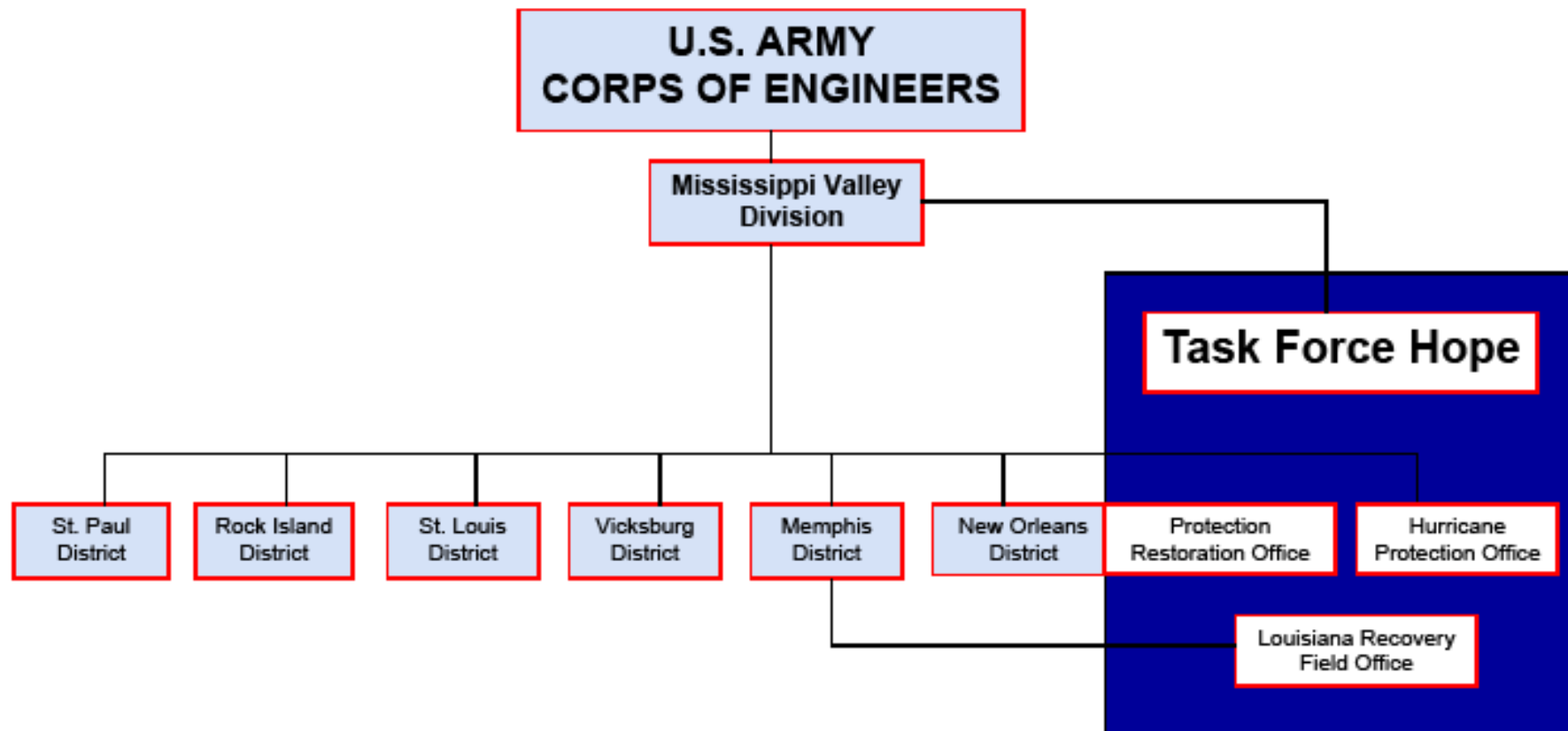
Agenda



- Hurricane Protection System
Overview and Improvements
- Current Work Status
- HSDRS Funding Re-allocation Proposal
- Louisiana Coastal Protection and Restoration



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New Orleans Area

Hurricane and Storm Damage Reduction System



Legend

- Federal
- Federal Non-COE
- Non-Federal



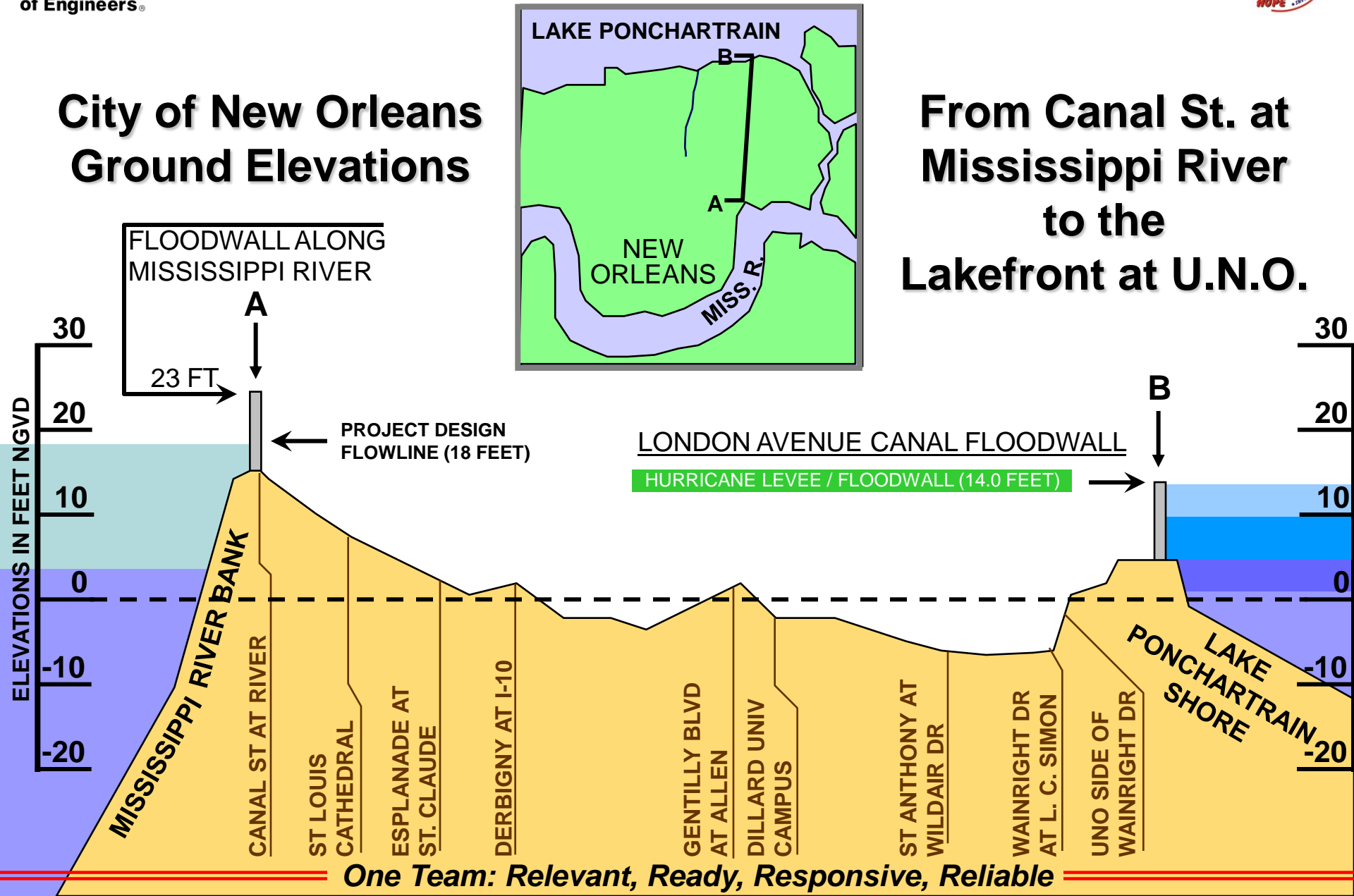
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New Orleans Topography



City of New Orleans Ground Elevations

From Canal St. at
Mississippi River
to the
Lakefront at U.N.O.





Total Funds:
\$5,707 M

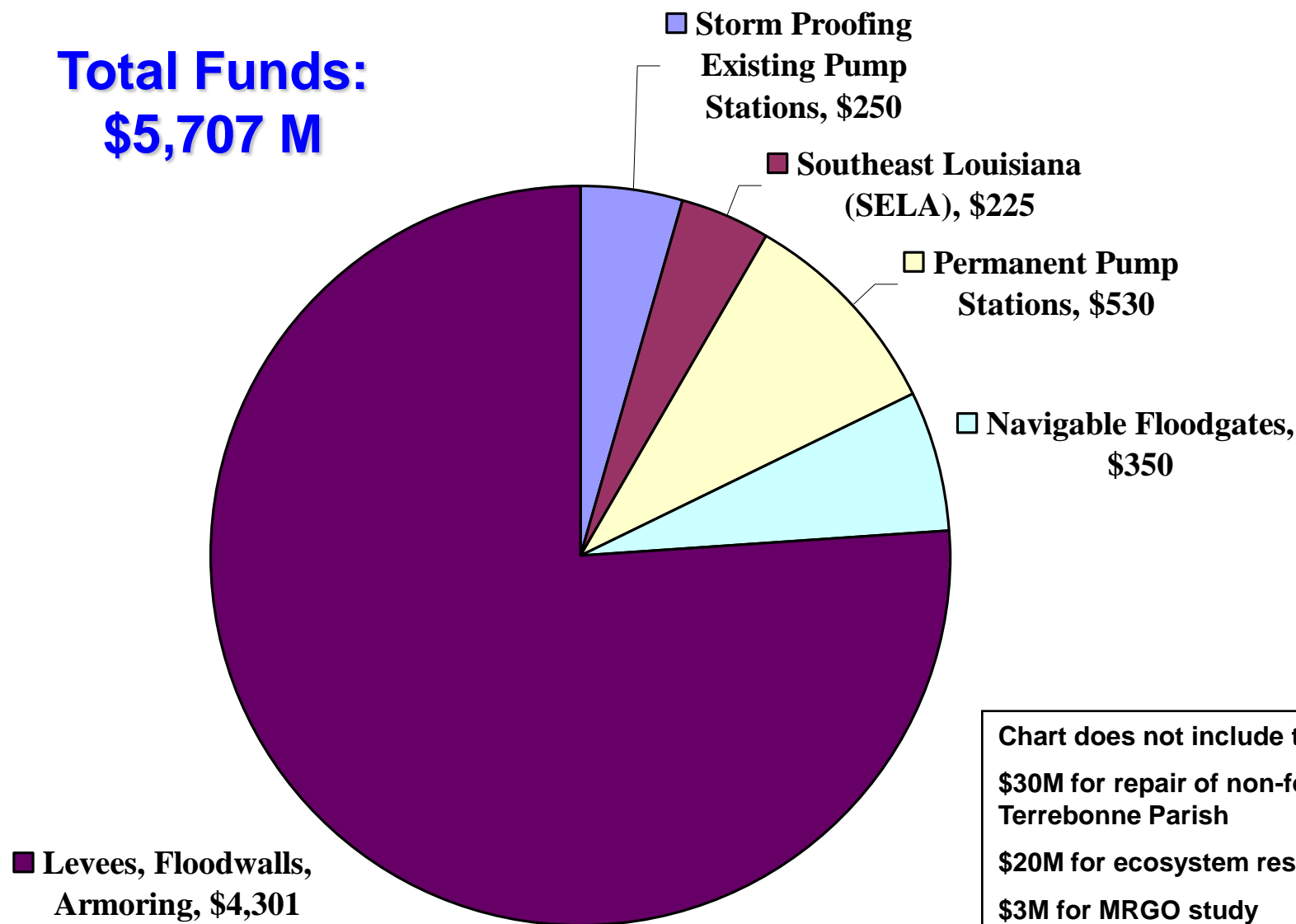


Chart does not include the following:

- \$30M for repair of non-fed levees in Terrebonne Parish**
- \$20M for ecosystem restoration**
- \$3M for MRGO study**

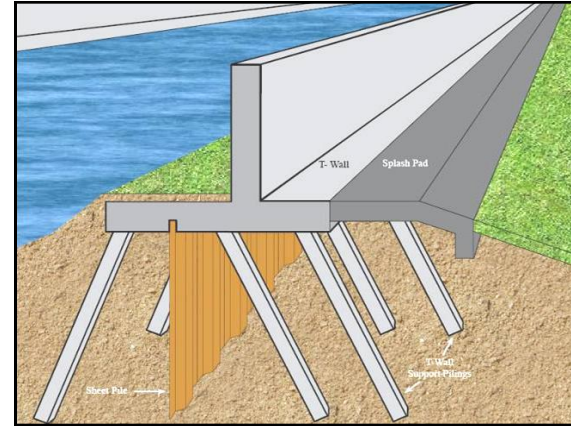


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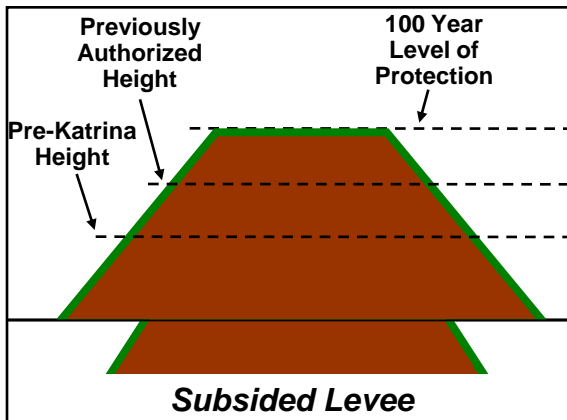
HSDRS Improvements



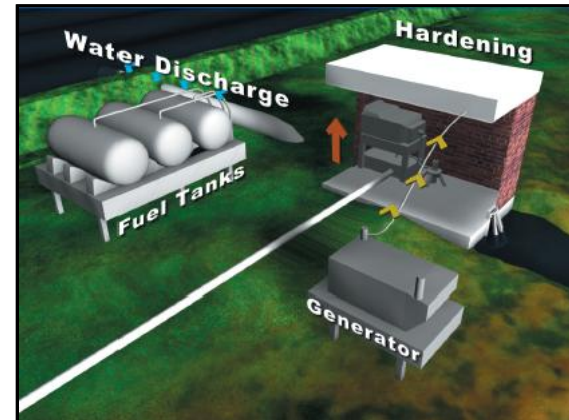
Repair



Correct Floodwall Deficiencies



Restore complete integrity

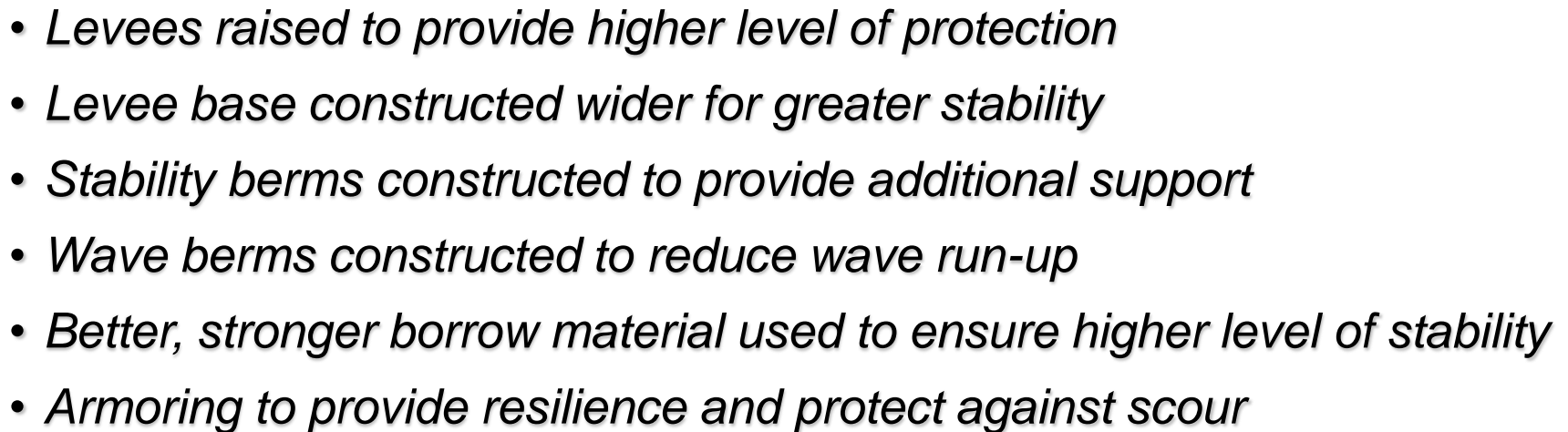


Improve

Navigable
Floodgates

Permanent
Pump
Stations

Storm Proof
Pump
Stations





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Completed Protection Work

- *All damaged repaired.*
- *Deficiencies Corrected.*
- *Floodwalls Armored.*
- *Transitions Strengthened.*
- *25 miles of new levees and floodwalls restored to design heights.*



→ ***Protection Stronger and Better
than before Katrina!***

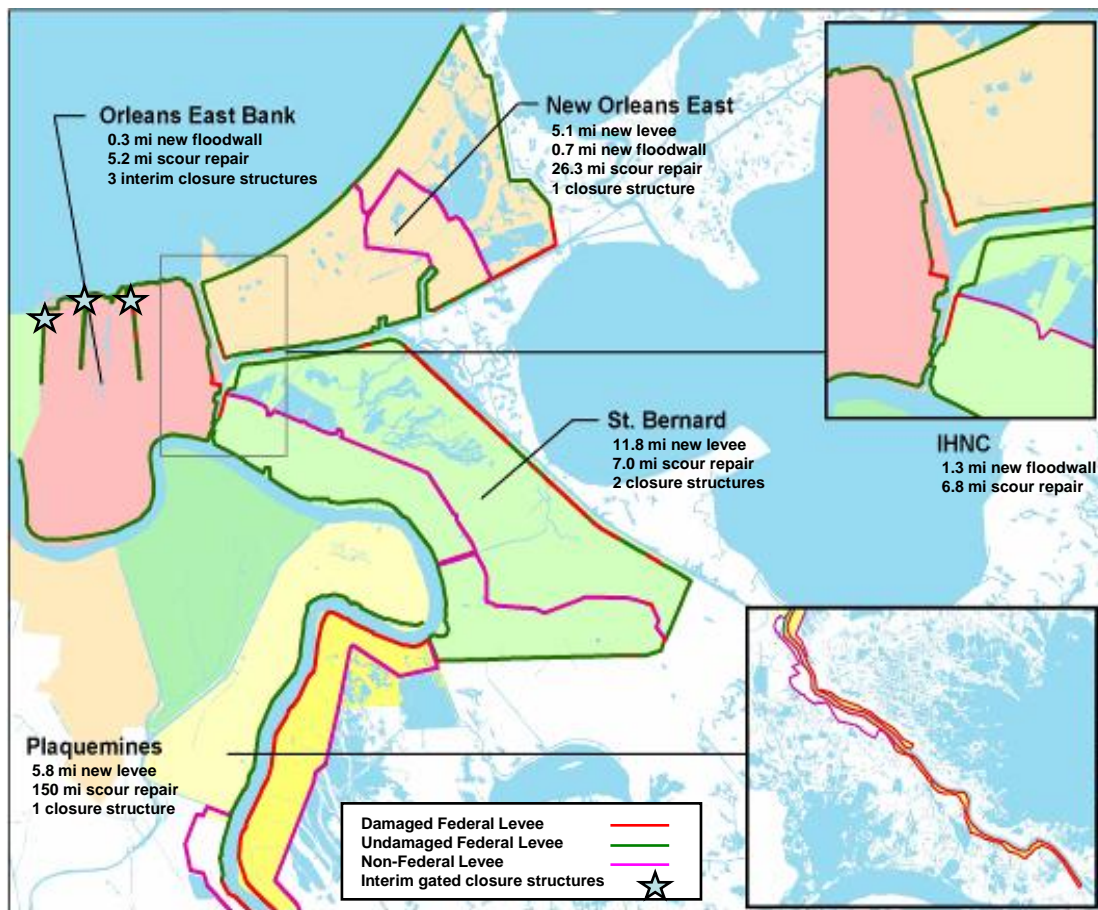


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HSDRS

Repair Summary: Phase 1



Protection Restored Schedule

- Restore pre-Katrina protection by 1 Jun 06
- **100%** complete towards pre-Katrina Protection Restored

Program Facts

- Repaired system
 - **220 total miles of levees and floodwalls repaired**
 - **2.3 mi new floodwall**
 - **22.7 mi new levee**
 - 195.3 mi scour repair (98 mi MRL completed 17 Mar)
 - 3 interim gated closure structures (IGCS)
 - 4 closure structure repairs
 - Approx. 5.5 million cubic yards of borrow required
- **Fully funded at \$1.1 B**
- Construction
 - 59 projects by 26 Contractors
 - 90% of work by local contractors - 38% by HZ/8(a)
 - \$557M in construction activity
- Supply
 - Two supply contracts – clay and temporary pumps
 - 1,566,000 cy of clay supplied to date @ 47.1M
 - 34 IGCS pumps purchased @ \$35.3M
- Real Estate
 - 894 acres commandeered
 - 404 ownerships anticipated
 - \$63M anticipated property value
- 155 vessels removed from levee



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Phase I Repairs



Lower Ninth Ward Floodwall Breach Repair



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Phase I Repairs



IPET Finding: I-Walls failed catastrophically from overtopping.

Solution: Provide performance redundancy by
armoring levees and floodwalls.



Floodwall Scour Repair on IHNC

One Team: Relevant, Ready, Responsive, Reliable



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Phase I Repairs



IPET Finding: Transition Zones between levees/floodwalls and gate structures were a weak link.

Solution: Provide performance redundancy by *armoring transition zones*.



***Bayou Bienvenue Control Structure:
Floodwall Breach Repair and Armoring***

One Team: Relevant, Ready, Responsive, Reliable



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Phase I Repairs



New Orleans East: East Back Levee Breach Repair

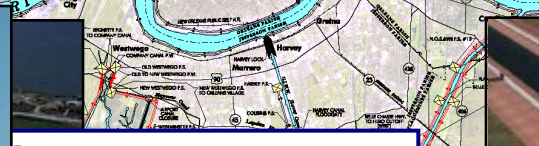


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Lake Pontchartrain and Vicinity



Levees



Static
tection
Objective: Provide
Levee: 81 miles
Status: Currently as
Floodwall: 11 miles
2 Contracts

Navigation

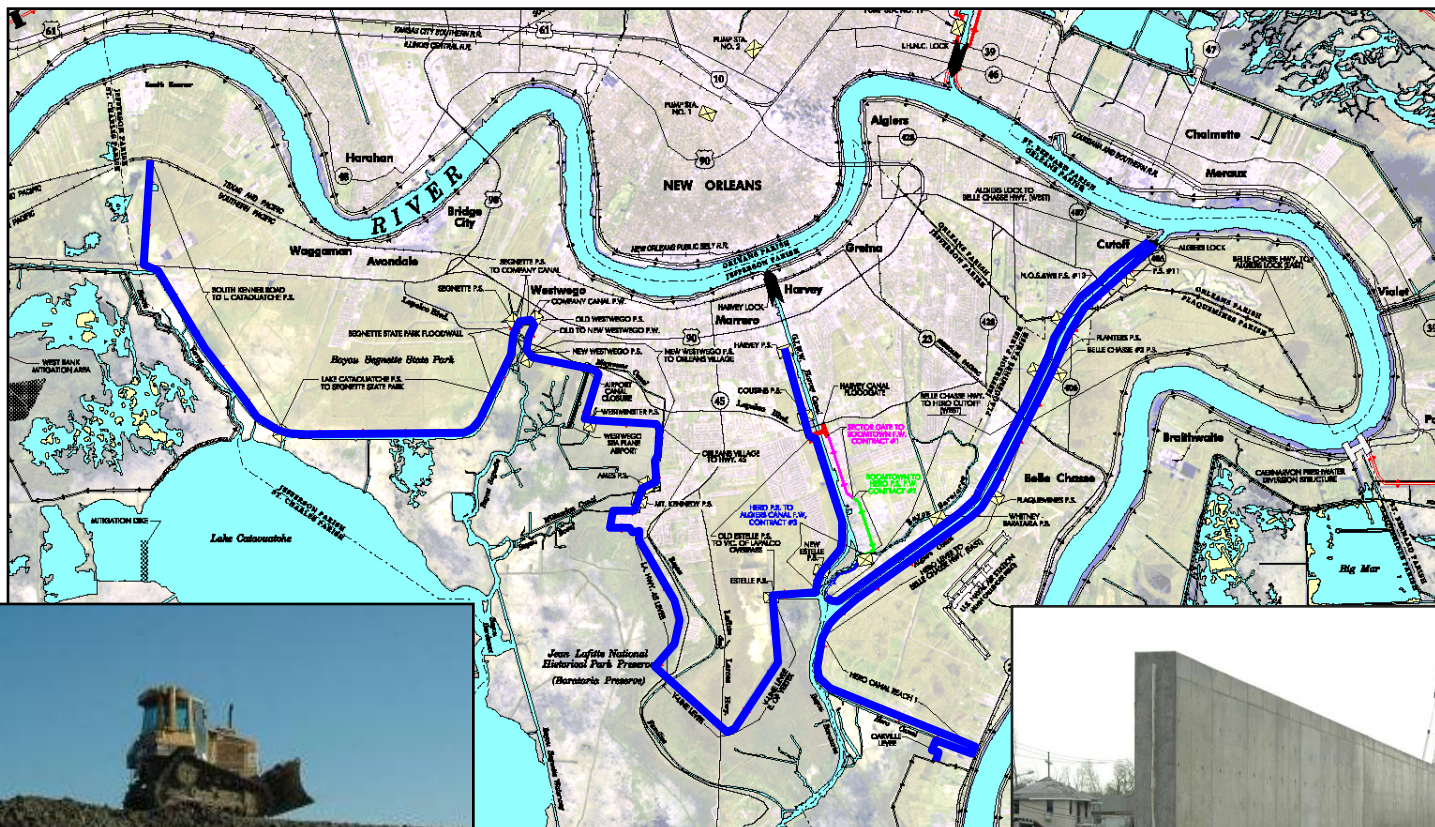


Floodwalls



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West Bank and Vicinity



Levees

Current Project Status
Levee: 47 miles

70 Total Contracts
Floodwall: 9 miles

10 Contracts in construction



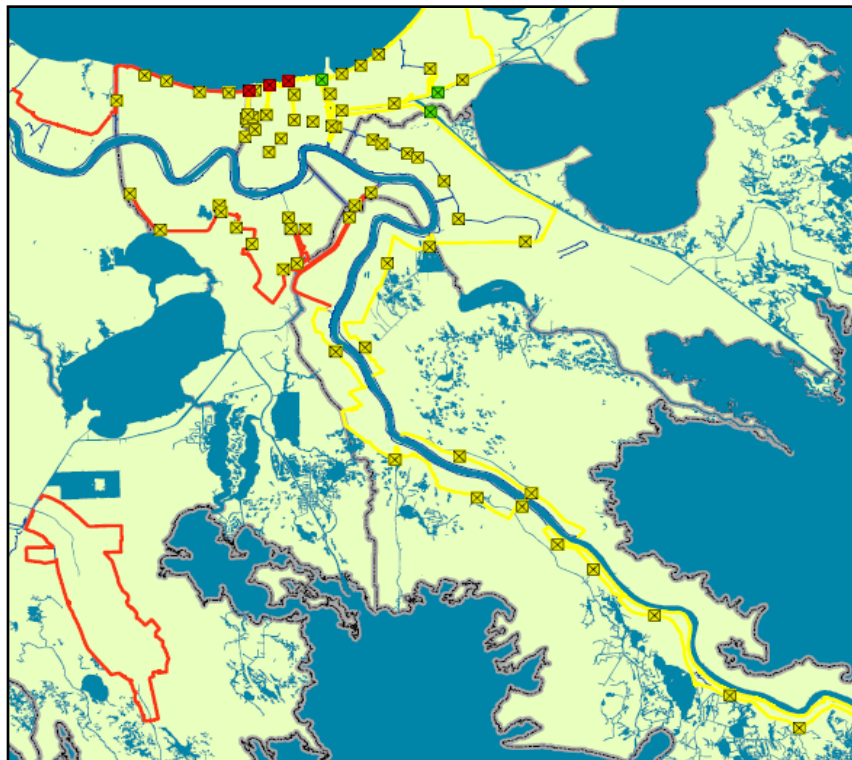
Floodwalls

One Team: Relevant, Ready, Responsive, Reliable

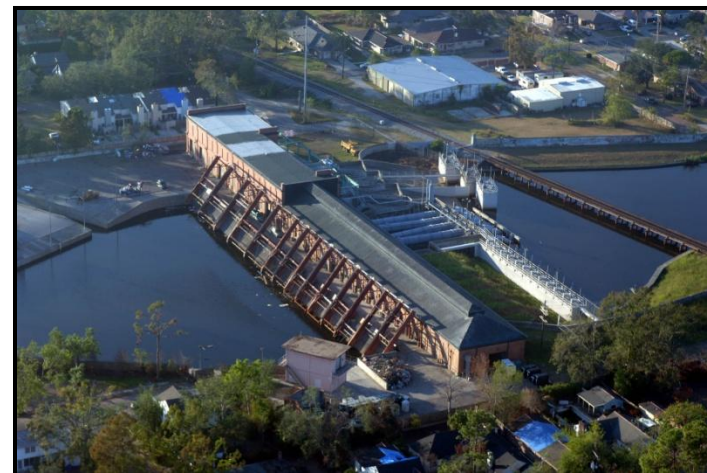


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Existing Pump Station Repairs



Total # PS	65
Orleans	24
Jefferson Parish	17
St. Bernard	8
Plaquemines	16

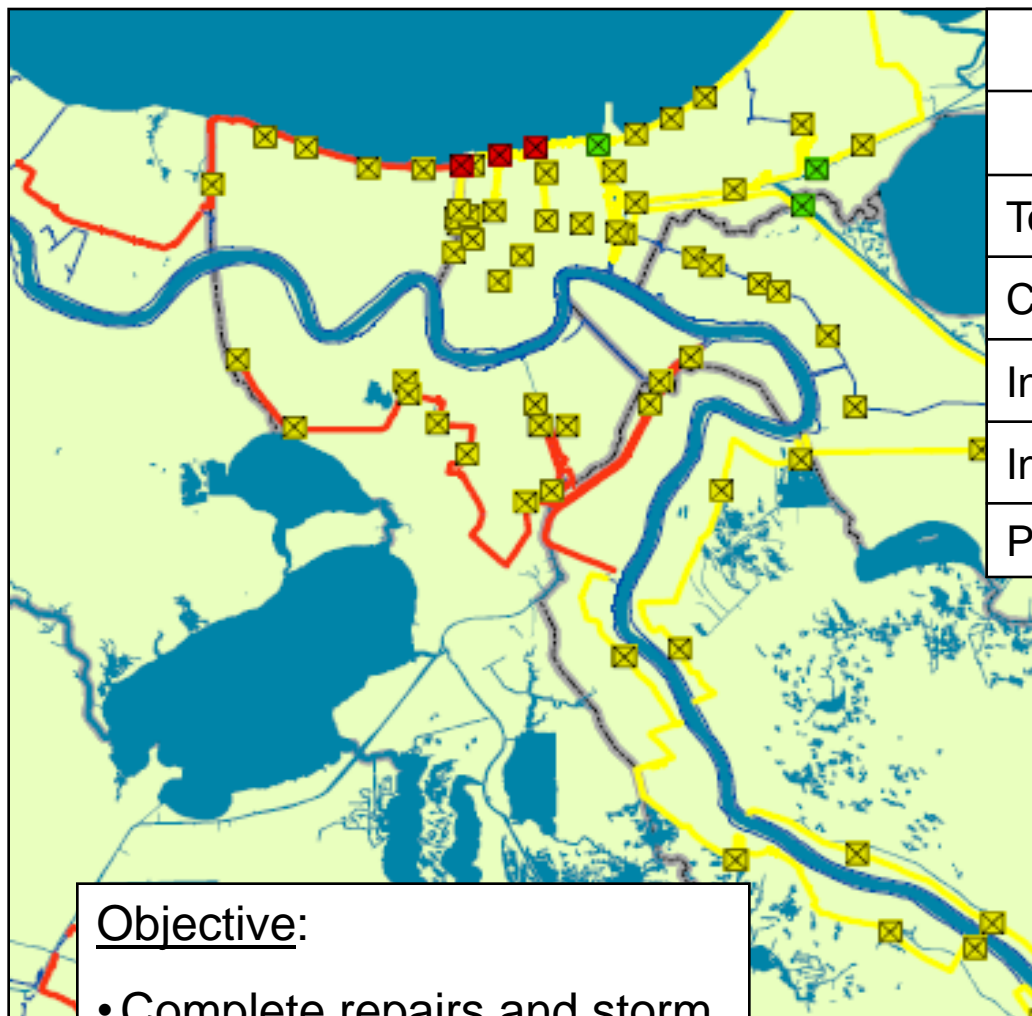


Status Update	
	<i>Repairs</i>
Total Projects	26
Complete	11
In Construction	9
In Design	6
Prepping for P&S	0



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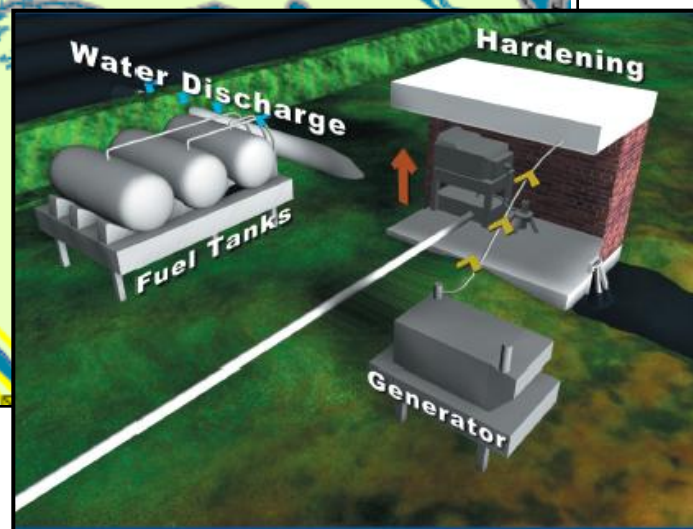
Existing Pump Station Storm-proofing



Status Update	
	<i>Storm-proofing</i>
Total Projects	6
Complete	1
In Construction	1
In Design	0
Prepping for P&S	4

Objective:

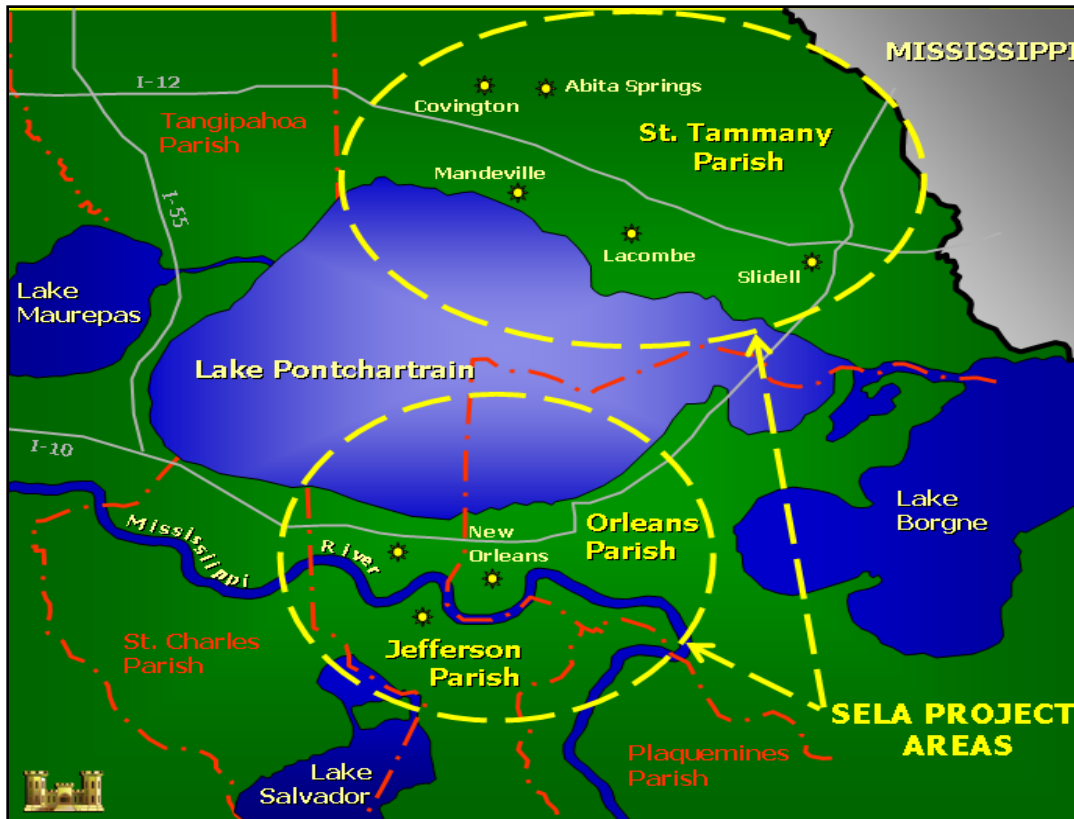
- Complete repairs and storm proofing by 2010





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Southeast Louisiana Urban Flood Control Project



Work Description

- Jefferson: Channels Improved: 24, Bridges Replaced: 7, Pump Stations Improved: 4, New PS: 2
- Orleans: Channels Improved: 6, Pump Stations Improved: 1, New PS 2

	Contracts
Complete	39
FC&CE Funds	\$224,755,000
Awarded Since Katrina	4
In Design	10





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Interim Gated Closure Structures



London Ave. Closure Structure

Orleans Canal Closure Structure

17th St. Canal Closure Structure



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Closure Structures Pumping Capacity

Current Status & Schedule
(as of 12 Feb 07)



Date	17 th St. Canal	Orleans Ave. Canal	London Ave.
Current *	4,000 cfs (Temporary Pumps)	2,200 cfs (Temporary Pumps)	2,800 cfs (Temporary Pumps)
1 JUNE 2007 **	5,200 cfs (West 4) (Temporary and Portable Pumps)	2,200 cfs (Temporary Pumps)	2,800 cfs (Temporary Pumps)
New Contracts Late-July, Mid August ***	7,600 cfs (Temporary Pumps)	2,200 cfs (Temporary Pumps)	5,000 cfs (Temporary Pumps)

Issues

17th St. Canal

- Will reach interim goal of 5200 cfs at 17th St. Canal upon reinstalling portable pumps and resolving pulsation problem.
- Pulsation problems with the pumps currently installed are preventing us from reaching the design capacity. Modifying pumps (motor spring replacement) to resolve.
- 7,600 and 5,000 cfs:
 - Pump supply contract awarded 22 DEC 2006.
 - Construction/installation contract awarded 31 Jan 07.

* Pumps installed, undergoing testing, and motor spring replacement

** Portables have been removed from 17th St. Canal. Will reinstall by 1 JUNE 2007

*** Developing schedule with pump manufacturers and construction contractors. Current estimate is to complete installation and testing between late July and mid August '07.



On Schedule



Schedule slippage, but can still meet target date



Will not meet target date

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Pumping Solicitations



London Ave. Canal

- Awarded \$52.5 M Contract to M.R. Pittman on 22 Dec. 2006 for vertical flow pump systems for 17th St. and London Ave. Canals
- Awarded \$85 M Design-Build Contract to Weston Solutions, Inc. on 31 Jan. 2007 for construction and installation of pump platform at the 17th St. and London Ave. Canals.

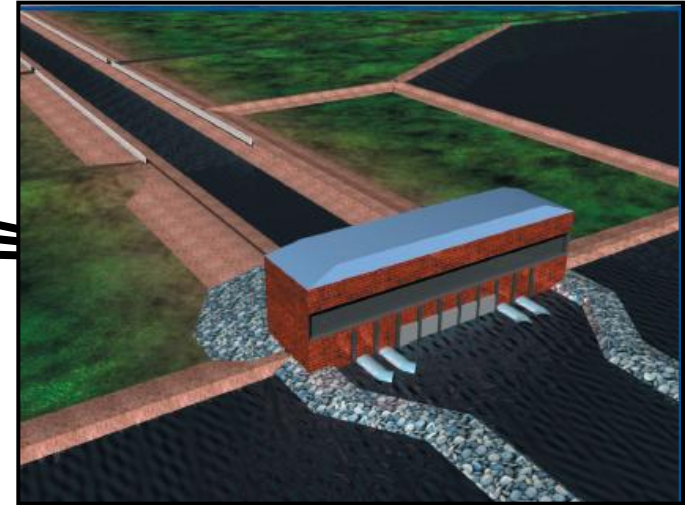
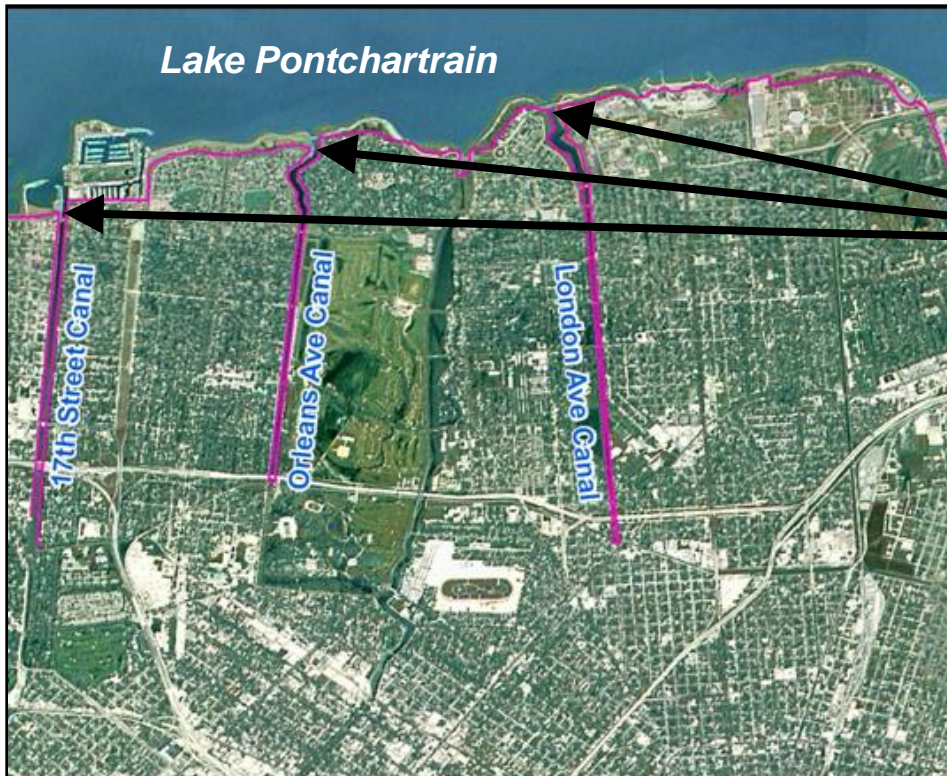


17th St. Canal



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Permanent Pump Stations



Objective:

- Protect Outfall Canals from storm surge and evacuate the drainage

Status:

- 1 Design-Build contract planned
- Phase 2 work (Site analysis, Hydraulics, and D-B solicitation docs.) started 12 October, 2006 and continuing
- Completed formal partnering session (11 & 12 Jan 2007)
- NEPA process beginning
- Total: \$530M Currently Authorized



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IHNC Navigable Floodgates



Status:

- Pursuing Acquisition of Design-Build Contracts
- Innovative Proposals currently Scheduled December 2007
- Total \$350 Million Authorized

Objectives:

- Provide protection to IHNC/GIWW area.
- Complete floodgates by 2010



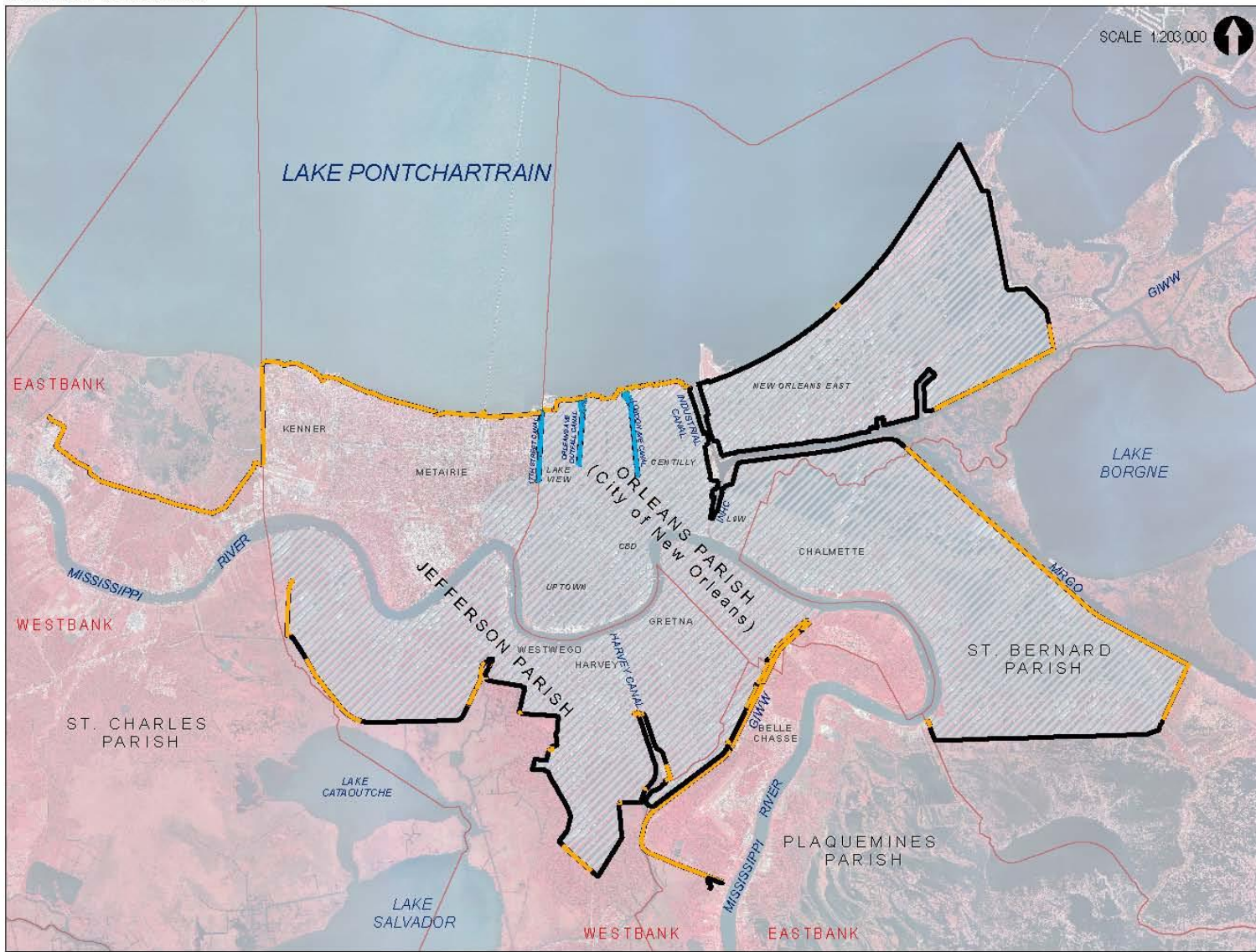


HSDRS Funding Re-Allocation



- Administration current requests that Congress reallocate \$1.3 B of funds appropriated in the 4th FY06 Emergency Supplemental to activities authorized and funded in the 3rd FY06 Emergency Supplemental
- Proposal is to enable most efficient use of available appropriated funds to:
 - Provide the best protection possible with available funds
 - Reduce the time required to construct the total system to authorized design levels
- By reallocating the funds as recommended, the Corps will be able to construct most of the authorized system to pre-Katrina authorized levels and to reduce the time to complete the total project.

HSDRS Lake Pontchartrain and Westbank Projects
CURRENT SITUATION



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MAP LEGEND

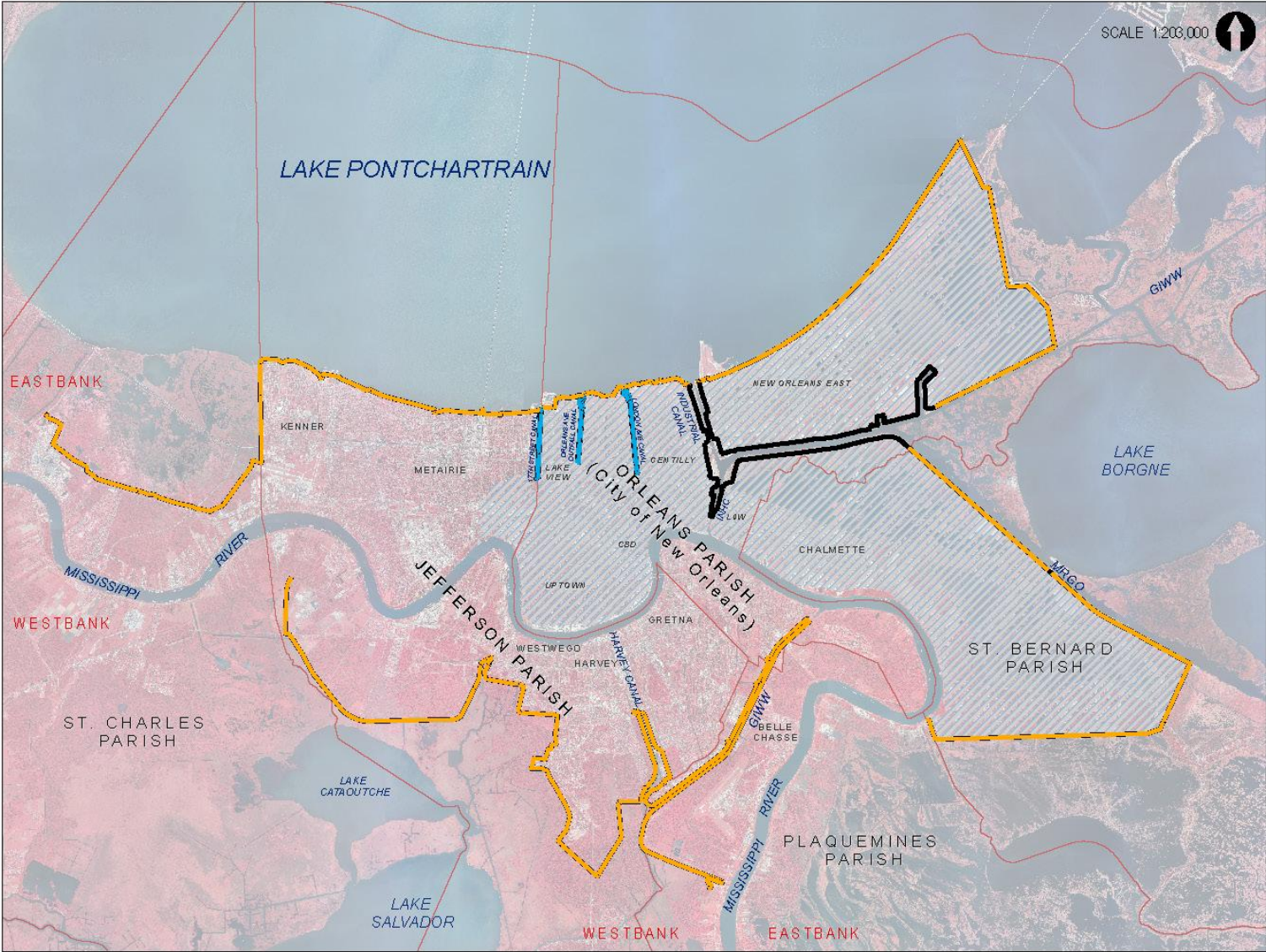
- FUNDED AT THE PRE-KATRINA AUTHORIZED LEVEL OR BETTER
- UNFUNDED AND BELOW AUTHORIZED LEVEL OR UNSTABLE
- INTERIM PROTECTION PROVIDED
- AREAS WITHOUT PRE-KATRINA AUTHORIZED LEVEL OF PROTECTION

MAP 1 OF 3
19 JANUARY 2007

MAP LOCATION



HSDRS Lake Pontchartrain and Westbank Projects
FY08 BUDGET PROPOSAL



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MAP LEGEND

- FUNDED AT THE PRE-KATRINA AUTHORIZED LEVEL OR BETTER
- UNFUNDED AND BELOW AUTHORIZED LEVEL OR UNSTABLE
- INTERIM PROTECTION PROVIDED
- AREAS WITHOUT PRE-KATRINA AUTHORIZED LEVEL OF PROTECTION

MAP 2 OF 3
19 JANUARY 2007

MAP LOCATION





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\$1.3B Reallocation Proposal



Funds Taken From

Program/Project Activity	Original Approp. (\$000)	Proposed Re-allocation (\$000)	Balance (\$000)	Explanation
Outfall Canal Closures and Permanent Pumps WCC 391 (FCCE, 4 th Supp)	\$ 530,000	(\$ 420,000)	\$ 110,000	Funds cannot be utilized at this time. Appropriated funds insufficient to initiate work.
Improvements to IHNC	\$ 350,000	(\$ 0)	\$ 350,000	Funding to be used for original purpose
Selective Armoring WCC 393 (FCCE, 4 th Supp)	\$ 170,000	(\$ 122,000)	\$ 48,000	Funding cannot be utilized at this time. Work cannot be performed until other work is done.
Storm Proof Pump Stations	\$ 250,000	(\$ 0)	\$ 250,000	Funding to be used for original purpose
Repair Non-Federal Levees in Terrebonne Parish	\$ 30,000	(\$ 0)	\$ 30,000	Funding to be used for original purpose
Floodwall Reinforcement or Replacement WCC 394 (FCCE, 4 th Supp)	\$1,584,000	(\$ 313,000)	\$1,271,000	Work deferred to fund construction that will provide pre-Katrina authorized level of protection over a greater area.
Incorp. non-Fed Levees in Plaquemines Parish WCC 396 (FCCE, 4 th Supp)	\$ 215,000	(\$ 175,000)	\$ 40,000	Funding cannot be utilized at this time. Appropriated funds insufficient to initiate work.
'Jump Start Eco-system Restoration	\$ 20,000	(\$ 0)	\$ 20,000	Funding to be used for original purpose
MRGO Study	\$ 3,000	(\$ 0)	\$ 3,000	Funding to be used for original purpose
Provide 100-Year Level of Protection WCC 707 (CG, 4 th Supp)	\$ 495,000	(\$ 245,000)	\$ 250,000	100-yr work deferred to fund construction that will provide at least pre-Katrina authorized level of protection over a greater area.
Total 4th Supp	\$3,647,000	(\$1,275,000)	\$2,372,000	
Repairs to St. Charles Parish levees WCC 706 (CG, 3 rd Supp)	\$ 25,000	(\$ 24,965)	\$ 35	Construction (CG) funds appropriated for work in St. Charles Parish not needed and will be used for other 3 rd Supplemental activities.
Total	\$3,672,000	(\$1,299,965)	\$2,372,035	
Completion of Previously Authorized System West Bank & Vicinity, Lake Ponchartrain & Vicinity WCC 33X (FCCE, 3 rd Supp)	\$ 529,000	\$ 519,000	\$1,048,000	Will fund contracts ready to award Jan thru Nov 2007 req'd to complete 3 rd Supp work in this account for metro NOLA.
Repair/ Restore Existing System West Bank & Vicinity , Lake Ponchartrain & Vicinity WCC 337 (FCCE, 3 rd Supp)	\$1,531,000	\$ 780,965	\$2,311,965	Will fund contracts ready to award Jan thru Nov 2007 necessary to complete 3 rd Supp work in this account.
Total	\$2,060,000	\$1,299,965	\$3,359,965	

Funds Moved To

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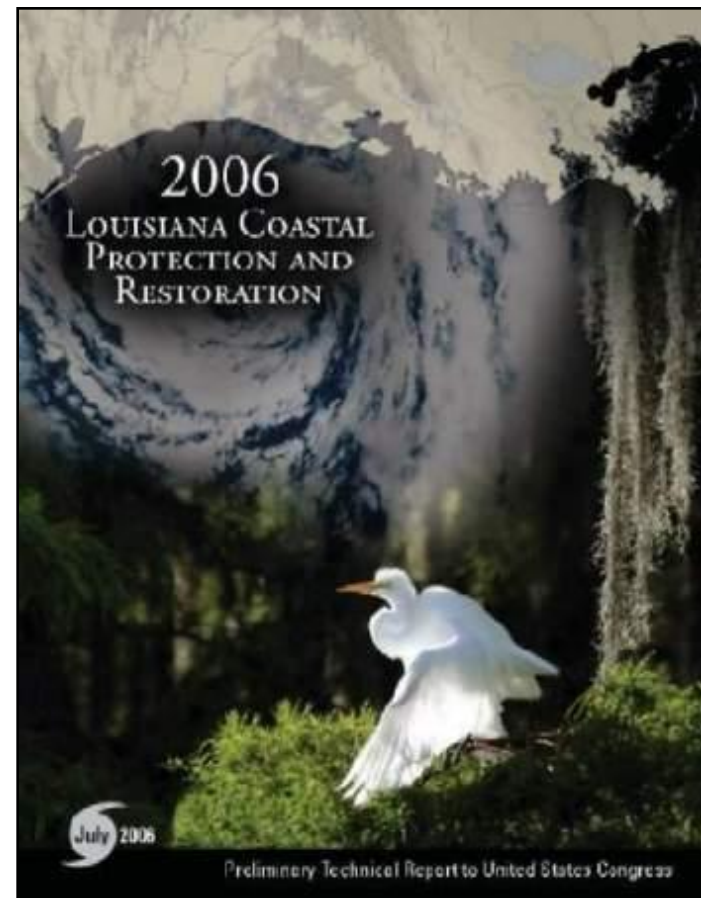


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Louisiana Coastal Protection and Restoration (LaCPR)



- Preliminary Technical Report completed in July 2006
- Characterizes hurricane threat and engineering design challenges
- Multiple lines of defense strategy
 - Coastal restoration/protection
 - Structural measures
 - Non-structural features
- Describes need for using risk reduction decision framework
- Describes plan to produce Final Technical Report





-
- USGS** 100+ Years of Land Change for Southeast Coastal Louisiana
- Legend:**
- Land Loss 1912 - 2000
 - Predicted Land Loss 2000 - 2050
 - Land Gain 1912 - 2000
 - Predicted Land Gain 2000 - 2050
 - Location of Land Change Study Watershed
- Scale:** 0 10 20 30 40 Miles
- North Arrow**
- Inset Map:** Louisiana
- Map Description:** The map shows the Mississippi River delta and surrounding areas. The land loss areas (red) are primarily in the central and eastern parts of the delta, while the land gain areas (green) are primarily in the western part. The predicted land loss areas (yellow) are primarily in the central and eastern parts of the delta, while the predicted land gain areas (blue) are primarily in the western part.
- Source:** USGS Coastal Science and Assessment Division, Louisiana Coastal Science and Assessment Division, Louisiana Coastal Science and Assessment Division



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Discussion and Questions