



THE FLOOD PROTECTION AUTHORITY

COMPREHENSIVE REGIONAL FLOOD DEFENSE

The Evolution of the Local-Federal Flood Protection Partnership

Local governmental flood protection efforts began with the establishment of levee districts. The Orleans Levee District was established in 1890, Lake Borgne Basin Levee District in 1892 and Pontchartrain Levee District (PLD) in 1895. The East Jefferson Levee District was removed from the PLD and established in 1979.

The Great Flood of 1927 resulted in the eventual collapse of all levees around the Mississippi River. Congress passed the Flood Control Act of 1928 authorizing the Mississippi River and Tributaries (MRT) project. The MRT project brought an unprecedented degree of protection against riverine flooding.



The first federal hurricane protection project was authorized by Congress in July, 1946 (Lake Pontchartrain, LA), for the construction of levees along the Jefferson Parish lakefront and Jefferson Parish side of the 17th Street Canal. In September, 1965, Hurricane Betsy made landfall in Louisiana as a powerful Category 4 hurricane causing widespread destruction across the region. The Flood Control Act of 1965, enacted by Congress on October 27, 1965, authorized the Corps of Engineers to design and construct hurricane flood protection in the New Orleans region [Lake Pontchartrain and Vicinity, Louisiana Hurricane Protection Project (LP&VHPP)] through the construction of levees, floodwalls and flood control structures.

A Federal-Local Partnership developed with the local levee districts serving as the non-federal sponsor and assuming the local cost share for design and construction, as well as taking on the operation and maintenance responsibilities of project features upon completion. The project was severely hindered by technical issues, environmental concerns, legal challenges and local opposition to certain features, and experienced significant costs escalations due to modifications and inflation. When Hurricane Katrina struck in 2005, the LP&VHPP was estimated to be from 60-90 percent complete in different areas with an estimated completion date for the whole project of 2015; however, almost all of the project areas where breaches occurred were reported as virtual complete prior to 2005.

On August 29, 2005, Hurricane Katrina, which generated a 30-foot storm surge from the Gulf of Mexico, made landfall causing widespread catastrophic damage and the loss of more than 1,500 lives. Approximately 80 percent of New Orleans was flooded to depths that exceeded 15-feet in many areas. The Corps of Engineers immediately established Task Force Guardian to repair and restore the flood protection system to pre-Katrina conditions. Hurricane Rita, on the heels of Katrina, worsened the situation and delayed the start of work; however, the system was restored to pre-Katrina conditions prior to the 2006 hurricane season. Next, the Corps of Engineers was authorized by Congress to design and construct the Hurricane and Storm Damage Risk Reduction System (HSDRRS), a \$14.6 billion project crossing five parishes (Orleans, Jefferson, St. Bernard, St. Charles and Plaquemines) to provide defense against a 100-year storm event (a storm that has a one percent chance of occurring in any given year).

Congressional authorizations allowed upfront Federal funding for the HSDRRS, rather than incremental funding as traditionally provided for large civil works projects, thus enabling the delivery of a stronger, more resilient perimeter hurricane flood defense system in a compressed timeframe. The State of Louisiana, through the Coastal Protection and Restoration Authority (CPRA), stepped in as the non-federal sponsor for the HSDRRS. Operation and maintenance responsibilities were turned over by the CPRA to the local levee districts for completed project components.

The Flood Protection Authority-East's Comprehensive Flood Defense System

→ Levees and Floodwalls:

The Flood Defense System includes 191 miles of federal and non-federal levees and floodwalls (3,500+ acres of levee). The HSDRRS project included raising floodwalls and levees and in some areas levees were widened. Resiliency was added to lessen the effects of overtopping (armoring) through the installation of turf reinforced matting, concrete slabs or rip-rap. Subsidence and sea level rise will necessitate levee lifts in the future to maintain the 100-year level of protection.



Levee Armoring with Turf Reinforced Matting



Caernarvon Floodgate

→ Floodgates:

The Circle of Defense includes 246 land based floodgates with swing or roller gates crossing highways and railroads; swing and overhead gates located as needed along floodwalls, and miter gates at the Seabrook Complex and at Marconi Avenue and Lakeshore Drive.

→ IHNC-Lake Borgne Surge Barrier:

The 1.8 mile long Surge Barrier located at the confluence of the GIWW and MRGO is the largest continuous surge barrier in the world, providing defense against storm surge from the Gulf of Mexico and Lake Borgne. The Surge Barrier connects the perimeter system in New Orleans East to the perimeter system in St. Bernard.



IHNC-Lake Borgne Surge Barrier

→ Complex Structures (Navigation Gates):

The HSDRRS includes eight Complex Structures (Navigation Gates): IHNC Surge Barrier Sector Gate and Barge Gate, Bayou Bienvenue Vertical Lift Gate, Bayou Bienvenue Sector Gate, Bayou Dupre Sector Gate, Caernarvon Sector Gate, Seabrook Sector Gate and Bayou St. John Sector Gate.



Seabrook Complex

→ Permanent Canal Closures and Pumps (PCCP):

The 17th Street, London Avenue and Orleans Avenue Outfall Canals serve as drainage conduits for much of the City of New Orleans, with the 17th Street Canal also serving as a drainage conduit for portions of Jefferson Parish. Floodwall topped levees align the three outfall canals. The PCCP, located at the mouth of each outfall canal, is composed of permanent gated storm surge barriers that are closed in advance of a tropical storm event, with pump stations to move rainwater out of the canals, past the gates and into Lake Pontchartrain while the barriers are closed.

The operation, monitoring and maintenance of this complex flood defense system requires a dedicated team of Flood Protection Authority personnel with the professional and technical expertise and skills needed to ensure the system's integrity and operability. **In advance of a storm, all components of this Circle of Defense must be securely closed.**



PCCP at 17th Street Canal

When a storm approaches, all components of the Flood Defense System must work!
Southeast Louisiana Flood Protection Authority-East