There are 78 pump stations (Federal and Non-Federal) in the 4-parish area. Following Hurricanes Katrina and Rita, the Corps received authorization and funding for 33 repair projects. All projects are now complete except for 2 that are included in a storm proofing contract in Orleans Parish.

**Pump Station repair projects included:**

**Jefferson Parish ($2.7 M):**
- 8 repair projects at 17 stations

**Orleans Parish ($73.2M):**
- 14 repair projects at 23 stations and the Carrollton Frequency Changer Building

**St. Bernard Parish ($27.6 M):**
- 6 repair projects at 8 stations

**Plaquemines Parish ($26.5 M):**
- 5 repair projects at 13 stations

**Storm Proofing of Pump Stations**

There are 24 funded Storm Proofing projects in Jefferson and Orleans parishes. The program is 91% complete.

**Jefferson Parish:** 16 projects, $136 M
- 25 pump stations divided into 16 planned individual Storm Proofing construction projects.
  - 2 in construction, 11 complete

**Orleans Parish:** 18 projects, $204 M
- 24 pump stations divided into 18 planned individual Storm Proofing construction projects.
  - 5 in construction, 5 complete

**Mississippi River Gulf Outlet**

**Mississippi River Gulf Outlet (MRGO)**
- The MRGO was de-authorized for navigation and closed in April 2009. The MRGO rock closure structure is not a part of the HSDRRS.
- The MRGO Ecosystem Restoration Federally Identified Plan, when implemented, would restore habitat in the Lake Borgne ecosystem and other areas affected by the MRGO navigation channel.
- The restoration plan would restore and protect over 57,000 acres of coastal wetlands in this estuary.

Construction and installation of the interim closure structures and pump stations at the three outfall canals was performed before the start of the 2006 Hurricane Season. These interim structures provide 100-year level risk reduction and will remain in place until the new, permanent structures are built.

The total maximum pumping capacity today at the three outfall canal pumps is more than 16,000 cubic feet per second (cfs).

17th St. Canal
- 2,200 cfs total pumping capacity

Orleans Ave. Canal
- 9,200 cfs total pumping capacity

London Ave. Canal
- 5,200 cfs total pumping capacity

Supervisory Control and Data Acquisition (SCADA) equipment installed at the outfall canals gives the Corps a remote computerized control system to operate the pumps and gates while monitoring water levels in the canals. The pumps, gates and SCADA equipment performed successfully during Hurricanes Gustav and Ike in 2008, and Hurricane Isaac in 2012.

In May 2013, a notice to proceed was issued to construct the Permanent Canal Closures and Pumps (PCCP) which will replace the interim structures. Construction completion is expected in 2017.
There are 350 miles of levees/floodwalls in the HSDRRS, including interior levees and floodwalls. Armoring:

- Armoring adds resiliency to a levee and can reduce erosion and scouring of back slopes when wave overtopping occurs.
- After Katrina, the Corps undertook a concerted effort to improve armoring methods, and worked with academia to research various armoring materials. There are two pilot projects ongoing to test the performance and O&M of the proposed armoring materials.
- Approximately 420 transition spots (where a floodwall meets a levee) have already been armored.

Borrow (levee clay):

- Total amount of borrow required for the HSDRRS was approximately 93 million cubic yards.
- Approximately 229 million cubic yards were approved as suitable for levee construction.

1 Superdome holds 4.4 million cubic yards of borrow

Major Projects

West Bank & Vicinity Projects (WBV):

- Currently, there are 89 contracts that are substantially complete and 14 on-going construction contracts throughout the West Bank. There are 10 contracts not yet awarded, 6 of which are for the Mississippi River levees.
- Approximately $3.7 B has been budgeted for construction of the 100-year system for the West Bank & Vicinity.
- The floodgates and pump station at the West Closure Complex are fully operational. Floodgates at Seilers Canal, Bayou Segnette, and the Hero Canal are also fully operational. The Harvey Canal floodgate at Lapalco, and the floodwall along the east bank of the Harvey Canal along Peters Road are complete.
- Approximately 420 transition spots (where a floodwall meets a levee) have already been armored.

Gulf Intracoastal Waterway—West Closure Complex

The GIWW-WCC is a major feature of the HSDRRS that provides the first line of defense from storm surge entering the Harvey and Algiers Canals. The WCC will significantly reduce the risk to a large area of the West Bank by eliminating 25 miles of levees, floodwalls, floodgates and pumping stations along the canals from the direct impacts of storm surge. The nearly $1 B project consists of the nation’s largest sector gate, the world’s largest drainage pump station, floodwalls, sluice gates, foreshore protection and an earthen levee. The project also includes dredging of Algiers Canal, beneficial use of the dredge material and realignment of a portion of Bayou Road in Plaquemines Parish. Construction of this enormous project began in August 2009 and is already 98% complete, providing 100-year level risk reduction since September 2011.

Lake Pontchartrain & Vicinity Projects (East Bank):

- Currently, there are 79 contracts that are substantially complete and 10 ongoing construction contracts throughout the LPV. There are 21 contracts that have not yet been awarded, 8 of which are for Armoring, and 8 for Environmental Mitigation.
- Approximately $4.0 B has been budgeted for construction of the 100-year system for LPV.

Inner Harbor Navigation Canal Surge Barrier

Construction of the massive IHNC Surge Barrier at Lake Borgne, the largest design-build civil works project in Corps history, began in May 2009. The project is a key feature of the HSDRRS, providing 100-year levee level defense to a large portion of Orleans and St. Bernard parishes by reducing surge entering the GIWW / IHNC corridor from Lake Borgne and the Gulf of Mexico.

1.8-mile barrier, the largest of its kind in the world, includes three gated structures and a barrier wall that stands at elevation 26 feet. The barrier wall is 100% complete and all three gates are operable.

- The Seabrook Floodgate Complex is located in the Inner Harbor Navigation Canal and reduces storm surge from Lake Pontchartrain. Seabrook works in tandem with the IHNC Lake Borgne Surge Barrier to provide 100-year level risk reduction to the entire IHNC corridor.

- The Plaquemines Parish Non-Federal Levee project includes replacing or modifying 20 of 34 miles of current levees between Oakville and St. Jude on the West Bank of the Mississippi River. When completed in 2017, these levees will be part of the New Orleans to Venice Federal levee system.

- The New Orleans to Venice project includes approximately 37 miles of back levee modifications with floodwall fronting protection at 6 locations and 2 sector gates on the West Bank, and floodwall fronting protection at 2 locations on the East Bank, scheduled for completion in 2016.

- Of the 19 NOV / NFL projects, 3 fronting protection contracts and 1 levee contract have been awarded. Five additional contracts are scheduled for award in calendar year 2013.

Southeast Louisiana Project (SELA):

- SELA is authorized for interior drainage improvements to further reduce the risk of damage due to rainfall flooding in Orleans, Jefferson and St. Tammany parishes. Improvements in Orleans and Jefferson parishes support the parish’s master drainage plans and generally provide flood risk reduction on a level associated with a 10-year rainfall event (estimated at over 9 inches in a 24-hour period).
- SELA projects were initially authorized in 1996. After Hurricane Katrina in 2005, Congress appropriated funds to complete the authorized and approved SELA projects in Orleans and Jefferson Parishes.
- Of the 20 SELA projects in Orleans Parish, 9 are complete, 6 are under construction, and 5 projects are currently in the pre-award phase.
- Of the 59 SELA projects in Jefferson Parish, 45 are complete, 10 are under construction, and 4 projects are currently in the pre-award phase.
- Overall, the current design and construction efforts in Orleans and Jefferson parishes are about 68% complete and construction should be finished in 2018.

- The Corps of Engineers is engaged in two projects on a concurrent timeline that will reduce risk in Plaquemines Parish below Oakville where the 100-year HSDRRS ends.

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