



The Flood Protection Authority-East

News of Your Flood Defense System

April 1, 2018



Surge Barrier Crossing the IHNC and GIWW

*Message from Flood Protection Authority
President Joe Hassinger*

Strong, Prepared and Ready

Your Flood Protection Authority is prepared to meet the challenges of the 2018 hurricane season. When the water comes, your perimeter flood defense system that helps protect lives and property from destruction caused by storm surge will perform. Over 200 dedicated men and women work year-round to ensure that our levees, floodwalls, valves and gates are always in good working order. That flood protection team takes its responsibilities very seriously, because we know that our friends, families and neighbors are relying on us to reduce the risk of flooding during a tropical system. It's not an easy task, but we don't do easy.

In a few weeks, the United States Army Corps of Engineers will complete the permanent closure and gate structures at the three outfall canals in Orleans Parish. The Flood Protection Authority has agreed to manage, operate and maintain those structures, and we can assure the public that, like every other component of the perimeter system, those structures will perform.

It takes several agencies working in tandem to effectively reduce the risk of flooding. As such, we work hand-in-hand with Governor Edwards, Chairman Johnny Bradberry and his professional team at the Coastal Protection and Restoration Authority, the Department of Transportation and Development, the Corps of Engineers, and our Parish leaders. Their effectiveness and partnership is crucial.

In closing, let me say that your Flood Protection Authority has enjoyed strong support from the public, and we appreciate it. Your expectations of us, and your confidence in us, make us continuously strive to be better, smarter and stronger. Thank you for that.

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 **Flood Protection Authority**

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Lifting and Armoring the FPA's Earthen Levees

The Flood Control Act of 1965 authorized the U.S. Army Corps of Engineers (Corps) to design and construct the Lake Pontchartrain and Vicinity, Louisiana Hurricane Protection Project (LP&VHPP). Authorizations for the LP&VHPP included periodic levee lifts to offset subsidence. After Hurricane Katrina, Congress authorized the Corps 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). Hardened structures, such as floodwalls and floodgates were designed to meet elevations required to provide the authorized level of risk reduction through 2057 (the 50-year design life). However, the HSDRRS levees were designed and constructed to provide the authorized level of risk reduction only for the near-term—in some cases as little as two years. The authorizing acts for the HSDRRS did not include a provision for federal participation in the levee lifts that would be required due to settlement, subsidence and sea level rise in order to meet the 100-year level of protection in the future (a requirement for accreditation in the FEMA National Flood Insurance Program). The HSDRRS was initially accredited by FEMA in 2013. The HSDRRS must be recertified before the 2023 deadline for FEMA reaccreditation.



LPV 0.02 Levee Lift - 2017

The Flood Protection Authority surveyed levee elevations in 2014 and determined that by the end of 2016 some segments would fall below the necessary elevation to provide the authorized level of protection.

One of the last HSDRRS features constructed is the armoring of earthen levees. Armoring increases a levee's resiliency in the event of overtopping and reduces the risk of erosion and failure. The Corps of Engineers is anticipated to spend \$200 million to armor more than 80 miles of levee in the Greater New Orleans area. The Corps is armoring earthen levees within the Flood Protection Authority's jurisdiction with High Performance Turf Reinforcement Matting (HPTRM) and sod. The grass roots grow through the openings of the HPTRM and become entwined providing resistance to hydraulic forces.

The Flood Protection Authority has worked closely with the Corps of Engineers to coordinate the construction of lifts of the levees that would otherwise fall below the authorized level of protection prior to 2023 (recertification of the hurricane protection system) before the Corps armors the levees.

The Flood Protection Authority recently completed lifting the East Jefferson Lakefront Levee from the St. Charles Parish line to the Orleans Parish line, increasing the levee height approximately six to eighteen inches. It subsequently provided the right-of-entry for the Corps to proceed with armoring the levee. The East Jefferson Lakefront Levee Lift Projects were completed at a total estimated cost of \$7 million.

The Corps of Engineers agreed to construct the lift of segments of the New Orleans East levees as part of its armoring contracts. The Orleans Levee District will bear the cost of the levee lift work. The Orleans Levee District will provide a total of \$9 million to the Corps for the levee lift portion of the LPV 109.02 and LPV 111.1 Armoring/Levee Lift Projects (\$7 million for LPV 109.2 and \$2 million for LPV 111.1).

The Flood Protection Authority will continue petitioning Congress for authorization and funding for future levee lifts to ensure that the HSDRRS remains, at a minimum, at the authorized level necessary to meet future FEMA NFIP requirements.

Lifting and Armoring the FPA's Earthen Levees (continued)

Armoring/Levee Lift Schedule

Reach	ARM #	Advertisement	Contract Award	Duration	Completion
*LPV-00.2	LPV-ARM-08	14 Jul 17	24 Aug 17	340	1 Oct 18
*LPV 01.1, 2.2	LPV-ARM-10	19 Jul 17	18 Aug 17	385	26 Dec 18
*LPV 19.2 & 20.1	LPV-ARM-07	9 Aug 17	7 Sep 17	335	21 Jan 19
**LPV 109	LPV-ARM-05	30 Jun 18	31 Jul 18	690	20 Jun 20
**LPV 111	LPV-ARM-09	30 Apr 18	29 May 18	660	19 Mar 20
*East Jefferson Lakefront – Armoring			**New Orleans East – Armoring and Levee Lift		



Ground preparation is done by tiller or saw tooth harrow (left)



HPTRM on roll before installation (right)



Pins being installed (left)



Installation on protected side at trench (right)



Anchors are installed on flood side at trench (left)



Anchors are pulled tight (right)



Installed HPTRM on ARM-07 (left)



Sod and HPTRM on LPV-ARM-10 (right)

Permanent Canal Closures and Pumps—PCCP

The 17th Street, Orleans and London 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.

In the aftermath of Hurricane Katrina, the U.S. Army Corps of Engineers (Corps) constructed Interim Closures with temporary pumps at the mouths of the 17th Street, Orleans Avenue and London Avenue Outfall Canals to prevent storm surge from Lake Pontchartrain during a tropical event from entering the canals, thereby reducing the risk of a failure along the canals. The Corps' intent was to follow this temporary measure with the construction of a permanent, more sustainable solution.



17th Street Canal

As part of the Hurricane and Storm Damage Risk Reduction System, the Corps completed the Permanent Canal Closures and Pumps (PCCP), which replace the Interim Closure structures and temporary pumps.

The PCCP, located at or near the mouth of each outfall canal, consists of permanent gated storm surge barriers that are closed in advance of a tropical storm event when Lake Pontchartrain stages are elevated, and pump stations to move rainwater out of the canals, past the gates and into Lake Pontchartrain while the barriers are closed. The PCCP pumps cannot drain city streets directly, and only operate when the PCCP bypass gates are closed due to tropical events and the Sewerage and Water Board (S&WB) pump stations are pumping rainwater into the canals.



London Avenue Canal



Orleans Avenue Canal

The notice to proceed with construction of the project was issued on May 6, 2013. Construction of the project was completed in December, 2017, at a total cost of \$615 million. [After testing the pumps and inspection of the project, the PCCP will be turned over by the Corps to the Coastal Protection and Restoration Authority (CPRA), the Non-federal Sponsor for the HSDRRS.] The CPRA, Flood Protection Authority and S&WB entered into a Cooperative Endeavor Agreement (CEA) on February 1, 2018, which designates the Flood Protection Authority as the entity responsible for the operation, maintenance, repair, repair and rehabilitation (OMRRR) responsibilities for the PCCP. The CEA provides that the S&WB pay 50% of the OMRRR cost. The initial estimate of the annual OMRRR cost is \$4 million. The S&WB will share real time monitoring data for the pump stations that pump water into or through the outfall canals so that the Flood Protection Authority can monitor conditions in real time.

During a tropical storm or high water event that requires the activation of the PCCP, constant and effective communication and collaboration will be maintained between the Flood Protection Authority and the S&WB for the operation of the PCCP and the S&WB's interior pump stations.

PCCP (continued)

17th Street Canal:
Capacity – 12,600 CFS
(2) 900 CFS Pumps
(6) 1800 CFS Pumps
(15) 2.6 MW Generators
(11) Gates
Exceeds current S&WB
capacity by 2,500 CFS

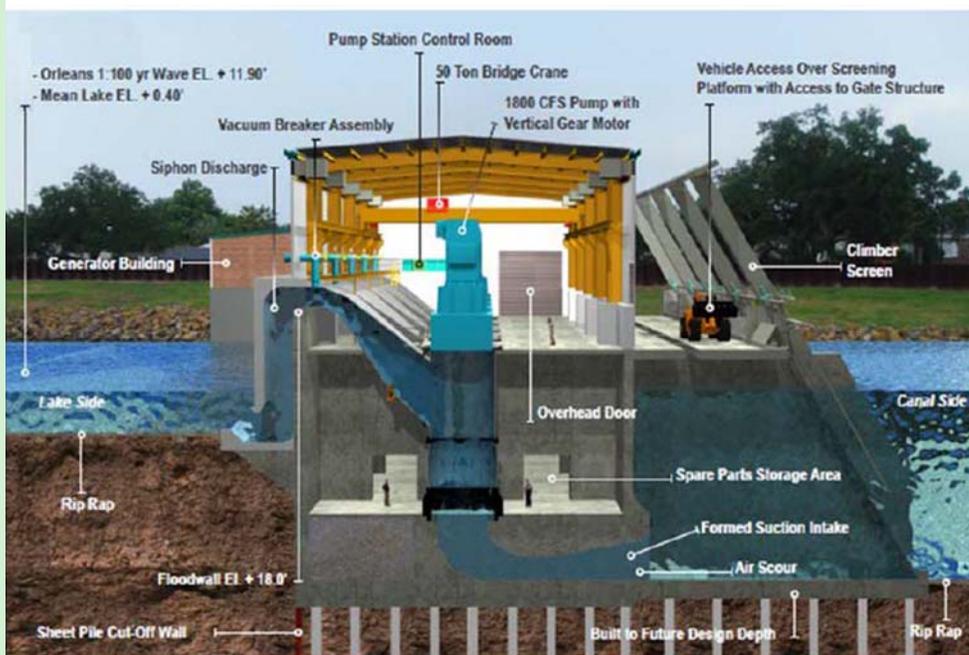
London Avenue Canal:
Capacity – 9,000 CFS
(2) 900 CFS Pumps
(4) 1800 CFS Pumps
(11) 2.6 MW Generators
(7) Gates
Exceeds S&WB capacity
by 1,000 CFS

Orleans Avenue Canal:
Capacity – 2,700 CFS
(3) 900 CFS Pumps
(4) MW Generators
(3) Gates

NOTE: Additional
capacity built based
on S&WB future
expansion plans

The PCCP facilities were constructed to withstand 200 mph winds at three second gusts and 155 mph sustained winds. Each site includes a control building with safe housing for support staff and onsite fuel storage capacity to run at full capacity for five days of continuous operation.

Due to the PCCP's complex operation and maintenance requirements, the Flood Protection Authority is staffing the PCCP with an eight member team of professional, highly skilled individuals. Six members will have a special skill set (one at the senior level and one at a secondary level) in electrical, mechanical or program controls (a senior and secondary for each discipline). One senior and one secondary position will be stationed at each location. Two members of the team will be mechanics with a focus on generator work. Additional personnel will be cross trained to provide assistance during emergencies.



PCCP Pump Schematic

Orleans Canal East Bank L-Wall Retrofit

The U.S. Army Corps of Engineers recently evaluated the floodwalls along the 17th Street, London Avenue and Orleans Avenue Outfall Canals using the latest guidelines for the analysis and design of I-walls. The study revealed that the only section of I-wall requiring additional work is located along east side of the Orleans Avenue Outfall Canal between Lakeshore Drive and the Permanent Canal Closure and Pump (PCCP) facility.

On January 31, 2018, the Corps of Engineer awarded a \$2.1 million contract to APC Construction, LLC for the construction of an L-wall at this location. The contract period is 210 days. Construction of the L-wall will begin in April and is scheduled to be completed in the summer of 2018. Three hundred feet of existing I-wall will be retrofitted to the much stronger L-wall. The existing I-wall will remain in place during the L-wall construction; therefore, the 100-year level of protection provided by the Hurricane and Storm Damage Risk Reduction System will not be impacted.

Flood Protection Authority Surge Barrier Visitors' Center

The Surge Barrier is one of the largest storm surge barriers in the world. It is nearly two miles long and stretches across open water and marsh in eastern New Orleans and St. Bernard Parish. The mammoth structure includes three navigational flood gates to allow marine vessels access through the barrier at the Gulf Intracoastal Waterway and Bayou Bienvenue. It was designed and built at a cost of \$1.2 billion by the U.S. Army Corps of Engineers after New Orleans and its surrounding areas were devastated by the storm surge accompanying Hurricane Katrina in August of 2005.



Depiction of proposed Visitor's Center (above & left)



The Surge Barrier is the largest Civil Works Design-Build project undertaken by the Corps. It forms the eastern closure of the Hurricane and Storm Damage Risk Reduction System (HSDRRS) that defends metropolitan New Orleans against a 100 year hurricane surge event. Construction began in 2009 and the structure was operational by 2011. It was first called into service in 2012 during Hurricane Isaac, and effectively prevented flooding in Orleans and St. Bernard Parishes.

The Authority has conducted more than 200 formal tours of the barrier. Visitors have included foreign delegations from China, Italy, Chile, Great Britain and other countries; US government dignitaries including US Senators and Congressmen; state and local government officials; members of the worldwide scientific community; and, students from Louisiana, the Netherlands and Canada.

Today, there are no facilities on site to accommodate visitors to the barrier. It is difficult to convey pertinent information about the barrier and the overall flood defense system during a walking tour. A well designed and constructed Visitors' Center would provide the Authority with the necessary tools to accomplish the following goals:

- Host foreign delegations, US Congressional visitors, state and local governmental officials;
- Attract additional visitors including students, the general public, members of the scientific community, and agencies from around the world who operate surge barriers or are planning to construct one;
- Educate visitors about the construction of the barrier and its operation and maintenance requirements;
- Create awareness among visitors of the significance of the flood defense system, how it works, and how their tax dollars are spent to operate and maintain it;
- Create and maintain a regional support base enthusiastic about the proper operation and maintenance of the flood defense system;
- Establish an educational program for local schools and universities, using working scale models, exhibits, presentations, and guided tours;
- Inform visitors about the roles and responsibilities of the various local, state and federal agencies, and their cooperation and coordination activities in partnership with the Authority;
- Provide a venue to discuss and study coastal preservation and restoration activities, and how such activities affect the flood defense system;
- Provide information to residents and businesses about what they can do as part of their shared responsibility to reduce their flood risk.

The Authority has submitted a State Capital Outlay Request for assistance with this state visitor's center.

EJLD Safehouse and Consolidated Facility



Depiction of new EJLD Safehouse & Consolidated Facility

The 27,000 square foot complex current under construction at 11000 Reverent Richard Wilson Drive in Kenner will bring all East Jefferson Levee District (ELJD) operations into one facility. The building will include a safe room, built to withstand 200 mph winds, office space for administrative, maintenance and police personnel, and a 11,000 square foot maintenance shop. The police will occupy the

safe room during regular operating hours, preventing any space from being unoccupied during regular operations. The building will have a standby diesel generator capable of powering the entire building during storm events. The generator will be linked to the 8,000 gallon diesel fuel tank via underground fuel piping. This will allow emergency personnel to maintain operations in a safe, modern facility well past 72 hours after a power outage.

Project Statistics

Architect: Sizeler Thompson Brown Architects
Contractor: Lamar Contractors
Contract Period: 435 consecutive calendar days
Notice to Proceed: August 14, 12017
Completion date: December, 2018
Square footage: 27,000 square feet
Construction Cost: \$10,532,525



Complex Construction as of 3/2/18

O.L.D. Police Complex



Depiction of O.L.D. Complex

The new state of the art Police Complex being constructed at the intersection of Elysian Fields Avenue and Lakeshore Drive in New Orleans includes dispatch/communications facilities, training room, holding cell, locker rooms and breakroom. The easily accessible and strategically located Elysian Fields site has historically served the Orleans Levee District (O.L.D.) Police Department and the public well. The site will be secured with fencing and will have a storage garage for police vehicles.

Project Statistics

Architect: RCL Architecture, LLC
Contractor: C.M. Combs Construction, LLC
Contract Period: 300 consecutive calendar days
Notice to Proceed: October 30, 2017
Completion date: September 14, 2018
Square footage: 10,000 square feet
Construction Cost: \$2,950,000



Complex and Garage Building as of 3/14/18

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