Algiers Canal Risk Reduction Features

Updated August 2012

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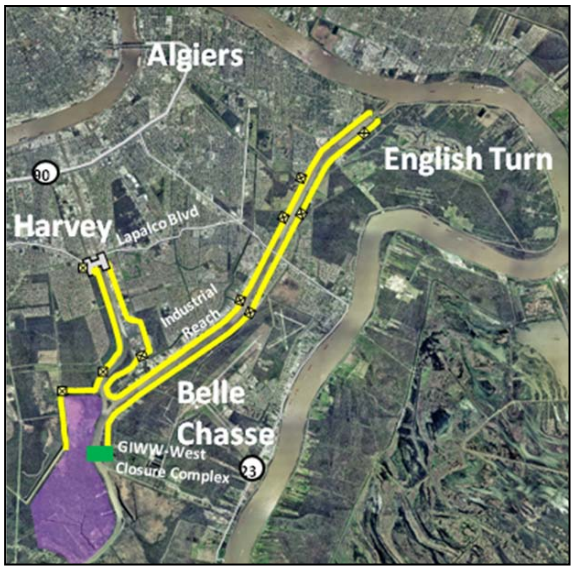


Public safety is the Corps of Engineers' top priority. Congress has fully authorized and funded the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for southeast Louisiana. The HSDRRS includes five parishes and consists of 350 miles of levees and floodwalls; 73 non-Federal pumping stations; 3 canal closure structures with pumps; and 4 canal gated outlets.

Project Summary

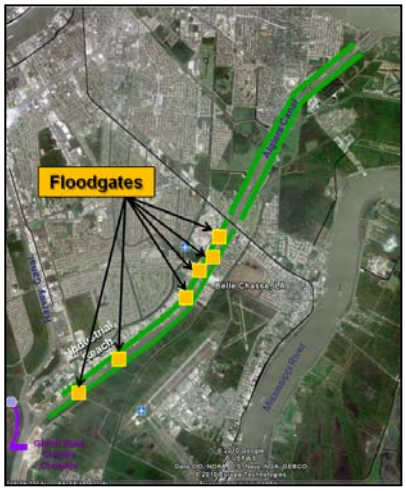
The Algiers Canal project area, located on the west bank of the Mississippi River in the vicinity of Jefferson, Orleans and Plaquemines parishes, is designed to serve as a detention basin for the enhanced West Bank and Vicinity Project. The Algiers Canal project was originally designed to serve as the first line of defense against storm surge, but once the Gulf Intracoastal Waterway-West Closure Complex (WCC) had features in place to defend against a 100-year storm, the canal would serve as a detention basin. The Algiers Canal receives rainwater pumped into the canal from the area pump stations. When the WCC is operational and gates are closed, during a tropical storm event, the WCC will pump rainwater from the detention basin.

The Algiers Canal Risk Reduction Features being built by the Corps will reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge, for residential and commercial developments in Algiers, English Turn, Harvey, the Belle Chasse sub-basin, and other areas of Jefferson, Orleans and Plaquemines parishes. The total construction value of all projects along the Algiers Canal is an estimated $210 million (This amount excludes the WCC).

Project Features

The Algiers Canal Risk Reduction Features project consists of several improvements in line with its function as a detention basin for impounded water. Earthen levees will be improved to reflect post-Hurricane Katrina design guidelines and include stability improvements and levee lifts. Floodgates are being installed in areas that require access and floodwall tie-ins will link project features and provide fronting protection at pump stations.

All four levee lift and stability contracts are complete. Levees elevation is 8.2 ft.



A total of six, 4.5 ft high steel swing or roller gates have been installed. These gates are required due to limited flood-side real estate.

Two overhead roller gates are contained within the approach walls just before the tunnel entrance and exit, plus three roadway swing gates and two railroad swing gates.

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Algiers Canal Risk Reduction Features

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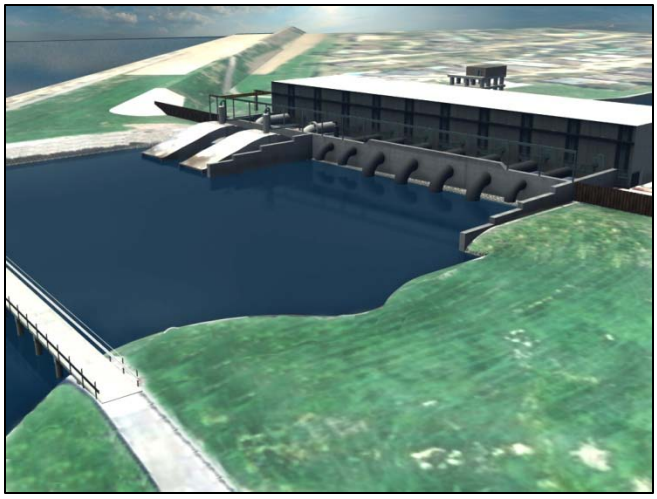
Levees along the Industrial Reach of the Algiers Canal are built to the final design elevation of +8.2 ft and include the addition of a stability berm on the protected side in specific locations along the canal; these features are now complete. At six locations along the Industrial Reach, floodgates have been constructed to allow access to the waterway by offshore/industrial businesses in the area.

The Algiers Canal Risk Reduction Features will also improve the structural integrity of six pump stations along the length of the Algiers Canal. The Corps will construct fronting protection or concrete T-wall structures in front of five pump stations to prevent the station from being inundated, stop seepage under the pump stations and prevent backflow through the pump discharge tubes by installing valves or gates. The remaining pump station was designed with fronting protection and back flow protection, but is undergoing improvements to the floodwalls which tie the pump station into the levee system.

The Corps is also installing overhead roller gates at the entrance and exit of the Belle Chasse Tunnel, railroad swing gates on each side of the canal, and a ramp and three additional swing gates across access roads to tie the area into the existing levee system. Floodwalls will link the gates to the existing earthen levee along the Algiers Canal. The system of gates, floodwalls and earthen levees will form the risk reduction system around the Belle Chasse Tunnel and will tie-in to the Algiers Canal risk reduction measures.

Project Status

The Algiers Canal risk reduction work on the stability berms for the levees is complete. Work will continue on the fronting protection and gate projects along the Algiers Canal into early 2013. When the GIWW-West Closure Complex (WCC) is closed, the Algiers Canal will experience a water level change associated with the rainwater runoff pumped into the canal. At this time, canal water levels will be managed by pumps at the WCC. This translates into a significant improvement to the reliability of the Algiers Canal Risk Reduction Features because when closed, the WCC will block surge from reaching the Algiers Canal.



Typical pump station.

Pump station with Fronting Protection in place.

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Bayou Segnette – Company Canal

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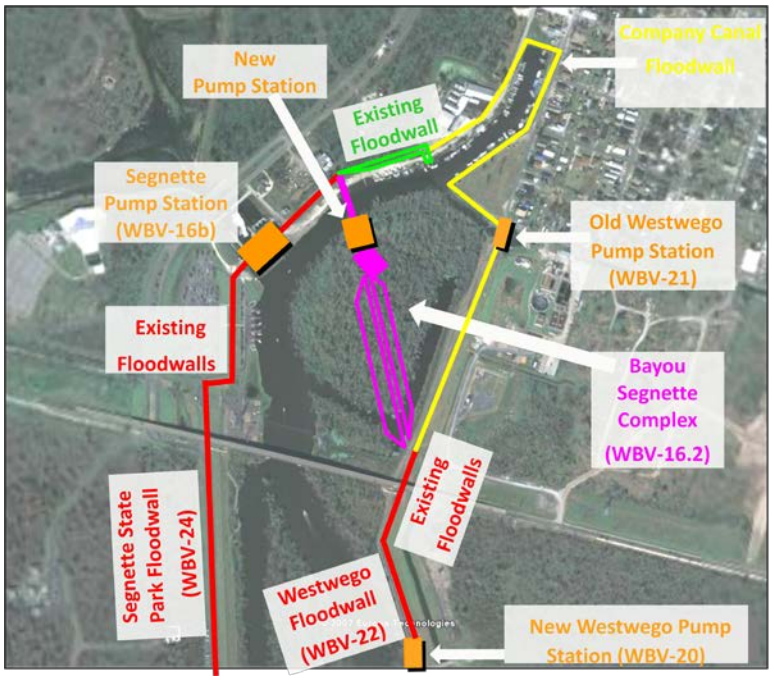
Project Summary

The Bayou Segnette Complex is located on the west bank of the Mississippi River in Westwego, LA. The project area extends from the Bayou Segnette State Park boundary to the New Westwego Pumping Station.

The structural features being built by the Corps' construction contractor reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. The risk reduction projects within the Bayou Segnette area include the Bayou Segnette Complex and five other contracts with a total contract award value of approximately $109 million.

Project Features

The Bayou Segnette Complex project includes construction of a 56-foot sector gate, a 400 cubic-feet-per-second pump station, new floodwalls and a 1,000-foot long levee. The existing Company Canal floodwall, which is located along Louisiana and Laroussini streets behind the new Bayou Segnette Complex, is currently being lowered to elevation 4.0 and will serve as a detention basin for local storm water when the sector gate is closed during tropical storm events.



Project Status

Risk Reduction measures are in place to defend against a 100-year storm surge; the Company Canal Floodwall is completed and the Pump Station is near completion. Work is expected to be completed by mid summer 2013.

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CAUSEWAY

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Project Summary

The Causeway risk reduction feature began in 2010 and is located at the southern entrance of the Lake Pontchartrain Causeway Bridge approach on the shore of Lake Pontchartrain in Jefferson Parish. The structural features built by the Corps reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge. Commuter and local traffic in the area has been impacted by the construction of this risk reduction feature. The Corps planned phased construction in order to ensure two open lanes of traffic in each direction during peak hours. The total construction of the Causeway risk reduction project is approximately $43 million.

Project Features

The Causeway project consists of a concrete floodwall with a top elevation of approximately 15 feet. Tie-ins link this feature with the Jefferson Parish Lakefront levee reaches. To provide continuous access to the Causeway Bridge, the project includes construction of an elevated road and bridge over the floodwall. The roadway ramp over the floodwall stretches from the Causeway peninsula to north of Sixth St. in Metairie.

Project Status

The Causeway risk reduction project has features in place to defend against the 100-year storm; however construction at the Causeway will continue through summer 2013.

- ***Over*** -

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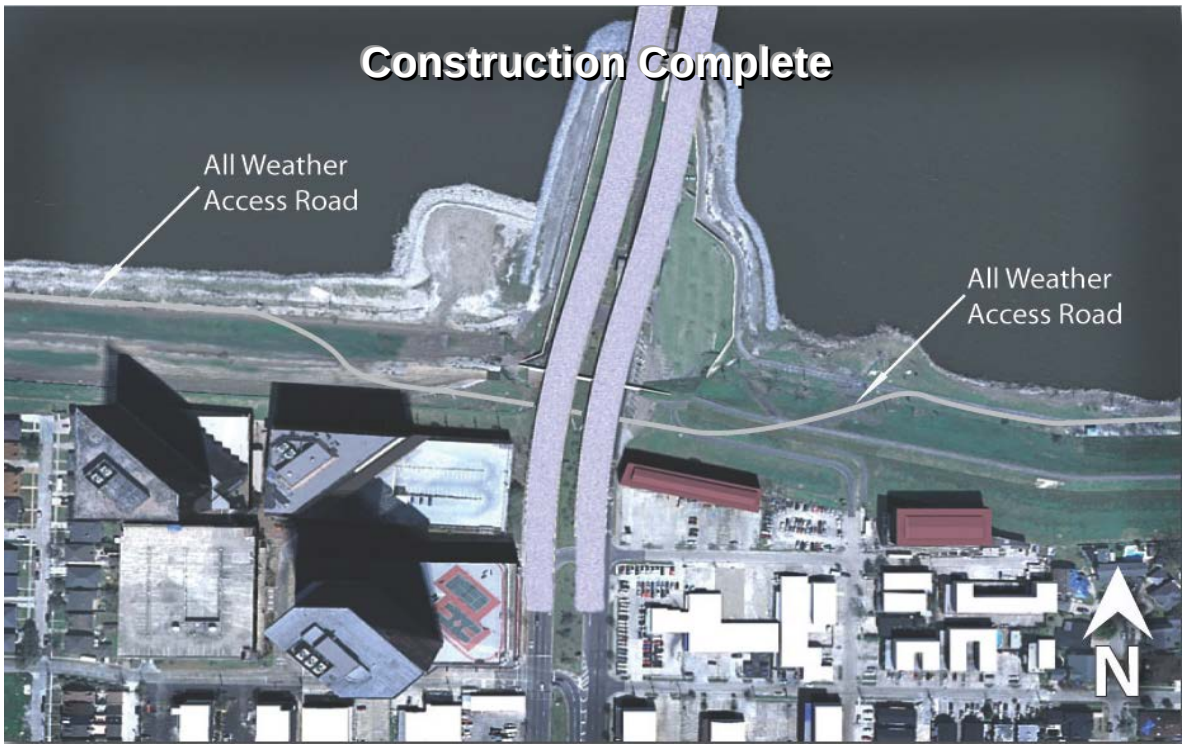
In the first phase of construction, the Causeway travel lanes were detoured into the median.

In the second phase of construction Causeway travel lanes were detoured onto the newly constructed elevated lanes.



Construction of the new T-wall and bridge will continue through summer 2013.

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EASTERN TIE-IN

Updated August 2015

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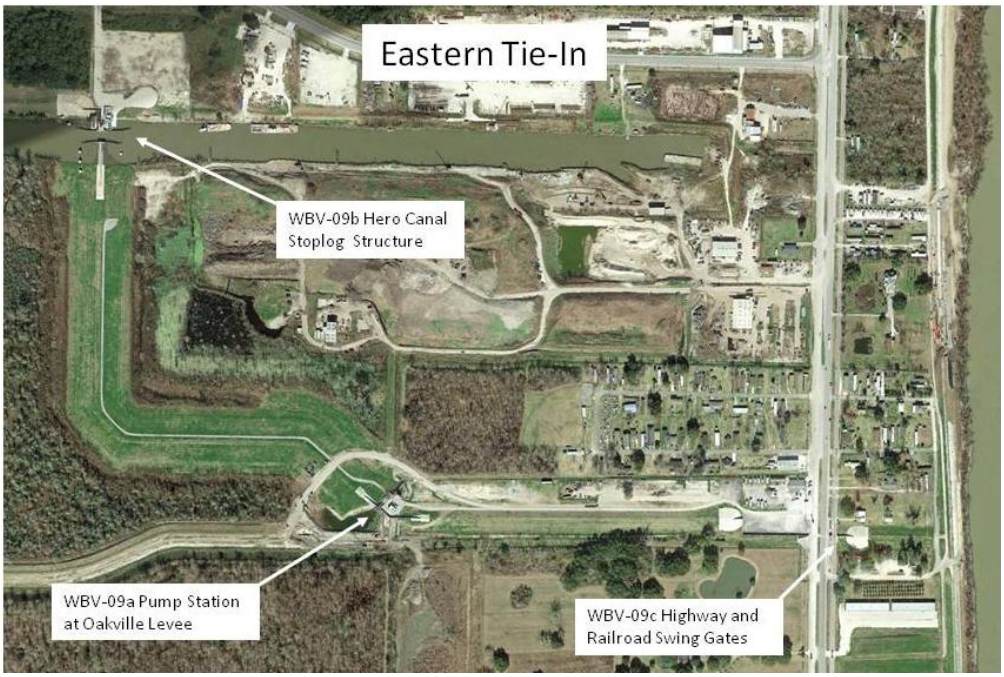

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Project Summary

The Eastern Tie-In project, located on the west bank of the Mississippi River in the vicinity of the town of Oakville in Plaquemines Parish, ties into the existing Hero Canal levee, crosses Highway 23, and links to the Mississippi River Levee system.

The structural features being built by the Corps reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value for the Eastern Tie-In projects is an estimated $81 million.

Project Features

The Eastern Tie-In project connects the Mississippi River Levees with the existing Hero Canal Levee. This system includes the following features: a navigable stoplog gate across the Hero Canal, levees, a pump station, emergency shelter, a floodwall, a floodgate across Highway 23, a railroad gate and a tie-in levee at the Mississippi River Levee.

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EASTERN TIE-IN

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The Corps determined that a double swing gate system was the most reliable way to close the system across Highway 23 because it is a proven reliable risk reduction feature. It requires minimal training and advanced preparation; it can be closed in four hours or less, allowing travel lanes to be quickly closed and opened in the event of a storm. An emergency by-pass road was constructed for authorized vehicles when the gate is closed.

Project Status

The Eastern Tie-In is split into 3 contracts. All three contracts are complete:

- WBV-09a – Includes earthen levees, Oakville Pump Station, emergency shelter and the emergency bypass road.
- WBV-09b – Includes the stoplog closure structure on the Hero Canal.
- WBV-09c – Includes the floodwalls, highway swing gates and the railroad swing gate at Hwy 23.

WBV-09a Pump station along Oakville Levee

WBV-09c Closed Highway Swing Gate

WBV-09b Stoplog Structure on Hero Canal

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GRAND ISLE & VICINITY
STORM DAMAGE REDUCTION PROJECT

Updated July 2018

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Overview/Authorization

The Hurricane and Storm Damage Reduction project was authorized to reduce flooding and storm damage along the barrier island of Grand Isle.

The Project was authorized in 1976 to include a seven mile hurricane and storm damage risk reduction vegetated sand dune, along with a stone jetty to stabilize the western end of the island at Caminada Pass. WRDA 1996 modified the authority to include breakwaters.

Project Description

The proposed plan includes construction of offshore segmented stone breakwaters at the Gulf side, western end of the island.

Recommended Plan

Consistent with a plan proposed by the Louisiana Coastal Protection and Restoration Authority, the recommended plan calls for construction of offshore segmented stone breakwaters at the Gulf side, western end of the island to reduce erosion resulting from storm driven waves and currents.

Project Cost

The anticipated cost of construction is $15M.

Path Forward/Key Activities

- Execute Project Partnership Agreement
- Sponsor and Stakeholder Coordination
- Initiate Survey and Boring Investigations
- Initiate Hydraulic and Hydrologic Analysis
- Initiate Relocations investigations and NEPA documentation

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GRAND ISLE

Updated August 2012

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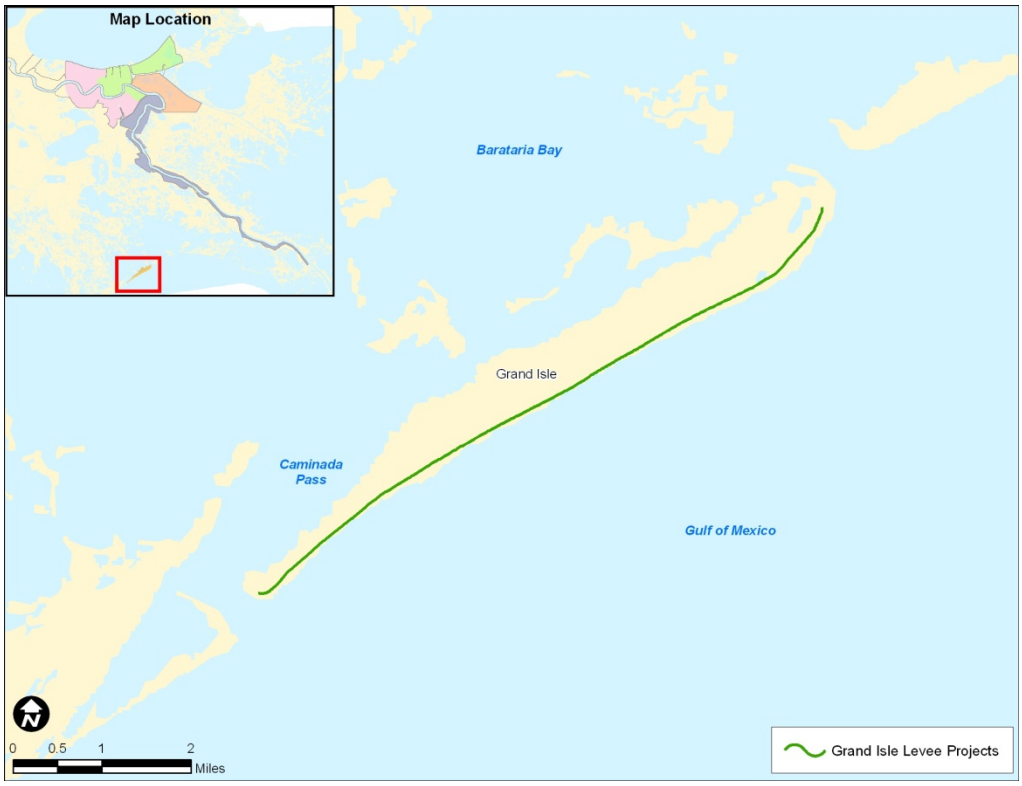

Project Summary

Grand Isle is an inhabited barrier island located in Jefferson Parish at the mouth of Barataria Bay where it meets the Gulf of Mexico. The Grand Isle risk reduction system consists of a 7.5-mile-long vegetated sand dune along the southern (Gulf) shore, a jetty to stabilize the western end of the island at Caminada Pass and an offshore breakwater system. These features will reduce the risk associated with a 50-year storm surge event. The total construction value for the Grand Isle risk reduction system is an estimated $52 million.

Project Features

Prior to Hurricane Gustav in 2008, the Corps was in the midst of repairing damages caused by Hurricane Katrina to the Grand Isle Federal dune project on the island's south shore. By 2008, 8,000 linear feet of dune, breakwaters, jetties and pedestrian crosswalks had been repaired. However, Hurricane Gustav significantly damaged or destroyed much of the dune and an emergency flood-fighting effort was initiated with the approach of Hurricane Ike just a few weeks after Gustav. The flood-fighting effort consisted of filling the breaches in the sand dune with large sand bags and constructing an 8,000-linear-foot "burrito" core.

The damages to the dune in Grand Isle after Hurricanes Gustav and Ike in 2008 revealed that a stronger, more resilient dune system needed to be constructed. Thus, the Corps reconstructed approximately 5.7 miles of the dune with a geotextile tube core and a sand cap. The system consists of two 2.2-foot-diameter anchor tubes on either end of a 12-foot-diameter center tube. The tubes were placed on a 40-foot-wide scour apron to combat foundation scour caused by storm surge. The tubes were filled with sand from the pre-existing dune before being buried beneath sand dredged from a borrow site east of Grand Isle. The 80-foot-wide dune was constructed to an elevation of 13.5 feet above sea level.

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GRAND ISLE

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Project Status
All Grand Isle risk reduction features were completed in April 2010.

Scour Apron

Geotextile Center Tube (white tube) and Anchor Tube (black tube)

Geotextile Center Tube with Anchor Tubes

Completed Sand Dune

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Harvey Canal Floodwall

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View of the Harvey Canal Floodwall along Peters Road.

Project Purpose

The Harvey Canal Floodwall project area is located on the west bank of the Mississippi River in Jefferson Parish along Peters Road on the east bank of the Harvey Canal waterway. The total awarded construction value of the Harvey Canal Floodwall project is $331 million.

The structural features built by the Corps along Peters Road provide Federal risk reduction where none previously existed. This new floodwall serves as a secondary line of defense to storm surge when the West Closure Complex is closed for a tropical event. The West Closure Complex is a part of the HSDRRS perimeter features that will reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge.

Project Features

The floodwall construction project reduces risk to residents and businesses in the area of the Harvey Canal. The project area is high-density residential and commercial development, with businesses and residents that require access to the surrounding waterways. Much of the area is subject to flooding during moderate tropical storms. The Harvey Canal project area extends from the Harvey Canal Sector Gate at Lapalco Blvd down the east bank of the Harvey Canal to the confluence of the Harvey and Algiers canals. The Harvey Canal Floodwall Project consists of approximately 3.5 miles of "T-wall" floodwall to an elevation of +14 feet founded on 130 foot long H-piles. These structures incorporate numerous vehicle gates to allow for access to businesses.

Project Status

There were five Harvey Canal Floodwall contracts. All contract are complete and have been turned over to the non-Federal sponsor.

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Inner Harbor Navigation Canal Lock

Updated March 2017

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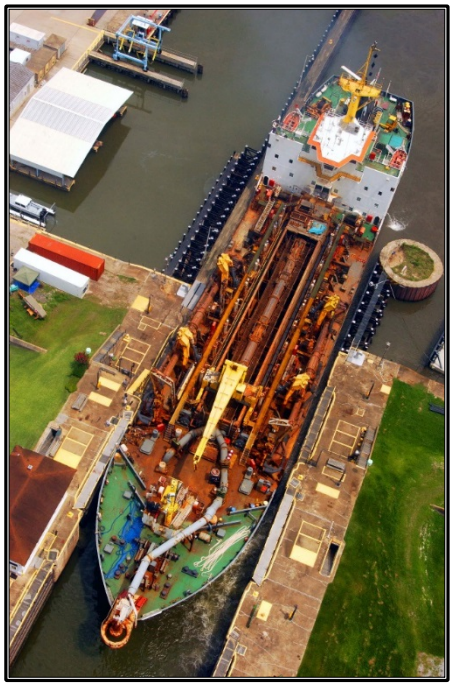

The U.S. Army Corps of Engineers (USACE) primary navigation responsibilities include planning and constructing new navigation channels and locks and dams, and dredging to maintain mandated channel depths in U.S. harbors and on inland waterways. Nationally, the USACE operates and maintains 25,000 miles of navigable channels and 191 commercial lock and dam sites, and serves ports and waterways in 41 states.

The Corps of Engineers New Orleans District's navigation efforts focus on both inland and coastal waterways, including, but not limited, to the Mississippi River and Outlets at Venice, the Calcasieu River Ship Channel, the Atchafalaya Basin Project, and the Gulf Intracoastal Waterway between Mississippi and Texas.

Project Purpose and History

The Inner Harbor Navigation Canal (IHNC or Industrial Canal) was constructed to create a connection between Lake Pontchartrain and the Mississippi River. A lock was required at the Mississippi River end of the 5.5-mile-long canal to allow vessels to move from the normally higher water level of the river to the lower level of the canal. The Port of New Orleans constructed the Industrial Canal and Lock between 1918 and 1923. The federal government purchased the lock in 1986.

The canal and lock are a part of the Gulf Intracoastal Waterway (GIWW), the third busiest inland waterway in the nation. The GIWW stretches 1,050 miles along the Texas coast around the Gulf of Mexico and down the Florida coast. The GIWW was first proposed by the federal government in 1909 and was completed in 1949.

In 1956 Congress passed the River and Harbor Act which included authorization for construction of a replacement lock. Studies initiated in 1960 estimated the dimensions of the lock would be obsolete by 1970. Subsequent to the 1956 legislation, the project was modified by the Water Resources Development Acts (WRDA) of 1986 (established cost sharing requirements) and was amended by the WRDA of 1996 (authorizing the Community Impact Mitigation Plan). In 1997 the U.S. Army Corps of Engineers released the IHNC Lock Evaluation Report and Environmental Impact Statement.

A Supplemental Environmental Impact Statement and Appendices were released in 2009. In January 2017 the Army Corps released the Draft General Reevaluation Report and Draft Supplemental Environmental Impact Statement for public review and comment. The tentatively selected plan in that report is to replace the existing lock with a larger, more efficient shallow-draft lock, to be located within the IHNC, north of Claiborne Avenue

Existing Project Features

The IHNC Lock is 640 feet long by 75 feet wide by 31.5 feet deep. The lock is primarily used by barge traffic on the GIWW. In 1998, 2008, and 2016 the lock was dewatered for major maintenance. The most recent maintenance included the replacement of electric motors with hydraulic machinery and installation of modern gates.

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IHNC-LAKE BORGNE SURGE BARRIER

Updated May 2015

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Project Summary

The 1.8-mile-long Inner Harbor Navigation Canal (IHNC)-Lake Borgne Surge Barrier is located at the confluence of the Gulf Intracoastal Waterway (GIWW) and the Mississippi River Gulf Outlet (MRGO), about 12 miles east of downtown New Orleans. The surge barrier works in tandem with the Seabrook Floodgate Complex, which is being constructed at the north end of the IHNC (also known locally as the Industrial Canal) near Lake Pontchartrain. The projects reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge, for some of the areas hardest hit by Hurricane Katrina, including New Orleans East, metro New Orleans, Gentilly, the Ninth Ward and St. Bernard Parish. The total construction value for the IHNC-Lake Borgne Surge Barrier is an estimated $1.1 billion.

Project Features

The IHNC-Lake Borgne Surge Barrier is the largest design-build civil works project in the history of the Corps. The concrete barrier wall stretches for 1.8 miles across the Mississippi River Gulf Outlet and the Golden Triangle Marsh. It also consists of a bypass barge gate and a flood control sector gate (each 150 feet wide) at the GIWW and a 56-foot-wide vertical lift gate at Bayou Bienvenue. The surge barrier has floodwall tie-ins to the New Orleans East risk reduction system on the north end and the St. Bernard risk reduction system on the south end. The entire structure is at an elevation of 25 and 26 feet above sea level.

The Bayou Bienvenue gate will allow recreational boats to pass to and from Lake Borgne, while the sector gate at the GIWW will be the main passage route for shallow draft navigation. The barge gate currently serves as the temporary passage route for shallow draft navigation on the GIWW while the sector gate is under construction.

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IHNC-LAKE BORGNE SURGE BARRIER

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Project Status
All major construction efforts are complete and the structure is fully functional and capable of defending against a 100-yr storm surge. Operations and maintenance responsibility has been transferred to the non-Federal sponsor.

Barge Gate and Sector Gate at the Gulf Intracoastal Waterway

Vertical Lift Gate at Bayou Bienvenue

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Lake Pontchartrain and Vicinity

Updated June 2013

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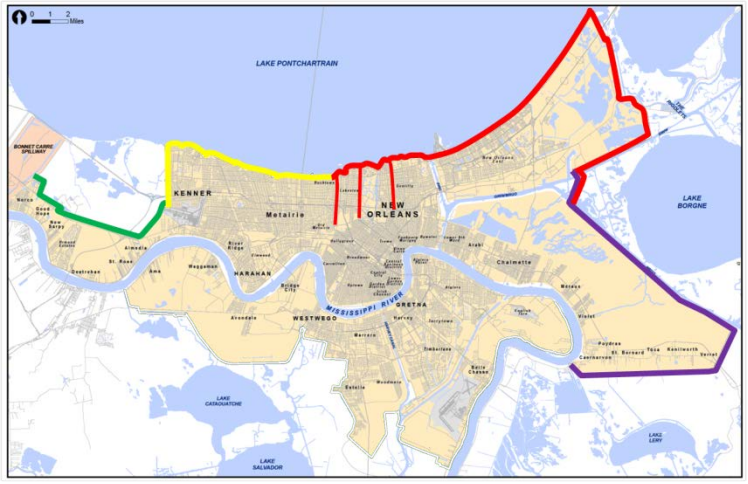

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Project Summary

The Lake Pontchartrain and Vicinity (LPV) project includes work in four parishes (St. Charles, Jefferson, Orleans, and St. Bernard) located in the greater New Orleans area on the east bank of the Mississippi River. The structural features built by the Corps reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge.

Project Features

This portion of the risk reduction system is broken into four parishes: St. Charles, Jefferson, Orleans, and St. Bernard.

St. Charles Parish

In St. Charles Parish, the Corps constructed 9.5 miles of levees, four drainage structures, four floodwalls, a vehicular access gate, a railroad gate and developed a bird abatement program which prevented birds from nesting near the project site and delaying construction. (St. Charles risk reduction projects are labeled in green on the map above.)

Jefferson Parish

In Jefferson Parish, the Corps constructed a 3.5 mile floodwall along the Jefferson-St. Charles Parish line, 10 miles of levees, floodwalls, floodgates, and fronting protection at the four large pump stations along the Jefferson Parish Lakefront. (Jefferson Parish risk reduction projects are labeled in yellow on the map above.)

Orleans Parish

In Orleans Parish, work was completed in the New Orleans Metro area, the New Orleans East area, the Outfall Canals, the Seabrook Floodgate Complex and the Inner Harbor Navigation Canal (IHNC) - Lake Borgne Surge Barrier. (Orleans Parish risk reduction projects are labeled in red on the map above.)

In New Orleans Metro, the Corps constructed new T-walls and vehicle floodgates; raised existing levees and roadway ramps; and modified and strengthened existing floodgates, floodwalls and the Bayou St. John sector gate.

In New Orleans East the Corps raised approximately 25 miles of levees and constructed approximately 2 miles of floodwalls around the perimeter of New Orleans East. Levee enlargement techniques in this area included wick drains and a sand drainage blanket to strengthen and consolidate the underlying soil and deep soil mixing.

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The Seabrook Floodgate Complex, located at the north end of the IHNC; also known locally as the Industrial Canal just south of Lake Pontchartrain and the Senator Ted Hickey Bridge, works in tandem with the IHNC-Lake Borgne Surge Barrier. This project consists of a 95 foot wide navigable sector gate and two 50 foot wide, non-navigable vertical lift gates with floodwall tie-ins on the east and west sides.

In Orleans Parish there are also three main drainage structures. These canals are a critical element of New Orleans' flood control system, serving as drainage conduits for much of the city. Levees line the sides of the canals and floodwalls are situated on the top of each levee. The canals run south-to-north near the Orleans Parish lakefront between the Jefferson Parish line and the IHNC. The 17th Street Canal extends 13,500 feet from Pump Station 6 to Lake Pontchartrain along the Jefferson Parish line. The Orleans Avenue Canalruns approximately 11,000 feet from Pump Station 7 to Lake Pontchartrain and the London Avenue Canal extends 15,000 feet north from Pump Station 3 to the lake.

Following Hurricane Katrina, the Corps constructed Interim Closure Structures at the mouths of the three outfall canals to block storm surge from entering the canals. These structures were completed prior to the 2006 hurricane season, the first full hurricane season after Hurricane Katrina. These interim closure structures will eventually be replaced with permanent structures

Orleans Parish and St. Bernard Parish
The IHNC-Lake Borgne Surge Barrier is the largest design-build civil works project in the history of the Corps. This project involved the construction of a concrete barrier wall stretching for 1.8 miles across the Mississippi River Gulf Outlet and marsh between St. Bernard and Orleans Parishes. It also consists of a bypass barge gate and a flood control sector gate (each 150 feet wide) at the GIWW and a 56-foot-wide vertical lift gate at Bayou Bienvenue. The Bayou Bienvenue gate allows recreational boats to pass to and from Lake Borgne, while the sector gate at the GIWW is the main passage route for shallow draft navigation. The barge gate was constructed to serve as the temporary passage route for shallow draft navigation on the GIWW during major rehabilitation of the sector gate. (The IHNC-Lake Borgne Surge Barrier risk reduction project is labeled in red and purple on the map above.)

St. Bernard Parish
In St. Bernard Parish, the Corps constructed a system which consists of approximately 23 miles of floodwalls, 3 roadway gates, 2 sector gates, and 12 access flood gates that extend from the existing Bayou Bienvenue sector gate in the northeast to the Mississippi River near Caernarvon in the southwest.

In addition to floodwalls, a sector gate was constructed where Bayou Dupre flows into the MRGO. This sector gate was constructed to an elevation of 32 feet above sea level; Further south, 2 vehicle gates were constructed where the alignment crosses Highway 46, a sector gate was constructed across the Caernarvon canal and floodgates were constructed at Highway 39 and the adjacent Norfolk Southern Railroad tracks. (St. Bernard risk reduction projects are labeled in purple on the map above.)

Project Status
All Lake Pontchartrain and Vicinity, HSDRRS projects have features in place to defend against the 100-year storm event; however, construction will continue through 2013.

Larose to Golden Meadow

Updated August 2012

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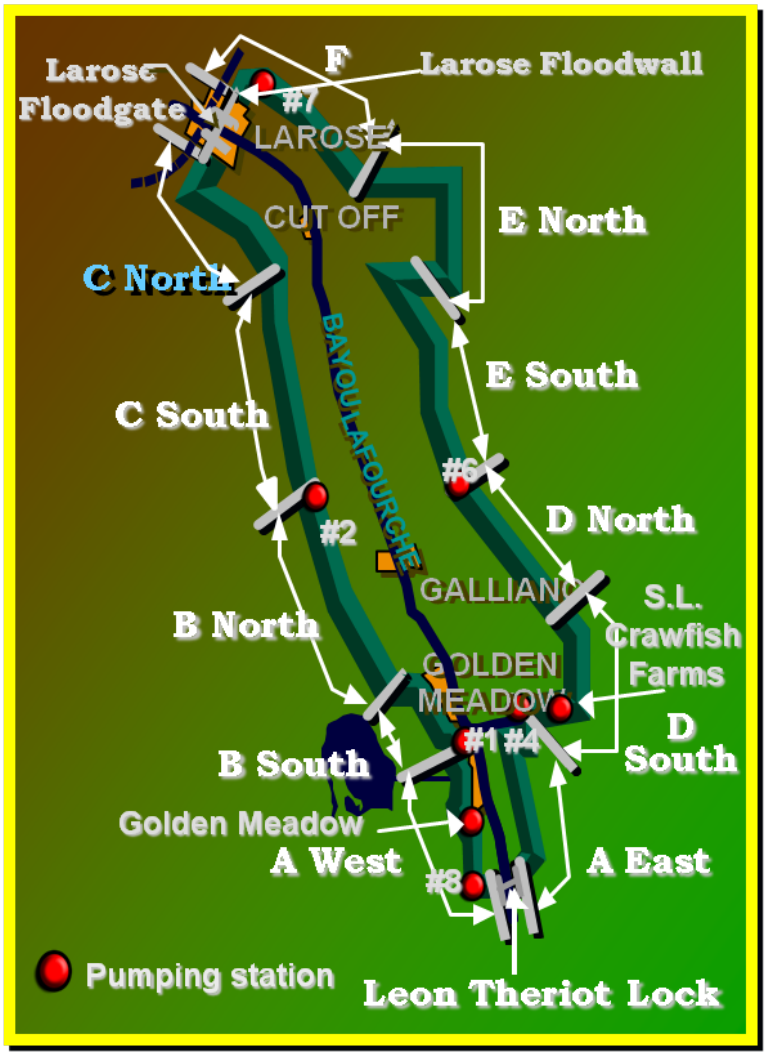
Project Purpose

The purpose of the Larose to Golden Meadow project is to provide an authorized hurricane risk reduction system to the communities located along Bayou Lafourche between Larose and Golden Meadow.

The project seeks to reduce the risk of storm surge flooding for several communities including Larose, Cutoff, Galliano and Golden Meadow. The total population within the project area is estimated at approximately 24,000 people. Approximately 2,300 acres of residential and commercial land and 9,400 acres of agricultural land are within the project area, as well as an additional 4,500 acres of mostly undeveloped land.

The storage distribution center for the Louisiana Offshore Oil Port (LOOP), LLC facility is located in the vicinity of Galliano. This 40 million barrel capacity facility is central to the distribution of the nation's refining capacity. Pumps, meters that measure the crude oil receipts and deliveries, above ground tanks and the system control center are vulnerable to hurricane-related damages. Hurricane Katrina closed the distribution center for 4 days. While the control center generators are elevated to reduce risk from flooding, major flooding would disrupt the workforce.



Project Location

The project is located in Lafourche Parish about 28 miles southwest of New Orleans and about 25 miles inland from the Gulf of Mexico along Bayou Lafourche.

Project Features

- Ring Levee
  This feature is approximately 48 miles in length, protecting the areas along the east and west banks of Bayou Lafourche, and extending from Larose to just south of Golden Meadow. The base of the levee varies from 150 feet to 400 feet wide. The levee elevations are approximately +9 feet above sea level on the north end and +13 feet above sea level on the south end.
- Floodwalls
  These structures are built in areas where congestion and limited right-of-way prevented the construction of levees.
- Navigable Floodgates
  These structures are constructed on Bayou Lafourche at the upper and lower limits of the project area. The Leon Theriot Lock (formerly known as the Golden Meadow Floodgate) has an elevation of +13 feet. The Ted Gisclair Floodgate (formerly known as the Larose Floodgate) has an elevation of +10 feet. The floodgates will remain open for navigation, but will close, as necessary, to prevent tidal flooding from Bayou Lafourche.
- Drainage Structure
  In lieu of the eight gravity drainage structures that were authorized, the non-Federal sponsor chose to pay the additional cost for pumping stations.

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Larose to Golden Meadow

Updated August 2012

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Project Status

Currently, there are three ongoing efforts on behalf of the Corps; remedial measures, a Post Authorization Change (PAC) Study, and construction of a portion of the original project that was never completed.

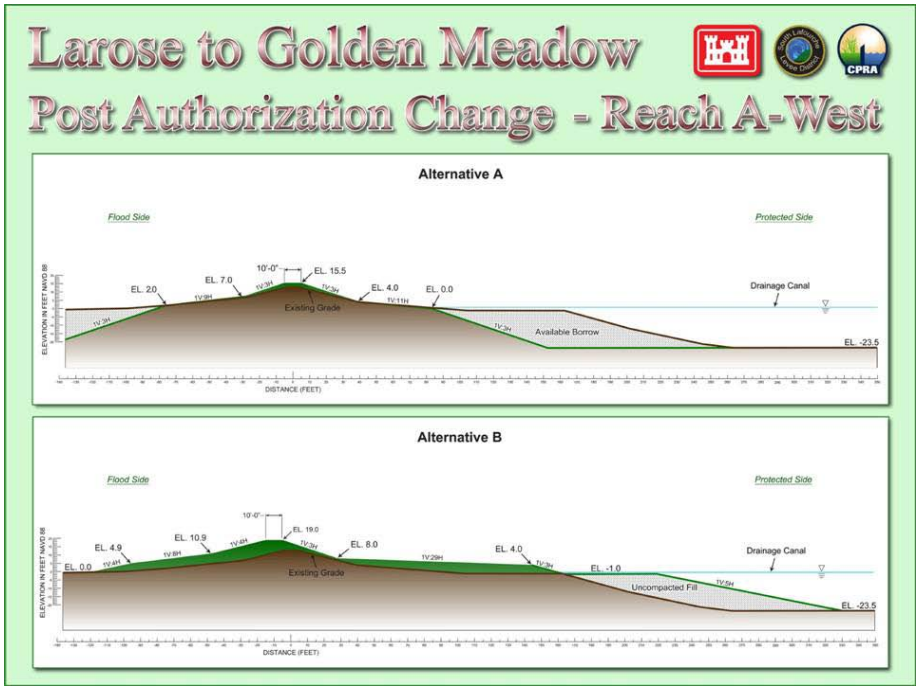
Remedial measures at the LOOP access ramp were completed in November 2011 and the Golden Meadow Pumping Station Floodwall was completed in May 2012. The construction contract for the GIWW/Larose Floodwall Reach 1 was awarded in August 2011 and will be completed mid September 2012. Remedial measures are being designed for the GIWW/Larose Floodwall Reach 2a and Pumping Station #2, and these contracts should be awarded in June 2013 and September 2013,respectively, and are scheduled to be complete by May 2014.

The PAC Study will address three alternatives;

- **Alt A -** Complete LGM without exceeding the 1965 authorized elevation using the current Hurricane and Storm Damage Reduction System (HSDRRS) design guidelines with the exclusion of the Post-Hurricane Katrina H&H Design Guidelines.
- **Alt B -** Complete LGM without exceeding the 1965 authorized Stillwater elevations using the current HSDRRS design guidelines to include the Post Hurricane Katrina surge models.
- **Alt C -** Complete LGM based on pre-Hurricane Katrina expressed remaining work (10 structures).

The re-evaluation of alternative levels of protection will involve the development of a mitigation plan. The PAC Study developed new design elevations in October 2010, and levee and structural designs for the three alternatives are being studied and were completed in April 2012. The PAC Study Draft Report schedule is currently under revision. American Recovery and Reinvestment Act (ARRA) funds, in the amount of $6.37 million, were used on 13 contracts to take surveys and soil borings and to perform structural and economic analysis for the PAC Study. ARRA funds were financially closed out in May 2011.

Construction of the last portion of the original project is Section C-North HWY 24 Crossing, which is scheduled to be awarded in November 2013 and completed in November 2014.



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JEFFERSON PARISH

Updated May 2013

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Project Summary

The Lake Pontchartrain and Vicinity (LPV) – Jefferson Parish project is located in the greater New Orleans area between the Mississippi River and Lake Pontchartrain in Jefferson Parish. The structural features built by the Corps reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value for LPV-Jefferson Parish is an estimated $500 million.

Project Features

This portion of the risk reduction system is comprised of a 3.5 mile floodwall along the Jefferson-St. Charles Parish line from the Louis Armstrong New Orleans International Airport to Lake Pontchartrain, 10 miles of levees, floodwalls, floodgates, and fronting protection for the pump stations along the Jefferson Parish Lakefront.

Project Status

All sixteen perimeter HSDRRS risk reduction contracts in Jefferson Parish have features in place to defend against the 100-year storm event; however, construction at the Causeway will continue through summer 2013, while fronting protection work at Elmwood and Suburban pump stations will continue through 2013. In addition, a contract was recently awarded to address West Return Floodwall drainage. This work is underway and will be completed in late 2013.

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Aerial image taken in July 2012 of ongoing fronting protection construction at Bonnabel Pump Station.

Aerial image taken in July 2012 of the completed West Return Floodwall.

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ST. CHARLES PARISH

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Project Summary

Improvements to the risk reduction features in St. Charles Parish are a part of the Lake Pontchartrain and Vicinity portion of the hurricane system. Located on the east bank of the Mississippi River, the boundary of the St. Charles Parish project area includes the Bonnet Carré Spillway Lower Guide Levee, which runs from the Mississippi River until slightly north of Airline Highway (US Hwy 61), then turns east roughly paralleling Airline Hwy (US Hwy 61) to the Jefferson-St. Charles Parish boundary near the Louis Armstrong New Orleans International Airport where it ties into the LPV-Jefferson Parish project.

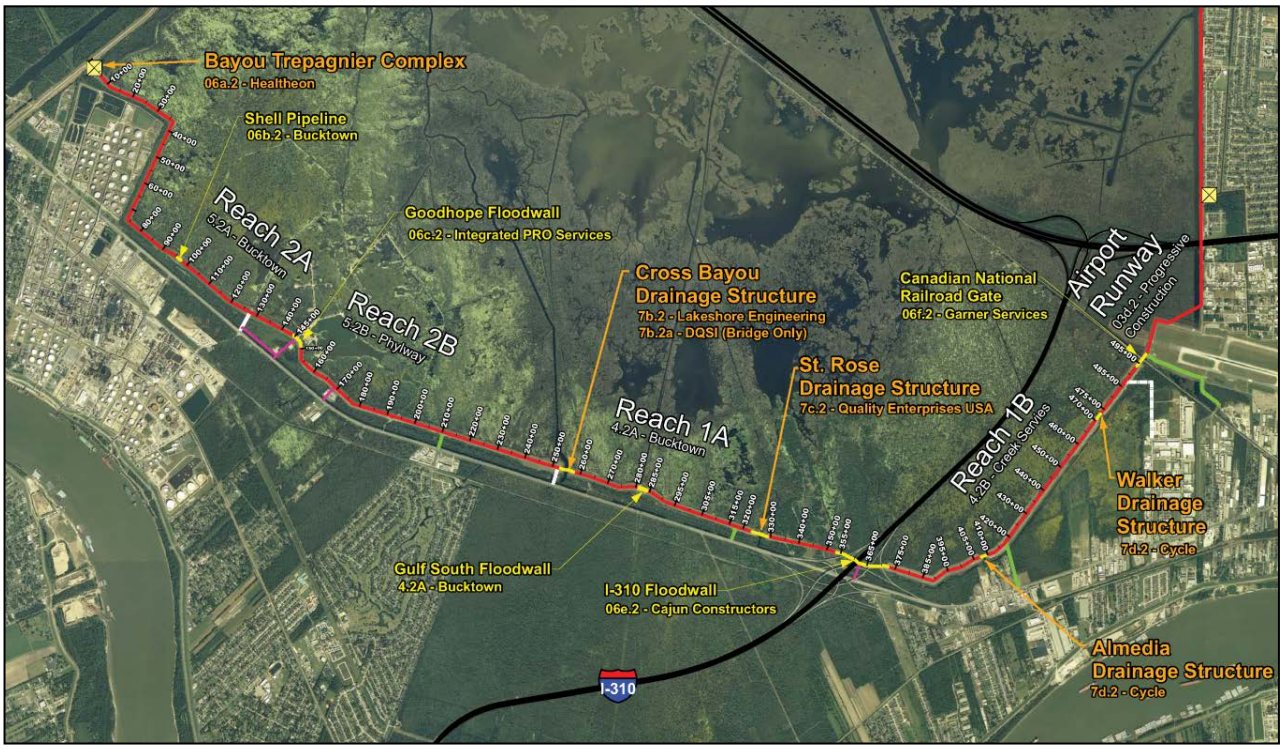
The structural features built by the Corps reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value of the LPV-St. Charles Parish project is an estimated $100 million.

Project Features

This portion of the risk reduction system is divided into four reaches, which include approximately 9.5 miles of levees, four drainage structures, four floodwalls and a railroad gate. Construction of the St. Charles Parish risk reduction features included the development of a bird abatement program which prevented birds from nesting near the project site and delaying construction.

Project Status

All 100-year level risk reduction features in the LPV-St. Charles Parish project area were completed May 2011.



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ST. CHARLES PARISH

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Above: Aerial image of Bayou Trepagnier Pump Station taken July 2012

Left: I-310 Floodwall and levee tie-in. Image taken July 2012

Above: Aerial image of Goodhope Floodwall. Image taken July 2012.

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NEW ORLEANS EAST

Updated May 2015

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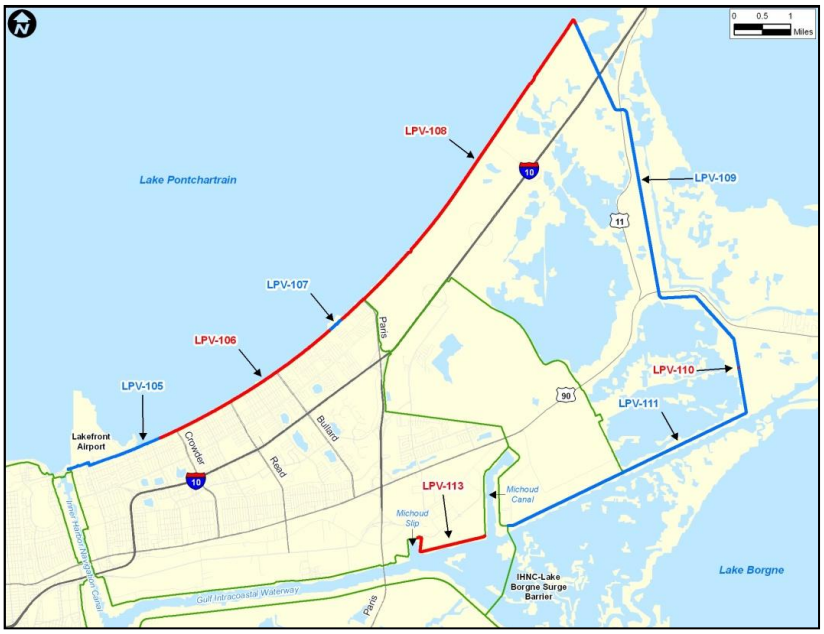

Project Summary

The perimeter system in New Orleans East stretches from the eastern end of the Inner Harbor Navigation Canal (IHNC) along Lake Pontchartrain to the northeast, continues southeast to the Gulf Intracoastal Waterway, southwest to the Michoud Slip and then ties in to the IHNC Surge Barrier. The structural features reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value for the New Orleans East perimeter system is an estimated $1 billion.

Project Features

Approximately 25 miles of levee have been raised and approximately 2 miles of floodwall have been constructed around the perimeter of New Orleans East. Along the New Orleans East lakefront near the Lakefront Airport, a new concrete T-wall and a vehicle gate at Downman Road (LPV 105) were constructed. Between the Lakefront Airport and Paris Road, the existing embankment was raised with a 2 to 4 foot high floodwall (LPV 106) and a new T-wall and access gate were constructed at Lincoln Beach (LPV 107). Between Paris Road and Southpoint, the existing levee was raised and T-walls were constructed at the Collins Pipeline Crossing. All features along the New Orleans East lakefront are at an elevation of between 15 and 18 feet above sea level.

On the eastern edge of New Orleans East between Southpoint and the CSX Railroad, the existing levee was raised and vehicle gates (LPV 109.02a&c) were constructed. In order to raise the levee expeditiously, innovative construction techniques - wick drains and a sand drainage blanket - were used to strengthen and consolidate the underlying soil. Vehicle gates were also built at Highway 90 and Highway 11, and Interstate 10 was raised where it crosses the levee (LPV 109.02b). The entire LPV 109 stretch was raised to an elevation between 16.5 and 25 feet above sea level.

At the CSX Railroad crossing, a 27.5 foot high gate (LPV 110) was constructed. Between the CSX Railroad and the Michoud Canal, the existing levee and T-wall around Drainage Pump Station 15 were raised and a floodwall to tie into the Inner Harbor Navigation Canal-Lake Borgne Surge Barrier (LPV 111) was constructed. In order to strengthen the underlying soil, deep soil mixing (a process that involves injecting a cement-water mixture deep into the native soil and mixing it with the soil) was used to strengthen the levee's foundation. The levee and floodwalls in this location were raised to an elevation of between 25 and 32 feet above sea level. Further west, between the Michoud Canal and the Michoud Slip, the existing levee was raised to 19.5 feet above sea level (LPV 113).

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NEW ORLEANS EAST

Updated May 2015

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Project Status

All 100-year level risk reduction features in the New Orleans East perimeter system were completed in June 2011.

Interstate 10 Crossing at LPV 109

LPV 111

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NEW ORLEANS METRO

Updated August 2012

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Project Summary

New Orleans Metro is defined as the East Bank of Orleans Parish west of the Inner Harbor Navigation Canal (IHNC; also known locally as the Industrial Canal) and a small portion of Jefferson Parish near the Mississippi River. Hurricane risk reduction construction is taking place generally in the vicinity of Lake Pontchartrain between the 17th Street Canal to the west and the IHNC to the east. The structural features being built by the Corps will reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value in New Orleans Metro is an estimated $100 million.

Project Features

In New Orleans Metro, the Corps constructed new "T-wall" floodwalls and vehicle floodgates; raised existing levees and roadway ramps; and modified and strengthened existing floodgates, floodwalls and the Bayou St. John sector gate. All structural features in New Orleans Metro were built to an elevation between 16 and 22 feet above sea level.

Project Status

All 100-year level risk reduction features along the New Orleans Metro perimeter were completed in May 2011. Work will continue until fall 2012.

Floodwall near 17th Street Canal

Floodwall near Bayou St. John

Bayou St. John Sector Gate

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NOV/NFL

Updated February 2015

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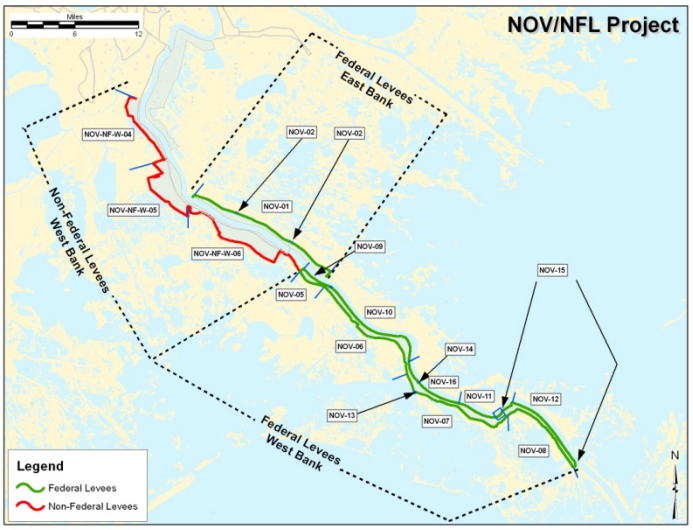
Public safety is the Corps of Engineers' top priority. In lower Plaquemines Parish, Louisiana, the level of risk reduction against a storm surge event is provided by two risk reduction projects – Replacement or modification of certain Non-Federal Levees (NFL) in Plaquemines Parish, Louisiana, and repair and restoration of the originally authorized New Orleans to Venice (NOV), Louisiana Project.

Plaquemines Parish Non-Federal Levee Project



On the west bank, where the Federally-authorized West Bank and Vicinity, Louisiana project ends in Oakville, there are levees extending southward that were previously constructed by Plaquemines Parish and private entities. The levees extend southward from Oakville to St. Jude. In the aftermath of the 2005 hurricane season, Congress authorized funding to replace and modify certain NFL, and to incorporate these levees into the New Orleans to Venice (NOV), Louisiana project. The current NFL project includes approximately 34 miles of levee replacements or modifications and a tie-in to NOV levees at St. Jude. Due to available funding limitations and constraints, a risk assessment was conducted in 2013 to optimize the levee heights and minimize the consequences based on the risk analysis results. The Oakville to LaReussite levee will be constructed using the design criteria to provide a 50-Year Level of Risk Reduction (LORR). For the remaining NFL extending from LaReussite to St. Jude, designs will be optimized to a consistent/prioritized 20-25 year LORR. Improvements to the existing NFL project include levee and floodwall improvements, as well as fronting protection at pumping stations.

New Orleans to Venice Project

The purpose of the NOV project is to achieve storm risk reduction for Plaquemines Parish by repairing and restoring the original project levees, accelerating the completion of unconstructed portions of the authorized project and armoring critical elements of the authorized project. The NOV Federal levees are located on the east bank of Plaquemines from Phoenix to Bohemia and on the west bank from St. Jude to Venice. Due to available funding limitations and constraints, a risk assessment was conducted in 2013 to distribute the funds in the most efficient manner and prioritize areas of deficiencies according to their level of risk. "Overtopping-without-Breach" is the principal risk driver for this project, and the analysis resulted in some changes of priority, primarily focusing efforts to implement improvements to raise low areas of the system mostly along the Mississippi River Levees. The NOV levees are being constructed to the 2%, 50-year LORR. The current NOV project includes approximately 15 miles of back levee and Mississippi River levee modifications, 2 sector gates on the west bank (near the Empire Floodgate and Empire Lock), fronting protection at pumping stations, and backflow prevention at 2 locations on the east bank (Bellevue and East Point a La Hache pumping stations).

Project Status

The first of 27 construction contracts was awarded in September 2012. Currently, 12 construction contracts have been awarded. Construction is currently anticipated to continue into 2020.

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OUTFALL CANAL CLOSURE STRUCTURES

Updated May 2013

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Project Summary

There are three main drainage outfall canals in the City of New Orleans. These canals are a critical element of New Orleans' flood control system, serving as drainage conduits for much of the city. Levees line the sides of the canals and floodwalls are situated on the top of each levee. The canals run south-to-north near the Orleans Parish lakefront between the Jefferson Parish line and the Inner Harbor Navigation Canal (IHNC; also known locally as the Industrial Canal). The 17th Street Canal extends 13,500 feet from Pump Station 6 to Lake Pontchartrain along the Jefferson Parish line. The Orleans Avenue Canal, between the 17th Street Canal and the London Avenue Canal, runs approximately 11,000 feet from Pump Station 7 to Lake Pontchartrain. The London Avenue Canal extends 15,000 feet north from Pump Station 3 to Lake Pontchartrain about halfway between the Orleans Avenue Canal and the IHNC.

Following Hurricane Katrina, the Corps constructed Interim Closure Structures at the mouths of the three outfall canals to provide the 100-year level of storm surge risk reduction. These structures were completed prior to the 2006 hurricane season, the first full hurricane season after Hurricane Katrina, at a cost of about $400 million.

Project Features

The interim closure structures at the three outfall canals are composed of both gated structures and various pumps. These pumps move rainwater out of the canals, around the gates and into Lake Pontchartrain during a tropical weather event. The 17th Street Canal consists of 18 hydraulic pumps, 11 direct drive pumps, 14 bridge pumps, and has a pumping capacity of 9,200 cubic feet per second (cfs).

The Orleans Avenue Canal consists of 10 hydraulic pumps and has a pumping capacity of 2,200 cfs. The London Avenue Canal consists of 12 hydraulic pumps, 8 direct drive pumps, and has a pumping capacity of 5,200 cfs.

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OUTFALL CANAL CLOSURE STRUCTURES

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The decision to close the gates is based on predicted storm surge and water elevations in Lake Pontchartrain. Once the Corps makes the decision to lower the gates, local officials are notified. Once conditions improve, the gates will be raised as soon as possible.

Project Status

The interim closure structures at the three outfall canals currently provide the 100-year level of risk reduction. Since their installation, the pumps have run successfully for tropical weather events such as Hurricanes Gustav and Ike in 2008 as well as during Hurricane Isaac in 2012. These interim closure structures have a limited design life, though, and they will be replaced with permanent canal closures and pumps. Construction is anticipated to begin in fall 2013 and expected to take approximately 44 months. Questions about construction may be directed to the **Construction Hotline** at 877-427-0345.

17th St. Canal

Orleans Ave. Canal

London Ave. Canal

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Permanent Canal Closures & Pumps

Construction Impact Hotline at: 1-877-427-0345

Updated March 2017

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Congress has fully authorized and funded the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for southeast Louisiana. The $14.45 billion HSDRRS includes five parishes, consists of 350 miles of levees and floodwalls; 73 non-Federal pumping stations; 3 canal closure structures with pumps; and 4 gated outlets.

Rendering of the 17th Street Canal Pump Station

Rendering of the Orleans Avenue Canal Pump Station

Rendering of the London Avenue Canal Pump Station

Project Summary / Background

The three main outfall canals in New Orleans are a critical element of the flood control system, serving as drainage conduits for much of the city. The canals run south-to-north near the Orleans Parish lakefront between the Jefferson Parish line and the Inner Harbor Navigation Canal (IHNC) with floodwall-topped levees lining each canal.

The 17th Street Canal extends 13,500 feet from Pump Station 6 to Lake Pontchartrain along the Jefferson Parish line. The Orleans Avenue Canal, between the 17th Street Canal and the London Avenue Canal, runs approximately 11,000 feet from Pump Station 7 to Lake Pontchartrain. The London Avenue Canal extends 15,000 feet north from Pump Station 3 to Lake Pontchartrain about halfway between the Orleans Avenue Canal and the IHNC.

The Corps awarded the approximately $615 million contract to construct Permanent Canal Closures & Pumps (PCCP) at the mouths of the 17th Street, Orleans Avenue and London Avenue outfall canals on April 17, 2013, to *PCCP Constructors JV*.

The PCCP will provide a permanent and more sustainable measure for reducing the risk of a 100-year level storm surge entering the outfall canals. The PCCP will replace the Interim Closure Structures (ICS), which were constructed in 2006. The notice to proceed was issued on May 6, 2013, and construction will be complete in 2017. The existing Interim Closure Structures will continue to provide 100-year levels of risk reduction until construction of the PCCP is complete.

Project Features

The PCCP will be composed of permanent gated storm surge barriers and brick façade pump stations at or near the lakefront. The pumps will move rainwater out of the canals, around the gates and into Lake Pontchartrain during a tropical weather event, and be equipped with a stand-alone emergency power supply capacity so that it can operate independently of any publically provided utility.

When complete, the PCCP at 17th Street will consist of six 1,800 cubic feet per second (cfs) pumps and two 900 cfs pumps and have a total pumping capacity of 12,600 cfs; the PCCP at Orleans Avenue will consist of three 900 cfs pumps and have a total pumping capacity of 2,700 cfs; the PCCP at London Avenue will consist of four 1,800 cfs pumps and two 900 cfs pumps and have a total pumping capacity of 9,000 cfs.

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PLAQUEMINES PARISH

Updated August 2012

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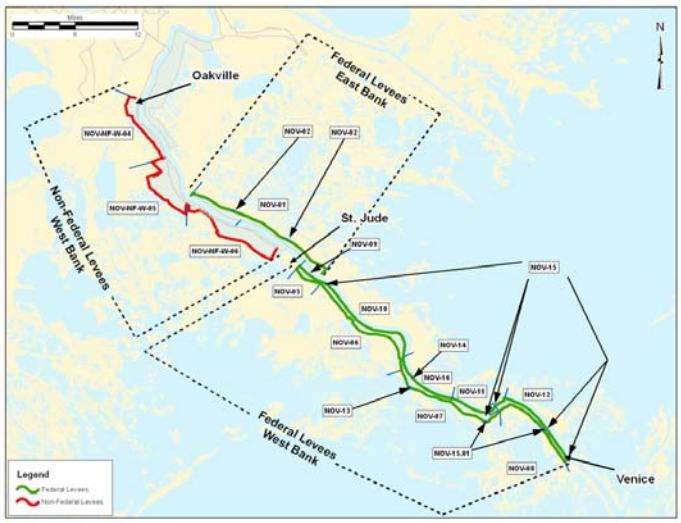
Public safety is the Corps of Engineers' top priority. Risk of storm surge inundation is reduced in Plaquemines Parish by three separate but connected risk reduction projects.

West Bank & Vicinity Project

The Belle Chasse sub-basin includes portions of Orleans, Jefferson and Plaquemines parishes. The Belle Chasse polder is part of the West Bank and Vicinity (WBV) portion of the Hurricane and Storm Damage Risk Reduction System (HSDRRS). Features of the WBV project are fully funded and are being built to an elevation that defends against a storm surge that has a one percent chance of occurring in any given year, or 100-year storm surge event. The eastern barrier of the Belle Chasse polder includes the Mississippi River Levees. The Corps is currently raising the portion of the Mississippi River Levees between English Turn and Oakville.

Plaquemines Parish Non-Federal Levee Project

South of Oakville the Corps is engaged in two separate projects on a complementary timeline that will reduce risk in Plaquemines Parish and defend against a storm surge event that has a two percent chance of occurring in any given year. On the westbank, where the Federally-authorized West Bank and Vicinity project ends in Oakville, there are 32 miles of levees that were previously constructed by Plaquemines Parish and private residents. The levees run from Oakville to St. Jude. In the aftermath of the 2005 hurricane season Congress funded an effort which will incorporate the Plaquemines Parish Non-Federal Levee project (NFL) into the New Orleans to Venice project (NOV). The NFL project includes approximately 20 miles of levee replacements or modifications and a tie-in to the Mississippi River Levees. Improvements to the existing NFL project include flood and protected side straddles and shifts using the HSDRRS design criteria as well as some floodwalls.



New Orleans to Venice Project

The purpose of the NOV project is to achieve storm risk reduction for Plaquemines Parish by upgrading Federal levees using the HSDRRS design criteria. The NOV Federal levees are located on the eastbank of Plaquemines from Phoenix to Bohemia and on the westbank from St. Jude to Venice. Improvements to the existing NOV project include flood and protected side straddles and shifts, some floodwalls, and sector gates at Empire Lock. Only in the instance of engineering reasons would the existing NOV alignment shift. The current NOV project includes approximately 37 miles of back levee modifications and 2 sector gates on the westbank, and floodwall fronting protection at 2 locations on the eastbank.

Project Status

Construction of improvements to the WBV and Mississippi River Levee portions of the Belle Chasse polder are underway. Features are in place to defend against a storm surge event that has a two percent chance of occurring each year however construction of risk reduction measures along the Mississippi River will continue through 2014.

Environmental documentation in the form of an Environmental Impact Statement (EIS) and a Supplemental Environmental Impact Statement (SEIS) for the PPNFL system and NOV levee system respectively, have been completed and environmental assessments discussing mitigation alternative analysis will be released prior to construction. Real Estate acquisition is in progress and the first contract for construction will be awarded in early September 2012.

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PUMP STATION REPAIRS

August 2015

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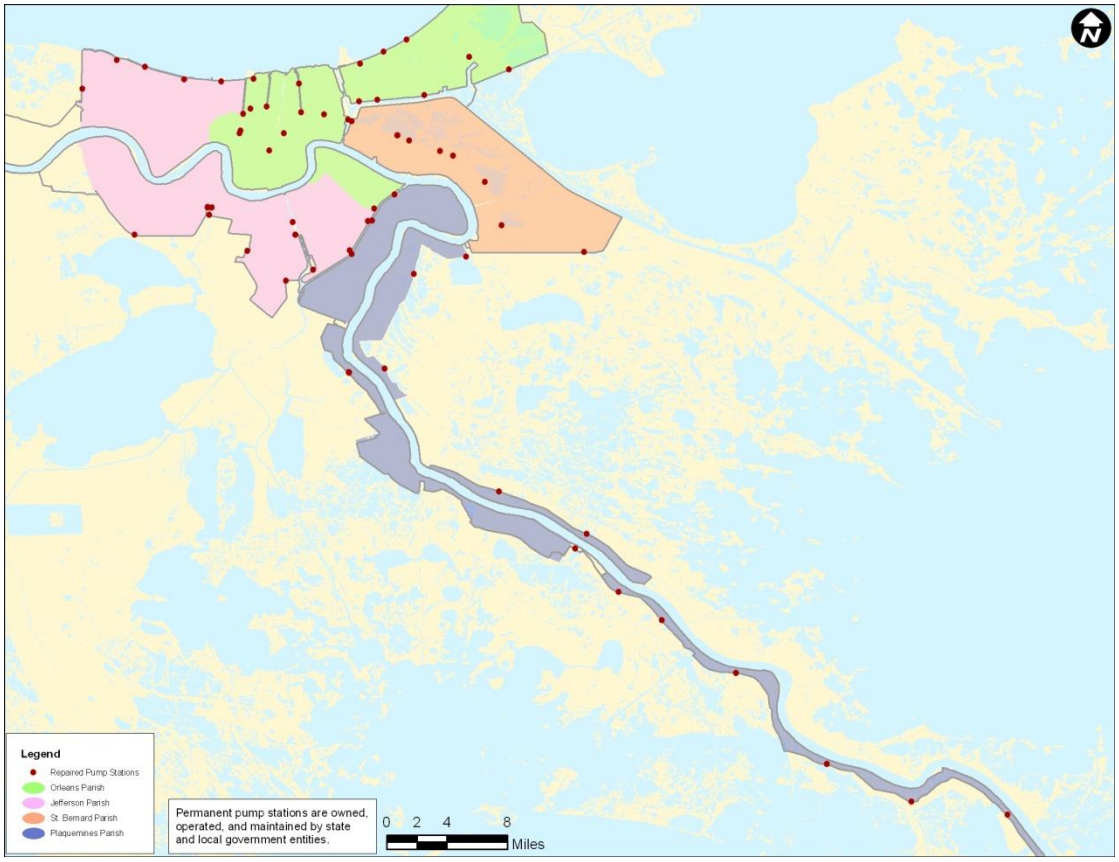
Public safety is the Corps of Engineers' top priority. Congress has fully authorized and funded the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for southeast Louisiana. The $14.45 billion HSDRRS includes five parishes and consists of 350 miles of levees and floodwalls; 73 non-Federal pumping stations; 3 canal closure structures with pumps; and 4 gated outlets.



Project Summary

Dozens of pump stations in the greater New Orleans area were damaged – and some inoperable – as a result of Hurricane Katrina's storm surge. Following Hurricane Katrina, Congress authorized the Corps of Engineers to repair 61 damaged pump stations in Orleans, Jefferson, St. Bernard and Plaquemines parishes so that the interior drainage system could be restored to its full capacity. In particular, the Corps repaired 23 pump stations in Orleans Parish at a cost of $66.2 million, 17 pump stations in Jefferson Parish at a cost of $2.7 million, 13 pump stations in Plaquemines Parish at a cost of $26.5 million, and 8 pump stations in St. Bernard Parish at a cost of $27.6 million. The total estimated cost for the pump station repairs is $123 million.

In addition to the pump station repair work, Congress authorized the Corps to storm proof up to 49 pump stations in Orleans and Jefferson parishes so that they can remain operational during hurricanes, tropical storms and high water events. Storm proofing work is ongoing.

Project Features

Pump station repair work includes rebuilding electric motors, horizontal and vertical pumps; rewinding coils for frequency changers; repairing roofs, gear boxes, trash rakes and fuel systems; replacing wiring, diesel engines and electric motors; and other miscellaneous civil, electrical and mechanical repairs.

-Over-

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PUMP STATION REPAIRS

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Status

St. Mary's Pump Station in St. Bernard Parish was the last pump station to be repaired by the Corps, and that work was completed in March 2011.

Installation of vertical pump at Elaine Street Pump in Orleans Parish

Rebuilding of the horizontal pump at Scarsdale Pump Station in Plaquemines Parish

Refurbished pumps at Guichard Pump Station in St. Bernard Parish

Roof repairs at Bonnabel Pump Station in Jefferson Parish

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SEABROOK FLOODGATE COMPLEX

August 2015

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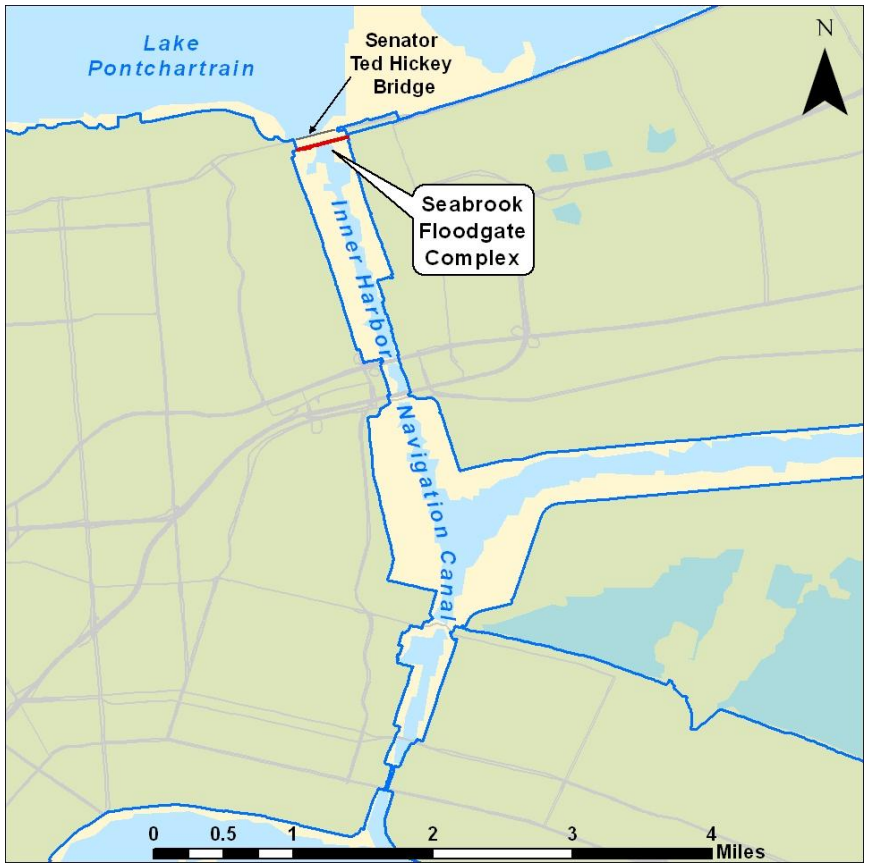
Public safety is the Corps of Engineers' top priority. Congress has fully authorized and funded the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for southeast Louisiana. The $14.45 billion HSDRRS includes five parishes and consists of 350 miles of levees and floodwalls; 73 non-Federal pumping stations; 3 canal closure structures with pumps; and 4 gated outlets.



Project Summary

The Seabrook Floodgate Complex is located at the north end of the Inner Harbor Navigation Canal (IHNC; also known locally as the Industrial Canal) just south of Lake Pontchartrain and the Senator Ted Hickey Bridge. This structure works in tandem with the IHNC-Lake Borgne Surge Barrier to reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge, for some of the areas hardest hit by Hurricane Katrina, including New Orleans East, metro New Orleans, Gentilly, the Ninth Ward and St. Bernard Parish. The total construction value for the Seabrook Floodgate Complex is an estimated $165 million.

Project Features

The Seabrook Floodgate Complex will consist of a 95-foot-wide navigable sector gate and two 50-foot-wide non-navigable vertical lift gates approximately 540 feet south of the Senator Ted Hickey Bridge with floodwall tie-ins on the east and west sides. Other components of the Seabrook Floodgate Complex include upgrading the Alabama Great Southern Railroad gate, constructing new T-walls that will tie into the Orleans Metro perimeter system and raising the Hayne Boulevard ramp. The gates, floodwall tie-ins and other features associated with the Seabrook Floodgate Complex were built to an elevation of 16 feet above sea level. The gates' sills were built to an elevation of 18 feet below sea level.

Project Status

All construction activities for the project are complete. Operations and maintenance responsibility has been transferred to the non-Federal sponsor.

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SEABROOK FLOODGATE COMPLEX

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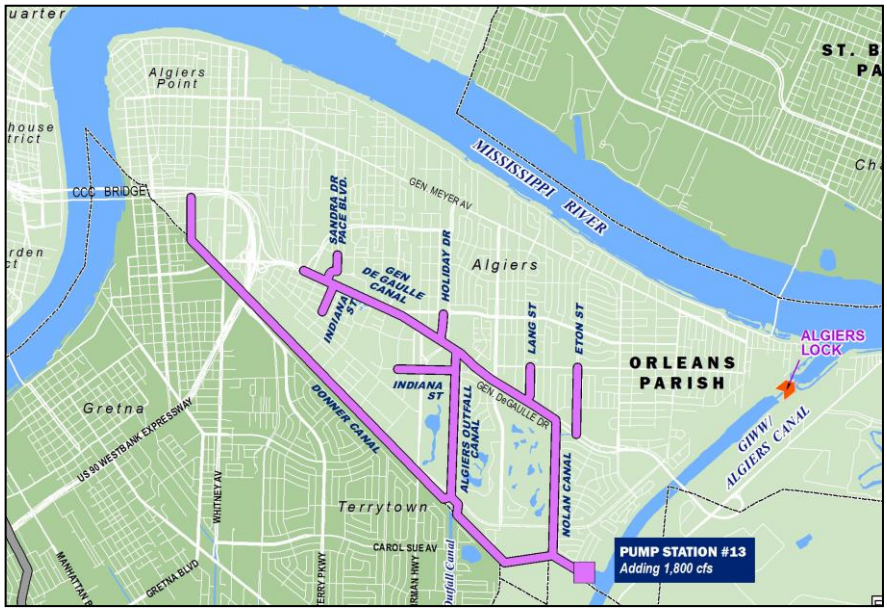
Southeast La. Urban Flood Control (SELA)

Algiers Sub-Basin

Updated Fall 2018

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

The Southeast Louisiana Urban Flood Control (SELA) project is being constructed to help reduce the risk of flood damages due to rainfall in Orleans, Jefferson and St. Tammany parishes. The improvements support the parishes' master drainage plans and reduce flood risks associated with a 10-year rainfall which is approximately nine inches of rain over a 24-hour period.



Project Summary

Work for SELA is located on both the east and west banks of the Mississippi River in Orleans and Jefferson parishes. The Louisiana Coastal Protection and Restoration Authority Board (CPRA) serves as the Non-Federal Sponsor with strong support from our local partners at Jefferson Parish, the Sewerage & Water Board of New Orleans, St. Tammany Parish, and the City of Slidell.

Project Features

The SELA Algiers Sub-Basin Project will include multiple construction contracts to improve the capacity of the major canals in the Algiers Sub-Basin and to increase the capacity of Pump Station #13. Improvements will be made to:

- General De Gaulle Drive (from Wall Blvd. to Nolan Canal)
- Donner Canal (from Magellan Canal to Pump Station #13)
- Algiers Outfall and Nolan Canals
- Sandra Drive, Pace Boulevard, Indiana Street, Holiday Drive (between Vixen Street and Gen. De Gaulle Canal), Lang Street (between Berkley Drive and Gen. De Gaulle Canal), Eton Street (between Berkley Drive and Nolan Canal), and Memorial Drive (Between Texas Drive and Algiers Outfall Canal)
- Pump Station #13

Project Status

Approximately $16 million has been appropriated by Congress in the 2019 Work Plan for this work. The funds will be used for the first phase of work by the Corps on the SELA Algiers Sub-basin. Improvements will be made to the General De Gaulle Canal on General De Gaulle Drive from Wall Blvd. to Holiday Dr. This work will include construction of a concrete flume which will provide additional storage capacity for rain water in the area.

Currently, the Corps is working with the non-Federal sponsor to develop plans for this portion of work. The award date for this contract is tentatively scheduled for the end of 2019. Additional contracts will be designed and awarded as funds are appropriated.

For more information, call the Corps' Construction Hotline at (877) 427-0345.

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Southeast La. Urban Flood Control (SELA) Green Space – Jefferson Ave.

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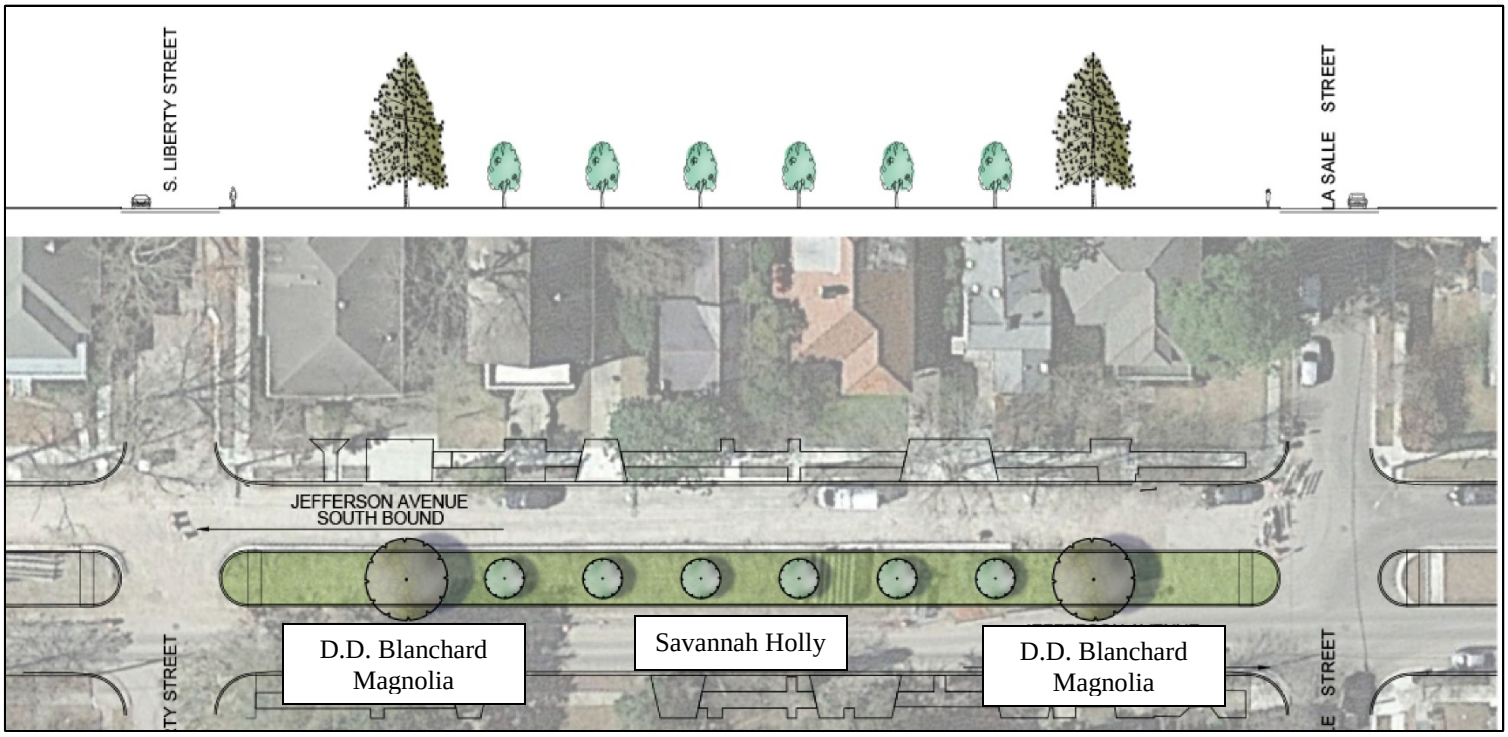

Project Summary
The **Jefferson Avenue Green Space Restoration** contract will restore green infrastructure that was removed for the construction of SELA. Development of the design plans were coordinated with our partners at the Louisiana State Historic Preservation Office (SHPO), the Coastal Restoration Authority Board (CPRAB), the New Orleans Sewerage and Water Board (SWB), Parks and Parkways and with consideration of the City's Master Plan, "Plan for the 21st Century" and input collected from the public.

Project Details
The project will stretch from S. Claiborne Avenue to Magazine Street and will include the planting of approximately 150 trees. Tree varieties include: D.D. Blanchard Southern Magnolia, Palm, Savannah Holly, and Crape Myrtle "Tuscarora."

Project Status
Currently, the Corps plans to award the contract in December 2018 with planting to begin in January/February 2019. The project is estimated to take between 3-6 months to complete.

For questions or concerns, please call the Army Corps' Construction Hotline at (877) 427-0345 or email Caitlin.E.Campbell@usace.army.mil.

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Southeast La. Urban Flood Control (SELA) Green space Restoration

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The Southeast Louisiana Urban Flood Control Project (SELA) is being constructed to help reduce the risk of flood damages due to rainfall in Orleans and Jefferson parishes. Separate green space restoration contracts will be awarded to restore green infrastructure that was removed during the construction of SELA.

Project Summary

An agreement between the Corps of Engineers, Louisiana State Historic Preservation Office (SHPO), Coastal Restoration Authority Board of Louisiana (CPRAB) and the New Orleans Sewerage and Water Board was put into place to restore green infrastructure that was removed for SELA construction. The agreement is in accordance with guidance provided from SHPO. Overall, six green space restoration contracts will be awarded to include Dwyer Road in New Orleans East and corridors in Uptown New Orleans.

Special Considerations

In developing landscape implementation plans, several considerations were made:

- Historically significant details were documented prior to removal for replacement such as vegetation, granite curbing, encaustic tiles, lighting, etc.
- Coordination with SHPO was necessary because of the historic locations of SELA work.
- Plans were developed to align with the City of New Orleans Master Plan, “Plan for the 21st Century."
- Public input was collected. Landscape architects, historians, arborists, engineers and city planners worked together to develop design guidelines.

Project Status

Currently, one contract has been completed which included planting on Claiborne Avenue (from Louisiana to Nashville Avenues) and on Napoleon Avenue (from S. Broad to S. Claiborne Avenues). The Dwyer Road contract is currently under construction. There are four remaining contracts to be awarded for Jefferson, Louisiana, Napoleon and S. Claiborne Avenues. Currently, the Corps plans to award contracts for Jefferson and Louisiana Avenues in early 2019 and Napoleon and Claiborne Avenues in mid-2019.

For questions or concerns, please call the Army Corps’ Construction Hotline at (877) 427-0345 or email Caitlin.E.Campbell@usace.army.mil. For damage claims related to SELA construction, please contact our partners at the Sewerage and Water Board’s Claim Hotline at (504) 585-2450.

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Southeast La. Urban Flood Control (SELA) Green Space – Louisiana Ave.

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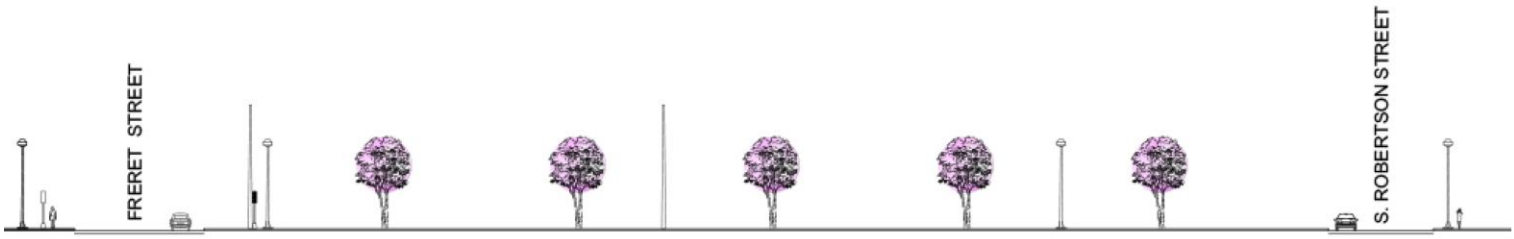

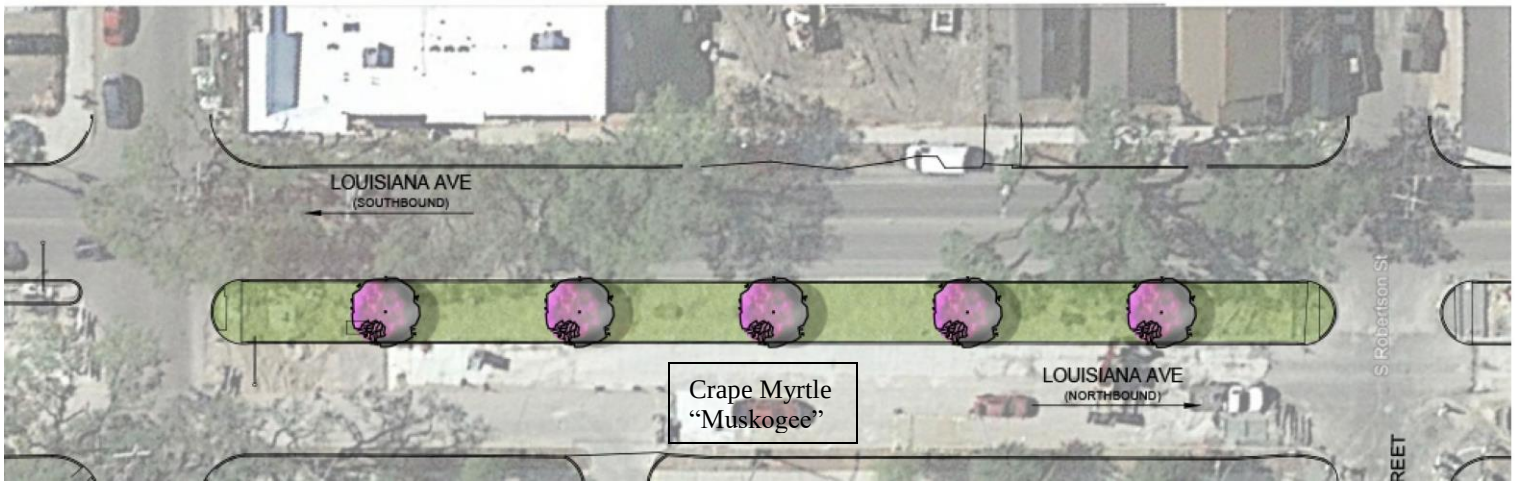

Project Summary
The **Louisiana Avenue Green Space Restoration** contract will restore green infrastructure that was removed for the construction of SELA. Development of the design plans were coordinated with our partners at the Louisiana State Historic Preservation Office (SHPO), the Coastal Restoration Authority Board (CPRAB), the New Orleans Sewerage and Water Board (SWB), Parks and Parkways and with consideration of the City's Master Plan, "Plan for the 21st Century" and input collected from the public.

Project Details
The project will stretch from S. Claiborne Avenue to Constance Street and will include the planting of approximately 80 trees. Tree varieties include: Magnolia "Alta," Sweet Bay Magnolia, Crape Myrtle "Tuscarora," Crape Myrtle "Muskogee," Savannah Holly and one Live Oak.

Project Status
Currently, the Corps plans to award the contract in December 2018 with planting to begin in January/February 2019. The project is estimated to take between 3-6 months to complete.

For questions or concerns, please call the Army Corps' Construction Hotline at (877) 427-0345 or email Caitlin.E.Campbell@usace.army.mil.

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Southeast La. Urban Flood Control (SELA) Green Space –Napoleon Ave.

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Project Summary
The **Napoleon Avenue, Phases 2 and 3, Green Space Restoration** contract will restore green infrastructure that was removed for the construction of SELA. Development of the design plans were coordinated with our partners at the Louisiana State Historic Preservation Office (SHPO), the Coastal Restoration Authority Board (CPRAB), the New Orleans Sewerage and Water Board (SWB), Parks and Parkways and with consideration of the City's Master Plan, "Plan for the 21st Century" and input collected from the public.

Project Details
The project will stretch from S. Claiborne Avenue to Laurel Street and will include the planting of approximately 115 trees. Tree varieties include: Nuttall Oak, Green Ash, Alexandrina Magnolia, Muskogee Crape Myrtle, and Tuskegee Crape Myrtle. The project also includes the construction of a curvilinear walkway and modifications to ADA ramps.

Project Status
The Corps awarded the contract in September 2019 with planting to begin in November 2019. The project is estimated to take between 3-6 months to complete.

For questions or concerns, please call the Army Corps' Construction Hotline at (877) 427-0345 or email Jamie.C.Braun@usace.army.mil.

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Southeast La. Urban Flood Control (SELA) Green Space – South Claiborne Ave.

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Project Summary
The **South Claiborne Avenue, Phase 2 Green Space Restoration** contract will restore green infrastructure that was removed for the construction of SELA. Development of the design plans were coordinated with our partners at the Louisiana State Historic Preservation Office (SHPO), the Coastal Restoration Authority Board (CPRAB), the New Orleans Sewerage and Water Board (SWB), Parks and Parkways, and the Louisiana State Department of Transportation and Development (LADOTD) and with consideration of the City's Master Plan, "Plan for the 21st Century" and input collected from the public.

Project Details
The project will stretch from Leonidas Street to Pine Street and will include the planting of approximately 98 trees. Tree varieties include: Nuttall Oak, Bald Cypress, Southern Magnolia, Spruce Pine, Sweet Bay Magnolia, and Crape Myrtle "Muskogee". Bio-retention areas will be incorporated along the center of the neutral grounds as green infrastructure and storm water infiltration components of the City's Master Plan.

Project Status
Currently, the Corps plans to award the contract in October 2019 with planting to begin November/December 2019. The project is estimated to take between 3-6 months to complete.

For questions or concerns, please call the Army Corps' Construction Hotline at (877) 427-0345 or email Jamie.C.Braun@usace.army.mil.

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SOUTHEAST LOUISIANA URBAN FLOOD CONTROL PROJECT – SELA

Updated September 2023

Public safety is the Corps of Engineers' top priority. The Southeast Louisiana Urban Flood Control Project (SELA) reduces the risk of flood damages due to rainfall flooding in Orleans, Jefferson and St.
Tammany parishes. The improvements generally support the parishes' master drainage plans and provides flood risk reduction up to a level associated with a 10-year rainfall event. A 10-year rainfall event is a rain storm that has a 10% annual probability of occurrence and equates to approximately nine inches of rain over a 24-hour period for our area.

Project Summary

Work for SELA is located on both the east and west banks of the Mississippi River in Orleans and Jefferson parishes. St. Tammany Parish work is located in and around the communities of Slidell, Mandeville, Covington, Abita Springs and Lacombe. The Louisiana Coastal Protection and Restoration Authority Board of Louisiana (CPRAB) serves as the Non-Federal Sponsor with strong support from our local partners at Jefferson Parish, Sewerage & Water Board of New Orleans, St. Tammany Parish and the City of Slidell.

Project Features

In Orleans Parish, plans involve improving 16 major drainage lines, adding pumping capacity to two (2) pump stations and the construction of two (2) new pump stations. In Jefferson Parish, plans included improvements to 24 drainage canals, additional pumping capacity for four (4) pump stations and the construction of two (2) new pump stations.
Planned improvements in St. Tammany Parish include channel enlargements, bridge replacement, a pump station, retention ponds, levees, T-walls and the elevation of flood-prone structures.

Project Status

Of the 20 funded SELA projects in Orleans Parish, 19 projects are complete and one (1) is under construction. Overall, the currently scheduled design and construction effort s in Orleans Parish is about 85% complete and construction is scheduled to be complete in 2027. All major construction was completed in Jefferson Parish in 2017. Work in St. Tammany Parish has not yet been funded.

In addition, the Algiers Sub-basin Plan (Orleans Parish) was partially funded in 2019 with the first construction contract scheduled to be completed by the end of 2023 and the second to be awarded in Fall of 2023. The W-14 Canal Improvements study in Slidell (St. Tammany Parish) was completed and approved in July 2012. Additional SELA studies are underway in Jefferson and Orleans Parishes with more planned once additional funding is obtained.

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ST. BERNARD PARISH

Updated May 2015

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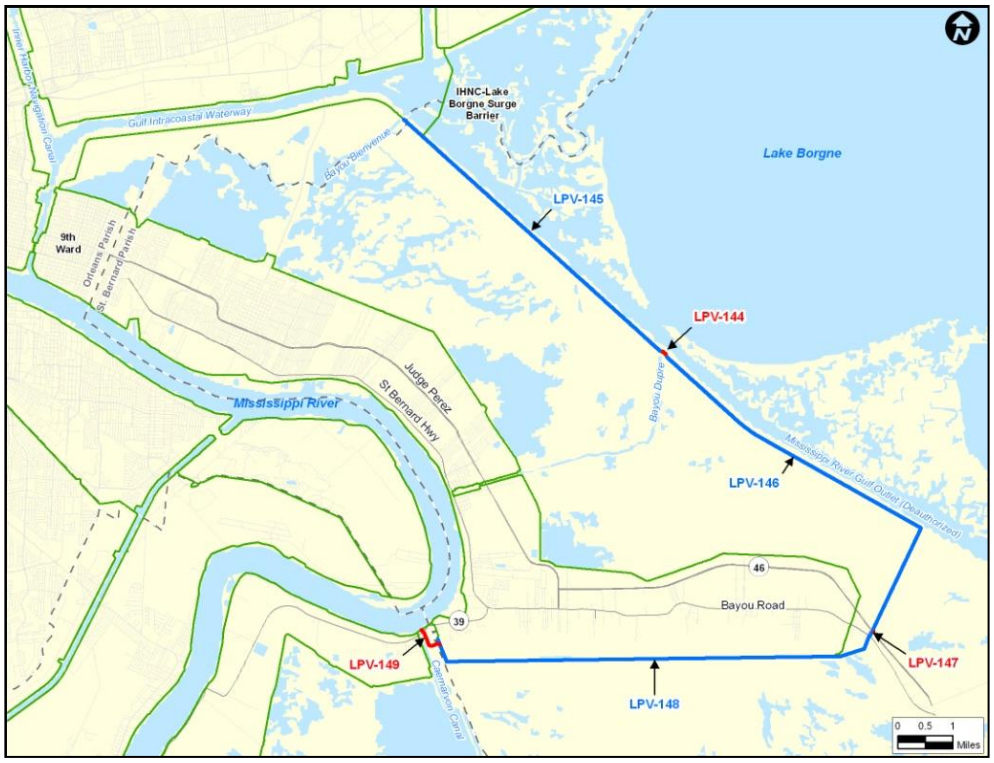
Public safety is the Corps of Engineers' top priority. Congress has fully authorized and funded the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for southeast Louisiana. The $14.45 billion HSDRRS includes five parishes and consists of 350 miles of levees and floodwalls; 73 non-Federal pumping stations; 3 canal closure structures with pumps; and 4 gated outlets.



Project Summary

The St. Bernard system encompasses the populated portion of St. Bernard Parish, as well as the Lower Ninth Ward in Orleans Parish. It is bound by the recently de-authorized Mississippi River Gulf Outlet (MRGO) to the east, the Mississippi River and the Inner Harbor Navigation Canal (IHNC; also known locally as the Industrial Canal) to the west, the Gulf Intracoastal Waterway (GIWW) to the north and the Verret-to-Caernarvon floodwall to the south. The structural features reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value for the St. Bernard system is an estimated $1 billion.

Project Features

The St. Bernard system, also known locally as the Chalmette Loop, consists of approximately 23 miles of floodwalls, roadway gates and sector gates that extend from the existing Bayou Bienvenue sector gate in the northeast to the Mississippi River in Caernarvon in the southwest. Along three separate stretches – Lake Pontchartrain and Vicinity (LPV) 145, LPV 146 and LPV 148 – floodwalls were constructed on top of existing levees. Along LPV 145 and 146, the floodwalls range in height from 28 feet to 32 feet above sea level, and from 26 feet to 32 feet above sea level along LPV 148, which ties into the Mississippi River levee in Caernarvon (LPV 149) at about 21.5 feet.

In addition to floodwalls, several gates were constructed in St. Bernard Parish. Where Bayou Dupre flows into the MRGO (LPV 144), a sector gate was constructed to an elevation of 32 feet above sea level. Further south, where Highway 46 crosses the HSDRRS, a vehicle gate was constructed to an elevation of 26 feet above sea level. At the Caernarvon Canal (LPV 149), a sector gate was built to an elevation of 26 feet above sea level. Also in Caernarvon, floodgates were constructed at Highway 39 and the adjacent Norfolk Southern Railroad tracks to an elevation of 26 feet above sea level.

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ST. BERNARD PARISH

Updated May 2015

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Project Status

All 100-year level risk reduction features in the St. Bernard perimeter system were completed in May 2011.

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STORM PROOFING

Updated August 2012

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Public safety is the Corps of Engineers' top priority. Congress has fully authorized and funded the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for southeast Louisiana. The $14.45 billion HSDRRS includes five parishes and consists of 350 miles of levees and floodwalls; 73 non-Federal pumping stations; 3 canal closure structures with pumps; and 4 gated outlets.

Project Summary

Following the devastation of Hurricane Katrina, Congress authorized the Corps of Engineers to repair 61 pump stations in Orleans, Jefferson, St. Bernard and Plaquemines parishes. In addition, the Corps was authorized to storm proof pump stations in the greater New Orleans metropolitan area in order to ensure their operability during and after tropical events. In addition, the Corps upgraded safe rooms in Jefferson Parish and constructed new ones to provide a safe haven for operators at those stations. The storm proofing work is divided into 34 separate projects in Orleans and Jefferson parishes. The total value for the storm proofing work is an estimated $340 million.

Project Features

Construction includes providing safe rooms, automating pump and ancillary systems, installing climber screens, hardening building structures (frames, walls, doors and roofs), installing additional wells to backup Non-Potable Water Systems, elevating electrical equipment, adding fuel capacity, installing standby generators and underground feeders and adding perimeter floodwalls and berms. Different pump stations will receive different storm proofing measures based on the requirements and capacity of each pump station.

Safe rooms were constructed in Jefferson Parish following Hurricane Katrina. Eight safe rooms were constructed by the parish in 2007 and the Corps constructed five additional safe rooms in 2008. In 2009, the Corps upgraded five of the safe rooms constructed by the parish by adding vertical pumps, ancillary equipment and camera systems. The safe rooms are designed to withstand Category 5 hurricane winds and to protect the operators from debris. The safe rooms are raised to protect personnel from storm surges and they contain restrooms; heating, ventilation and air conditioning systems; backup generators; and sleeping accommodations.

-Over-

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STORM PROOFING

Updated August 2012

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Project Status

All safe room construction is complete, and the remaining storm proofing work will be complete by February 2013.

Safe House at Hero Pump Station

Climber Screens at Westminster Pump Station

Construction of a Generator Building at the Carrollton Water Treatment and Power Plant Facility

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West Bank & Vicinity –

Mississippi River Co-Located Levees

Updated May 2013

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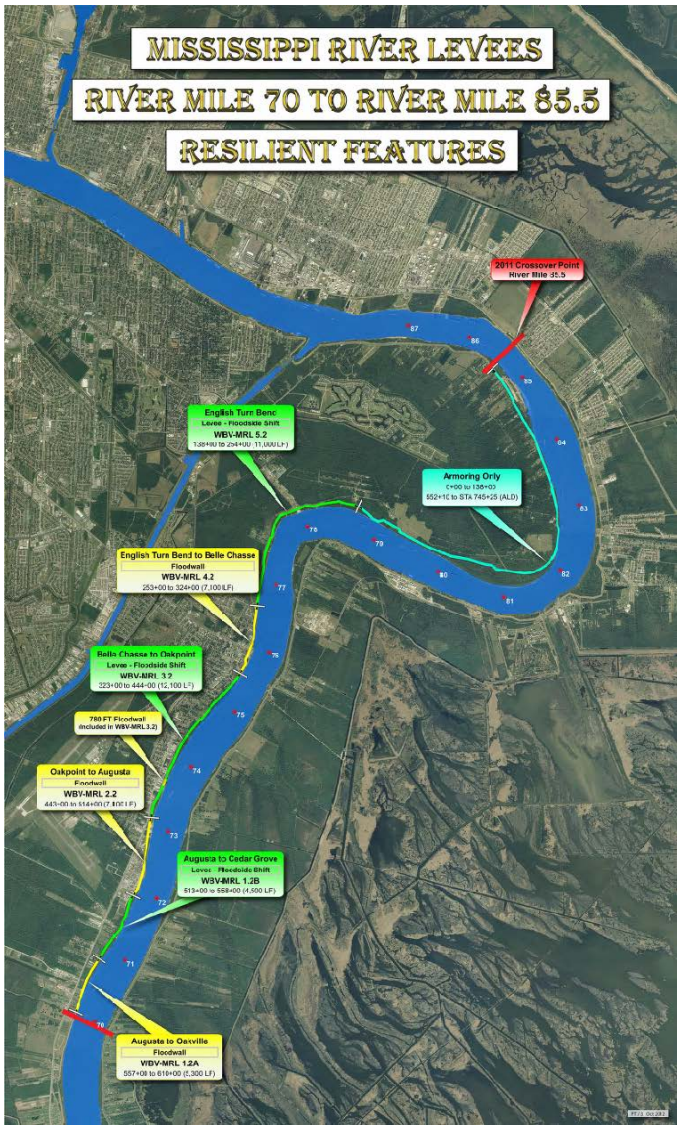

Project Purpose

The Mississippi River Levees (MRL) are an integral part of both the Lake Pontchartrain and Vicinity (LPV) and West Bank and Vicinity (WBV) hurricane systems. For some reaches of the river, the HSDRRS and the MRL coincide, meaning they serve a dual purpose of providing risk reduction from both riverine flooding and hurricane surge flooding. Some reaches of the river levees are "co-located," meaning that the required levee grade to reduce risk from the storm surge that has a one percent chance of occurring in any given year is higher than the levee grade required to reduce risk from a riverine event. There are approximately 15.5 miles of co-located levees located within the WBV Belle Chasse polder from River Mile 70 to River Mile 85.5.

Project Status

In order to meet the requirements for accreditation of the 100-year risk reduction system, the Corps constructed Engineered Alternative Measures (EAM) along the Mississippi River Co-located Levees. The EAM are substantially complete, which means measures are in place to defend against a 100-year storm surge event.

Construction of Resilient Features, which will improve the operation, maintenance, resiliency and longevity of the co-located levees, is tentatively scheduled to begin in fall 2013.

Work will include:

- US Coast Guard Facility to Oak Road (WBV-MRL 5.2) – earthen levee
- Oak Road to Belle Chasse (WBV-MRL 4.2) – concrete floodwall
- Belle Chasse to Oak Point (WBV-MRL 3.2) – earthen levee with one 700-ft floodwall
- Oak Point (Chevron Oronite) (WBV-MRL 2.2) – concrete floodwall
- Oak Point to Oakville (b) (WBV-MRL 1.2b) – earthen levee
- Oak Point to Oakville (a) (WBV-MRL 1.2a) – concrete floodwall

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WEST CLOSURE COMPLEX

August 2015

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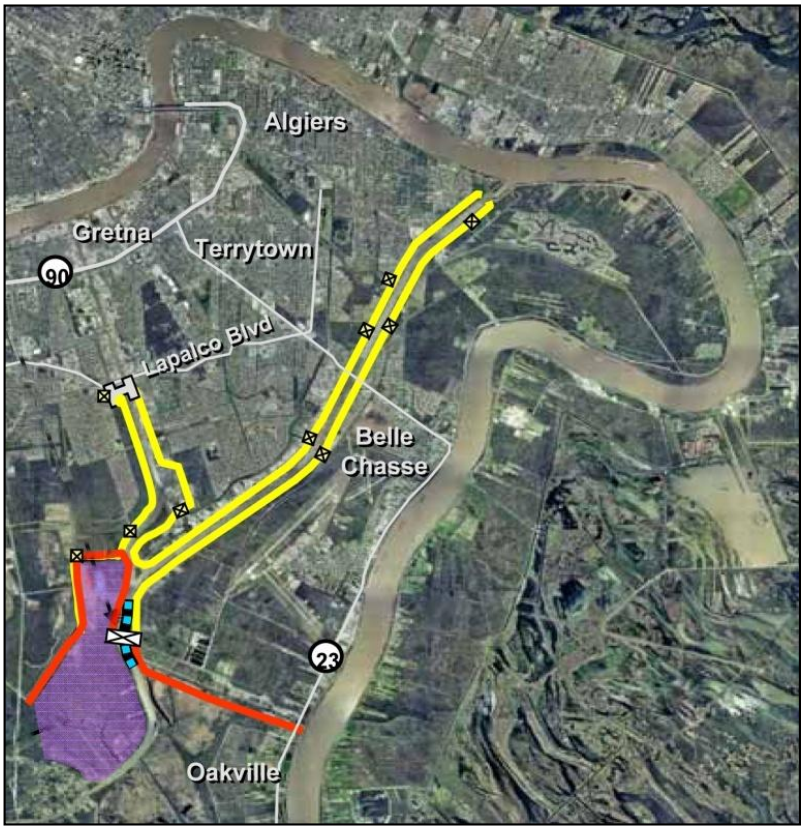

Project Summary
The Gulf Intracoastal Waterway - West Closure Complex is a major feature of the HSDRRS which reduces risk for residences and businesses in three parishes on the west bank of the Mississippi River: Orleans, Jefferson and Plaquemines parishes. This risk reduction feature is located approximately one half mile south of the confluence of the Harvey and Algiers canals on the Gulf Intracoastal Waterway. Constructing the complex at this location eliminates 26 miles of levees and floodwalls parallel to the canals from the west bank's perimeter risk reduction system and allows the Harvey and Algiers canals to serve as a detention basin for rainwater draining from the three parishes.

The structural features of the project reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value for the West Closure Complex is an estimated $1 billion.

Project Features
The GIWW - West Closure Complex consists of a navigable floodgate, a pumping station, floodwalls, water control structures, foreshore protection and an earthen levee. The project also required the dredging of Algiers Canal, as well as the realignment of Bayou Road. Project challenges include maintaining navigation traffic on the GIWW (a Federal navigation channel with heavy commercial barge traffic) and the location of the complex in relationship to the Environmental Protection Agency's Bayou aux Carpes Clean Water Act (CWA) 404(c) area, a wetland area of national significance.

The complex significantly reduces the risk to a large area of the west bank by removing 26 miles of levees, floodwalls, a gate and pumping stations along the Harvey and Algiers canals from the direct impacts of storm surge.

Project Status
Construction of this risk reduction feature began in August 2009 and all features provide the 100-year level of risk reduction. Operations and maintenance responsibility has been transferred to the non-Federal sponsor.

- ***Over*** -

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Image of the GIWW-West Closure Complex

West Closure Complex features include:

- 19,140 cfs Drainage Pumping Station (11 x 1740 cfs vertical "Flower Pot" pumps)
- 225-foot Navigable Floodgate
- 5 Sluice Gates (each 16' x 16')
- 4200 ft Concrete T-Wall along edge of Bayou aux Carpes CWA 404(c) wetlands (4200' X 100' construction corridor)
- Water Control Structure (with two – 8'x 8' gates)
- Levee and East Bayou Road Realignment
- Environmental Mitigation and Augmentations
- Foreshore Protection
- Algiers Canal Dredging

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WEST BANK & VICINITY

Updated June 2013

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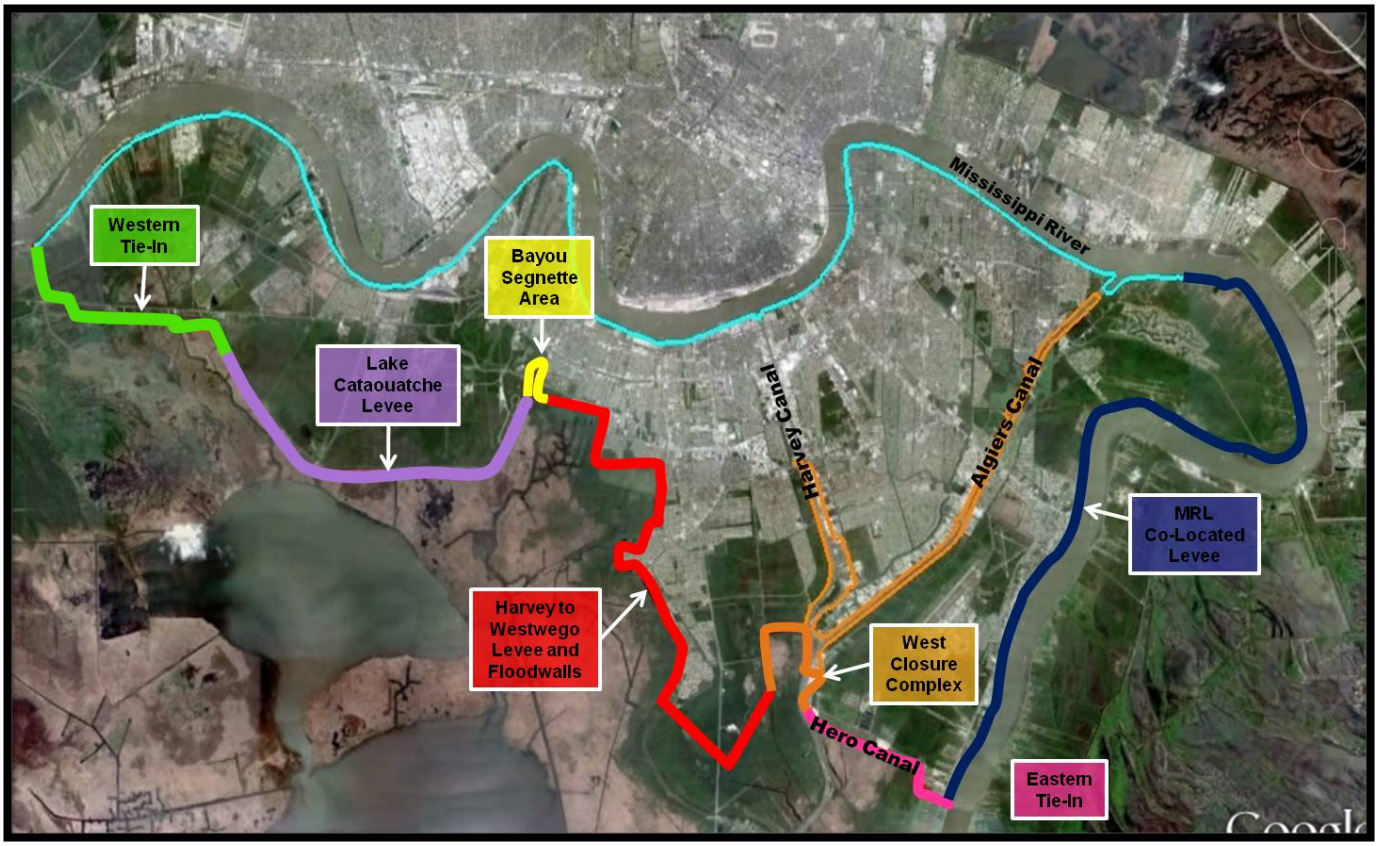
Project Summary

The West Bank & Vicinity (WBV) project is defined as the risk reduction features on the west bank of the Mississippi River in St. Charles, Jefferson, Orleans and Plaquemines parishes. Construction of the West Bank & Vicinity project starts at the Mississippi River Levee in Ama in St. Charles Parish and ends at the Mississippi River levee in Oakville in Plaquemines Parish. The project is in a high-density residential and commercial area.



The structural features being built by the Corps will reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. Completion of the West Bank & Vicinity project will include more than 50 construction contracts valued at approximately $3 billion.

- ***Over*** -

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WEST BANK & VICINITY

Updated June 2013

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Project Features

The West Bank & Vicinity project includes making improvements to or building from the ground level up, 75 miles of levees, floodwalls, floodgates, water control structures and other risk reduction features. Of these 75 miles, 49 miles will consist of primary perimeter storm surge risk reduction features (including 15 miles co-located with the Mississippi River Levees) and 26 miles will be detention basin features along the Harvey and Algiers canals. Major WBV projects include the Western Tie-In, Lake Cataouatche Levees, Bayou Segnette Complex, Harvey to Westwego Levees and Floodwalls, Gulf Intracoastal Waterway West Closure Complex, improvements to the detention basin along the Harvey and Algiers canals, Eastern Tie-In project and a portion of the Mississippi River Levees.

Project Status

All WBV contracts have features in place to defend against a 100-year storm surge event; however, construction will continue through spring 2014.

West Bank and Vicinity (WBV) 74 Sellers Canal. This contract is part of the Western Tie-In risk reduction feature.

The West Closure Complex includes a 19,140 cubic feet per second pumps station and 225-foot-wide sector gate.

The Bayou Segnette Complex serves as a detention basin for local storm water when the sector gate is closed during tropical storm events

View of construction of the Eastern Tie-in stoplog closure structure at the Hero Canal.

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WESTERN TIE-IN

Updated May 2013

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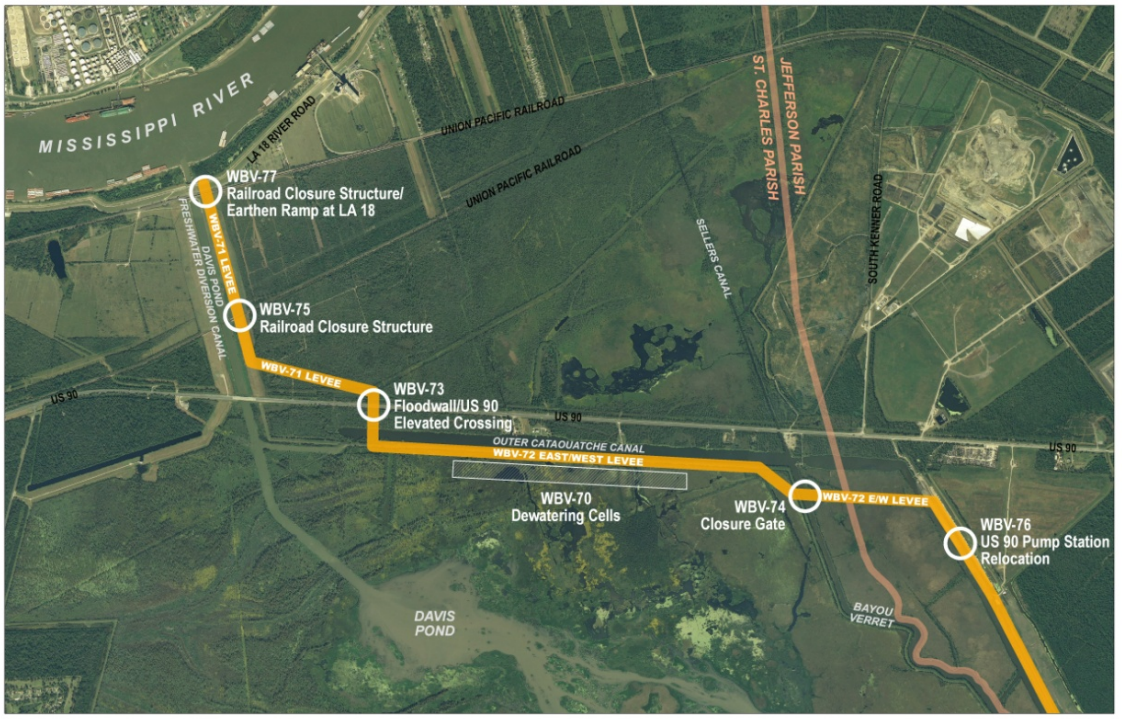

Project Summary

The Western Tie-In project area is located on the west bank of the Mississippi River in the western portion of Jefferson Parish and the eastern portion of St. Charles Parish. Once completed, it will link the Lake Cataouatche earthen levee to the Mississippi River Levee system in Ama, LA. Communities benefiting from the Western Tie-In project include Ama, Waggaman, Avondale and Bridge City.

The structural features being built by the Corps will reduce the risk associated with a storm surge event that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value of the project is an estimated $140 million.

Project Features

The Western Tie-In project consists of approximately 4.5 miles of levees and floodwalls along the Davis Pond Freshwater Diversion Canal and Outer Cataouatche Canal. The Western Tie-In also includes a navigable closure structure across Bayou Verret for maritime access, an elevated crossing at Hwy 90, two railroad gates and a second highway crossing that ties into the Mississippi River Levee.

Project Status

All eight Western Tie-In contracts have been awarded and have features in place to defend against a 100-year storm surge event. Seven of these contracts are substantially complete. All construction will be completed before the 2013 hurricane season.

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WEST RETURN FLOODWALL

Updated May 2013

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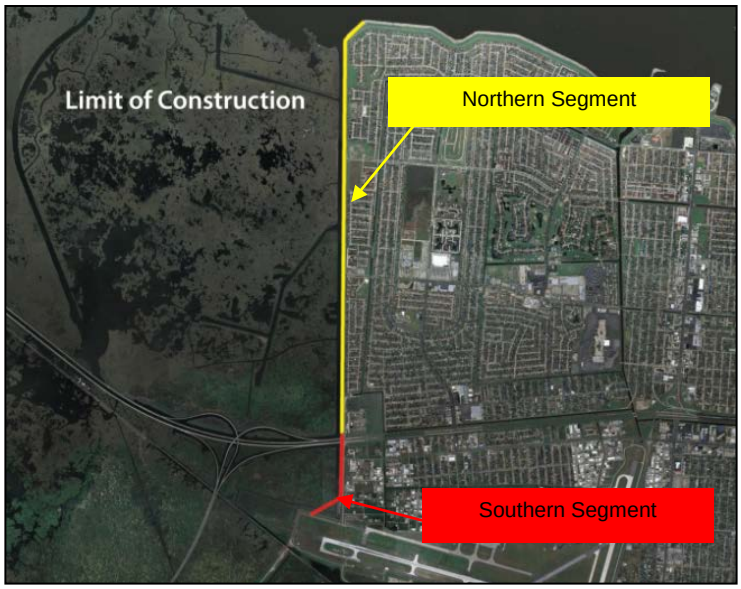

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Project Summary

The West Return Floodwall (WRF), located on the east bank of the Mississippi River at the western end of Jefferson Parish, runs along the St. Charles and Jefferson Parish line from the Louis Armstrong New Orleans International Airport to Lake Pontchartrain. The project was divided into two separate contracts in order to expedite construction.

The structural features built by the Corps reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value of the WRF is an estimated $141.3 million (WRF northern segment at $98.2M and WRF southern segment at $43.1).

Project Features

The West Return Floodwall project consists of a concrete floodwall more than 3 miles in length that ties-in to the Lakefront levee reaches in Jefferson Parish on the east and the earthen levee features in St. Charles Parish on the west. The new floodwall, built approximately 35 feet west of the existing floodwall, is built to an elevation of between 16 and 17.5 feet above sea level.

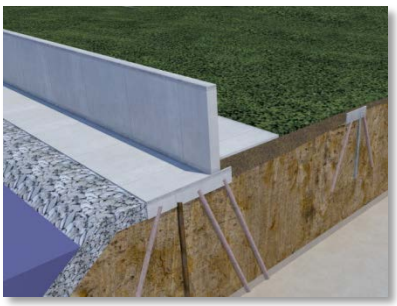
The existing WRF remained in place throughout construction of the new T-wall and served as a sound buffer during construction. The new wall is more stable and robust than the old wall with steel pilings driven to depths up to 120 feet below the earth's surface. Rocks and rip rap are placed on the flood side of the new T-wall to prevent erosion.

Project Status

This risk reduction feature was completed in April 2012 and is ready to defend against the 100-year storm event. An additional contract was recently awarded to install a drainage system along the floodwall. This work is underway and will be completed in late 2013.

Existing Wall

New Wall Built



Old Wall Demolished

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