

ST. MARY LEVEE DISTRICT

MASTER PLAN



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St. Mary Levee District Master Plan

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LIST OF ACRONYMS

ABLD	Atchafalaya Basin Levee District
BFE	Base Flood Elevation
CIP	Capital Improvement Plan
CDBG	Community Development Block Grant
CPRA	Coastal Protection and Restoration Authority
DFIRM	Digital Flood Insurance Rate Maps
FEMA	Federal Emergency Management Agency
GIWW	Gulf Intracoastal Waterway
GPS	Geographic Positioning System
LiDAR	Light Detection and Ranging
LSU	Louisiana State University
MRT	Mississippi River and Tributaries
MSL	Mean Sea Level
MVN	U. S. Army Corps of Engineers, Mississippi Valley, New Orleans District
O&M	Operations and Maintenance
OCPR	State of Louisiana, Office of Coastal Protection and Restoration
ROM	Rough (or Relative) Order of Magnitude
SMLD	St. Mary Levee District
USACE	U. S. Army Corps of Engineers
WLO	Wax Lake Outlet

ST. MARY LEVEE DISTRICT MASTER PLAN

I. PURPOSE AND APPROACH

The St. Mary Levee District (SMLD or Levee District) was formed in 2007 by Act No. 259 of the Louisiana Legislature. The Levee District includes all of the land within St. Mary Parish, Louisiana. Simultaneously, the legislation excluded St. Mary Parish from the jurisdiction of the Atchafalaya Basin Levee District. The enabling legislation (presented in Attachment A) states the following:

“All of the lands in the parish of St. Mary shall be embraced in the limits of a levee district to be known as the St. Mary Levee District...the management and control of the district shall be vested in the board of commissioners...[and] the board shall have the authority to establish, construct, operate, or maintain flood control works as they relate to hurricane protection, tidewater flooding, saltwater intrusion, and conservation.”

It is noteworthy that this authority excludes public works functions related to normal stormwater events.

Being a newly created levee district, the Louisiana Office of Coastal Protection and Restoration (OCPR), now referred to as the Coastal Protection and Restoration Authority (CPRA), encouraged and funded the Levee District’s first master plan in 2010. The intent of the master plan is to inventory existing conditions, analyze current and future needs relative to the Levee District’s authority, and provide a capital improvement and operations and maintenance plan inclusive of project and program costs over the next twenty years. The resolution by the SMLD adopting the master plan is presented in Attachment E.



Aerial views of Morgan City and vicinity depicting the Atchafalaya Basin East Protection Levee and surrounding waterways

The approach and process used to identify parish hurricane protection, backwater flooding, and related needs such saltwater intrusion focused on data collection from previous flood control studies; interviews with and input from local and regional staff

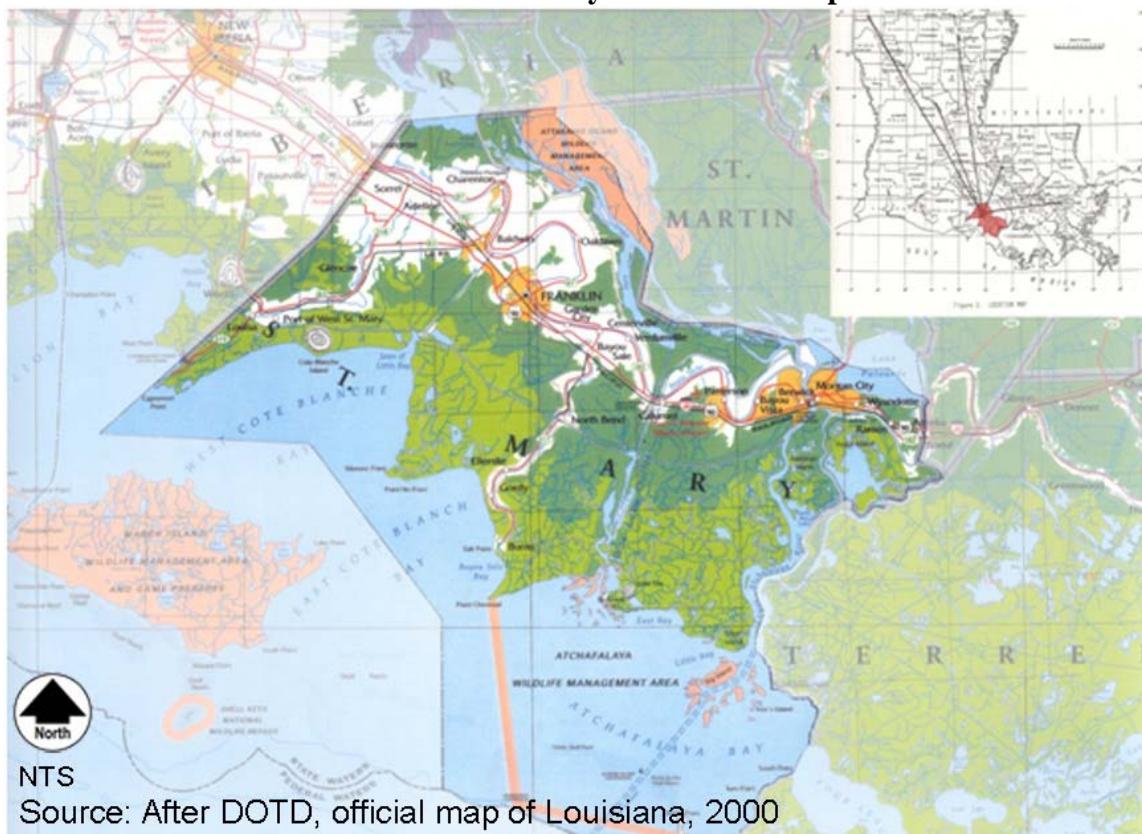
members of neighboring levee districts; meetings parishwide with all drainage district boards; and consultation with levee district board members, mayors, and other elected and appointed officials in St. Mary Parish.

II. BACKGROUND AND SETTING

A. General Parish Introduction

St. Mary Parish, Louisiana, is situated along the northern coast of the Gulf of Mexico in the center of the state's coastline. To the east is Terrebonne Parish, to the west Iberia Parish, and to the north Lower St. Martin and Assumption Parishes. The map below shows the St. Mary Levee District parish boundary and parish's relative to its position in the state.

Exhibit 2-1: St. Mary Parish Base Map



Also included within the boundaries of the levee district are five municipalities: from east to west, Morgan City, Berwick, Patterson, Franklin, and Baldwin. Levees and/or seawalls surround many of the communities protecting them from river flooding and storm surge. As a result, many of the stormwater drainage systems of the various municipalities and unincorporated areas include large pumping stations to remove stormwater. The layouts of all levees and pump stations in the parish are presented in Attachment B, Exhibit B-1.

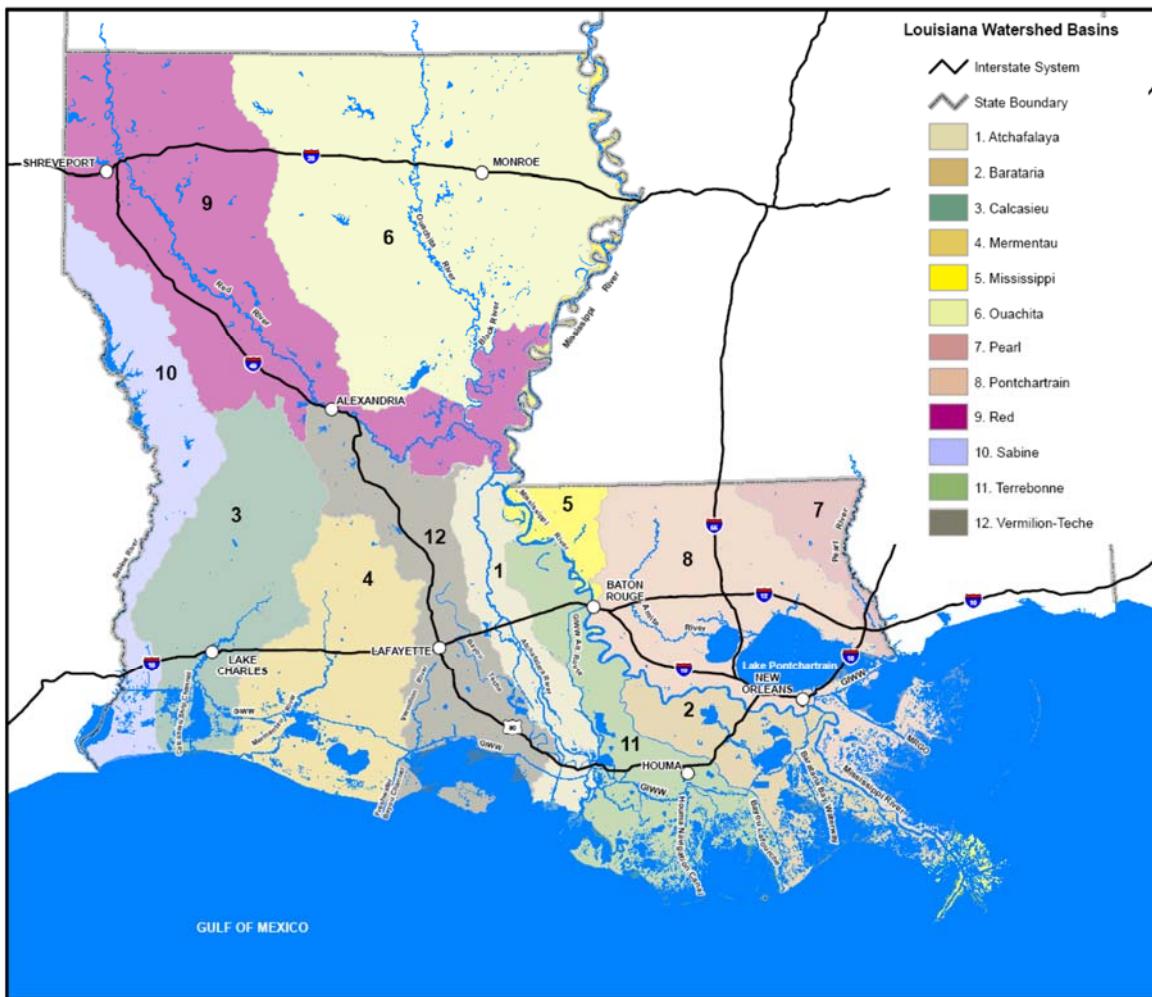
From a statewide perspective, three of the state's 12 drainage basins (Exhibit 2-1) flow through the parish. These three basins—the Vermilion-Teche Basin, the Atchafalaya Basin, and the Terrebonne Basin—generally transfer stormwater from north to south with all three having outfalls in the estuaries and bays of the Gulf of Mexico. The West Atchafalaya Basin Protection Levee and the East Atchafalaya Basin Protection Levee form clear lines of demarcation between the adjoining basins in the parish.

As a coastal parish along the Gulf of Mexico, the parish is bordered to the south by transitional bays of the Gulf of Mexico, i.e., West Cote Blanche Bay, East Cote Blanche Bay, and Atchafalaya Bay. The Atchafalaya River slices through the parish from north to south on its path to the Gulf of Mexico. The flows of the Atchafalaya River include all of the waters of the Red River which encompasses runoff from Oklahoma, Arkansas, Texas, and north Louisiana. At the Old River Control Structure, additional flows from the Mississippi River are transferred to the Atchafalaya River. The Atchafalaya River is mandated to handle 30% of the combined flow of the Red and Mississippi Rivers during normal flow periods as measured at Old River. At Calumet west of the town of Patterson, approximately 30% of the Atchafalaya River flow that enters the parish is diverted through the Wax Lake Outlet, an engineered structure designed and built to relieve Morgan City and vicinity from the full force of the project flood.

From the north, then, the parish is subject to runoff and drainage from the Atchafalaya Basin. Additionally, east of the Atchafalaya Basin East Protection Levee from the north and east beginning at Old River, storm water runoff flows from Pointe Coupee Parish (between the East Atchafalaya Basin Protection Levee and the west Mississippi River Protection Levee) via the Terrebonne Basin through Lake Verret; Lake Palourde; Bayous Boeuf, Black, and Chene; the Atchafalaya River; the Gulf Intracoastal Waterway; and finally over coastal marshes south of the GIWW. Areas in St. Mary Parish in the Terrebonne Basin are those lands situated east of the Atchafalaya River.

From the west, stormwater runoff through the parish is a function of the Vermilion-Teche Basin. The easternmost extreme of this basin ends at the levees along the west side of the Wax Lake Outlet. Many of the lands from the north and east of Lafayette provide stormwater into this drainage basin. Lands in this basin that lie north of Bayou Teche drain through the Teche and then out of bayous and canals.

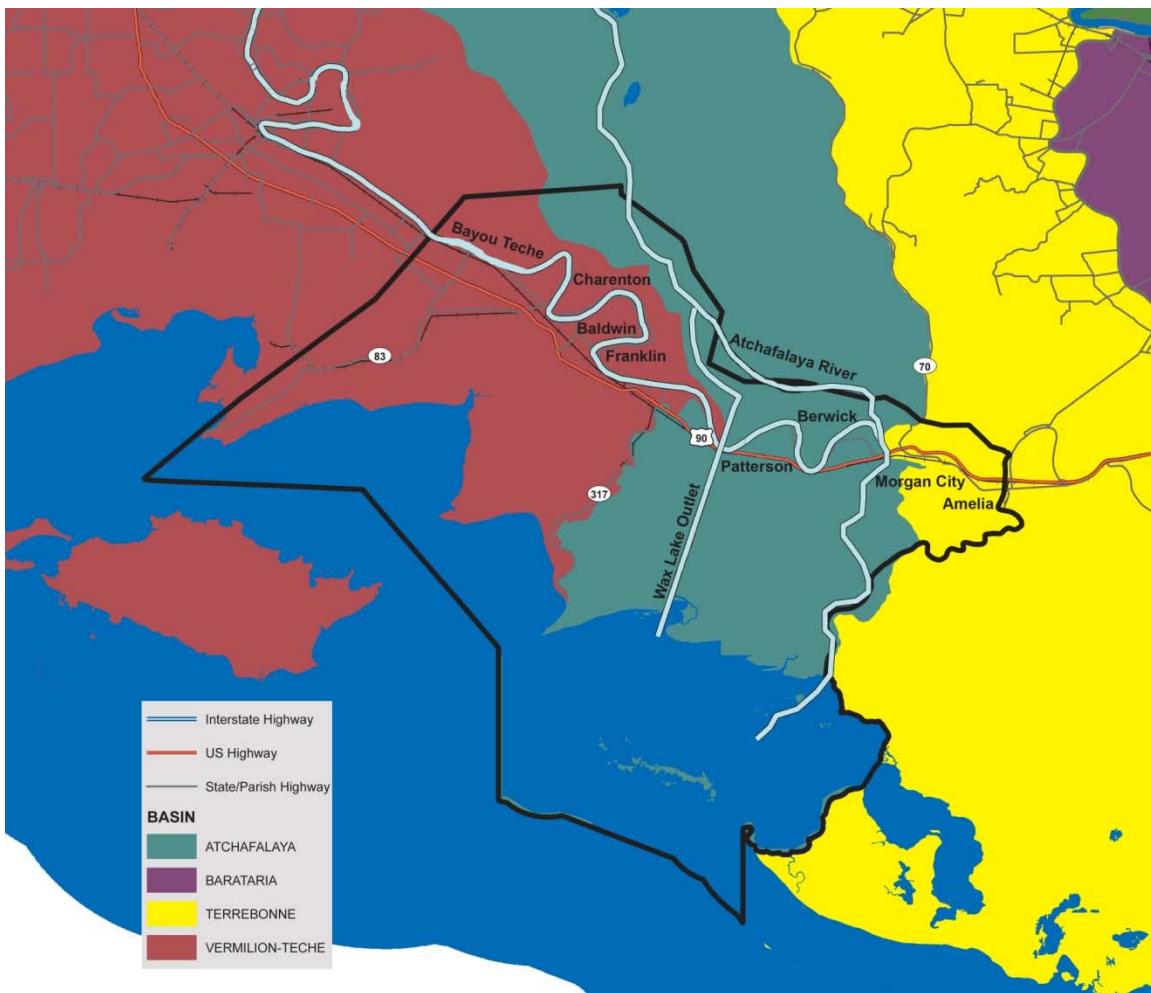
Exhibit 2-2: Statewide Drainage Basins



Much of the stormwater runoff in this basin that affects St. Mary Parish is routed to the Gulf via outlet channels west of St. Mary Parish. However, many natural and manmade outlets (bayous and canals) in the parish south of Bayou Teche also serve to move stormwater to the bays. Examples include the Charenton Canal, Hanson Canal, Franklin Canal, Yokely Bayou, Bayou Choupique, Scott Canal, Kelley Canal, and Vacherie Canal.

The Vermilion-Teche Basin is not influenced by the Mississippi or Red River and, therefore, functions as a typical stormwater flow watershed. The Terrebonne Basin is similar, but, because of backwater issues related to the Atchafalaya River, it is impacted by the Mississippi and Atchafalaya Rivers during times of high riverine flows or surge related events.

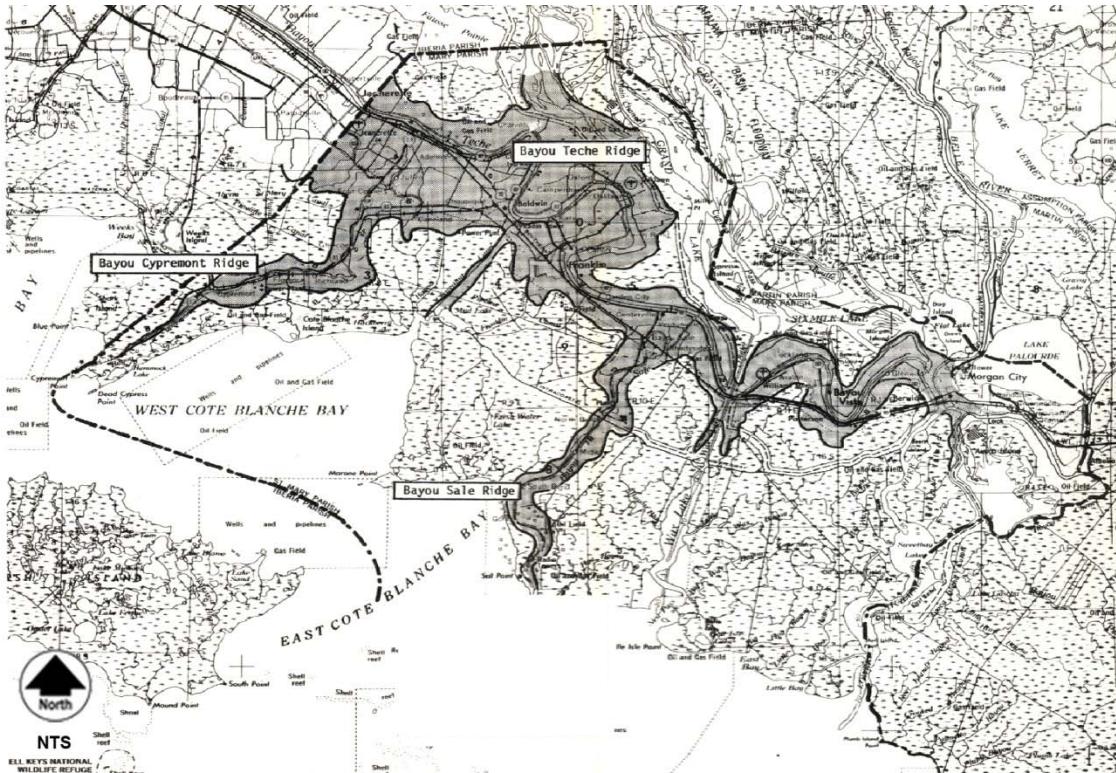
Exhibit 2-3: St. Mary Parish Drainage Basins



Bayou Teche traverses the parish from east to west. Geologically, the Teche Ridge, the higher reaches of the parish (except for salt domes), formed as the result of annual flooding cycles when, centuries ago, the Mississippi River flowed in the Bayou Teche riverbed. This ridge and two smaller ridges (which are oriented north to south perpendicular to the Teche Ridge denoting two smaller historical stream bed ridges) provide virtually all urban and agriculture land in the parish exist. Because of the formation of the Teche ridge through these alluvial processes, land surfaces above the five-foot contour clearly define the ridges as the “high-ground” of the parish. These natural elevations along the Teche ridge range from 16 ft. above mean sea level (MSL) in the western end of the parish to 2 ft. above MSL near Amelia. With little exception, were it not for the parish levee systems, the ridges would form the bulk of the only occasionally flooded soils in the parish. East of the Wax Lake Outlet, the levees approximately double the amount of flood free land and offer varying degrees of protection to urban and agricultural areas. The map presented in Exhibit 2-3 depicts the Teche Ridge as well as the Bayou Cypremort and Bayou Sale Ridges. The ridges are also depicted in Exhibit 3-2,

Land Use Map, in the brown shading representing agricultural land and in the urban shades.

Exhibit 2-4: St. Mary Parish Ridge Detail Map



Shortly after Hurricanes Katrina and Rita in 2005, the Parish retained Miller Engineers & Associates to supplement data reflective of current levee alignments and to provide an overview of the general conditions of all levees. The resulting report, entitled *St. Mary Parish Storm Surge Protection Study* (March, 2006), suggests layouts for additional levee alignments and improvements to existing levees. The study is referred to herein as the “Miller Plan” and is included by reference. The additional levee alignments proposed in the Miller Plan are intended to protect St. Mary Parish from river floods and backwater as well as from storm surge. Details of levee heights are noted in the Miller Plan and are reflective of data collected in 2000. In 2010, this data is considered outdated. SMLD routinely surveys levees in accordance with CPRA requirements (every three years) and will continue. The cost estimates in Section V. have been updated to reflect current (2016) recommendations.

St. Mary Parish Presidential Declared Storm Events (1906-Present)

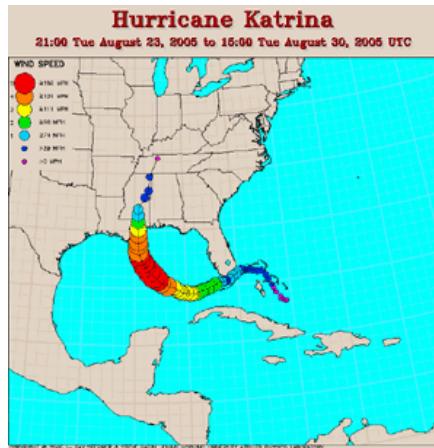
Year	Storm Name	Impact	Damage (\$ Billions) (1)
1906	Hurricane (LA and MS)	Destructive winds and tides	2
1915	Hurricane (LA)	Flooding, high water, and strong winds	2.5
1957	Hurricane Audrey	Storm surge, backwater, tornadoes, high winds	4
1964	Hurricane Hilda	Winds, tornados	2.5
1965	Hurricane Betsy (Grand Isle)	Flooding, winds, and high tides	21
1969	Hurricane Camille (MS, FL)	Flooding, maximum winds	22
1973	River Flood of 1973	Riverine and back-water flooding	n/a
1983	Heavy Rain Event	Heavy rains	n/a
1985	Hurricane Juan	Heavy rains	4
1991	Heavy Rain Event	Heavy rains	n/a
1992	Hurricane Andrew	Heavy rains, tornados	55
1998	Hurricane Georges (LA, MS, AL)	Flooding, high winds, tornados	3.7
2001	Tropical Storm Allison	Heavy rains, tornados	6.5
2002	Tropical Storm Isadore	Heavy rains	0.4
2002	Hurricane Lili	Heavy rains	11
2005	Hurricane Katrina	Heavy rains, high winds	81
2005	Hurricane Rita	Heavy rains, high winds	10
2008	Hurricane Ike	Heavy rains, high winds	20
2008	Hurricane Gustav	Heavy rains, high winds	
2011	Mississippi River Flood of 2011	Flooding	2 - 4
2012	Hurricane Isaac	Heavy rains, high winds	1
2016	Mississippi River Flooding of 2016	Flooding	TBD

Note (1) Loss estimates for all affected areas 1906-2005, estimates in 2000 dollars

Source: Normalized Hurricane Damage in the United States: 1900-2005, R. Pielke, et al., FEMA Disaster Declarations, Louisiana Economic Development Department

Hurricane Katrina (2005)

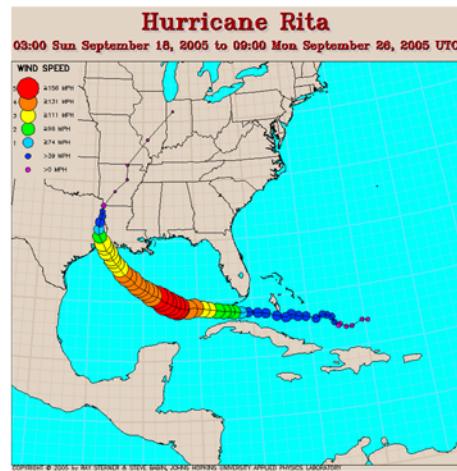
After crossing southern Florida, Hurricane Katrina made landfall for the second time at Grand Isle, Louisiana, on August 29, 2005, with winds speeds at 125 mph as a Category 4. As the following picture shows, Katrina was on a track along the southeastern Louisiana-Mississippi border. Flood damage in St. Mary Parish was minimal. According to the U.S. Department of Housing and Urban Development, 63% of homes in Louisiana were damaged or destroyed by wind. Hurricane Katrina was the most damaging natural disaster in U.S. history with approximately \$81 billion worth of damage.



Source: NCDC, 2006

Hurricane Rita (2005)

Hurricane Rita made landfall on September 24, 2005, in Cameron Parish, Louisiana, as a Category 3 storm with sustained winds of 120 mph. As graphically depicted in the following image, Rita followed a path along the western Louisiana-Texas border. St. Mary Parish experienced 5-10 feet of storm surge that inundated the western end of the parish and flooded U.S. Hwy. 90. Most of the damaged structures were along and south of U.S. Hwy. 90, especially near Cypremort Point, Burns Point, and Franklin. Hurricane Rita caused \$10 billion in damage. Few deaths or injuries were reported. Rita had much more of an effect on St. Mary Parish than did Hurricane Katrina.



Source: NCDC, 2006

Hurricanes Gustav (Sept. 1) and Ike (Sept. 12-13), 2008

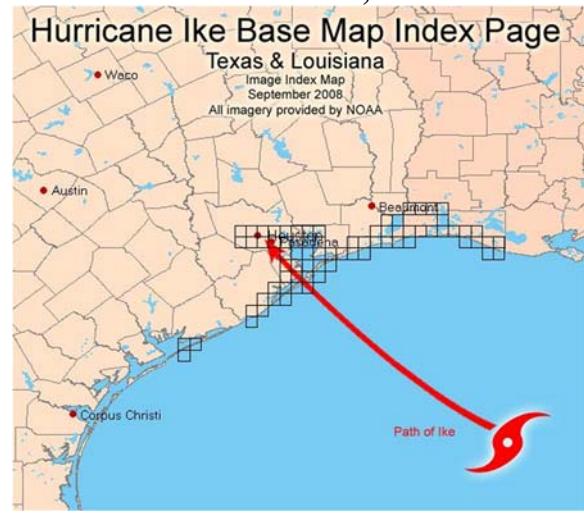
Hurricane Gustav is known as one of the most devastating hurricanes of 2008, causing physical damage and fatalities in multiple countries including Jamaica, the Cayman Islands, Cuba, Haiti, the Dominican Republic, and the United States (namely Louisiana). Hurricane Gustav was the first storm in Louisiana's history to necessitate a mandatory evacuation of residents within all at-risk coastal parishes.¹ Over two million people were evacuated from the region.

Hurricane Gustav, 2008



Source: noaa.gov

Hurricane Ike, 2008



Source: noaa.gov

The hurricane entered the Gulf of Mexico and made its final landfall on September 1, 2008, as a Category 2 hurricane in Cocodrie, Louisiana, which is a shrimping and crabbing village located in Terrebonne Parish south of Houma. The hurricane produced maximum sustained winds of 104 miles per hour and inundated the southernmost portion of the parish from the Lower Atchafalaya River to just east of State Route 317.

A second hurricane impacted Louisiana approximately two weeks after Hurricane Gustav. Though Hurricane Ike made landfall further west in Galveston Island, Texas, on September 12 and 13, 2008, Category 2 winds from Hurricane Ike produced surges in coastal Louisiana that ranged between three feet and six feet in height in areas east of Grand Isle. Storm surge heights increased west of Grand Isle, reaching a maximum of 10 feet at some locations. These storm surges caused widespread levee overtopping and flooding in St. Mary Parish. Highway 90 (Future I-49) was submerged in flood waters causing restrictions in vehicular traffic flow.

¹ State of Louisiana Governor's Office of Homeland Security and Emergency Preparedness. State of Louisiana After-Action Report and Improvement Plan: Hurricanes Gustav and Ike.

The Louisiana Economic Development Department estimates that Hurricanes Gustav and Ike caused 51 deaths and between \$8 and \$20 billion in physical damage across the state.

In 2008, St. Mary Parish was awarded over \$24 million in grants by the State of Louisiana for hurricane recovery, hazard mitigation, and infrastructure improvements.²

The Mississippi River Flood of 2011 (April – May)

The 2011 Mississippi River Flood was one of the largest and most damaging flood events that the Mississippi River and its associated waterways has experienced in the last century. A unique combination of weather patterns, which include springtime snowmelt from an above-average snowfall in the Upper Mississippi Valley and heavy rainfall resulting from multiple major storm systems, made 2011 a record-setting year for flooding in the central United States.³ The National Oceanic and Atmospheric Administration estimates that economic losses related to the flooding ranged from \$2 - 4 billion.

**Lake Pontchartrain near
Bonnet Carre Spillway, 2011**



Source: nola.com

The picture above shows water being diverted from the Mississippi River to Lake Pontchartrain on May 10, 2011 via the Bonne Carre Spillway. Water from the Mississippi River was also diverted to the Atchafalaya River; this water diversion caused the Atchafalaya River to crest on May 30, 2011 at +10.35 feet on the Mean Sea Level (MSL) Morgan City Gauge. As a result of the increase in water caused by the diversion, the flood waters submerged any businesses that were located beyond the river's concrete floodwall in St. Mary Parish.

The St. Mary Levee District constructed a closure in Bayou Chene, south of Amelia, Louisiana to protect six parishes (St. Mary, St. Martin, Terrebonne, Lafourche, Iberville and Assumption) citizens from backwater flooding. The

² <http://gov.louisiana.gov/index.cfm?md=newsroom&tmp=detail&articleID=1634>

³ http://www.srh.noaa.gov/media/jan/Hydro/Flood_History_MS.pdf

project was deemed a success by exhibiting a three foot differential when comparing the protected and unprotected sides of the structure.

Hurricane Isaac Aug. 29, 2012

Hurricane Isaac was a Category 1 hurricane that made landfall in Plaquemines Parish on August 29, 2012.⁴ At the time of landfall, the storm had a maximum sustained wind of 80 mph. However, after the initial landfall and its progress inland over southeastern Louisiana, the storm weakened to a tropical storm and then, subsequently, a tropical depression. It was estimated that Hurricane Isaac caused approximately \$1 billion dollars in damage. Little damage occurred in St. Mary Parish. The St. Mary Levee District prepared for oncoming storm surge by driving sheet pile to close Franklin Canal, Hanson Canal, and Yellow Bayou. Since Hurricane Isaac, permanent closures have been constructed at these three locations.



The Mississippi River Flood of 2016 (Late December – January)

The 2016 Mississippi River Flood was a large flood event that impacted a large portion of the southern United States; the flooding event was similar in magnitude to the Mississippi River Flood of 2011. Substantially larger than average rainfall—especially for the winter months—was brought about because of persistent El Niño conditions. The frequent storms and larger than average rainfall across much of the Mississippi River Basin resulted in flooding conditions throughout much of the Mississippi River system and its distributaries. The Atchafalaya River at Morgan City crested at approximately 8.1 feet on January 22, 2016. The river is considered to be at a Moderate Flood Stage at this level. At this level, structures located on the land side of the floodwall are protected. As in 2011, the St. Mary Levee District constructed the Bayou Chene Emergency Flood Protection Structure to protect six parishes from backwater flooding.

⁴ http://www.doa.louisiana.gov/cdbg/DR/Isaac/Isaac_Background.htm

B. Summary of Flooding History

A summary of each type of flooding and associated past damages is provided below.

Riverine

Riverine flooding, by definition, is river based. In the case of St. Mary Parish, it is the Atchafalaya River that generates the greatest riverine flooding concern. The modern flood of record is the flood of 1973. This riverine event inundated most of the parish positioned lower than the higher reaches of the Teche Ridge and not protected by levees, especially along and east of the Bayou Sale Ridge. The event generated the need for a federally constructed temporary seawall height extension in Morgan City during the months of the flood. A series of federally funded levee heightening and strengthening projects and the construction of a new seawall to protect Morgan City and Berwick resulted.

Storm Surge

Storm surge caused by tropical storm force winds and rising Gulf waters cause inundation of coastal floodplains in reverse flow (south to north) through coastal bayous, canals, and drainage systems which, in essence, serve as conduits for inundation. In the case of storm surge, southerly winds and high tides rise over and through bayous, canals, and marshlands. Low lying coastal areas of St. Mary Parish are vulnerable to this type of flooding because of its predominate marshland coast and proximity to the Gulf of Mexico.

This type of event occurred during Hurricanes Audrey, Lili, Rita, and Ike, among others. Audrey's storm surge came up slowly and fell slowly over several days while the surge with Hurricane Lili was rapid. Rita and Ike were both slow to rise and slow to fall. The primary difference was that the faster moving surge created not only flood damage but also damage associated with the velocity of the rising and receding water. Though Hurricane Audrey occurred more than a half-century ago, it remains the highest and most critical measure of storm surge in the parish even though landfall was in Cameron Parish approximately 150 miles away.

Surge also affects urban structure and cropland along the lower extremes of the Bayou Cypremort and Bayou Sale ridges nearest the coast, in Franklin, and in other areas west of Franklin where surge flows north into normally south flowing drainage conduits. Typically affected waterways include but are not limited to the Franklin, Charenton, and Hanson Drainage Canals, and Yellow Bayou. Although as of 2016, the St. Mary Levee District constructed closure structures on Franklin and Hanson Canals and also on Yellow Bayou. Surge inundation depths of 6 to 8 feet have been recorded. Levees have been damaged and overtopped damaging sugarcane

acreage and causing saltwater inundation over cropland and intrusion into potable water systems. Saltwater intrusion is a major impact factor. Surge related flooding also caused the closure of U. S. Highway 90 (Future I-49) in western St. Mary Parish following Hurricane Ike. This transportation corridor is a major evacuation route through the parish. Some of the flooding resulting from Ike is shown below.



Photo provided by Scotty Tibbs

The impact of storm surge inundation was highlighted by the widespread damage caused by Hurricane Katrina in New Orleans. It is important to note that all levees in St. Mary Parish were designed for riverine and backwater flooding yet are now being charged with carrying the additional burden of storm surge protection.

Backwater flooding

Backwater flooding is normally associated with riverine flooding as well as surge events generated offshore and reaching far inland. Velocity is generally less than primary river flows (Atchafalaya River or Wax Lake Outlet). Low lying areas, particularly those outside of protection levees are at risk. Riverine based backwater flooding typically occurs during the spring when the Atchafalaya River is at its highest level.

In “high water” years, backwater flooding associated with riverine events often begins in November or December. During these times, a heavy rainfall event within the Terrebonne Basin coupled with sustained southerly winds hinders drainage outflow causing backwater flooding in susceptible areas. Typically, these areas are those susceptible to backwater issues related to storm surge. This phenomenon generally results in the flooding

of eastern areas of the parish with a focus on the Amelia vicinity, urban areas along Lake Palourde, and lower reaches west of the Wax Lake region.

A significant flood event inundated the Amelia area in 1975. Because of its location along Bayou Boeuf and lack of levee protection, Amelia is highly susceptible to backwater flooding, as are urban areas north and east of Morgan City. Historically, flooding is generally wide spread but shallow in these areas. In recent years, St. Mary Levee District has been proactive with constructing the Bayou Chene Emergency Structure (2011 & 2016) to prevent backwater flood damage.

Stormwater

Because of the above noted flooding which routinely affects St. Mary Parish, approximately 126 miles of federal and local levees and floodwalls have been constructed. Because of these levees, all stormwater drainage (i.e., removal of rainwater) inside each distinct levee system is drained by a pumped system. Presently, 48 pump stations operate in the parish within five clearly defined drainage districts. Many of these stations consist of multiple pumps. As additional levees and canal closures are constructed, more pumps will also be added to the affected drainage systems.

Typical to tropical and sub-tropical climates, stormwater excesses caused by large amounts of rainfall in a short period of time occasionally occur. Generally, the most damaging events have been a function of tropical storms and hurricanes. Primarily, low lying areas of the parish suffered damage from relatively recent major stormwater events including Hurricane Juan in 1985 and Tropical Storm Allison in 2001. Most of the problems associated with stormwater events occur in the Franklin area (west end of parish) and in the Amelia area (easternmost area of the parish).

III. INVENTORY OF GENERAL CONDITIONS

A. Protected Area—Current and Future Land Use

Levees throughout St. Mary Parish protect the municipalities of Morgan City, Berwick, Patterson, Franklin, and Baldwin; unincorporated areas including but not limited to Bayou Vista and Amelia; vast acreages of agricultural land; and wetlands, both forested and non-forested. As a snapshot of the community, the following land use table is provided.

Exhibit 3-1: EXISTING LAND USE

DESCRIPTION	ACRES	%	Totals
Urban			2.4%
Residential	7,690	1.2%	
Commercial and Services	3,347	0.5%	
Industrial	3,320	0.5%	
Transportations, communications, and Transportation	55	0.0%	
Other urban or built-up land	820	0.1%	
Agriculture			18.8%
Cropland and pasture	119,298	18.8%	
Forested (wetlands and non-wetlands)			24.4%
Deciduous forest land	2,823	0.4%	
Forested wetland	152,269	23.9%	
Non-forested wetlands			14.4%
Nonforested wetland	91,699	14.4%	
Water	236,139	37.1%	37.1%
Other	18,683	2.9%	2.9%
TOTAL	636,143	100.0%	100.0%

Based upon this data, 35% of the parish is urbanized and/or under cultivation. It is these lands that require protection from flooding resulting from riverine, backwater, and surge. The remaining area of the 381,333-acre parish is wetlands or non-forested wetlands. Land use data is based on information provided by the parish tax assessor. The map and pie chart in Exhibit 3-2 provide a visual image of major land cover in the parish.

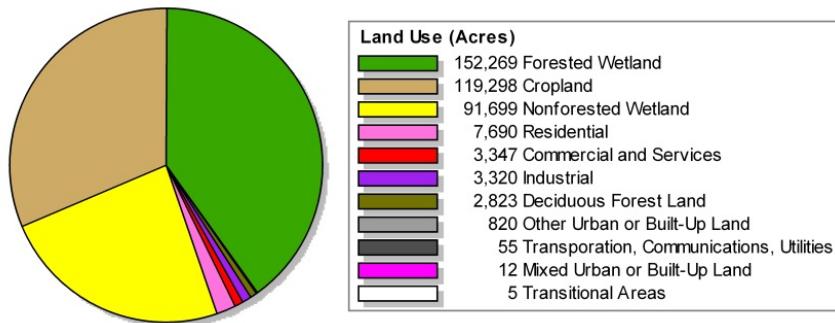
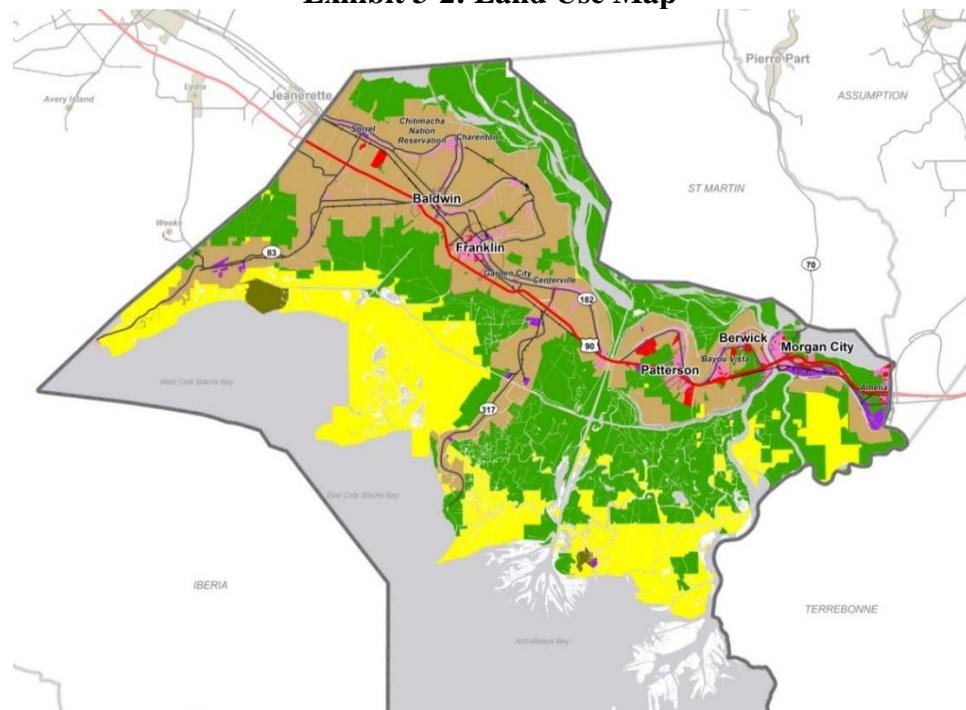


Flooded agricultural land along U. S. 90
Hurricane Ike
(Photos by Scotty Tibbs)



Flooded U.S. 90 and adjacent agricultural land after
following Hurricane Ike

Exhibit 3-2: Land Use Map



For purposes of this plan, future land use in St. Mary Parish is a function of the current zoning ordinances (municipal and parish).

The parish is divided into the basic zoning districts as listed on the following page. The majority of urban and agriculture lands in St. Mary Parish lie within levee systems.

Non-Urban districts

AG—Agriculture

CN—Conservation

Residential Districts

SR—Single Family Residential

HR—High Density Residential

MR—Mixed Residential

MH—Manufactured Home
Commercial Districts
 NC—Neighborhood Commercial
 GC—General Commercial
 HC—Highway Oriented Commercial
Industrial Districts
 LI—Light Industrial
 HI—Heavy Industrial

The 126 miles of levees in St. Mary Parish protect a number of critical facilities and infrastructure. Typical examples include hospitals, evacuation shelters, police stations, fire stations, emergency operations centers, schools, transportation facilities, utility systems, and more. Based upon data obtained from the St. Mary Parish Tax assessor's office, approximately 25,000 residential and 4,000 commercial, institutional, and public sector structures exist in the parish. The fair market value of these structures plus corresponding machinery, equipment, and inventories, all of which are within the geographical jurisdiction of the SMLD, totals approximately \$4,000,000,000. Infrastructure such as roads, bridges, pipelines, etc. is not included in this value.

Not all of those structures currently have levee protection (e.g., Amelia, Cypremort Point area), and at this time (Spring 2016), only some levees in the parish are accredited by FEMA.

B. Levees and Pumps

As noted, St. Mary Parish has approximately 126 miles of existing levees which are noted in Attachment B. The former ABLD levees (indicated as a solid red line surrounded by purple on the SMLD Base Map presented in Attachment B) were constructed for the riverine project flood event of the USACE Mississippi River and Tributaries (MRT) project. Other federally constructed levees (indicated as a solid red line on the levee district base map and not encased in purple) were constructed for protection from the backwater flooding event created by the project flood of the MRT. The local levees in Amelia and Morgan City (indicated in yellow on the levee district base map in Attachment B) were initially constructed to prevent backwater flooding from the Atchafalaya River project flood as elevated waters flow upstream through Bayou Chene and over Terrebonne Parish marshes through Bayou Boeuf, into Lake Palourde, and farther north into the Lake Verret watershed applying backwater pressure to all of east Morgan City.

According to the Miller Plan, the locally constructed levees range in height from 1.5 to 8 ft. and the federally constructed levees from 3.5 to over 20 feet. Currently, all federally constructed levees in St. Mary Parish are within the jurisdiction of the SMLD. The SMLD has executed Intergovernmental Agreements (Attachment F) assuming responsibility for all maintenance including grass cutting. The Intergovernmental Agreements also provide services provided by the Town of

Berwick, the City of Morgan City, and St. Mary Parish Government that will continue with services reimbursable by SMLD.

Maintenance options for the SMLD are highlighted in Section V. Maps offering a comprehensive collection of levee data including the reach names, locations, major tax contributors, and proposed capital improvements are presented in Attachment B. Maps included in Attachment B are presented parishwide as well as by each drainage district region.

Pump stations are also a major consideration as pumps are required to remove stormwater that falls between the levees. For informational purposes only, and though they are not within the authority of the SMLD, a list of pump stations in the parish and the responsible entity is provided in Exhibit 3-3.



Hurricane Ike surge in Bayou Teche near parish courthouse in Franklin (Photo by Camile Punch)

C. Administrative

As noted in Chapter I, the enabling legislation creating the St. Mary Levee District and providing that district with the authority “to establish, construct, operate, or maintain flood control works of all types as they relate to hurricane protection, tidewater flooding, saltwater intrusion and conservation” is included in Attachment A. With that authority is the right of the District to enter into cooperative agreements with other political subdivisions in fulfilling its obligations for levee improvements as well as operations and maintenance.

During the master planning process in 2010, stakeholders were involved through a series of SMLD meetings, drainage district meetings, parish government meetings, and mayors' meetings to ensure consensus with the plan in its approach and methodology. Inventory of the parish levees and related infrastructure was presented at each meeting, input was solicited in relation to accuracy of inventory, and projects were prioritized through public input as well as through previous technical evaluation and parish planning efforts.



Coordination with municipalities and drainage districts

Discussion with the drainage districts also focused on the underlying and overlapping jurisdictions of the SMLD and drainage districts, and a clear distinction was made: all gravity drainage related to stormwater flooding (including pump stations and related maintenance) would remain the jurisdiction of the drainage districts, and levee protection from all surge, riverine, and backwater flooding as it relates to the federally constructed and state and federal proposed levees would fall within the authority of the SMLD.

Exhibit 3-3: Pump Stations and Responsible Entity

Pump Station Name	Responsible Entity
Pump Station 1	Drainage District No. 6
Pump Station 2	Drainage District No. 6
Pump Station 3	Drainage District No. 6
Pump Station 4	Drainage District No. 6
Pump Station 5	Drainage District No. 6
Pump Station 6	Drainage District No. 6
Pump Station 7	Drainage District No. 6
Pump Station 8	Drainage District No. 6
Pump Station 9	Drainage District No. 6
Pump Station 10	Drainage District No. 6
Pump Station 11	Drainage District No. 6
Pump Station 12	Drainage District No. 6
Pump Station 13	Drainage District No. 6
Pump Station 14	Drainage District No. 6
Pump Station 5a	Drainage District No. 6
Pump Station 2a	Drainage District No. 6
Proposed Berwick Borrow Canal Pump Station	Wax Lake East Drainage District
Cotton Road Pump Station	Wax Lake East Drainage District
Possum Bayou Pump Station	Wax Lake East Drainage District
Wax Lake Pump Station	Drainage District No. 1
Maryland Pump Station	Drainage District No. 1
Yokely Reach Pump Station	Drainage District No. 1
Golden Farms Pump Station	Town of Berwick
Utah Street Pump Station	Town of Berwick
Berwick South Pump Station	Town of Berwick
Cannata's Pump Station	Subdrainage District No. 1 of Drainage District No. 2
Plantation Inn Pump Station	Subdrainage District No. 1 of Drainage District No. 2
Gordy Pump Station	Drainage District No. 1
Pump Station #3	Drainage District No. 2
Pump Station #4	Drainage District No. 2
Pump Station #6	Drainage District No. 2
Todd Pump Station	Drainage District No. 1
Yokely Pump Station No. 3	Drainage District No. 1
Yokely Enlargement Pump Station	Drainage District No. 1
Franklin Pump Station No. 1	Drainage District No. 1
Franklin Enlargement Pump Station	Drainage District No. 1
Centerville Pump Station	Drainage District No. 1
North Bend Pump Station	Drainage District No. 1
Ellerslie Pump Station	Drainage District No. 1
Pump Station #1	Drainage District No. 2
Pump Station #2	Drainage District No. 2
Pump Station #5	Drainage District No. 2
Pump Station #7	Drainage District No. 2
Pump Station #8	Drainage District No. 2
First Street @ Seawall – Berwick	Town of Berwick
Gus Street – Berwick	Town of Berwick
Ibert Street Pump Station - Franklin	City of Franklin
Pecan Acres Pump Station – Franklin	City of Franklin
Yokely Canal Pump Station – Franklin	City of Franklin
Franklin Canal Pump Station	St. Mary Levee District

D. Federal and State Plans

In addition to the aforementioned Miller Plan, a federal and a state plan that focuses on the area encompassed by the St. Mary Levee District are the *USACE Mississippi River and Tributaries Plan* and the State of Louisiana's *Integrated Ecosystem Restoration and Hurricane Protection: Louisiana's Comprehensive Master Plan for a Sustainable Coast* (a.k.a. the State Master Plan). Details and projects from both plans are incorporated by reference and summaries of each plan are provided below.

U. S. Army Corps of Engineers—*Mississippi River and Tributaries Plan*

The primary goal of the MRT study was to develop an implementable plan that would allow the Atchafalaya Basin to continue to convey its share of the MRT project flood while protecting south Louisiana from flooding. Various non-structural and structural flood control measures were presented and specific objectives were defined as follows:

- Flood Control—Implement a flood control plan to safely pass the project flood to the Gulf of Mexico in an environmentally sound manner
- Natural Environment—Retain the unique environmental ecosystems of the Atchafalaya floodway and surrounding areas
- Backwater Protection—Provide protection to the area east of the basin from Atchafalaya River backwater flooding
- Intercept Drainage—Retain and restore existing intercepted drainage channels of the eastern backwater area

The plan was prepared in 2001 and presented projects to ensure that aforementioned goals and objectives were met through proposed projects. Many alternatives were presented but no projects in the plan have been constructed to date.

Louisiana's *Integrated Ecosystem Restoration and Hurricane Protection: Louisiana's Comprehensive Master Plan for a Sustainable Coast* (Source: Coastal Protection and Restoration Authority of Louisiana)

Following Hurricanes Katrina and Rita, the State recognized the need for a comprehensive statewide plan. This plan, entitled *Louisiana's Comprehensive Master Plan for a Sustainable Coast* and prepared in 2012, recommends a series of hurricane protection and coastal restoration measures to ensure both the sustainability of Louisiana's coastline and the protection of its citizens from flooding. Planned projects for area in and around St. Mary Parish include structural protection, ridge restoration, sediment diversion, and shoreline protection. Maps presented in Appendix B illustrate the proposed *State Master Plan* levee alignments and associated improvements for St. Mary Parish in blue and are noted in the Capital Improvement Program in Chapter V.

In addition to *Louisiana's Comprehensive Master Plan for a Sustainable Coast*, the South Central Plan has been developed by the Coastal Protection and Restoration Authority in collaboration with the parishes of Iberia, St. Mary, and St. Martin. The plan is designed to help the involved parishes, which includes St. Mary Parish, address the issues faced by the majority of the state—increasing land loss and storm-induced flooding. The plan incorporated collaboration with local levee boards, advanced hydrologic modeling, and preliminary engineering and permitting activities.⁵

E. Levee Certification—DFIRMs and the FEMA Perspective

Certification of levees within St. Mary Parish is the responsibility of the St. Mary Parish Government (unincorporated area), the City of Morgan City (Morgan City's Atchafalaya River and backwater levees), and the Town of Berwick (Berwick floodwall and levees). Other municipalities do not have responsibility for certification as no levees exist within their boundaries. Certification will remain the responsibility of the Parish and municipal governments unless the authority is transferred.

Levee certification is of critical importance as FEMA's Digital Flood Insurance Rate Maps (DFIRMs) are produced by inputting certified levees into various hydrologic models which produce base flood elevations (BFEs) which dictate the elevations at which future construction must occur. If a levee is deemed un-certifiable or de-certified, the levee is not represented in modeling (considered non-existent), thereby causing higher BFEs.

This judgment generally results in increases in flood insurance premiums and construction costs. Many government leaders and citizens and many citizens

have indicated that they consider these increases as severely detrimental and often permanently disabling to economic growth or even sustainability. For levees to be recognized by FEMA, evidence must be produced by the community or other party seeking accreditation indicating that levee systems meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with the comprehensive flood plain



Levee breach as a result of Hurricane Ike (Photo by Scotty Tibbs)

level of protection sought through FEMA's

¹ <http://coastal.la.gov/project/south-central-project/>

management criteria (i.e., the 100-year event). This assurance relates not only to levees but also to floodwalls, gates, and other closures. At this writing, issues related to levee certification have again reached congress as local jurisdictions are now faced with requirements and timeframes that appear unattainable without federal assistance. DFIRMs are updated by FEMA periodically to reflect the changing conditions of the coastline and updated flood information. The latest DFIRMs were provided to St. Mary Parish on June 30, 2015. Portions of the parish were secluded as ongoing issues persist.

In May 2016, the USACE released the “USACE Process for the Nation Flood Insurance Program Levee System Evaluation for the Wax Lake East Area Levee System” (LSER). The report notes that the levees in the Wax Lake East System meet the requirements for the 1% annual chance exceedance flood level determined by the USACE, the levees should be accredited for the FEMA flood insurance program. The elevations designated by the LSER are listed in the table to follow.

Exhibit 3-4: St. Mary Levee District LSER Elevations

USACE Reach Name	LSER Elevation
Intracoastal Waterway North	11'
Intracoastal Waterway South	11'
Morgan City Ring Levee East	8'
Bayou Shaffer Levee	11'
Avoca Island Cutoff South	10.5'
Morgan City Ring Levee West	11'
Wax Lake East Area North	11.5'
Wax Lake East Area East	11'
Wax Lake East Southern Levee	11.5'
Wax Lake Outlet Bordering Levees	11.5'
Wax Lake West Southern Levee	11.5'
Bayou Sale East	14.5'
Bayou Sale West	14.5'
Wax Lake West Southwest Levee	10.5'
Wax Lake West Area West	10.5'
Wax Lake West Area North	12.5'

F. Local Plans of Neighboring Parishes

Vermilion Parish (through its Police Jury) and Terrebonne Parish (through the Terrebonne Levee and Conservation District) are currently undertaking plans to ensure protection from storm surge. Vermilion Parish recently completed the Hurricane Protection Plan and Terrebonne Parish has begun construction on the Morganza to the Gulf protection plan. Iberia Parish Levee, Hurricane, and

Conservation District is also working on a Master Plan and pursuing funding sources for flood protection projects.

Coordination of flood protection plans and proposed projects by the SMLD and the surrounding parishes is crucial to ensuring consistency of flood protection systems that span parish lines and to ensure that projects in one parish do not adversely affect another.

1. Vermilion Parish Hurricane Protection Plan

The Vermilion Parish Police Jury commissioned the Vermilion Parish Hurricane Protection Plan in 2008. The plan details various bank stabilization, coastal restoration, and flood control structure projects throughout the Parish. Vermilion Parish currently does not have any federally-constructed storm protection levees nor flood control structures. The levees in Gueydan, Victoria Acres, and the Pine Street area south of Abbeville were not constructed to protect against storm surge. All municipalities in Vermilion Parish except Maurice have experienced flooding as a result of Hurricane Rita. These communities are perpetually seeking funds for flood protection projects. However, no proposed projects have been constructed.

2. Terrebonne Parish and Morganza to the Gulf

Morganza to the Gulf is a USACE project that contains 72 miles of new levee construction, thirteen floodgates, a lock in the Houma Navigational Canal, and other water control structures. The project is intended to protect Terrebonne Parish and part of Lafourche Parish from storm surge events. Terrebonne Parish currently has no storm surge protection levees, so the Morganza to the Gulf project would provide much needed flood relief in the event of a hurricane. Portions of various reaches are currently under construction.

3. Iberia Parish Levee, Hurricane, and Conservation District

The Iberia Parish Levee, Hurricane, and Conservation District is currently preparing a master plan and searching for project funding.

IV. ANALYSIS OF CURRENT AND FUTURE CONDITIONS

A. Physical Condition of Levees within the SMLD's Jurisdiction

The *St. Mary Parish Storm Surge Protection Study*, also known as the Miller Plan, detailed the inconsistency in the heights of the levees throughout the parish. The plan used LIDAR data from the Louisiana Statewide Mapping project to produce centerline levee profiles that detail the gaps in the current levee protection system and to identify construction estimates to elevate the levees to 18 ft. MSL. The table below details the range of heights for each reach of levee starting from the eastern end of the parish moving westward. However, it does not take into account the North Bend Phase A and Gordy West Phase A construction that the USACE recently completed nor the former ABLD levees.

Exhibit 4-1: Heights by Levee Reach

Levee Reach	Range in Heights (feet)	Average (feet)
Bayou Yokely	5.4 – 16.0	7.0
Franklin/Centerville	4.9 – 15.0	8.6
Maryland/Todd/North Bend	5.2 – 12.9	10.3
Wax Lake West	9.0 – 12.9	11.4
Wax Lake Outlet West	12.2 – 21.4	15.5
Ellerslie West	8.4 – 11.6	10.6
Gordy West	7.6 – 12.6	8.5
Gordy East	10.5 – 12.6	11.4
Ellerslie East	9.1 – 12.7	11.0
Wax Lake Outlet East	11.5 – 22.9	14.1
Wax Lake East	11.4 – 22.0	13.6
W-124	22.0	22.0
Morgan City (incl. floodwall)	1.9 – 25.0	7.4

The Miller Plan's recommendations to +18 ft. MSL do not necessarily correlate with the USACE's required elevation of the levees required of the project flood.

The LSU Center for Geoinformatics developed a surveying and GPS tool, GULFNet that “is a network of Continually Operating GPS Reference Stations (CORS)” (LSU Center for Geoinformatics). According to LSU staff, this system is superior to current surveying techniques because GULFNet landmarks are not subject to land subsidence, a common cause of vertical survey error. Additionally, the GULFNet system allows local surveyors to efficiently and accurately gather elevation data at a lower cost to the local client. The LSU Center for Geoinformatics has been working to verify survey benchmarks throughout the state and encourages the use of GULFNet to ensure accurate surveying results. The St. Mary Levee District also purchased survey equipment for the ongoing need to survey the levees.

Near the end of the planning process (March 2010), the USACE (MVN) presented the results of its Flow-line Study, i.e., Atchafalaya Levee System Deficiency Analysis (2010), which detailed many levee height deficiencies based on the project flood. The table below illustrates the station numbers (locations) where height deficiencies were noted. Station numbers provided below (feet in hundreds) refer to mapped sets of plans and profiles provided by the USACE.

4-2: Deficiencies in Levee Heights (USACE Flow-line Study, 04.02.10)

East Atchafalaya Basin Protection Levee	Levees West of Berwick	West Atchafalaya Basin Protection Levee	Bayou Sale	Avoca Island
4626	20	4583-4609	401	4980
4673	208-211 ¹	4619-4623	403	5000-5065
4748	453	4635-4645	404	5213
4958-4966	475	4690	473	5365
	480-490	4712-4713	631	5375
	541	4715-4719 ⁴		5410-5425
	544-594 ²	5155-5158		5485-5490
	596	5170-5217		
	605-613	5218-5230		
	1033-1037	5240-5255		
	1063	5270-5313		
	1156-1159	5423-5439		
	1363-1365	5444-5483		
	1381	5492		
	1408	5532		
	1445-1446	5549-5554		
	1448	5729-5751 ⁵		
	1454-1461	5862		
	1466-1475	5923		
	1490	5954-5975		
	1492	5985-6008		
	1531	6011-6019		
	1693	6021-6065		
	1695-1720	6067-6075		
	1723-1730	6080-6088		
	1795-1799	6089-6093		
Footnotes:	1803-1805	6112-6116		
¹ Possum Bayou Pump Station	1812	6380		
² Calumet Floodgates (same)	1822-1829	6384		
³ Franklin Pump Station	1845 ³	6500-6504		
⁴ Charenton Floodgate	2067	6727-6736 ⁶		
⁵ Calumet Floodgates (same as 2)		6745		
⁶ Berwick Lock		6750		

Footnotes in the table above indicate relative station locations where infrastructural elements of floodgates, locks, or pump stations are below flow-line estimates. Levee board members expressed interest in obtaining written documentation that the Corps of Engineers has a contingency plan prepared to address the noted deficiencies at the lock, floodgates, and other structures within the levee alignment.

As a function of this parishwide levee system planning effort, the District also expressed its desire to maintain open communications with the Corps of Engineers and the state and regional congressional delegations in diligently pursuing adequate upgrades to the parish levee system within the jurisdiction of the federal government.

B. Existing Drainage Districts and Related Entities

As previously mentioned, regionally based meetings with drainage districts, municipalities, and parish government officials were held throughout the master planning process. A summary report from each regional meeting and select municipalities relative to jurisdictional cooperation with the SMLD and their current and/or proposed projects are presented below beginning in the Amelia area and moving westward.

1. Amelia—Drainage District No. 6

Drainage District No. 6, created by Ordinance No. 813 in 1975, contains 14 gravity drainage pump stations. Approximately five miles of small, local levees exist within the drainage district. The levees are currently maintained by both the drainage district and St. Mary Parish by way of an informal agreement.

The drainage district expressed a desire to partner with the SMLD in the construction of new surge and backwater protection levees and closures, with the SMLD formally assuming the Parish's responsibility for maintenance and the Drainage District's maintaining responsibility for pump stations. Currently, Drainage District No. 6 has partial funding under the Statewide Flood Control program to increase the height of some existing levees protecting the area from backwater flooding. The Miller Plan details two levee protection alternatives and the *Louisiana State Plan* details another. A detailed map of Drainage District No. 6 including the proposed levee alternatives is presented in Attachment B, Exhibit B-2.

2. Morgan City and Vicinity—Drainage District No. 2

Drainage District No. 2, created in 1997 by Ordinance No. 1352, covers the City of Morgan City and associated backwater levees and contains eight gravity drainage pump stations. The Drainage District recently passed two bond issues dedicated to pump station upgrades and levee upgrades for the backwater protection levees near Lake Palourde.

This particular drainage district has a strong alliance with the City of Morgan City for levee maintenance, and the District has funding for O&M and future levee upgrades. The Drainage District passed millage assessments in 2004 and 2009 for pump station improvements and operations and maintenance. The drainage district welcomes additional support for capital improvements from the SMLD. A detailed map of Drainage District No. 2 is presented in Attachment B, Exhibit B-3.



Berwick, Morgan City, and vicinity noting the Atchafalaya River and Lake Palourde

3. Berwick to Calumet—Wax Lake East Drainage District

The Wax Lake East Drainage District, created by Ordinance No. 706 in 1965, contains three gravity drainage pump stations. The district does not maintain or construct any levees within its jurisdiction; the levees are currently maintained by the St. Mary Parish Government. The top priority project of the drainage district is to install a new drainage pump station at the westernmost end and north of Bayou Teche to relieve other pump stations of stormwater burden. A detailed map of the Wax Lake East Drainage District is presented in Attachment B, Exhibit B-4.

4. Bayou Vista Urban Area—Gravity Sub-drainage District 1 of Drainage District 2

Gravity Sub-drainage District 1 of Drainage District 2, which is inside the Wax Lake East Drainage District, contains two pump stations. No levees exist within the drainage district. The District's focus is to continue funding and maintenance of the subsurface drainage system and related pump stations. The top priority project of the drainage district is to increase the capacity of the Plantation Inn pump station. A detailed map of the sub-drainage district is presented in Attachment B, Exhibit B-5.

5. Calumet to Western Parish Line—Consolidated Gravity Drainage District No. 1

Consolidated Gravity Drainage District No. 1 is the largest drainage district in St. Mary Parish. It includes 12 pump stations. The levees within the drainage district are currently maintained by the St. Mary Parish Government. However, the Drainage District has a cooperative agreement with the USACE to maintain the pump stations with funding assigned on a sliding scale based on the relative impact of MRT flooding. As the levees were originally constructed for backwater protection, they do not currently provide for adequate surge protection and U.S. Hwy. 90 (an evacuation route) floods during many storm surge events. A detailed map of Consolidated Gravity Drainage District No. 1 is presented in Attachment B, Exhibit B-6.

6. Municipalities and other unincorporated areas of the parish

The municipalities and the Parish government have responsibility to maintain certification of the levees within their respective jurisdictions as dictated by FEMA. Berwick and Franklin maintain their respective drainage pump stations. The unincorporated areas west of Franklin have acute needs for levee improvements and construction as well as flood control structures.

In summary, all municipalities expressed interest in working with the SMLD to provide additional flood protection in their respective areas.

C. SMLD Completed Projects

Construction on the Franklin Canal Flood Protection Structure & Levee Improvements was completed in late 2013. Under normal storm-related circumstances, the Franklin Canal serves the surrounding areas by funneling stormwater from urban areas in and around Franklin to low lying outfall marshes and bays which lie along Louisiana's central coast. However, under certain circumstances, the Franklin Canal experiences a reverse flow due to storm surge from the Gulf of Mexico. The reverse flows caused flooding in areas near the Franklin Canal. In this capacity, the canal has carried elevated water levels northward resulting in flooding in Franklin and along U. S. Hwy. 90 (an evacuation route) during Hurricanes Rita and Ike. Because of the potential for reverse flow in the canal, it was decided a flood control structure was necessary. A closure and levee improvements were constructed to prevent backflow through the canal during surge events. The flood control structure, which includes sheet pile, an earthwork embankment, and levee improvements, uses a floating barge to close the canal to prevent reverse flow in the canal.

Like Franklin Canal, both Hanson Canal and Yellow Bayou experience reverse flow during hurricanes and related events. They were also originally

designed to serve as conduits for the removal of stormwater during and after normal rainfall events. However, during hurricanes and related events, both serve as a means for reverse flow generated by storm surge. Hurricanes Rita and Ike are recorded example events. Because of this issue, both had closures and levee improvements designed and constructed to prevent the back flows from moving inland during surge events. The construction phase of the projects were both completed as of December 2015.

V. SMLD OPERATIONS PLAN

A. Operations and Maintenance

Enabling legislation creating the St. Mary Levee District (SMLD) gave the board the authority, if it chooses, to provide jurisdiction covering the approximately 126 miles of existing levees as well as any new levees that may be constructed. That legislation also granted the District the right to enter into agreements with other jurisdictions relative to its authority. Currently, Consolidated Gravity Drainage District No. 2 (Morgan City and vicinity) maintains nine miles of the backwater protection levees. The Drainage District, in cooperation with SMLD and the City of Morgan City, has undertaken a program to improve the levee system to bring these levees into compliance with FEMA's 100-yr level of protection. Upon completion of these improvements, it is the party's intention have the maintenance of the system the responsibility of the SMLD.

The SMLD has executed Intergovernmental Agreements (Attachment F) assuming responsibility for all maintenance including grass cutting. The Intergovernmental Agreements also provide services provided by the Town of Berwick, the City of Morgan City, and St. Mary Parish Government that will continue with services reimbursable by SMLD. Based on surveys which included the St. Mary Parish Government (which currently maintains approximately 110 miles of levees), the South and North Lafourche Levee Districts, the Pontchartrain Levee District, the Atchafalaya Basin Levee District, and other surrounding levee districts, the cost of levee maintenance ranges between \$5,000 and \$10,000 per mile per year, depending on the size and condition of the levees, roads, etc. This includes staff, equipment, and operating expenses. For planning purposes, based on the experiences of the past 5 years, the following is an estimate of the current annual operations and maintenance requirements of the SMLD:

Administration	\$ 533,000
Operations & Maintenance	\$ 554,000
Flood emergency response	<u>\$ 775,000</u>
Totals	\$1,862,000

Variation in the cost of O&M is reflected in options that may be exercised relative to options for levee maintenance (grass, roads, security, inspections, etc.), office space, admin staff, cost sharing with other municipal or parish entities, etc. The largest potential variation is of course the provision for flood emergency response to events. The number of such events or lack of such events will greatly influence the requirements of such funding.

The floodgate and pump station at Franklin Canal are will also require periodic maintenance. The floodgate will require a period of dry docking every ten years for a maintenance cost of \$200,000. The pump will require more frequent maintenance. A periodic once a month inspection is suggested for all pump units. During this inspection the pump and driver should be checked for performance and change in noise or vibration level, loose bolts or piping, dirt or corrosion. All areas that are rusted and/or corroded should be cleaned and repaired. It is very helpful to develop a vibration trend analysis

based upon periodic vibration reading recordings. This will determine optimum repair frequency. The floodgate at Hanson Canal and the sluice gates plus pump stations at Yellow Bayou will also require maintenance and should be operated monthly. Hanson Canal and Yellow Bayou are operated and maintained by the St. Mary Parish Government.

Additionally, the district is responsible for emergency preparedness and response within the limits of its authority. Interagency collaboration in this regard is inherent in the responsibility of levee districts and their personnel. Reserve funds should be considered for unanticipated emergency situations. In 2011 and 2016, the SMLD spent nearly \$12 Million and \$8 Million (estimated), respectively (75% reimbursable by FEMA).

For planning purposes, in St. Mary Parish for the year 2016, it is estimated that the 5 mil parishwide millage generates approximately \$3,000,000 per year. Additional funds may be raised by the implementation of controlled grazing and/or haymaking practices on the levees as well as on immediately adjacent public land. Leasing the land to private citizens for grazing and/or haymaking practices could help fund some of the operation and maintenance costs associated with maintaining a levee system. Additionally, controlled grazing serves to save grass cutting costs and can, subsequently, be used as a vegetation management tool. Controlled grazing can also be mildly successful in providing protection against burrowing animals, which can cause structural issues in the levee system if left unchecked.

However, the specific approach to operations and maintenance to be utilized by the district is subject to decisions of the board. Once those decisions are made, further detail into the cost of providing services required of the board can be generated.

B. Capital Improvements Plan

Capital Improvements Plan (CIP) projects for the SMLD presented below include currently funded as well as unfunded projects. Proposed unfunded projects are shown in 10-year and 20-year scenarios. In the case of projects with multiple alternatives, all options are presented. In relative order of magnitude (ROM) terms, total costs of unfunded projects range from \$104 million to \$648 million.

1. Projects with Available Funds

a. Morgan City Levee Improvements (partially funded)

(1) Description

The need for levee improvements in Morgan City was brought to the forefront by FEMA's issuance of new preliminary Digital Flood Insurance Rate Maps (DFIRMs) in 2009, recent levee profile surveys, and a subsequent appeal to FEMA issued by the City of Morgan City. Being proactive in flood protection, the citizens within Consolidated Gravity Drainage District No. 2 (Morgan City and vicinity) passed a bond election in late 2009. Proposed

levee and pump station improvements indicate upgrades to existing levees to elevations ranging from 8 ft. to 10 ft. MSL. The improvements address vulnerability caused by water levels arising from Lake Palourde. The proposed upgrades will provide backwater protection from Atchafalaya riverine events and storm surge from the Gulf as well as from stormwater runoff in the Lake Verret Basin north of the city. Upon completion of this project, backwater protection levees in Morgan City will be suitable for certification by the City and FEMA accreditation. The final closure for 100-yr protection would be a lakeside levee or other flood control structure estimated at \$21,000,000.

The data gathering phase is currently complete, and the design phase is underway. Multiple levee sections—from Justa Street to Lake End Park and the section from Siracusville to Lake Palourde—are currently in the permitting phase. Once this phase is complete, these levee sections will go to final design and bid.

- (2) Estimated Cost and Funding—\$17,000,000 - \$45,900,000
 - (a) Drainage District bonds, CDBG, CPRA, misc.—\$17,700,000
 - (b) To Be Determined—\$28,200,000

b. Yokely Levee Improvements

- (1) Description

During Hurricane Ike, the Charenton Navigational Canal overflowed its banks and inundated the Yokely drainage area with storm surge. Levee improvements and construction of a berm parallel to Industrial Road and the Charenton Navigational Canal south of US 90 are needed to prevent damages from storm surge inundation.

- (2) Estimated Cost and Funding—CDBG Gustav and Ike Recovery Funds and Capital Outlay Funds—\$5,000,000

c. Bayou Chene Flood Control Project

- (1) Description

During the floods of 1973, 2011, and 2016, a temporary structure was installed in Bayou Chene preventing six parishes from backwater flooding, exhibiting the need for a permanent structure. Design is currently underway for a 400' (at an 8' elevation) floodgate with associated wing walls and levee improvements along Avoca Road and Tabor Canal. An overall map of the project is provided in map B-7 in Attachment B.

- (2) Estimated Restore Act Funds—\$40,000,000 (Pot 3)
GOMESA Funds—\$30,000,000 (not secured)
Estimated Cost—\$78,000,000

2. **5-year Capital Improvements Plan**

a. **Charenton Canal—Flood Control Structure and Levee Improvements**

This proposed structure is intended to prevent reverse flow from surge related events. Two separate alternatives are proposed, Alternative 1 is presented in the 5-year CIP and Alternative 2 is presented in the 10-year CIP. In this case, both are intent upon preventing storm surge and backwater flooding from raising the level of Bayou Teche. It is noteworthy that no flooding has been recorded in areas west of the Charenton Canal from rises in the Charenton Canal or Bayou Teche.

Alternative 1—Bayou Teche Flood Protection Project

(1) Description

Alternative 1 proposes the construction of a flood control structure in Bayou Teche east of its intersection with the Charenton Canal. This alternative is less costly than the previous option as it is not dependent on future new federal or state levee construction west of the Charenton Canal or along or west of the Cypremort Ridge. A short levee extension extending northward from the westernmost end of the Bayou Yokely Levee reach will be required. Federal and State Permits have been issued for Alternative 1 in Location 2.

(2) There are two proposed locations for Alternative 1. The difference in estimated cost is:

- (a) Location 1—\$9,872,000 (East of Victory Island)
- (b) Location 2—\$9,989,000(Utilizing Elevation of Victory Island)

3. **10-year Capital Improvements Plan** (Note: All projects will be pursued concurrently with varying rates of progress in each anticipated.)

a. **Charenton Canal—Flood Control Structure and Levee Improvements**

This proposed structure is intended to prevent reverse flow from surge related events. Two separate alternatives are proposed. In this case, both are intent upon preventing storm surge and backwater flooding from raising the level of Bayou Teche. It is

noteworthy that no flooding has been recorded in areas west of the Charenton Canal from rises in the Charenton Canal or Bayou Teche.

Alternative 2—Flood Control Structure in Charenton Canal

(1) Description

This alternative is presented as a flood control structure with embankment improvements along both sides of the Charenton Canal. Embankment improvements (i.e., elevating the sides of the canal) are needed to prevent overtopping of the canal along its length near urban areas. These improvements will connect to existing levees that are planned for upgrading and proposed federal and/or state funded levees. The timeframe for the construction of these federal/state levees was indefinite at this writing. Nonetheless, the general consensus at the local, regional, state, and federal levels is that the major new levee improvements are decades away, dependent upon state and federal funding appropriations. The functional success of this alternative is directly dependent upon completion of proposed federal and state alignments west of the Charenton Canal to and beyond the Cypremort Ridge tying in to highlands of the Teche Ridge near the parish line.

(2) Estimated Cost—\$231,373,000

- (a) Flood Control Structure and canal levee improvements—\$76,500,000**
- (b) State and federal Levee Improvements—\$216,227,760 relative order of magnitude cost (includes levee alignments in SMLD 20-yr. CIP)**

b. West of Wax Lake Outlet to Charenton Canal—Continued Levee Improvements

(1) Description

Within the area defined by Drainage District No. 1, this project requires the elevation of 43 miles of levee to no less than 18 ft. MSL. The current levee heights range from 3.5 ft. to 20 ft. MSL, and some reaches of the existing levee system have been breached by storm surge. These proposed levee improvements are in addition to the aforementioned closures (which are also west of Wax Lake) to ensure a unified system.

(2) Estimated Cost—Phase 1 (+8') —\$24,851,568

Phase 2 (+10') —\$33,658,368

Phase 3 (+18') —\$197,494,368

4. 11 – 20-year Capital Improvements Plan

a. Amelia Flood Protection Improvements—Project Nos. P-22 – P-24 (see Exhibit B-2)

(1) Description

Amelia flood protection presently consists of a somewhat disparate, non-certifiable levee system which offers minimal backwater flooding protection from Bayou Boeuf and Lake Palourde. Drainage District No. 6 applied for Statewide Flood Control Program funds to increase the height of the levee to a consistent 7 ft. MSL. Partial funding was granted and returned by Drainage District No. 6 due to issues acquiring the levee right-of-way. However, this initial phase is but a fraction of the proposed comprehensive levee system needed for the Amelia vicinity as proposed by the drainage district and state and federal authorities. Proposed

Project No. P-22's levee ties in at the Bayou Boeuf Lock, proceeds through Avoca Island south of Avoca Road, Crosses Bayou Boeuf with a floodgate or lock, follows the southern tip of Amelia to the east, crosses Bayou Boeuf again with a floodgate or lock, and proceeds east to Terrebonne Parish. (CPRA Master Plan)

Project No. P-23's levee creates a ring through Amelia excluding the industry to the south and following existing berms and spoil banks. This proposed alignment would eliminate water access for most of the eastern side of Amelia along Bayou Boeuf with the construction of a sheetpile wall. (Miller Plan)

Project No. P-24's levee runs from high ground east of the Bayou Boeuf lock along Avoca Road, crossing Bayou Chene with a floodgate/lock and Pump Station, and follows the upland contour north of the industry in Bayou L'Ourse south of the junction with Lake Palourde.

(2) Estimated Cost

- a. P-22—\$900,000,000
- b. P-23—\$5,000,000
- c. P-24—\$257,000,000

b. Bayou Choupique—Levee Improvements and Flood Control Structure

(1) Description

Bayou Choupique functions as a conduit for storm surge much like the canals noted previously. A flood control structure and associated levee improvements are proposed to

ensure adequate flood protection for the west end of the parish.

- (2) Estimated Cost—\$4,654,000

c. Bayou Sale—Levee Improvements

- (1) Description

The levees along Bayou Sale are proposed for elevation to 18 ft. MSL to ensure adequate storm surge protection. Gordy and Ellerslie reaches are included.

- (2) Estimated Cost—\$32,700,000

d. West of Charenton Drainage Canal—Levee Construction

No gates currently exist west of the Charenton Drainage Canal. Two alternatives are noted below.

Alternative 1—Miller Plan (SMLD Alternative 2W)

- (1) Description

As illustrated in Attachment B, Exhibit B-6, this Miller Plan alternative (shown in green) proposes a levee alignment west of the Charenton Canal that generally follows the 5 ft. contour extending westward to the Ivanhoe Canal, turns southward along the east side of the Cypremort Ridge, crosses Bayou Cypremort with a minor control structure, then generally follows the 5 ft. contour along the west side of the ridge to appropriate connecting elevations of the Teche Ridge.

- (3) Estimated cost—\$66,250,000

Alternative 2—Louisiana State Master Plan (SMLD Alternative 1W) in western St. Mary Parish

- (1) Description

As illustrated in Attachment B, Exhibit B-6, the Louisiana State Master Plan proposes a levee alignment which generally follows the alignment of the Miller Plan's western levee routing but instead of turning south at the Cypremort Ridge, it continues westward crossing the ridge and extends to and beyond the parish line into Iberia Parish.

- (2) Estimated cost—\$9,989,000

e. Scott Canal—Flood Control Structure

- (1) Description

Scott Canal acts as a conduit for storm surge much like the Franklin Canal. A flood control structure is proposed to ensure adequate flood protection for the west end of the parish.

- (2) Estimated Cost—\$1,486,000

f. Kelley Canal—Flood Control Structure

- (1) Description

Kelley Canal acts as a conduit for storm surge similar to others noted. A flood control structure is proposed to ensure adequate flood protection for the west end of the parish.

- (2) Estimated Cost—\$2,075,000

g. Vacherie Canal—Flood Control Structure

- (1) Description

The Vacherie Canal acts as a conduit for storm surge similar to others noted. A flood control structure is proposed to ensure adequate flood protection for the west end of the parish.

- (2) Estimated Cost—\$1,895,000

5. United States Corps of Engineers Project List

a. Berwick Levee Improvements—Reach W-124 south

- (1) Description

Reach W-124 near Turtle's Corner south of the city limits of Berwick has a height deficient section approximately 75 feet wide and 1.5 feet deep. The proposed project, which is a federal responsibility, is to fill and compact the area to ensure levee height and design consistency with the surrounding system.

- (2) Estimated Cost—\$200,000

b. Berwick Lock Elevation

- (1) Description

The Berwick Lock is currently below the elevation of the surrounding Atchafalaya River levee and seawall protection system. This situation creates vulnerability for all urban and agriculture land situated between Berwick and Calumet as a direct function of Atchafalaya River flows,

both riverine and surge. The USACE is aware of the lock elevation deficiency and has the responsibility to elevate the height as needed.

- (2) Estimated Cost—\$1,000,000—\$100,000,000 range (Dependent upon USACE approach, i.e., emergency upgrade for pending situation or permanent reconstruction)

c. WLO East, Wax Lake East, and W-124 Levee Reach Improvements

- (1) Description

The reaches currently protect the municipalities of Berwick and Patterson and the community of Bayou Vista from storm surge. Currently, the levee reaches range from 9 – 19 ft. MSL. The proposed project would elevate the levees to a consistent +18 ft. MSL.

- (2) Estimated Cost—\$22,000,000

VI. CONCLUSION

The process used in developing the SMLD Master Plan has brought many pending issues to the surface. Examples include but are not limited to coordination and cooperation among jurisdictions with overlapping responsibility, options inherent in operations and maintenance, establishing capital improvement project priorities, and seeking and obtaining long-term District funding for operations and maintenance as well as capital improvements. Additionally, being attuned to and having the ability to financially facilitate emergency operations is also inherent.

Since the creation of the Levee District and as a means of cooperation and transition, O&M of levee functions have been facilitated by the parish government. During this transition period, funds for capital improvements have been generated through the State in the form of Capital Outlay funds, CDBG Gustav and Ike recovery funds, and CPRA surplus funds. These finances have been assigned to the design and construction of the Franklin Canal, the Hanson Canal, and the Yellow Bayou projects.

Discussions relative to permanent, regularly recurring funding opportunities have focused on a millage assessment parishwide. Recurring revenues will be required for O&M for all or a portion of the 126 miles of levee in the parish (possibly reaching near \$1,000,000 per year depending on management approach and agreements with other jurisdictions having similar O&M responsibility), for locally funded capital improvements, and, in all likelihood, for matching fund requirements of state and federal funding programs.

The SMLD Capital Improvements Plan projects listed at the end of this section (Exhibit 6-2) ranges in cost from \$104,000,000 up to \$648,000,000, depending on selected project priorities, options, alignments, and cost-share options. The largest projects such as the state master plan alignment (1E) with control structures in Bayou Boeuf and the GIWW (\$400,000,000) and the levee construction west of Charenton Canal (1W) (up to \$197,000,000) may be wholly funded by the federal government. At this point in time, though, a final decision regarding cost share is premature.

Nonetheless, consensus opinion on the greatest need for levee improvements and new levees, i.e., top priorities, are in the western and eastern sectors of the parish—specifically, numerous canal closures west of the Wax Lake Outlet, Amelia area backwater protection levees, and Morgan City backwater protection improvements relative to FEMA DFIRM issues. The Morgan City project includes levee upgrades, pump station relocation, and levee certification. Levee certification is a parishwide concern on all 126 miles of existing levees, control structures, and new levees.

Certifiable protection from stormwater events as well as riverine, surge induced, and backwater flooding is imperative if the parish and respective municipalities are to grow economically or, as a minimum, remain economically sustainable. With the St. Mary Levee District focusing to maintain existing investment in flood protection infrastructure; coming to the forefront to make the necessary local and state funded improvements; coordinating and cooperating with similar regional and local authorities; and working

diligently with local, state, regional, and federal elected officials in aggressively funding and implementing the larger state and federal plans, necessary improvements to the health, safety, welfare, and livelihood of St. Mary Parish can be assured.

In similar situations, i.e., public entities with the opportunity for self-generating revenues, often seek bond council reflective of capital improvement budgets. Funds are often reserved either for capital improvements only or for capital improvements and operations and maintenance. By way of example pertinent to the SLMD, if \$2,500,000 per year were garnered via a millage assessment and \$1,000,000 of that were dedicated annually to staff and operations and maintenance, then all or part of the remaining \$1,500,000 per year could be bonded for specific projects and/or set in reserve for top-priority locally funded or match-required projects. Further assessment of this approach will require discussion and decision-making by the board over time and assistance from bond council. For information purposes, data presented in Exhibit 6-1 below shows bonding capacity potential at current rates for 10- and 20-year periods.

Exhibit 6-1: Bonding Potential		
	10-Yr. Term	20-Yr. Term
	4.0%	4.5%
Payment		
\$1,000,000/yr.	\$8.1 M	\$13.0 M
\$1,500,000/yr.	\$12.2 M	\$19.5 M
\$2,000,000/yr.	\$16.0 M	\$26.0 M

A summary table of capital improvement projects and estimated costs is presented on the following page in Exhibit 6-2. Costs of projects with alternatives are shown in lighter text. Order of priority is dependent upon critical need as well as local, state, and federal procedures, permits, and funding opportunities.

EXHIBIT 6-2: EXISTING AND PROPOSED CAPITAL IMPROVEMENT PLAN BY PROJECT AND PHASE

(NOTE: PROJECTS ARE NOT PRIORITIZED.)

		PROJECT DESCRIPTION	ESTIMATED COST	Phase 1		Phase 2		Phase 3		Phase 4			
				CURRENT PROJECTS	Available Funds	5-YR CIP	10-YR CIP	11 - 20 YR CIP	Unfunded	11 - 20 YR CIP	Unfunded		
Phase 1 Ongoing Projects													
1a	Morgan City Levee Improvements (partially funded- DD No. 2)		\$ 17,000,000	\$ 17,000,000									
1b1	FEMA Variable- Option A		\$ 45,900,000										
1b2	FEMA Variable- Option B												
1b	Yokely Levee Improvements		\$ 5,000,000	\$ 5,000,000									
1c	Bayou Chene Flood Protection Structure		\$ 78,000,000	\$ 40,000,000	\$ 38,000,000								
	Total Range (dependent upon alternative selected)		\$100,000,000 - \$128,900,000	\$62,700,000	\$66,200,000								
Phase 2 Ten-Year Capital Improvements Plan (0-10 Years)													
2a	Charenton Canal-Flood Control Structure and Levee Improvements (Bayou Teche)		\$ 9,872,000										
2a1	Alternative 1--East of Victory Island		\$ 9,989,000										
2a2	Alternative 2--Utilizing High Ground of Victory Island												
	Total Range (dependent upon alternative selected)		\$9,872,000-\$9,989,000										
Phase 3 Ten-Year Capital Improvements Plan (5-10 Years)													
3a	Charenton Canal-Flood Control Structure and Levee Improvements		\$ 231,373,000										
3a1	Alternative 1-In the Charenton Canal												
3b	West of Wax Lake Outlet to Charenton Canal-Continued Levee Improvements		\$ 24,851,568										
3b1	Phase 1 -- +8' Elevation		\$ 33,658,368										
3b2	Phase 2 -- +10' Elevation		\$ 197,494,368										
3b3	Phase 3 -- +18' Elevation												
	Total Cost		\$ 487,377,304										
Phase 4 Twenty-Year Capital Improvement Plan (11-20 Years)													
4a	Amelia Flood Protection Improvements												
4a1	Alternative P-22 -- Crosses Bayou Boeuf Twice		\$ 900,000,000										
4a2	Alternative P-23 -- Internal Ring Levee		\$ 5,000,000										
4a3	Alternative P-24 -- Crosses Bayou Boeuf Once		\$ 257,000,000										
4b	Bayou Choupique-Levee Improvements and Flood Control Structure		\$ 4,664,000										
4c	Bayou Sale-Levee Improvements		\$ 32,700,000										
4d	West of Charenton Drainage Canal-Levee Construction												
4d1	Alternative 1-Miller Plan Alternative 2W		\$ 66,250,000										
4d2	Alternative 2-LA Backwater Prevention Master Plan Alignment 1W		\$ 9,989,000										
4d	Scott Canal-Flood Control Structure		\$ 1,486,000										
4e	Kelley Canal-Flood Control Structure		\$ 2,075,000										
4f	Vacherie Canal--Flood Control Structure		\$ 18,950,000										
	Total Range (dependent upon alternative selected)		\$74,854,000 - \$1,026,115,000										

*Attachment A
Enabling Legislation
of the
St. Mary Levee District*

SENATE BILL NO. 156

BY SENATOR B. GAUTREAUX

1

AN ACT

2 To amend and reenact R.S. 38:291(A)(1) and (2)(introductory paragraph), 304(B),
3 331(B)(1)(l) and (m), to enact R.S. 38:291(X), 329.3, 331(B)(1)(n), and 334.3, and
4 to repeal R.S. 38:291(A)(2)(h), relative to levees; to create the St. Mary Levee
5 District and provide for its purposes; to provide for the nomination and appointment
6 of members to the board of commissioners; to provide for the authority, powers, and
7 duties of the board; to provide for revenue utilization; to add a member to the Coastal
8 Louisiana Levee Consortium; to provide for the territorial jurisdiction of the
9 Atchafalaya Basin Levee District and its board of commissioners; and to provide for
10 related matters.

11 Notice of intention to introduce this Act has been published.

12 Be it enacted by the Legislature of Louisiana:

13 Section 1. R.S. 38:291(A)(1) and (2)(introductory paragraph), 304(B), 331(B)(1)(l)
14 and (m) are hereby amended and reenacted, and R.S. 38:291(X), 329.3, 331(B)(1)(n), and
15 334.3, are hereby enacted to read as follows:

16 §291. Naming; limits of districts; composition of boards

17 A. Atchafalaya Basin Levee District. (1) On July 1, 1997, and continuing
18 thereafter, the parishes and parts of parishes, except St Mary Parish, south of Old
19 River, and between the Mississippi River and Lafourche Bayou on the east, and a
20 line drawn along the north boundary of St. Martin Parish from the Atchafalaya River
21 on the east to Bayou Teche on the west, thence down Bayou Teche to the
22 Atchafalaya River, and thence down the Atchafalaya River to its mouth, and also
23 excepting all the property within the parish of Lafourche and Terrebonne and within
24 the present corporate limits of the municipalities of Franklin and municipality of
25 New Iberia, namely: the parishes of Pointe Coupee, West Baton Rouge, and parts

1 of the parishes of Iberville, Ascension, Assumption, St. Martin, and Iberia, St. Mary
2 excepting what is known as Tiger Island on which the city of Morgan City is
3 situated, with the additional following territory: a strip of land in St. Landry Parish
4 lying between Bayou Courtaleau on the northeast, and the Atchafalaya River on the
5 east, the parish line of St. Martin on the south, and Bayou Teche on the west, shall
6 be embraced in the limits of a levee district to be known as the Atchafalaya Basin
7 Levee District. These lands and all property thereon situated, not exempt from
8 taxation, shall be subject to the provisions of this Chapter.

9 (2) In accordance with the provisions of R.S. 38:304 the governor shall
10 appoint fourteen thirteen persons to serve as levee commissioners as follows:

11 * * *

12 X. St. Mary Levee District. (1) All of the lands in the parish of St. Mary
13 shall be embraced in the limits of a levee district to be known as the St. Mary
14 Levee District. These lands and all property thereon situated shall be subject to
15 the provisions of this Chapter.

16 (2) The governor shall appoint, subject to Senate confirmation, a board
17 of commissioners consisting of nine persons who reside in St. Mary Parish, six
18 of whom shall be property owners with assessed valuations of fifteen percent on
19 property within the district, and who meet the requirements of R.S. 38:304(A)
20 as follows:

21 (a) The St. Mary Parish Council shall submit a list containing three
22 nominations from each of the eight single member parish council districts in St.
23 Mary Parish, from which the governor shall appoint one member to represent
24 each such district from the list.

25 (b) One member shall be appointed at-large by the governor from a list
26 of three nominations submitted jointly by the legislative delegation representing
27 St. Mary Parish.

28 (3) A vacancy created whether by reason of death, resignation,
29 expiration of term, or any other cause of a member of the board shall be filled
30 in the same manner as provided in Paragraph (2) of this Subsection. However,

1 members appointed to fill vacancies shall serve only for the unexpired term of
2 their predecessors.

3 (4)(a) The members of the board initially appointed shall at their first
4 meeting determine by lot their terms of office, which terms shall commence
5 immediately upon their appointment and shall expire, respectively, as follows:
6 three members in two years, three members in three years, and three members
7 in four years, from the first day of July immediately succeeding such
8 appointment.

9 (b) All commissioners thereafter appointed, except a commissioner
10 appointed to fill an unexpired term, shall be appointed as provided in
11 Paragraph (2) of this Subsection for staggered terms of four years, which shall
12 expire on July 1 of the fourth year of the term to which he is appointed, or until
13 his successor is appointed and takes office.

14 (c) No member shall serve more than four consecutive four-year terms.
15 However, if a person has been appointed to fill more than one-half of an
16 unexpired term, such person shall be eligible to serve consecutively no more
17 than three terms in addition to such partial term.

18 (5) The official domicile of the board of the district shall be established
19 by the board.

20 (6) Persons appointed to the board, to the extent practicable, shall
21 reflect the population of the parish.

22 * * *

23 §304. Appointment of members; residency requirements; filling of vacancies

24 * * *

25 B.(1) Notwithstanding any law to the contrary, every vacancy now or
26 hereafter created whether by reason of death, resignation, expiration of term, or any
27 other cause occurring in any levee district or levee and drainage district shall be
28 filled by the governor from panels of names submitted as follows: each member of
29 the House of Representatives representing a parish or part of a parish lying within
30 a levee district or levee and drainage district shall submit one name for each vacancy

1 to be filled from the parish, which he represents in the legislature within said levee
2 district or levee and drainage district, and each member of the Senate shall submit
3 one name for each vacancy to be filled from the parish or parishes, which he
4 represents in the legislature within said levee district or levee and drainage district,
5 except as provided in R.S. 38:291(P), and (291)(T), and (X).

6 (2) In making appointments the governor shall not appoint any person to the
7 board of commissioners to represent a specific parish who was not recommended by
8 one or more of the legislators who represent that specific parish in the legislature
9 except as provided in R.S. 38:291(P), and (291)(T), and (X). All members of the
10 boards of commissioners of levee districts or levee and drainage districts shall be
11 appointed by the governor to serve at the pleasure of the governor making the
12 appointment.

13 * * *

14 **§329.3. St. Mary Levee District Board of Commissioners; powers and duties**

15 **A. The management and control of the district shall be vested in the**
16 **board of commissioners of the St. Mary Levee District. In addition to any other**
17 **powers and duties provided by law, including the power of taxation as provided**
18 **for in the Constitution of Louisiana, the board shall have the authority to**
19 **establish, construct, operate or maintain flood control works as they relate to**
20 **hurricane protection, tidewater flooding, saltwater intrusion and conservation.**

21 **B. The board may enter into contracts and agreements of any nature for**
22 **the purposes of this Chapter with any person or persons, corporation,**
23 **association, or other entity, including public corporations, port authorities, the**
24 **state and agencies thereof, levee districts, parishes, other political subdivisions,**
25 **the United States government and agencies thereof, or any combination thereof,**
26 **or with instrumentalities of any kind to carry out the purposes of and the**
27 **powers granted in this Chapter.**

28 **C. The board may enter into contracts or other agreements with any**
29 **person or entity concerning the providing of lands, servitudes, rights-of-way,**
30 **and relocations, and may engage jointly in the exercise of any power to include**

1 the construction, operation, and maintenance of any facilities and
2 improvements for the purpose of the projects under this Chapter.

3 D. The board shall have the authority to establish, construct, operate or
4 Maintain flood control works of all types as they relate to hurricane protection,
5 tidewater flooding, saltwater intrusion and conservation, either in cooperation
6 with one or more parishes, municipalities, or other special districts within its
7 territorial jurisdiction, or upon its own undertaking.

8 E. The board may buy and sell property, make and execute all contracts,
9 and perform any and all things necessary to carry out the objects of this
10 Chapter, subject to the limitations and duties provided in this Section.

11 F. For flood and hurricane protection purposes, the board may acquire
12 property by expropriation prior to judgment, in accordance with the provisions
13 of Part V of this Chapter.

14 G. The board may issue bonds or other debt obligations to construct,
15 acquire, extend, or improve any flood control works authorized by law and to
16 pledge to the payment of the principal and interest of such bonds or debt
17 instruments the proceeds of any district tax or other revenues.

18 H. The board may enter into an intergovernmental agreement with the
19 Atchafalaya Basin Levee District to reimburse the Atchafalaya Basin Levee
20 District for levee district expenditures made in St. Mary Parish for the benefit
21 of St. Mary Parish.

22 * * *

23 §331. Coastal Louisiana Levee Consortium; establishment; purposes

24 * * *

25 B.(1) Members of the consortium shall include the president of each board
26 of commissioners, or a designee, of the following levee districts:

27 * * *

28 (I) St. Mary Levee District.

29 (f)(m) Any other levee district that may be created for a coastal parish,
30 including but not limited to St. Tammany Parish, Calcasieu Parish, Cameron Parish,

1 Jefferson Davis Parish, and Vermilion Parish. However, until such time as a levee
2 district is created, the parish president or police jury of each such parish, or a
3 designee, shall be a member of the consortium.

4 (m)(n) Plaquemines Parish president.

5 * * *

6 **§334.3. Revenue utilization; St. Mary Levee District**

7 **Nothing shall prohibit the St. Mary Levee District from expending tax**
8 **funds directly for projects to provide for hurricane protection, tidewater**
9 **flooding, saltwater intrusion and conservation within St. Mary Levee Parish, or**
10 **pledging such funds for the payment of principal or interest on any bonds or**
11 **other debt instruments issued by the district.**

12 Section 2. R.S. 38:291(A)(2)(h) is hereby repealed in its entirety.

13 Section 3. This Act shall become effective on July 1, 2007; if vetoed by the governor
14 and subsequently approved by the legislature, this Act shall become effective on July 1,
15 2007, or on the day following such approval by the legislature, whichever is later.

PRESIDENT OF THE SENATE

SPEAKER OF THE HOUSE OF REPRESENTATIVES

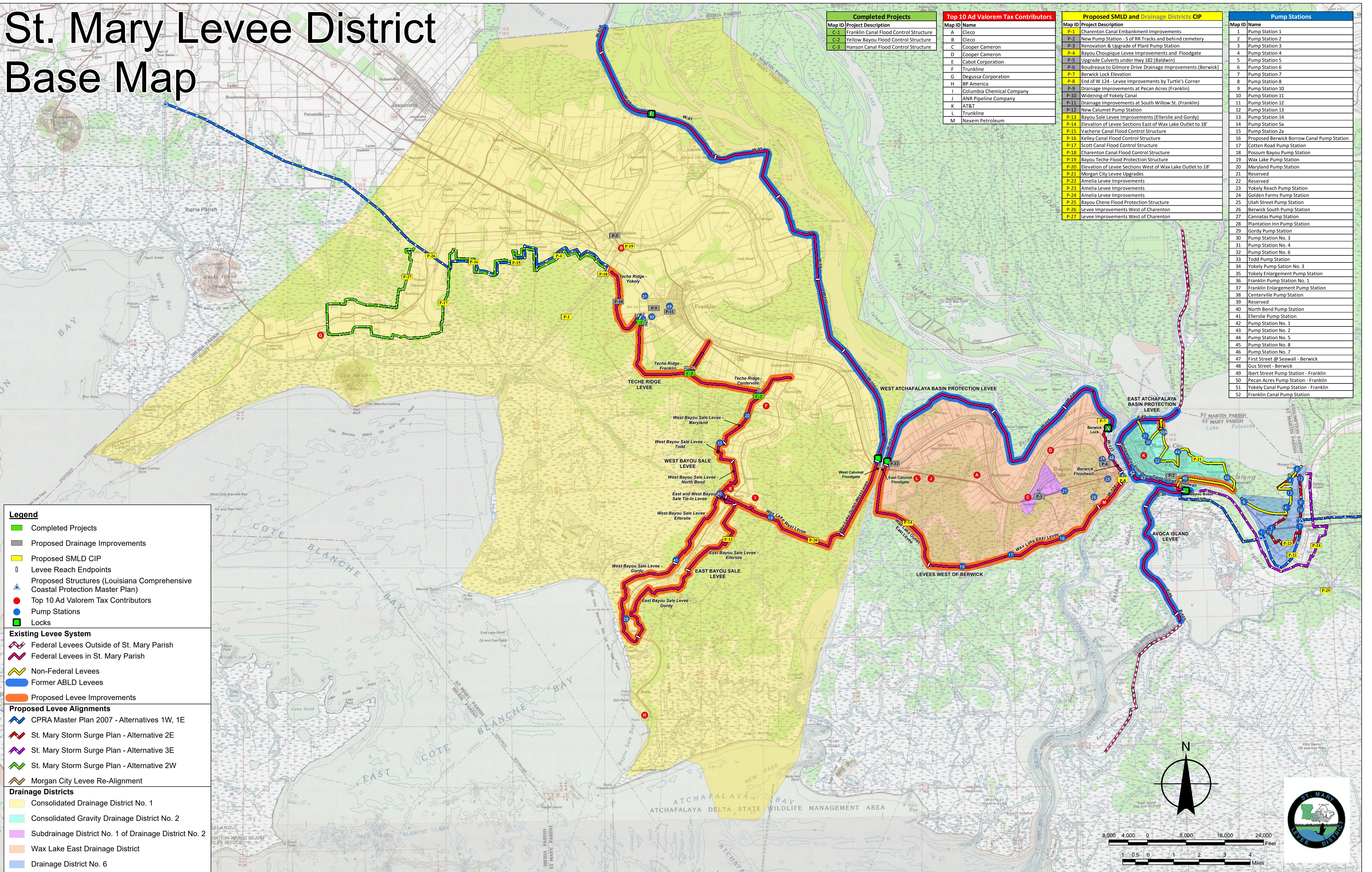
GOVERNOR OF THE STATE OF LOUISIANA

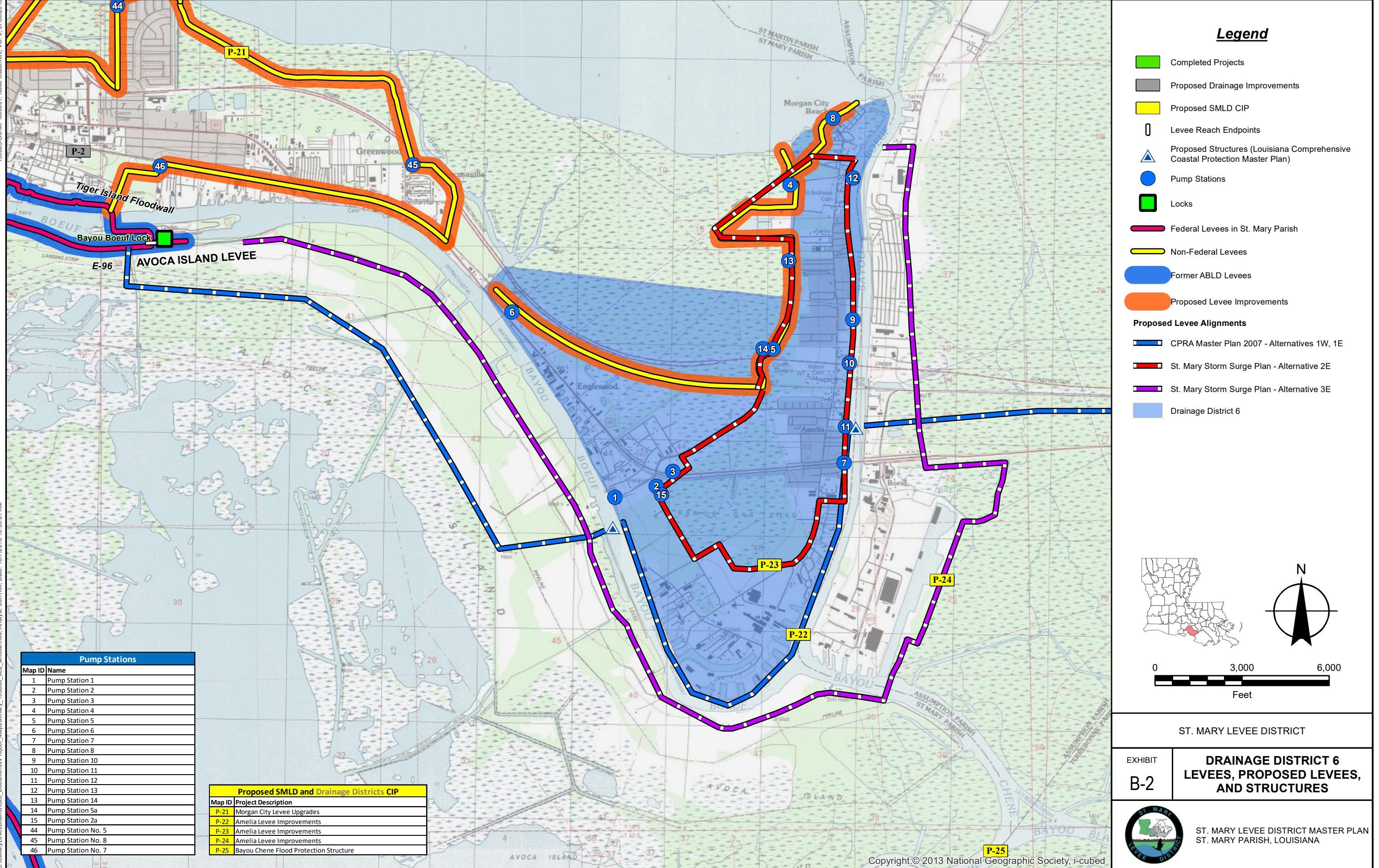
APPROVED: _____

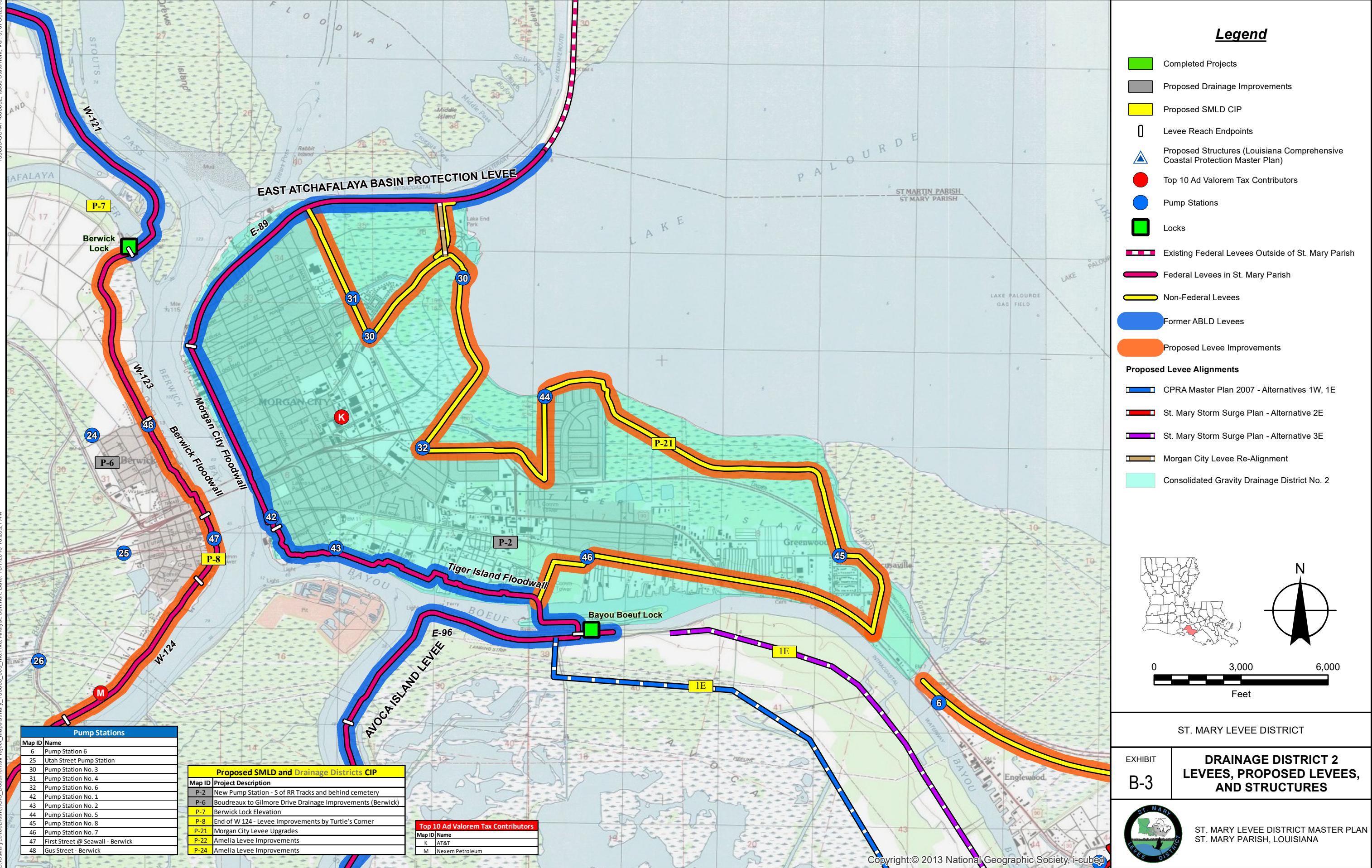
Attachment B
Maps

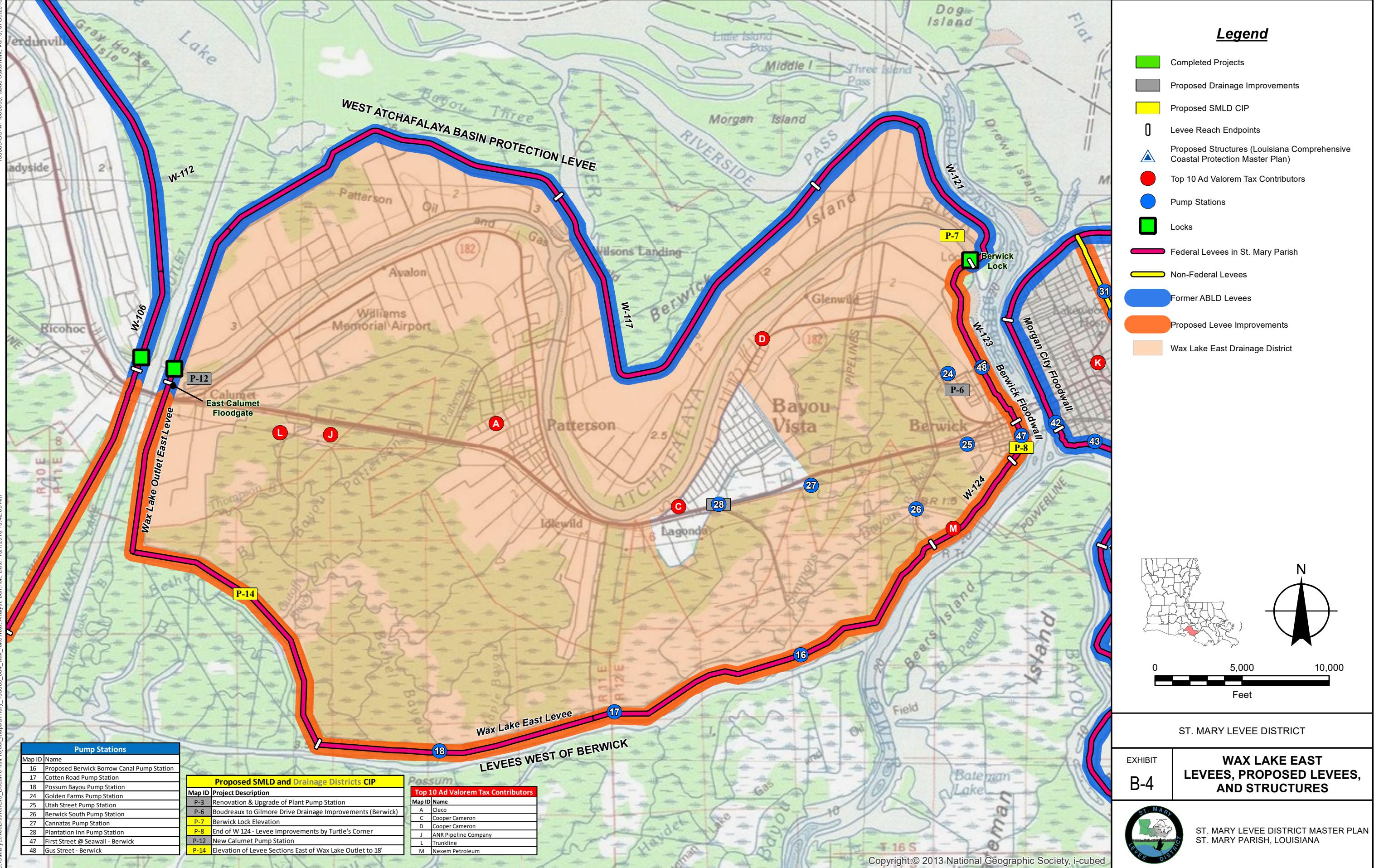
St. Mary Levee District Base Map

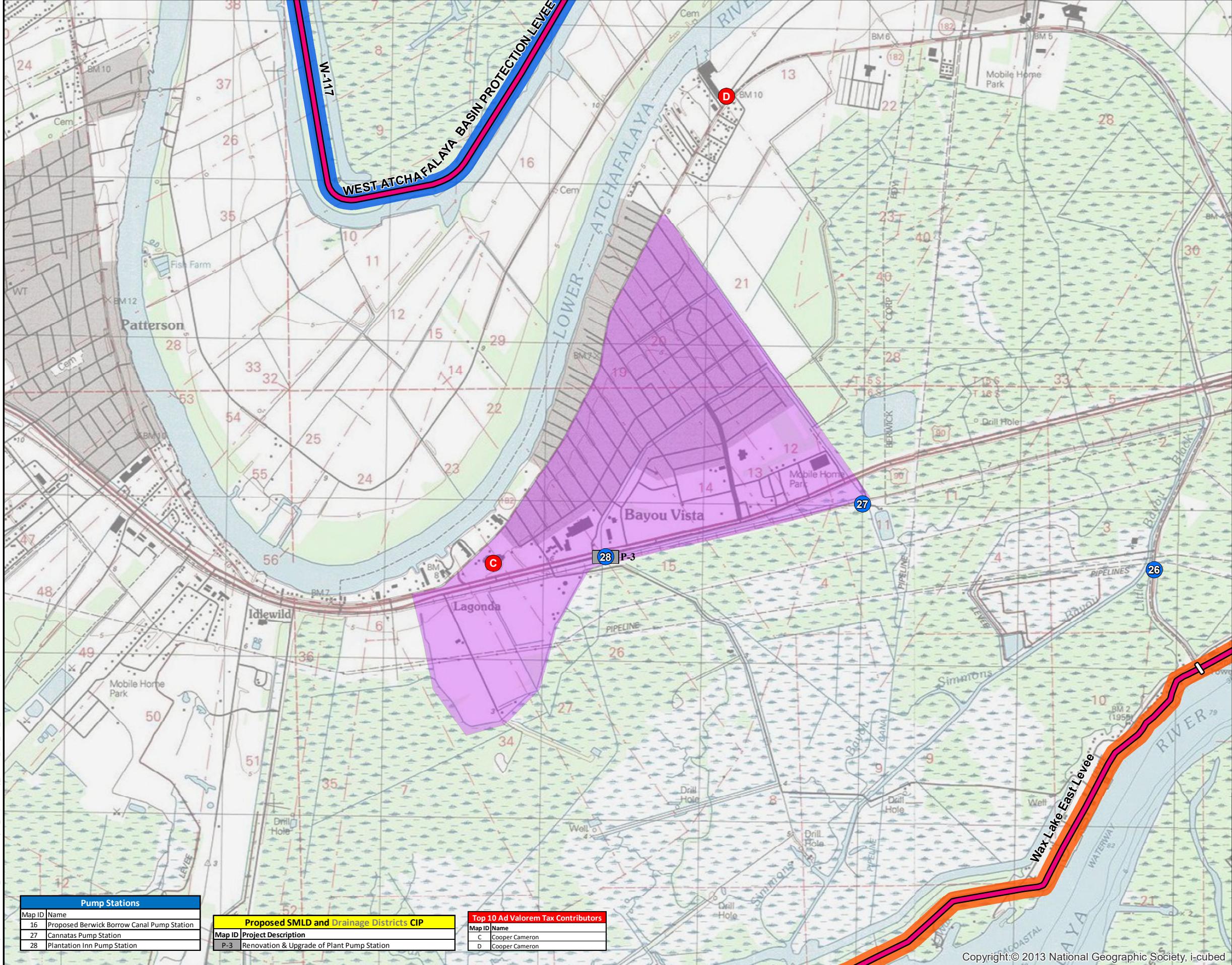
Legend	
Completed Projects	■
Proposed Drainage Improvements	■
Proposed SMLD CIP	■
Levee Reach Endpoints	□
Proposed Structures (Louisiana Comprehensive Coastal Protection Master Plan)	△
Top 10 Ad Valorem Tax Contributors	●
Pump Stations	●
Locks	■
Existing Levee System	
Federal Levees Outside of St. Mary Parish	■
Federal Levees in St. Mary Parish	■
Non-Federal Levees	■
Former ABLD Levees	■
Proposed Levee Improvements	■
Proposed Levee Alignments	
CPRA Master Plan 2007 - Alternatives 1W, 1E	■
St. Mary Storm Surge Plan - Alternative 2E	■
St. Mary Storm Surge Plan - Alternative 3E	■
St. Mary Storm Surge Plan - Alternative 2W	■
Morgan City Levee Re-Alignment	■
Drainage Districts	
Consolidated Drainage District No. 1	■
Consolidated Gravity Drainage District No. 2	■
Subdrainage District No. 1 of Drainage District No. 2	■
Wax Lake East Drainage District	■
Drainage District No. 6	■





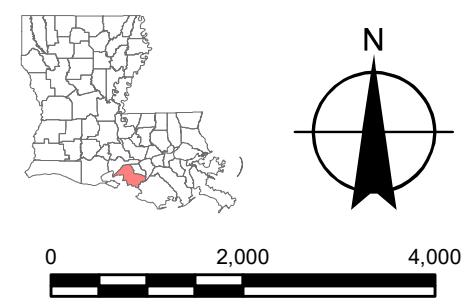






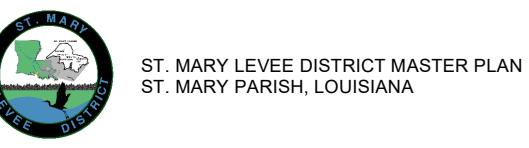
Legend

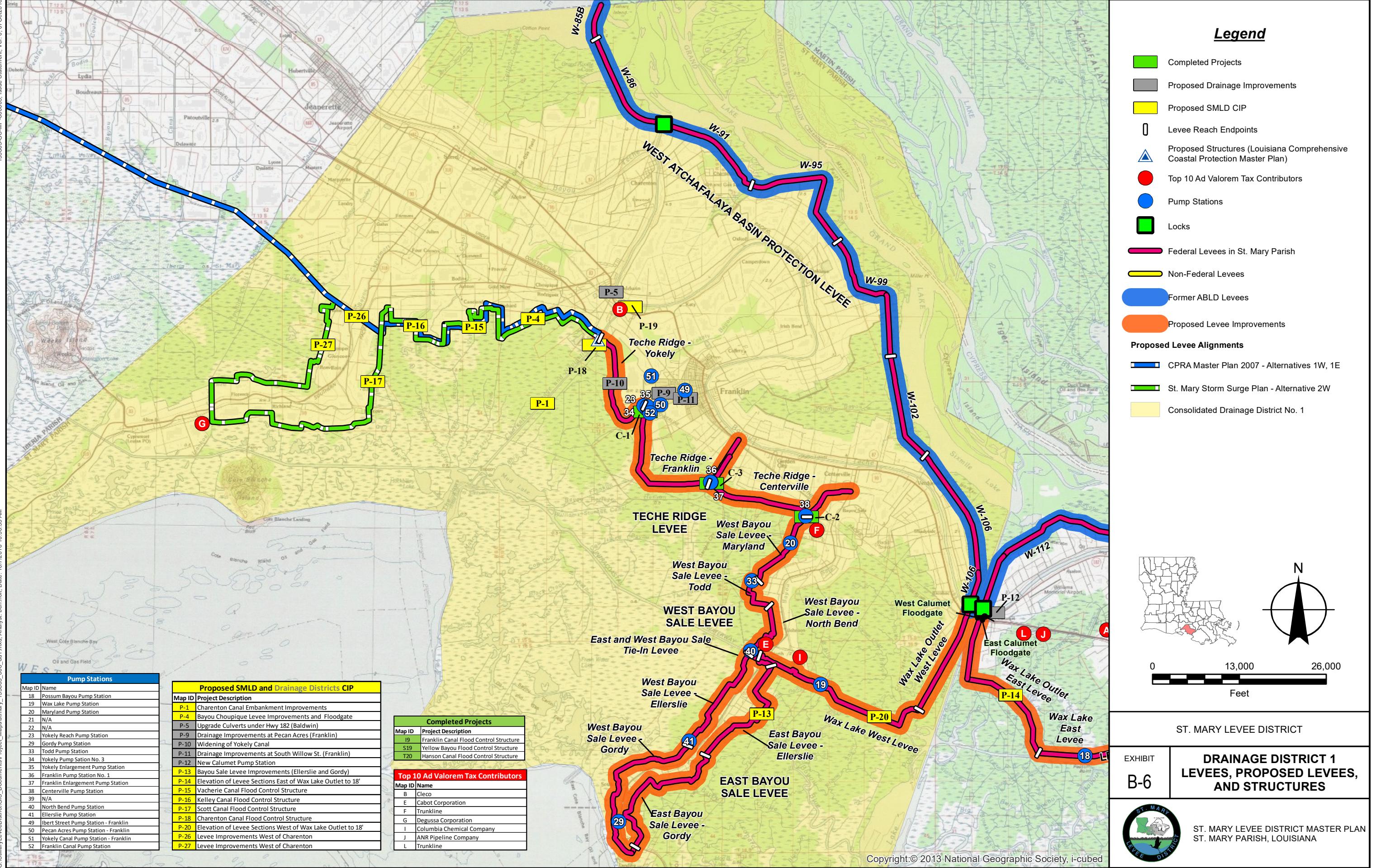
- Completed Projects
- Proposed Drainage Improvements
- Proposed SMDL CIP
- Levee Reach Endpoints
- △ Proposed Structures (Louisiana Comprehensive Coastal Protection Master Plan)
- Top 10 Ad Valorem Tax Contributors
- Pump Stations
- Locks
- Federal Levees in St. Mary Parish
- Non-Federal Levees
- Former ABLD Levees
- Proposed Levee Improvements
- Subdrainage District No. 1 of Drainage District No. 2

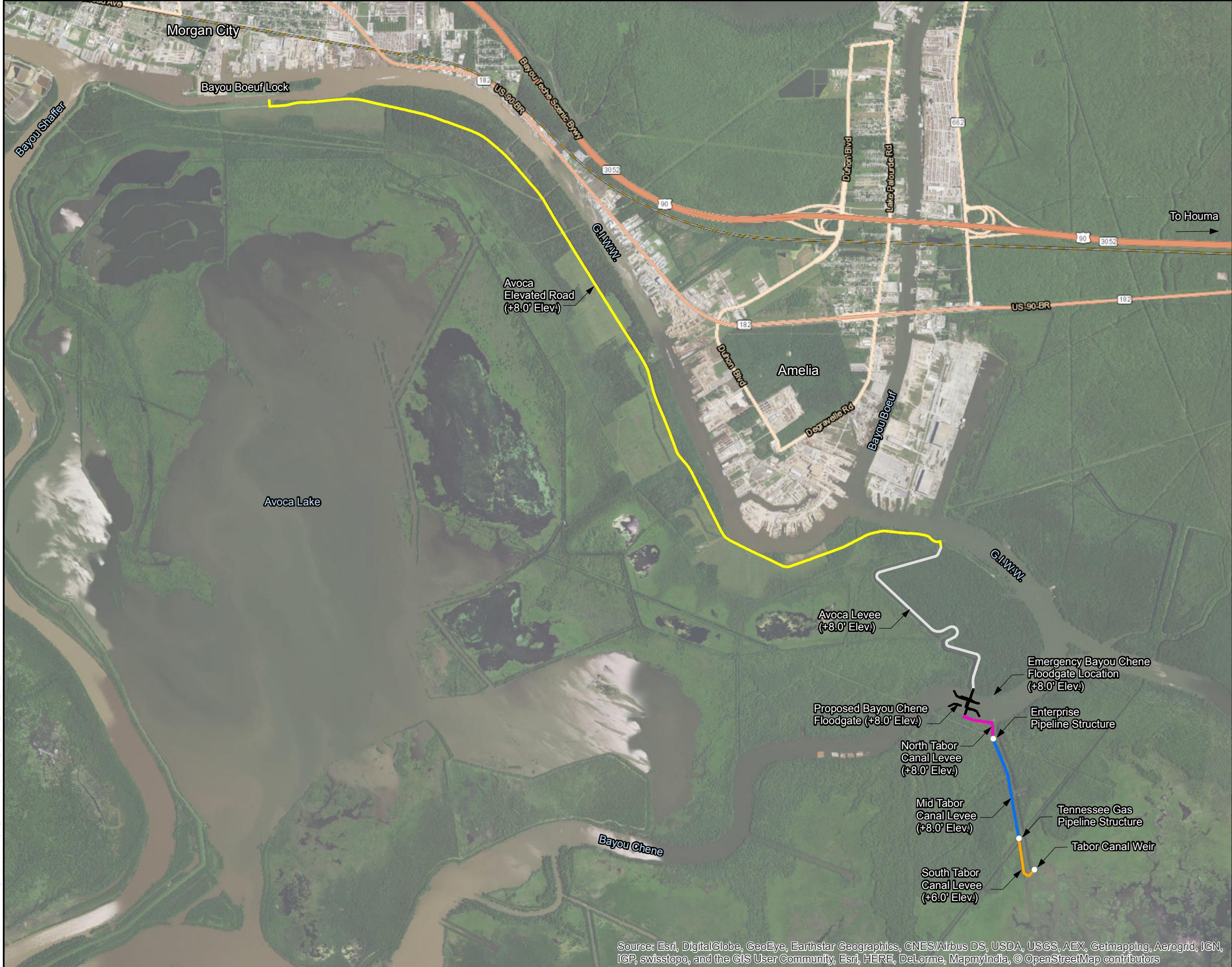


ST. MARY LEVEE DISTRICT

EXHIBIT	B-5	SUBDRAIN #1 OF DRAIN #2 LEVEES, PROPOSED LEVEES, AND STRUCTURES
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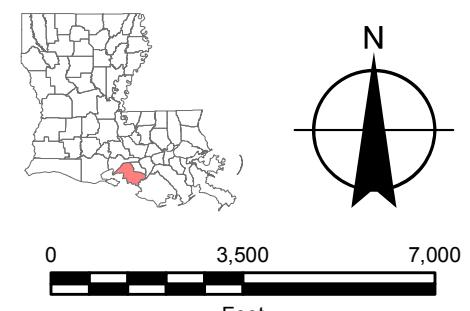






Legend

- Avoca Elevated Road +8.0' Elev.
(Lock to End of Road)
- Avoca Levee +8.0' Elev.
(Avoca Road to Structure)
- North Tabor Canal Levee +8.0' Elev.
(Structure to Enterprise Pipeline)
- Mid Tabor Canal Levee +8.0' Elev.
(Enterprise Pipeline to Tennessee Gas)
- South Tabor Canal Levee +6.0' Elev.
(Tennessee Gas to Tabor Canal Weir)



ST. MARY LEVEE DISTRICT

EXHIBIT

B-7

BAYOU CHENE FLOOD PROTECTION STRUCTURE

ST. MARY LEVEE DISTRICT MASTER PLAN
ST. MARY PARISH, LOUISIANA

Attachment C
CFR §65.10 Regarding Levee Certification

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occurred in the flood plain since the existing floodway was developed. If the original hydraulic computer model is not available, an alternate hydraulic computer model may be used provided the alternate model has been calibrated so as to reproduce the original water surface profile of the original hydraulic computer model. The alternate model must be then modified to include all encroachments that have occurred since the existing floodway was developed.

(ii) The floodway analysis must be performed with the modified computer model using the desired floodway limits.

(iii) The floodway limits must be set so that combined effects of the past encroachments and the new floodway limits do not increase the effective base flood elevations by more than the amount specified in §60.3(d)(2). Copies of the input and output data from the original and modified computer models must be submitted.

(3) Delineation of the revised floodway on a copy of the effective NFIP map and a suitable topographic map.

(d) *Certification requirements.* All analyses submitted shall be certified by a registered professional engineer. All topographic data shall be certified by a registered professional engineer or licensed land surveyor. Certifications are subject to the definition given at §65.2 of this subchapter.

(e) *Submission procedures.* All requests that involve changes to floodways shall be submitted to the appropriate FEMA Regional Office servicing the community's geographic area.

[§1 PR 30315, Aug. 25, 1986]

§ 65.8 Review of proposed projects.

A community, or an individual through the community, may request FEMA's comments on whether a proposed project, if built as proposed, would justify a map revision. FEMA's comments will be issued in the form of a letter, termed a Conditional Letter of Map Revision, in accordance with 44 CFR part 72. The data required to support such requests are the same as those required for final revisions under §§65.5, 65.6, and 65.7, except as-built certification is not required. All such re-

quests shall be submitted to the FEMA Headquarters Office in Washington, DC, and shall be accompanied by the appropriate payment, in accordance with 44 CFR part 72.

[62 FR 5736, Feb. 6, 1997]

§ 65.9 Review and response by the Administrator.

If any questions or problems arise during review, FEMA will consult the Chief Executive Officer of the community (CEO), the community official designated by the CEO, and/or the requester for resolution. Upon receipt of a revision request, the Administrator shall mail an acknowledgment of receipt of such request to the CEO. Within 90 days of receiving the request with all necessary information, the Administrator shall notify the CEO of one or more of the following:

(a) The effective map(s) shall not be modified;

(b) The base flood elevations on the effective FIRM shall be modified and new base flood elevations shall be established under the provisions of part 67 of this subchapter;

(c) The changes requested are approved and the map(s) amended by Letter of Map Revision (LOMR);

(d) The changes requested are approved and a revised map(s) will be printed and distributed;

(e) The changes requested are not of such a significant nature as to warrant a resurvey or revision of the flood insurance study or maps and will be deferred until such time as a significant change occurs;

(f) An additional 90 days is required to evaluate the scientific or technical data submitted; or

(g) Additional data are required to support the revision request.

(h) The required payment has not been submitted in accordance with 44 CFR part 72, no review will be conducted and no determination will be issued until payment is received.

[§1 PR 30315, Aug. 25, 1986; 61 FR 46331, Aug. 30, 1996, as amended at 62 FR 5736, Feb. 6, 1997]

§ 65.10 Mapping of areas protected by levee systems.

(a) *General.* For purposes of the NFIP, FEMA will only recognize in its flood

hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with the level of protection sought through the comprehensive flood plain management criteria established by § 60.3 of this subchapter. Accordingly, this section describes the types of information FEMA needs to recognize, on NFIP maps, that a levee system provides protection from the base flood. This information must be supplied to FEMA by the community or other party seeking recognition of such a levee system at the time a flood risk study or restudy is conducted, when a map revision under the provisions of part 65 of this subchapter is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The FEMA review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a determination by FEMA as to how a structure or system will perform in a flood event.

(b) *Design criteria.* For levees to be recognized by FEMA, evidence that adequate design and operation and maintenance systems are in place to provide reasonable assurance that protection from the base flood exists must be provided. The following requirements must be met:

(1) *Freeboard.* (i) Riverine levees must provide a minimum freeboard of three feet above the water-surface level of the base flood. An additional one foot above the minimum is required within 100 feet in either side of structures (such as bridges) riverward of the levee or wherever the flow is constricted. An additional one-half foot above the minimum at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee, is also required.

(ii) Occasionally, exceptions to the minimum riverine freeboard requirement described in paragraph (b)(1)(i) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must

evaluate the uncertainty in the estimated base flood elevation profile and include, but not necessarily be limited to an assessment of statistical confidence limits of the 100-year discharge; changes in stage-discharge relationships; and the sources, potential, and magnitude of debris, sediment, and ice accumulation. It must be also shown that the levee will remain structurally stable during the base flood when such additional loading considerations are imposed. Under no circumstances will freeboard of less than two feet be accepted.

(iii) For coastal levees, the freeboard must be established at one foot above the height of the one percent wave or the maximum wave runup (whichever is greater) associated with the 100-year stillwater surge elevation at the site.

(iv) Occasionally, exceptions to the minimum coastal levee freeboard requirement described in paragraph (b)(1)(iii) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must evaluate the uncertainty in the estimated base flood loading conditions. Particular emphasis must be placed on the effects of wave attack and overtopping on the stability of the levee. Under no circumstances, however, will a freeboard of less than two feet above the 100-year stillwater surge elevation be accepted.

(2) *Closures.* All openings must be provided with closure devices that are structural parts of the system during operation and design according to sound engineering practice.

(3) *Embankment protection.* Engineering analyses must be submitted that demonstrate that no appreciable erosion of the levee embankment can be expected during the base flood, as a result of either currents or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability. The factors to be addressed in such analyses include, but are not limited to: Expected flow velocities (especially in constricted areas); expected wind and wave

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action; ice loading; Impact of debris; slope protection techniques; duration of flooding at various stages and velocities; embankment and foundation materials; levee alignment, bends, and transitions; and levee side slopes.

(4) *Embankment and foundation stability.* Engineering analyses that evaluate levee embankment stability must be submitted. The analyses provided shall evaluate expected seepage during loading conditions associated with the base flood and shall demonstrate that seepage into or through the levee foundation and embankment will not jeopardize embankment or foundation stability. An alternative analysis demonstrating that the levee is designed and constructed for stability against loading conditions for Case IV as defined in the U.S. Army Corps of Engineers (COE) manual, "Design and Construction of Levees" (EM 1110-2-1913, Chapter 6, Section II), may be used. The factors that shall be addressed in the analyses include: Depth of flooding, duration of flooding, embankment geometry and length of seepage path at critical locations, embankment and foundation materials, embankment compaction, penetrations, other design factors affecting seepage (such as drainage layers), and other design factors affecting embankment and foundation stability (such as berms).

(5) *Settlement.* Engineering analyses must be submitted that assess the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrate that freeboard will be maintained within the minimum standards set forth in paragraph (b)(1) of this section. This analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, detailed settlement analysis using procedures such as those described in the COE manual, "Soil Mechanics Design—Settlement Analysis" (EM 1100-2-1904) must be submitted.

(6) *Interior drainage.* An analysis must be submitted that identifies the source(s) of such flooding, the extent of the flooded area, and, if the average depth is greater than one foot, the water-surface elevation(s) of the base

flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters.

(7) *Other design criteria.* In unique situations, such as those where the levee system has relatively high vulnerability, FEMA may require that other design criteria and analyses be submitted to show that the levees provide adequate protection. In such situations, sound engineering practice will be the standard on which FEMA will base its determinations. FEMA will also provide the rationale for requiring this additional information.

(c) *Operation plans and criteria.* For a levee system to be recognized, the operational criteria must be as described below. All closure devices or mechanical systems for internal drainage, whether manual or automatic, must be operated in accordance with an officially adopted operation manual, a copy of which must be provided to FEMA by the operator when levee or drainage system recognition is being sought or when the manual for a previously recognized system is revised in any manner. All operations must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP.

(i) *Closures.* Operation plans for closures must include the following:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provisions for periodic operation, at not less than one-year intervals, of the closure structure for testing and training purposes.

(2) *Interior drainage systems.* Interior drainage systems associated with levee systems usually include storage areas,

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gravity outlets, pumping stations, or a combination thereof. These drainage systems will be recognized by FEMA on NFIP maps for flood protection purposes only if the following minimum criteria are included in the operation plan:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists to permit activation of mechanized portions of the drainage system.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provision for manual backup for the activation of automatic systems.

(iv) Provisions for periodic inspection of interior drainage systems and periodic operation of any mechanized portions for testing and training purposes. No more than one year shall elapse between either the inspections or the operations.

(3) *Other operation plans and criteria.* Other operating plans and criteria may be required by FEMA to ensure that adequate protection is provided in specific situations. In such cases, sound emergency management practice will be the standard upon which FEMA determinations will be based.

(d) *Maintenance plans and criteria.* For levee systems to be recognized as providing protection from the base flood, the maintenance criteria must be as described herein. Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to FEMA by the owner of the levee system when recognition is being sought or when the plan for a previously recognized system is revised in any manner. All maintenance activities must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP that must assume ultimate responsibility for maintenance. This plan must document the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures

and systems are maintained. At a minimum, maintenance plans shall specify the maintenance activities to be performed, the frequency of their performance, and the person by name or title responsible for their performance.

(e) *Certification requirements.* Data submitted to support that a given levee system complies with the structural requirements set forth in paragraphs (b)(1) through (7) of this section must be certified by registered professional engineer. Also, certified as-built plans of the levee must be submitted. Certifications are subject to the definition given at § 65.2 of this subchapter. In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed to provide protection against the base flood.

[51 FR 30316, Aug. 25, 1986]

§ 65.11 Evaluation of sand dunes in mapping coastal flood hazard areas.

(a) *General conditions.* For purposes of the NFIP, FEMA will consider storm-induced dune erosion potential in its determination of coastal flood hazards and risk mapping efforts. The criterion to be used in the evaluation of dune erosion will apply to primary frontal dunes as defined in § 59.1, but does not apply to artificially designed and constructed dunes that are not well-established with long-standing vegetative cover, such as the placement of sand materials in a dune-like formation.

(b) *Evaluation criterion.* Primary frontal dunes will not be considered as effective barriers to base flood storm surges and associated wave action where the cross-sectional area of the primary frontal dune, as measured perpendicular to the shoreline and above the 100-year stillwater flood elevation and seaward of the dune crest, is equal to, or less than, 540 square feet.

(c) *Exceptions.* Exceptions to the evaluation criterion may be granted where it can be demonstrated through authoritative historical documentation that the primary frontal dunes at a specific site withstood previous base flood storm surges and associated wave action.

[53 FR 16270, May 6, 1988]

Attachment D
Cost Estimates

Bayou Choupique and Associated Levees

Date: 3/30/2016

Item No.	Description	Total
1	Steel Swing Gate	\$ 1,157,250.00
2	Steel Receiving Structure	\$ 570,000.00
3	Steel Floodwall	\$ 479,000.00
4	Guidewall	\$ 174,850.00
5	Breasting and Protection Dolphins	\$ 196,000.00
6	Pivot and Pull Structures	\$ 151,000.00
7	Levee Embankment	\$ 72,300.00
8	Dredging	\$ 30,000.00
9	Rip Rap	\$ 46,000.00
10	Miscellaneous	\$ 1,001,000.00
11	Associated Levees	\$ -
Subtotal:		\$ 3,878,000.00
Contingencies (20%)		\$ 775,600.00
Total:		\$ 4,653,600.00

Bayou Teche Flood Protection System

Date: 3/30/2016

Item No.	Description	Total -	Total -
		Location 1	Location 2
1	Steel Swing Gate	\$ 2,140,000.00	\$ 2,140,000.00
2	Steel Receiving Structure	\$ 1,986,000.00	\$ 1,986,000.00
3	Steel Floodwall	\$ 1,820,000.00	\$ 1,603,000.00
4	Guidewall	\$ 376,600.00	\$ 376,600.00
5	Breasting and Protection Dolphins	\$ 180,000.00	\$ 180,000.00
6	Pivot and Pull Structures	\$ 151,000.00	\$ 151,000.00
7	Levee Embankment	\$ 83,300.00	\$ 197,720.00
8	Dredging	\$ 237,000.00	\$ 437,000.00
9	Rip Rap	\$ 183,000.00	\$ 183,000.00
10	Miscellaneous	\$ 1,069,000.00	\$ 1,069,000.00
Subtotal:		\$ 8,226,000.00	\$ 8,324,000.00
Contingencies (20%)		<u>\$ 1,646,000.00</u>	<u>\$ 1,665,000.00</u>
Total:		\$ 9,872,000.00	\$ 9,989,000.00

Kelley Canal

Date: 3/30/2016

Item No.	Description	Total - Location 1
1	Steel Swing Gate	\$ 71,000.00
2	Steel Receiving Structure	\$ 64,090.00
3	Steel Floodwall	\$ 1,188,177.00
4	Pull Structures	\$ 76,360.00
5	Rip Rap	\$ 35,000.00
6	Miscellaneous	\$ 293,995.00
Subtotal:		\$ 1,729,000.00
Contingencies (20%)		<u>\$ 346,000.00</u>
Total:		\$ 2,075,000.00

Scott Canal Flood Control Structure

Date: 3/30/2016

Item No.	Description	Total - Location 1
1	Steel Swing Gate	\$ 71,000.00
2	Steel Receiving Structure	\$ 60,680.00
3	Steel Floodwall	\$ 761,589.00
4	Pull Structures	\$ 76,360.00
5	Rip Rap	\$ 22,400.00
6	Miscellaneous	\$ 245,538.00
Subtotal:		\$ 1,238,000.00
Contingencies (20%)		<u>\$ 248,000.00</u>
Total:		\$ 1,486,000.00

Vacherie Canal Flood Control Structure

Date: 3/30/2016

Item No.	Description	Total - Location 1
1	Steel Swing Gate	\$ 71,000.00
2	Steel Receiving Structure	\$ 64,090.00
3	Steel Floodwall	\$ 1,056,430.00
4	Pull Structures	\$ 76,360.00
5	Rip Rap	\$ 31,080.00
6	Miscellaneous	\$ 279,099.00
Subtotal:		\$ 1,579,000.00
Contingencies (20%)		<u>\$ 316,000.00</u>
Total:		\$ 1,895,000.00

West of Wax Lake Outlet to Charenton Canal - Continued Levee Improvements

Date: 3/30/2016

Phase 1: Elevate Levees to 8 Feet

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Hauled-in Material Embankment (Including Compaction, Grading, and Dressing)	CUYD	175,000	\$ 25.00	\$ 4,375,000.00
2	Geotextile Fabric Reinforcement	LNFT	63,400	\$ 130.00	\$ 8,242,000.00
3	610 Limestone	TON	57,240	\$ 55.00	\$ 3,148,200.00
4	Geotextile Fabric	SQYD	176,110	\$ 4.00	\$ 704,440.00
Subtotal: \$ 20,709,640.00					
Contingencies (20%) \$ 4,141,928.00					
Total: \$ 24,851,568.00					

Phase 2: Elevate Levees to 10 Feet

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Hauled-in Material Embankment (Including Compaction, Grading, and Dressing)	CUYD	610,000	\$ 25.00	\$ 15,250,000.00
2	Geotextile Fabric Reinforcement	LNFT	63,400	\$ 130.00	\$ 8,242,000.00
3	610 Limestone	TON	57,240	\$ 55.00	\$ 3,148,200.00
4	Geotextile Fabric	SQYD	176,110	\$ 4.00	\$ 704,440.00
Subtotal: \$ 28,048,640.00					
Contingencies (20%) \$ 5,609,728.00					
Total: \$ 33,658,368.00					

Phase 3: Elevate Levees to 18 Feet

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Hauled-in Material Embankment (Including Compaction, Grading, and Dressing)	CUYD	4,830,000	\$ 25.00	\$ 120,750,000.00
2	Geotextile Fabric Reinforcement	LNFT	158,500	\$ 130.00	\$ 20,605,000.00
3	610 Limestone	TON	57,240	\$ 55.00	\$ 3,148,200.00
4	Geotextile Fabric	SQYD	176,110	\$ 4.00	\$ 704,440.00
Subtotal: \$ 164,578,640.00					
Contingencies (20%) \$ 32,915,728.00					
Total: \$ 197,494,368.00					

Bayou Sale - Levee Improvements

Date: 3/30/2016

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Hauled-in Material Embankment (Including Compaction, Grading, and Dressing)	CUYD	3,270,000	\$ 25.00	\$ 81,750,000.00
2	Geotextile Fabric Reinforcement	LNFT	100,767	\$ 130.00	\$ 13,099,710.00
3	610 Limestone	SQYD	1,232,000	\$ 10.00	\$ 12,320,000.00
4	Geotextile Fabric	TON	36,500	\$ 55.00	\$ 2,007,500.00
5		SQYD	112,000	\$ 4.00	\$ 448,000.00
Subtotal: \$ 109,625,210.00					
Contingencies (20%) \$ 21,925,042.00					
Total: \$ 131,550,252.00					

Alternate 1 (West of Charenton Drainage Canal - Levee Construction)

Date: 3/30/2016

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Hauled-in Material Embankment (Including Compaction, Grading, and Dressing)	CUYD	6,625,000	\$ 25.00	\$ 165,625,000.00
2	Geotextile Fabric Reinforcement	LNFT	52,660	\$ 130.00	\$ 6,845,800.00
3	610 Limestone	SQYD	644,000	\$ 10.00	\$ 6,440,000.00
4	Geotextile Fabric	TON	19,000	\$ 55.00	\$ 1,045,000.00
5		SQYD	58,500	\$ 4.00	\$ 234,000.00
Subtotal:					
Contingencies (20%)					
Total:					

Alternate 2 (West of Charenton Drainage Canal - Levee Construction)**(Charenton Canal to St. Mary/Iberia Parish Line)**

Date: 3/30/2016

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Hauled-in Material Embankment (Including Compaction, Grading, and Dressing)	CUYD	3,620,000	\$ 25.00	\$ 90,500,000.00
2	Geotextile Fabric Reinforcement	LNFT	74,000	\$ 130.00	\$ 9,620,000.00
3	610 Limestone	SQYD	905,000	\$ 10.00	\$ 9,050,000.00
4	Geotextile Fabric	TON	27,000	\$ 55.00	\$ 1,485,000.00
5		SQYD	82,000	\$ 4.00	\$ 328,000.00
Subtotal: \$ 110,983,000.00					
Contingencies (20%) \$ 22,196,600.00					
Total: \$ 133,179,600.00					

Amelia Flood Protection Improvements (Partial Miller Plan Alternative 2E)

Date: 3/30/2016

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Hauled-in Material Embankment (Including Compaction, Grading, and Dressing)	CUYD	215,000	\$ 25.00	\$ 5,375,000.00
2	Geotextile Fabric Reinforcement	LNFT	75,280	\$ 130.00	\$ 9,786,400.00
3	610 Limestone	TON	28,000	\$ 55.00	\$ 1,540,000.00
4	Geotextile Fabric	SQYD	86,050	\$ 4.00	\$ 344,200.00
Subtotal: \$ 21,645,600.00					
Contingencies (20%) \$ 4,329,120.00					
Total: \$ 25,974,720.00					

Attachment E
Adoption Resolution

It was moved by J.P. Hebert, seconded by Barry Broussard, that the following Resolution be adopted:

RESOLUTION

WHEREAS, on July 1, 2007, the Louisiana State Legislature by way of Act No. 259 created the St. Mary Levee District (Levee District);

Whereas, the Levee District's jurisdiction was established as all of the lands and property in St. Mary Parish;

Whereas, funding was provided by the Office of Coastal Protection and Restoration to complete the Levee District's first master plan;

Whereas, the master plan and planning process was completed in April of 2010 and updated in 2016;

Whereas, the master plan and planning process is dynamic and designed to be revised as local needs and priorities evolve; and,

Whereas, the Levee District should adopt the master plan by resolution as a basis for future funding from various sources and to be incorporated into the State master plan:

NOW THEREFORE, be it resolved by the Board of Commissioners of the St. Mary Levee District that it does hereby adopt the St. Mary Levee District Master Plan dated October 2016.

WHEREUPON, the motion was put to a vote and the vote thereon was as follows:

YEAS: Bill Hidalgo, Will Terry, JP Hebert, James Vidos, Norris Crappell, Barry Broussard, and Kenny Arceneaux

NAYS:

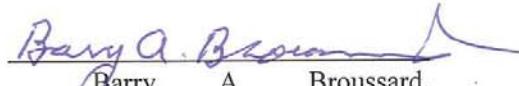
ABSENT AND NOT VOTING: Luther Smith

ADOPTED AND APPROVED by the St. Mary Levee District convened on this 13th day of October, 2016.

CERTIFICATE

I, hereby certify that the above and foregoing resolution is a true and exact copy adopted at a regular meeting of the St. Mary Levee District on the 13th day of October, 2016, in which a quorum was present and voting, and that the resolution adopted is still in effect and has not been rescinded or modified and that is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand and the seal of said St. Mary Levee District this ____th day of October, 2016.


Barry A. Broussard,
Secretary
St. Mary Levee District

Attachment F
Intergovernmental Agreements

**INTERGOVERNMENTAL AGREEMENT
BETWEEN
ST. MARY LEVEE DISTRICT
AND
ST. MARY PARISH**

THIS AGREEMENT, entered into by and between the **ST. MARY LEVEE DISTRICT** (“**DISTRICT**”), a political subdivision of the State of Louisiana, represented herein by its duly authorized **President, William H. Hidalgo, Sr.**, and **ST. MARY PARISH** (“**PARISH**”), represented by its President, Paul A. Naquin, which hereby agree as follows:

WHEREAS, *Article VII, §14(C) of the Constitution of the State of Louisiana* provides that “For a public purpose, the state and its political subdivisions or political corporations may engage in cooperative endeavors with each other, with the United States or its agencies, or with any public or private association, corporation, or individual;”

WHEREAS, effective July 1, 2007, via *Act 259 of the Regular Session of 2007*, **DISTRICT** was empowered to establish, construct, operate or maintain flood control works, to enter into agreements for the provision of lands, servitudes, rights of ways and relocation, to acquire property by expropriation and to enter into contracts or agreements with any person, corporation, association or entity, including the U.S. Government to carry out the levee district’s purposes and powers;

WHEREAS, DISTRICT, pursuant to *La. R.S. 38:291(Z)*, qualifies as a tax-exempt organization under state and federal laws, exists as a political subdivision of the state of Louisiana, and has all the lands in the parish of St. Mary within its territory;

WHEREAS, DISTRICT’S powers and duties, detailed in *La. R.S. 38:329.3*, include the operation and maintenance of “flood control works as they relate to hurricane protection, tidewater flooding, saltwater intrusion and conservation,” and the entry of agreements with other governmental bodies to carry out its works with St. Mary Parish, Louisiana;

WHEREAS, DISTRICT’S obligations, additionally detailed in *La. R.S. 38:306*, call for the performance of any and all acts necessary to insure the thorough and adequate protection of the lands of the **DISTRICT** from damage by flood;

WHEREAS, several governmental entities other than **DISTRICT**, including **PARISH**, historically and currently, serve as the local “Non-Federal Sponsor” for federal flood control project purposes within St. Mary Parish;

WHEREAS, with respect to the **PARISH**, certain flood control structures, including levees and floodwalls, have been constructed in St. Mary Parish, Louisiana, and exist as federal components of the “Mississippi River and Tributaries (MR&T) Atchafalaya Basin Project,”

authorized by *Public Law 391 of the 70th Congress*, approved on the 15th day of May, 1928, as amended;

WHEREAS, by "Act of Assurance" dated June 10, 1948, PARISH agreed to accept, maintain and operate the MR&T Atchafalaya Basin project within St. Mary Parish, Louisiana in accordance with regulations prescribed by the Secretary of the Army;

WHEREAS, via another "Act of Assurance" of April 29, 1968, PARISH agreed to comply with all required conditions of local cooperation for the Morgan City and vicinity Project, providing among other things, easements, right of ways, maintenance and operation of project after completion;

WHEREAS, via another "Act of Assurance" of March 4, 1974, PARISH agreed to provide all lands, easements, and rights-of-way, and to maintain and operate all the repair or restoration work on a MR&T Atchafalaya Basin project after its completion;

WHEREAS, by "Agreement for Local Cooperation" dated November 18, 1986, PARISH additionally contracted with the U.S. Army for the construction, operation and maintenance of the MR&T Atchafalaya Basin Floodway Project;

WHEREAS, in light of the Legislature's creation of DISTRICT, PARISH desires to formally assign and transfer the entirety of its obligations in said "Act of Assurance" to DISTRICT and DISTRICT desires to accept the transfer and assignment of PARISH'S obligations contained the above-mentioned "Act of Assurance" with the U.S. Army Corps of Engineers;

WHEREAS, *Article VI, §20 of the Constitution of the State of Louisiana* provides that "Except as otherwise provided by law, a political subdivision may exercise and perform any authorized power and function, including financing, jointly or in cooperation with one or more political subdivisions, either within or without the state, or with the United States or its agencies;"

WHEREAS, *Article VI, §41 of the Constitution of the State of Louisiana* provides that "The governing authority of any levee district may cooperate with the federal government in constructing and maintaining levees in this state, under terms and conditions provided by federal authorities and accepted by the governing authority;

WHEREAS, both PARISH and DISTRICT share the objective of protecting the citizens and the property within the *Project's* levees and floodwalls from flooding and recognize the importance of having the areas levees and floodwalls certified and accredited by the Federal Emergency Management Agency (FEMA);

WHEREAS, both PARISH and DISTRICT mutually share the objective of continuously achieving favorable National Flood Insurance Program (NFIP) Levee System Evaluation Reports (LSERs) to evidence appropriate flood protection and proper Digital Flood Insurance Map (DFIM) zoning; and,

WHEREAS, the primary public purpose of this Intergovernmental Agreement is to have **DISTRICT** assume the responsibility and obligations of the local non-federal sponsor for the federal MR&T project, to insure continued mutual cooperation, to apportion duties, obligations and rights, to maximize hurricane protection, to minimize riverine flooding, to centralize and organize flood control and maintenance efforts, to improve public safety, to improve regulatory compliance, and to best communicate with other state and federal agencies including the U.S. Army Corps of Engineers.

NOW, THEREFORE, for the above mentioned causes, the parties hereto agree as follows:

1. **Assignment and Transfer.** The **PARISH OF ST. MARY** hereby transfers and assigns its obligations and interests of its "Act of Assurances," and its "Agreement for Local Cooperation," including but not limited to those agreements dated June 10, 1948, April 29, 1968, March 4, 1974, and November 18, 1986 to the **ST. MARY LEVEE DISTRICT**.
2. **Acceptance of Assignment.** **DISTRICT** hereby accepts **PARISH'S** assignment and agrees to assume the obligations of this transfer of said "Act of Assurances" and "Agreement for Local Cooperation."
3. **Non-Federal Sponsorship.** **DISTRICT** shall accept all responsibility as the local "non-federal sponsor" and shall duly satisfy the legal requirements as required by the transferred "Act of Assurances" and "Agreement for Local Cooperation" with respect to the MR&T, Atchafalaya Basin Project within St. Mary Parish, Louisiana.
4. **Agent and Spokesperson.** As a direct consequence of this assignment, **DISTRICT** shall be the sole agent and spokesperson to the U.S. Army Corps of Engineers with respect to all MR&T Project matters on behalf of **PARISH**.
5. **Routine Maintenance.** At this time, **PARISH**, shall assist **DISTRICT** with its minor maintenance within its jurisdiction:
 - (a) Routine mowing of the grass and weeds on all levees not being mowed by the Town of Berwick or the City of Morgan City;
 - (b) Removal of wild growth & drift deposits;
 - (c) Minor repair of earthen levees, floodwalls and floodwall gates;
 - (d) Levee "crown road" repair and grading as necessary; and,
 - (e) Any other mutually agreed upon services.
6. **Repair Cost Reimbursement.** **DISTRICT** shall reimburse **PARISH** for 100% of its floodwall gate, flood wall and levee repair costs. In carrying out repairs and

minor maintenance other than grass cutting, PARISH shall cooperate with DISTRICT in the completion of these repairs by providing PARISH's labor, equipment, and supplies. The cost of such labor, equipment and supplies provided by PARISH shall be paid by DISTRICT to PARISH in accordance with a rate schedule annually negotiated and agreed upon by DISTRICT and PARISH. The initial year's rate schedule is attached as Exhibit A.

7. **Grass Cutting & Grading Reimbursement.** DISTRICT shall reimburse PARISH for its grass cutting and grading services in accordance with the rate schedule attached as Exhibit A.
8. **Major Maintenance.** While the Federal Government continues to be legally responsible for the MR&T project's major maintenance, DISTRICT pledges to endeavor to provide its assistance in performing or having the major maintenance performed should the Federal Government, for financial or other reasons, fail to do so.
9. **General Compliance.** DISTRICT and PARISH shall comply with all applicable Federal and State laws and regulations, which may include, but are not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. §§3141-3148 and 40 U.S.C. §§ 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. §276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. §327 *et seq.*), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. §276c)); the Louisiana Public Bid Law (*La. R.S. 38:2211 et seq.*).
10. **Flood Plain Management Compliance.** PARISH shall continuously comply with *La. R.S. 38:84*, which is tied to Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12), which requires the preparation of a floodplain management plan and the implementation of said plan. The plan shall be designed to reduce the impacts of future flood events in the project area, including but not limited to, addressing those measures to be undertaken to preserve the level of flood damage risk reduction provided by the MR&T project.
11. **Publication of Information.** PARISH shall publicize floodplain information in its territorial jurisdiction and shall provide this information to zoning and other regulatory agencies for their use in adopting regulations, or taking other actions, to

prevent unwise future development and to ensure compatibility with risk reduction levels provided by the MR&T project.

12. **Levee & Floodwall Protection.** DISTRICT shall comply with 33 CFR §208.10 and La. R.S. 38:306, by prescribing and enforcing its rules and regulations or other means, to prevent encroachments or trespass which would adversely affect the efficient operation or maintenance of the levees and floodwalls.
13. **Permitting.** DISTRICT shall handle the procession of permit applications and all communications with state and federal authorities for proposed activities on or near the levees and floodwalls. PARISH shall transfer to DISTRICT any existing permit information in its possession.
14. **Insurance.** DISTRICT and PARISH shall each have the other named as an "additional insured" on its general liability policy.
15. **Hold Harmless and Indemnity.** With respect to the obligations and responsibilities of DISTRICT, DISTRICT agrees and obligates itself its successors and assigns to defend, indemnify, save, protect and hold harmless PARISH and its successors, officers and employees against any and all claims, demands suits, actions, judgments, attorney's fees or cost arising or allegedly arising out of its responsibilities undertaken herein, or any violation of Louisiana or Federal law or regulations, or any negligent act, omission, operation or work by DISTRICT or its employees, agents, representatives, or contractors except for damages due to the fault or negligence of PARISH, its employees or contractors.
Similarly, with respect to the obligations and responsibilities of PARISH, PARISH agrees and obligates itself its successors and assigns to defend, indemnify, save, protect and hold harmless DISTRICT and its successors, officers and employees against any and all claims, demands suits, actions, judgments, attorney's fees or cost arising or allegedly arising out of its responsibilities undertaken herein, or any violation of Louisiana or Federal law or regulations, or any negligent act, omission, operation or work by PARISH or its employees, agents, representatives, or contractors except for damages due to the fault or negligence of DISTRICT, its employees or contractors.
16. **Auditor's Clause.** It is hereby agreed that DISTRICT'S annual auditor, the Louisiana Legislative Auditor, and/or the Office of the Governor, Division of Administration's auditors shall have the option of auditing all records and accounts of PARISH which relate to this agreement and/or the MR&T Atchafalaya Basin Project. PARISH shall maintain all books and records pertaining to this agreement for a period of five (5) years after payment from District.

IN WITNESS THEREOF, THE PARTIES HERETO HAVE EXECUTED THIS
CONTRACT AS OF THE DATES SHOWN BELOW.

PARISH OF ST. MARY

ST. MARY LEVEE DISTRICT

By: *Paul P. Naquin Jr.*
President, Paul P. Naquin, Jr.

By: *William H. Hidalgo*
President, William H. Hidalgo, Sr.

Date: 07/24/2014

Date: 7/24/2014

EXHIBIT A

RATE SCHEDULE AND TERMS

- 1) **Grass Cutting, “Crown Road” Grading & Reimbursements:** In exchange for grass cutting of the levee reaches and rights of way of all of the levees in St. Mary Parish which includes those previously maintained by the Atchafalaya Basin Levee District (ABLD) and those reaches maintained by St. Mary Parish (casually known as the “backwater” levees; as required, and the grading of the levee’s “crown road” as needed, **DISTRICT shall reimburse to PARISH 100% of its force account labor and 100% of its force account equipment costs and 100% off the actual or contracted costs for any limestone, herbicides, clay or any other materials necessary for the maintenance of the aforementioned levees.** **PARISH** shall submit a monthly invoice to the **DISTRICT** for reimbursement of the associated costs and **DISTRICT** shall remit payment within thirty (30) days of receipt of such invoice. **DISTRICT’S** reimbursement to **PARISH** for these services shall not exceed \$250,000 per calendar year, beginning with 2014. Nothing in this agreement shall require the **PARISH** to continue to perform the provisions contained in this section if not reimbursed by the **DISTRICT**.
- 2) **Grading and Maintenance of the Road Adjacent to West Atchafalaya Basin Protection Levee:** In exchange for grading this road on an as needed basis, while its history, ownership and private or public use is being studied, **DISTRICT shall reimburse PARISH one-half (1/2) of seventy-five percent (75%) of its force account labor and one-half (1/2) of seventy-five percent (75%) of its force account equipment costs and one-half (1/2) of seventy-five percent (75%) of the actual or contracted costs, for any limestone, herbicides, clay or any other materials necessary for the maintenance of the aforementioned road.** **PARISH** shall submit a monthly invoice to the **DISTRICT** for reimbursement of the associated costs and **DISTRICT** shall remit payment within thirty (30) days of receipt of such invoice. **DISTRICT’S** reimbursement to **PARISH** for these services shall not exceed \$25,000 per calendar year, beginning with 2014. Nothing in this agreement shall require the **PARISH** to continue to perform the provisions contained in this section if not reimbursed by the **DISTRICT**.
- 3) **Repair costs reimbursement:** **DISTRICT shall reimburse to PARISH 100% of its force account labor and 100% of its force account equipment costs and 100% off the actual or contracted costs for any limestone, herbicides, clay or any other materials necessary for carrying out minor repairs and minor maintenance other than grass cutting and grading.**
- 4) **PARISH** shall coordinate the scheduling of its services with **DISTRICT’S** Operations Manager to satisfy the Corps maintenance requirements and shall provide time, equipment and material accounting records covering all of its services herein.
- 5) **DISTRICT and PARISH** mutually agree to review and to adjust the rates and terms listed above at least once every three (3) years.

**COOPERATIVE ENDEAVOR AGREEMENT
AMONG
ST. MARY LEVEE DISTRICT
CITY OF MORGAN CITY
AND
TOWN OF BERWICK**

THIS AGREEMENT entered into by and between:

the **ST. MARY LEVEE DISTRICT**, ("DISTRICT") a political subdivision of the State of Louisiana, represented by its duly authorized President, William H. Hidalgo, Sr.;

the **CITY OF MORGAN CITY**, ("CITY") a municipal corporation of the State of Louisiana, represented herein by Frank P. Grizzaffi, III, its duly authorized Mayor; and,

the **TOWN OF BERWICK**, ("TOWN") a municipal corporation of the State of Louisiana, represented herein by Louis Ratcliff, its duly authorized Mayor

which hereby agree as follows:

WHEREAS, Article VII, §14(C) of the Constitution of the State of Louisiana provides that "For a public purpose, the state and its political subdivisions or political corporations may engage in cooperative endeavors with each other, with the United States or its agencies, or with any public or private association, corporation, or individual;"

WHEREAS, St. Mary Levee District, pursuant to La. R.S. 38:291(Z) is a governmental "levee district," qualifies as a tax-exempt organization under State and Federal laws, and exists as a political subdivision of the state of Louisiana;

WHEREAS, St. Mary Levee District's objects and purposes, in accordance with La. R.S. 38:329.3, include the operation and maintenance of flood control works and the entry of agreements with other governmental bodies to carry out its works;

WHEREAS, Article VI, §20 of the Constitution of the State of Louisiana provides that "Except as otherwise provided by law, a political subdivision may exercise and perform any authorized power and function, including financing, jointly or in cooperation with one or more political subdivisions, either within or without the state, or with the United States or its agencies;"

WHEREAS, Article VI, §42 of the Constitution of the State of Louisiana provides that "The governing authority of any levee district may cooperate with the federal government in constructing and maintaining levees in this state, under terms and conditions provided by federal authorities and accepted by the governing authority;

WHEREAS, certain flood control structures have been constructed in the City of Morgan City, Louisiana, which features are known as "Mississippi River and Tributaries (MR&T) Atchafalaya Basin project," authorized by Public Law 391 of the 70th Congress, approved on the 15th day of May, 1928, as amended;

WHEREAS, the City of Morgan City agreed to perform maintenance activities upon the MR&T Atchafalaya Basin project levees within the City of Morgan City in accordance with regulations prescribed by the Secretary of the Army;

WHEREAS, the MR&T Atchafalaya Basin project levees require the City of Morgan City to cut grass, remove weeds, handle local landside drainage of the levees, to perform other minor repairs;

WHEREAS, rights of way for the project within City of Morgan City have been acquired and made available to the US Army Corps of Engineers, New Orleans District (Corps) by the Atchafalaya Basin Levee District (whose responsibilities within St. Mary Parish have now been transferred to St. Mary Levee District);

WHEREAS, the City of Morgan City agreed to comply with all conditions of local cooperation for Project, providing among other things, easements, right of ways, maintenance and operation of project after completion;

WHEREAS, with respect to the **TOWN OF BERWICK**, certain flood control structures, including levees and a floodwall, have been constructed in Town, existing as federal components of the "Mississippi River and Tributaries (MR&T) Atchafalaya Basin Project," authorized by *Public Law 391 of the 70th Congress*, approved on the 15th day of May, 1928, as amended;

WHEREAS, by an "Act of Assurance" dated October 6, 1944, Town agreed to accept, maintain and operate the MR&T Atchafalaya Basin project levees within Town in accordance with regulations prescribed by the Secretary of the Army;

WHEREAS, said "Act of Assurance" included the maintenance by Town as the cutting of grass, removal of weeds, local landside drainage of the levees, other minor repairs;

WHEREAS, the "Act of Assurance" required Town to acquire and make available to the U.S. Army Corps of Engineers, New Orleans District (Corps), as needed, all rights of ways and servitudes;

WHEREAS, via *Ordinance No. 81*, Town codified its obligations to the U.S. Army Corps of Engineers and authorized and empowered its Mayor to represent Town with respect to any other authoritative body, to carry out said obligations;

WHEREAS, effective July 1, 2007, via Act 259 of the Regular Session of 2007, the St. Mary Levee District was empowered to establish, construct, operate or maintain flood control works, to enter into agreements for the provision of lands, servitudes, rights of ways and

relocation, to acquire property by expropriation and to enter into contracts or agreements with any person, corporation, association or entity, including the United States Government to carry out the levee district's purposes and powers;

WHEREAS, the City of Morgan City, the Town of Berwick and the St. Mary Levee District mutually desire to enter into this Cooperative Endeavor Agreement (CEA) in order to properly coordinate the legal obligations incurred between the City of Morgan City and the Town of Berwick and the Corps in regards to the aforementioned MR&T Atchafalaya Basin project within the City and Town and to designate the District as their "Authorized Agent" for communications with the United States Army Corps of Engineers;

WHEREAS, the public purposes of this CEA are to maximize hurricane protection, to minimize riverine flooding, to improve the flood control efforts, to improve public safety, to improve regulatory compliance and to organize and to centralize flood works control and maintenance within the City of Morgan City and the Town of Berwick by having the St. Mary Levee District serve as their authorized agents;

NOW, THEREFORE, for the above mentioned causes, the parties hereto agree as follows:

1. St. Mary Levee District shall assume coordination with U.S. Army Corps of Engineers, the State, its subdivisions and all other regulatory agencies with regards to and the responsibility for oversight of the floodwalls, flood gates and East Atchafalaya Basin Protection levees constructed as a part of the "Mississippi River and Tributaries (MR&T) Atchafalaya Basin project, St. Mary Parish, Louisiana" within the City of Morgan City ("MR&T Levees") shown on the attached Exhibit "A" beginning at the intersection of the City limit with the Parish limit and continuing to the levees termination within the City at or near the IWCC locks, any related non-public inspection routes, and shall assume responsibility and perform all duty as coordinator or "local sponsor" with regard to such levees and structures.
2. St. Mary Levee District shall assume coordination with U.S. Army Corps of Engineers, the State, its subdivisions and all other regulatory agencies with regards to and the responsibility for oversight of the floodwalls, flood gates and West Atchafalaya Basin Protection levees constructed as a part of the "Mississippi River and Tributaries (MR&T) Atchafalaya Basin project, St. Mary Parish, Louisiana" within the Town of Berwick ("MR&T Levees") shown on the attached Exhibit "A" beginning at reach W-123 through reach W-124, any related non-public inspection routes, and shall assume responsibility and perform all duty as coordinator or "local sponsor" with regard to such levees and structures.
3. At the present time, the City of Morgan City and the Town of Berwick shall retain full responsibility for all ongoing maintenance, operation and upkeep of the following:
 - (a) Public roads and road ramps for boat landings and oilfield activities;
 - (b) Flood Gate Structures currently in place;

- (c) Earthen levees and related structures that are not MR&T Levees;
 - (d) Grass cutting on the MR&T Levees; and,
 - (e) all related equipment, sluice gates, or other structures, whether movable or immovable, related to the above structures.
4. The City of Morgan City and the Town of Berwick shall retain full responsibility for the operation of the structures set out in Paragraph 3 above in accordance with operational plans and procedures agreed to between United States Army Corps of Engineers, the City of Morgan City and the Town of Berwick. And, final decision making authority concerning any matter involving levees within the respective boundaries shall be reserved to the City of Morgan City and to the Town of Berwick.
 5. St. Mary Levee District shall act as the designee or “authorized agent” of the “local sponsors” for the Mississippi River and Tributaries, Atchafalaya Basin project, within the City of Morgan City and the Town of Berwick, St. Mary Parish, Louisiana with respect to communications with the United States Army Corps of Engineers. And, the Levee District shall keep the City and Town reasonably apprised of all significant communications with the Corps.
 6. St. Mary Levee District shall hold harmless and indemnify the City of Morgan City and the Town of Berwick for injury to persons or property arising out of the existence, maintenance, or operation of the levees, floodwalls and floodgates for which they have assumed responsibility as set out above.
 7. The City of Morgan City and the Town of Berwick shall hold harmless and indemnify St. Mary Levee District for injury to persons or property arising out of the existence, maintenance, or operation of the structures and related features for which they have assumed responsibility as set out above.
 8. The District, City and Town shall mutually cooperate in good faith, assist and facilitate the duties described herein. As neither the District, nor the City, nor the Town, nor the Corps has completed any engineering studies sufficiently detailed

to reveal all defects in the MR&T Levees within the City and Town, the City and Town make no assurances with regards to said levees nor does the District accept responsibility for any defects in said levees and structures.

IN WITNESS THEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CONTRACT AS OF THE DATES SHOWN BELOW.

CITY OF MORGAN CITY

By: Frank P. Grizzaffi III

Frank P. Grizzaffi, III, Mayor

Date: June 14, 2013

TOWN OF BERWICK

By: Louis Ratcliff

Louis Ratcliff, Mayor

Date: JUNE 11, 2013

ST. MARY LEVEE DISTRICT

By: William H. Hidalgo

William H. Hidalgo, Sr., President

Date: JUNE 12, 2013

**COOPERATIVE ENDEAVOR AGREEMENT
BETWEEN
ST. MARY LEVEE DISTRICT
AND
ST. MARY PARISH**

THIS AGREEMENT entered into by and between:

ST. MARY LEVEE DISTRICT (“District”), represented by its President, William H. Hidalgo, Sr., acting pursuant to a resolution passed by the Board of Levee Commissioners of the St. Mary Levee District at its meeting on August 13, 2015, and

ST. MARY PARISH (“Parish”), represented by its President, Paul P. Naquin, Jr., acting pursuant to authority vested in him by Resolution dated August 26, 2015, passed on that date by the St. Mary Parish Council,

which hereby agree as follows:

WHEREAS, *Article VII, §14(C) of the Constitution of the State of Louisiana* provides that “For a public purpose, the state and its political subdivisions or political corporations may engage in cooperative endeavors with each other, with the United States or its agencies, or with any public or private association, corporation, or individual;”

WHEREAS, effective July 1, 2007, via *Act 259 of the Regular Session of 2007*, District was empowered to establish, construct, operate or maintain flood control works, to enter into agreements for the provision of lands, servitudes, rights of ways and relocation, to acquire property by expropriation and to enter into contracts or agreements with any person, corporation, association or entity, including the U.S. Government to carry out the levee district’s purposes and powers;

WHEREAS, District, pursuant to *La. R.S. 38:291(Z)*, qualifies as a tax-exempt organization under state and federal laws, and exists as a political subdivision of the state of Louisiana;

WHEREAS, District’s powers and duties, detailed in *La. R.S. 38:329.3*, include the operation and maintenance of “flood control works as they relate to hurricane protection, tidewater flooding, saltwater intrusion and conservation,” and the entry of agreements with other governmental bodies to carry out its works;

WHEREAS, *Article VI, §20 of the Constitution of the State of Louisiana* provides that “Except as otherwise provided by law, a political subdivision may exercise and perform any authorized power and function, including financing, jointly or in cooperation with one or more political subdivisions, either within or without the state, or with the United States or its agencies;”

WHEREAS, the District possesses surplus steel sheet piles and Parish has a demonstrated need for said sheet piling per the written request of its engineer for use with the Yellow Bayou Project, the Franklin Canal Project, the Hanson Canal Project and the Willow Street Drainage Project to improve drainage and flood control within St. Mary Parish; and,

WHEREAS, St. Mary Parish and St. Mary Levee District mutually desire to enter into this Cooperative Endeavor Agreement (CEA) in order to lawfully transfer steel sheet piling from the surplus inventory of the District to the Parish for drainage and flood protection works.

NOW, THEREFORE, in consideration of the premises and the mutual covenants herein contained, the parties hereto agree as follows:

1. Contingent upon presently available surplus inventory, the District shall transfer possession of the following sheet pile to Parish:

110 linear feet (30 pairs) x 10' long sheet piles for the Yellow Bayou Project; and,

152 linear feet (40) pairs) x 45' long sheet piles for Willow Street.

2. The Parish acknowledges its acceptance of the material "as is" without any warranty whatsoever and shall utilize the sheet pile in connection with its drainage and flood control projects.

3. The Parish shall pay all costs associated with regard to removal and transportation of the sheet pile from its nearest present locations on the East side of the Franklin Canal, on the North side of US Hwy 90 at the Hanson Canal, at the Yellow Bayou construction site, and at the Hanson Canal project site; and, shall execute a written receipt upon retrieval of said material.

4. The parties mutually agree to execute any and all acceptable documents as may be necessary or expedient in furtherance of the purposes agreed to herein.

5. Both the District and the Parish agree that they are not agents of one another on these projects.

6. In exchange for the District's transfer herein, the Parish agrees to cooperate whenever possible with any reciprocal request for assistance or materials made by the SMLD to the Parish.

7. This agreement may be terminated at any time by either party upon written notice to the other party.

IN WITNESS THEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CONTRACT AS OF THE DATES SHOWN BELOW.

ST. MARY PARISH

By: Paul P. Naguin Jr.
Date: 08/27/2015

ST. MARY LEVEE DISTRICT

By: WA Aida bayr
Date: 9/28/15

RESOLUTION

A resolution authorizing Paul P. Naquin, Jr., the President of St. Mary to execute a Cooperative Endeavor Agreement with the St. Mary Levee District relative to the transfer of materials for drainage and flood protection projects.

BE IT RESOLVED, that Paul P. Naquin, Jr., President of the Parish of St. Mary, be and he is hereby authorized and directed, for and on behalf of the Parish Council, to execute a Cooperative Endeavor Agreement with the St. Mary Levee District relative to the transfer of materials for drainage and flood protection projects, with said Agreement to contain such terms, conditions and stipulations as he may best see fit, he being fully authorized in the premises.

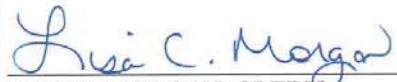
ADOPTED AND APPROVED by the St. Mary Parish Council in regular session convened on this the 26th day of August 2014.

APPROVED:



KEVIN VOISIN, CHAIRMAN
ST. MARY PARISH COUNCIL

ATTEST:



LISA C. MORGAN, CLERK
ST. MARY PARISH COUNCIL