

# Fort Bend County LID and MUD Mitigation Report #2



December 10, 2018

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# Fort Bend County LID and MUD Mitigation Report #2

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This report provides an update on the Levee Improvement District (LID) and Municipal Utility District (MUD) mitigation projects following Hurricane Harvey as well as the flooding events experienced by the county in 2016.

## COMPLETED PROJECTS

### Fort Bend County LID 2

#### **Project Name: Levee Closure (Oyster Creek) / Internal Storage Study**

LID 2 evaluated the need to provide an additional levee along Oyster Creek downstream of Dam 3 to LID 2's east levee at SH 6. LID 2 also evaluated the potential for additional storage within the district to reduce the risk of flooding from internal events. Per the results of the study, Oyster Creek currently has 500-year protection from Dam 3 to SH 6.

- Project Location: Oyster Creek from Dam 3 to SH 6 (Sugar Land, TX)
- Project Cost: \$100,000
- Project Funding Source: Existing budget
- Project Status: Completed

#### **Project Name: New Website Project**

LID 2 completed a project to create a new website for the district to keep the public better informed of LID projects and operations as well as alerts during an incident.

- Project Location: N/A
- Project Cost: \$20,000
- Project Funding Source: Existing budget
- Project Status: Completed

### Fort Bend County LID 10

#### **Project Name: Slope Paving Repairs**

LID 10 is working to remove and replace a portion of the outfall slope paving that was damaged due to heaving and cracking.

- Project Location: Outfall structure (Sugar Land, TX)
- Project Cost: \$100,000
- Project Funding Source: Existing budget
- Project Status: Complete

# Completed Projects

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## Fort Bend County LID 12

### Project Name: Peek Road Erosion Repair

LID 12 reconstructed the side slope of Long Point Slough at Peek Road with stone riprap to prevent future washouts, such as the ones that occurred during the 2016 flooding and Hurricane Harvey.

- Project Location: Long Point Slough at Peek Road (Katy, TX)
- Project Cost: \$71,865.88
- Project Funding Source: FEMA claim (not yet approved)
- Project Status: Completed

## Fort Bend County LID 19

### Project Name: Mobile Pump Purchase

LID 19, in conjunction with LID 15, purchased 12 mobile pumps. The total pumping capacity of these 12 mobile pumps is 81,000 gallons per minute.

- Project Location: Steep Bank Creek Pump Station at Thompson Ferry Rd (Sugar Land, TX)
- Project Cost: \$1,200,000
- Project Funding Source: Existing budget
- Project Status: Completed

## Sienna Plantation LID

### Project Name: Temporary Pumps

Sienna Plantation LID has purchased 14 temporary Gator pumps with approximately 140,000 gallons per minute of pumping capacity. This increases the district's pumping capacity by 50%.

- Project Location: Channels 2 and 3 (Missouri City, TX)
- Project Cost: \$250,000
- Project Funding Source: Existing budget
- Project Status: Completed

### Project Name: Channel 2 Widening

Sienna Plantation LID has widened the bottom width of Channel 2 from 5-10 feet to 55-70 feet.

- Project Location: Channel 2 (Missouri City, TX)
- Project Cost: \$1,700,000
- Project Funding Source: Bond
- Project Status: Completed

### Project Name: Channel 3 Widening

Sienna Plantation LID has widened the bottom width of Channel 3 from 10-30 feet to 75-100 feet.

- Project Location: Channel 3 (Missouri City, TX)
- Project Cost: \$3,300,000
- Project Funding Source: Bond
- Project Status: Completed

## Completed Projects

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### Palmer Plantation MUD 1 and 2

**Project Name: Levee Outfall Replacement**

Palmer Plantation MUDs 1 and 2 have removed and replaced their 35-year-old outfall structure pipes, sluice gates, and flap gates with a new structure, boxes, sluice gates, and flap gates. An additional box culvert was added to increase outfall capacity by 50%. This project also included drainage improvements for Chappell Lane.

- Project Location: 2405 1/2 Lake Olympia Parkway (Missouri City, TX)
- Project Cost: \$840,000
- Project Funding Source: Existing budget
- Project Status: Completed

### Fort Bend County MUD 145

**Project Name: Water Gate Barriers**

MUD 145 purchased two segments of water gate barriers to place on Rio Vista Drive and Del Agua Drive to prevent floodwaters on FM 359 from entering into the Rio Vista community.

- Project Location: Rio Vista community (Richmond, TX)
- Project Cost: \$15,000
- Project Funding Source: Other
- Project Status: Completed

**Project Name: Inflatable Storm Sewer Plug**

MUD 145 purchased an inflatable storm sewer plug that will allow the outfall to Jones Creek to be isolated from the Rio Vista community's internal drainage system.

- Project Location: Rio Vista community (Richmond, TX)
- Project Cost: \$10,000
- Project Funding Source: Other
- Project Status: Completed

### Fort Bend County MUD 185

**Project Name: Force Main Replacement and Concrete Slope Paving Repair**

MUD 185 replaced its existing sanitary sewer force main located under and across the Willow Fork Branch of Buffalo Bayou that became exposed and then broke due to bayou slope washout as a result of the flooding in Hurricane Harvey. In addition, MUD 185 repaired the side slopes and concrete slope paving in the area of the MUD's detention pond storm sewer outfall that was also damaged during Hurricane Harvey. Due to the time delay related to accessing the NRCS grant through the Fort Bend County Drainage District, MUD 185 felt it imperative to complete repairs immediately.

- Project Location: Willow Fork Branch of Buffalo Bayou, 200-300 feet north of the Falcon Landing Boulevard bridges (Katy, TX)
- Project Cost: \$200,000
- Project Funding Source: Existing budget
- Project Status: Completed

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## IN PROGRESS PROJECTS

### **Fort Bend County LID 2**

#### **Project Name: Levee Top Armoring Pilot Project**

LID 2 is working to construct articulating concrete blocks along LID 2's levee top to provide all-weather access from I-69 to Pump Station A. The project includes a ramp from the Sugar Land Baptist Church parking lot on to the top of the levee.

- Project Location: LID 2 levee top from I-69 to Pump Station A (Sugar Land, TX)
- Project Cost: \$415,000
- Project Funding Source: Existing budget
- Project Status: In progress

#### **Project Name: Ditch B, C, & E Improvements**

LID 2 is in the process of constructing articulating concrete blocks within the bottoms of Ditches B, B-1, C, C-1, and E to help prevent erosion within the ditches. This project also includes the replacement of storm sewer outfalls.

- Project Location: Ditches B, B-1, C, C-1, and E (Sugar Land, TX)
- Project Cost: \$6,423,000
- Project Funding Source: Existing budget
- Project Status: In progress

#### **Project Name: Third Pump Station**

LID 2 is in the process of designing a third pump station for the district, to be constructed on Ditch A across from the existing station. The new pump station will have an 840,000 gallons per minute pumping capacity with an additional 140,000 gallons per minute pumping capacity from a spare pump.

- Project Location: 2603 Oakland Dr. (Sugar Land, TX)
- Project Cost: \$54,588,000
- Project Funding Source: Bond
- Project Status: In progress

#### **Project Name: Pumps and Motors at Pump Station F**

LID 2 is currently in the design phase to replace the existing pumps and motors at Pump Station F.

- Project Location: Pump Station F (Sugar Land, TX)
- Project Cost: \$804,000
- Project Funding Source: Existing budget
- Project Status: In progress

#### **Project Name: Levee Closure (Steep Bank)**

LID 2 is in the design phase to reroute the existing drainage area in LID 2 that drains into Steep Bank Creek and permanently close LID 2's Steep Bank Creek structure. This will help LID 19 by removing areas that currently drain naturally from LID 2 to LID 19.

- Project Location: East Levee, North of LJ Parkway (Sugar Land, TX)
- Project Cost: \$150,000
- Project Funding Source: Existing budget
- Project Status: In progress

## In Progress Projects

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### **Project Name: Flood Monitoring Project and CCTV Expansion**

LID 2 is in the design process (with agreements under review) to replace two existing internal gauges and install five additional rain and stream gauges across the district to be included in the Harris County Flood Warning System. This project will also expand the CCTV system to enhance LID 2's ability to remotely monitor the conditions of the network during incidents.

- Project Location:
  - Gauges: Pump Station A, Pump Station F, Upper Ditch A, Ditch C at Austin Pkwy, Ditch E at Austin Pkwy, Confluence of Ditch C & C-1, Steep Bank Creek Structure (Sugar Land, TX)
  - CCTV: Confluence of Ditch A, D & E, confluence of Ditch A, B & C, confluence of C & C-1, Oyster Creek Dam 3 and the Steep Bank Creek Structure (Sugar Land, TX)
- Project Cost: \$230,000
- Project Funding Source: Existing budget
- Project Status: In progress

## Fort Bend County LID 7

### **Project Name: Brazos River Bank Stabilization Project**

LID 7 is proceeding with a comprehensive bank stabilization and river training project both upstream and downstream of the Stavinhoa Bridge on SH 99. This project aims to halt the erosion and movement of the river bank to preserve the structural integrity of the flood control levee. LID 7 is coordinating with City of Sugar Land, Fort Bend County, the Fort Bend County Toll Road Authority, LID 10, and others on this project. In addition, LID 7 is pursuing hazard mitigation funding and USACE CAP funds to pay for the project.

- Project Location: LID 7 (Sugar Land, TX)
- Project Cost: \$50,000,000 (estimated)
- Project Funding Source: Various sources (grants, bonds, USACE, etc.)
- Project Status: In progress

### **Project Name: Hazard Mitigation Plan**

LID 7 has begun the process of developing a district specific Hazard Mitigation Plan. The plan has been completed, has been through the TDEM review process, and is now with FEMA for final review and approval. Upon approval, LID 7 will be eligible to apply for FEMA hazard mitigation funding.

- Project Location: LID 7 (Sugar Land, TX)
- Project Cost: Not provided
- Project Funding Source: Existing budget
- Project Status: In progress

## In Progress Projects

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### **Project Name: Hydrology & Hydraulics (H&H) Study**

LID 7 is in the process of conducting a study that will develop a hydraulic model to produce results from Hurricane Harvey. Using this model and its results, LID 7 will address internal drainage improvements that are needed to meet current Fort Bend County Drainage District drainage criteria. This report will include recommendations for the sizing of additional detention and a second pump station within the district.

- Project Location: LID 7 (Sugar Land, TX)
- Project Cost: \$110,000
- Project Funding Source: Existing budget
- Project Status: In progress

### **Project Name: External Channel Improvements**

LID 7 is in the design and permitting process to repair and arrest erosion that is occurring in the district's external channel. This project will use natural channel design.

- Project Location: Within the current boundaries of the district (Sugar Land, TX)
- Project Cost: \$5,000,000
- Project Funding Source: NRCS grant, existing budget, or bonds
- Project Status: In progress

## **Fort Bend County LID 10**

### **Project Name: Detention Pond Slope Repair**

LID 10 is repairing slide slope sloughing on a detention pond within the district.

- Project Location: Detention Pond adjacent to the Recreation Center (Sugar Land, TX)
- Project Cost: \$450,000
- Project Funding Source: Existing budget
- Project Status: In progress

## **Fort Bend County LID 11**

### **Project Name: Back Up Sluice Gates**

LID 11 is in the process of adding sluice gates to the inside of each pump station's outfall as a back-up system to the existing flap gates.

- Project Location: Pump Stations No. 1 and 2 (Sugar Land, TX)
- Project Cost: \$ 1,795,361
- Project Funding Source: Bond
- Project Status: In progress

### **Project Name: Pump Station at Greatwood Forest Green**

LID 11 is in the design phase to construct a new pump station at Greatwood's Forest Green area.

- Project Location: Greatwood's Forest Green area (Sugar Land, TX)
- Project Cost: \$742,444.95
- Project Funding Source: Bond
- Project Status: In progress

## In Progress Projects

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### **Project Name: Levee Raising**

LID 11 is in the design phase to raise their levee to six inches above FEMA levee criteria, which would be two feet above the existing levee height. This project also includes deepening several ponds and the main channel within the district to increase the district's internal storage volume by 25 acre-feet.

- Project Location: LID 11 (Sugar Land, TX)
- Project Cost: \$1,687,000
- Project Funding Source: Various sources (LID 11 will fund their portion through bonds; LID 11 received \$800,001 from the Greatwood MUDs before they were dissolved; and MUD 116 will pay 22% of the project per a cost sharing agreement)
- Project Status: In progress

## **Fort Bend County LID 14**

### **Project Name: Pump Station Addition**

LID 14 is working to increase pumping capacity of its existing pump station by approximately 110,000 gallons per minute. (This amount could be increased and is under consideration by LID 14's Board of Directors.) This project will also add sluice gates to replace stop logs as an emergency backup. Project improvements also include new electrical controls, a natural gas generator, an expanded intake structure, additional discharge piping, and a building expansion to provide housing for emergency personnel during emergency response activities. This project is currently in the preliminary engineering stage.

- Project Location: Pump Station No. 1 on Dawnington Place (Sugar Land, TX)
- Project Cost: \$7,300,000
- Project Funding Source: Bond
- Project Status: In progress

### **Project Name: Temporary Pumps**

LID 14 is in the process of purchasing three Gator Pumps with approximately 30,000 gallons per minute of pumping capacity. The temporary pumps will increase the District's pumping capacity by over 100%.

- Project Location: LID 14 (Sugar Land, TX)
- Project Cost: \$111,500
- Project Funding: Existing Budget
- Project Status: In Progress

### **Project Name: Brazos River Erosion Monitoring**

LID 14 is monitoring the erosion of the river bank adjacent to the LID 14's south levee as well as along the oxbow lake near LID 14's pump station. The District has installed markers in these areas to track erosion.

- Project Location: LID 14's south levee (Sugar Land, TX)
- Project Cost: \$10,000
- Project Funding: Existing Budget
- Project Status: In Progress

# In Progress Projects

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## First Colony LID 2

### **Project Name: Gauge Installation**

FCLID 2 is working with the City of Sugar Land and the Harris County Flood Control District to install a gauge at FCLID 2's outfall.

- Project Location: FC LID 2 Pump Station (Sugar Land, TX)
- Project Cost: \$8,000 (estimate)
- Project Funding Source: Existing budget
- Project Status: In progress

### **Project Name: Stormwater Pump Station Improvements**

This project will add a third pump to the pump station at Avondale Drive, with the additional pumping capacity of 22,000 gallons per minute. The additional pump will be located in a separate wet well and will be lower than the existing pumps. This will improve the overall performance of the pumps by allowing FCLID 2 to begin pumping operations earlier and at a higher capacity than the existing system currently allows. Additionally, the project proposes to upgrade the existing generator with a new 450 kW natural gas generator and add an additional 450 kW diesel generator for backup. The electrical controls will be upgraded with the addition of the third pump and will be moved inside the storage building. The outfall from Alcorn Lake to the pump station will be replaced with a larger storm sewer to reduce the time it takes to gravity drain the lake and to provide the capacity necessary to run the pumps.

- Project Location: FC LID 2 Pump Station at Avondale Drive (Sugar Land, TX)
- Project Cost: \$2,150,600
- Project Funding Source: Existing budget
- Project Status: In progress

## Sienna Plantation LID

### **Project Name: External Sluice Gates**

Sienna Plantation LID is in the process of installing external sluice gates at the district's North Pump Station to replace damaged flap gates.

- Project Location: North Pump Station (Missouri City, TX)
- Project Cost: \$1,200,000
- Project Funding Source: Existing budget
- Project Status: In progress

### **Project Name: Internal Back-Up Sluice Gates at Outfall No. 2**

Sienna Plantation LID is currently installing internal back-up sluice gates at Outfall No. 2.

- Project Location: Outfall No. 2 (Missouri City, TX)
- Project Cost: \$300,000
- Project Funding Source: Existing budget
- Project Status: In progress

## In Progress Projects

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**Project Name: Internal Back-Up Sluice Gates at Woods Acreage Estates Outfall**  
Sienna Plantation LID is working to install internal back-up sluice gates at the Woods Acreage Estates Outfall.

- Project Location: Woods Acreage Estates Outfall (Missouri City, TX)
- Project Cost: \$350,000
- Project Funding Source: Existing budget
- Project Status: In progress

**Project Name: Main Channel Expansion (South Pump Station to Sienna Point)**  
Sienna Plantation LID is in the process of widening the bottom width of the main channel from 10 feet to 40-90 feet.

- Project Location: South Pump Station to Sienna Point (Missouri City, TX)
- Project Cost: \$3,600,000
- Project Funding Source: Bond
- Project Status: In progress

**Project Name: Pump Station No. 4 (Phase 1)**

Sienna Plantation LID is currently in the design phase of Phase 1 to build a fourth pump station with a pumping capacity of 270,000 gallons per minute per phase for a total of 540,000 gallons per minute.

- Project Location: Sienna Plantation LID (Missouri City, TX)
- Project Cost: \$14,000,000 (Phase 1)
- Project Funding Source: Bond or Existing budget
- Project Status: In progress

**Project Name: Vinyl Water Surface Gauge Panels**

Sienna Plantation LID is in the process of installing vinyl water surface gauge panels at the South Pump Station, Outfall No. 2, and the Wood Acreage Estates Outfall.

- Project Location: South Pump Station, Outfall No. 2, and the Wood Acreage Estates Outfall (Missouri City, TX)
- Project Cost: \$20,000
- Project Funding Source: Bond or Existing budget
- Project Status: In progress

**Project Name: Community Liaison Group**

Sienna Plantation LID is establishing a community liaison group to interact and communicate with the Sienna Plantation LID Board of Directors on a regularly scheduled basis.

- Project Location: Sienna Plantation (Missouri City, TX)
- Project Cost: N/A
- Project Funding Source: Existing budget
- Project Status: In progress

## In Progress Projects

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### **Project Name: Hazard Mitigation Plan**

Sienna Plantation LID is working to develop a Hazard Mitigation Plan. Once complete and approved by FEMA, Sienna Plantation LID will be eligible to apply for FEMA hazard mitigation funding.

- Project Location: Sienna Plantation LID (Missouri City, TX)
- Project Cost: \$100,000
- Project Funding Source: Existing budget
- Project Status: In progress

### **Project Name: SCADA Monitoring System**

Sienna Plantation LID is in the process of installing a SCADA monitoring system at each pump station within the district.

- Project Location: Sienna Plantation LID pump stations (Missouri City, TX)
- Project Cost: \$20,000
- Project Funding Source: Bond or Existing budget
- Project Status: In progress

## **Pecan Grove MUD**

### **Project Name: Levee Extension**

Pecan Grove MUD is working to extend its levee to surround the detention basin serving Plantation 4/5 within the Pecan Grove neighborhood.

- Project Location: North of Plantation Drive (Richmond, TX)
- Project Cost: Not provided
- Project Funding Source: Pending
- Project Status: In progress

## **Fort Bend County MUD 121**

### **Project Name: Levee Protection**

MUD 121 is working to build a series of weirs along the Brazos River to help redirect the flow back to the center of the river.

- Project Location: Just north of MUD 121's levee (Richmond, TX)
- Project Cost: \$7,560,000
- Project Funding Source: Bond
- Project Status: In progress

## **Fort Bend County MUD 145**

### **Project Name: Sluice Gate Installation**

MUD 145 is in the process of installing a manual sluice gate on the outfall to Jones Creek to isolate the outfall from the Rio Vista community's internal drainage system.

- Project Location: Outfall to Jones Creek (Richmond, TX)
- Project Cost: \$206,000
- Project Funding Source: Other
- Project Status: In progress

## In Progress Projects

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### **Project Name: Gabion Wing Wall Rehabilitation**

MUD 145 is in the process of rehabilitating the downstream wing wall of the gabion outfall structure that failed due to Hurricane Harvey flooding. This rehabilitation includes the replacement of an anchor mesh supported gabion wall with a gabion gravity wall.

- Project Location: Outfall to Jones Creek (Richmond, TX)
- Project Cost: \$500,000
- Project Funding Source: Grant
- Project Status: In progress

## PROPOSED PROJECTS

### **Fort Bend County LID 6**

#### **Project Name: West Levee Extension**

LID 6 proposes to extend the west end of its levee to the northwest (to tie into the natural ground elevation of 87.7ft) to provide additional protection from high water events along the Brazos River.

- Project Location: North of the Fort Bend County Justice Center (Richmond, TX)
- Project Cost: No provided
- Project Funding Source: To be determined (possibly shared between LID 6 and Fort Bend County)
- Project Status: Proposed

### **Fort Bend County LID 7**

#### **Project Name: Second Pump Station**

LID 7 proposes to build a second pump station for the district that will have the capacity to pump 160,000 gallons per minute.

- Project Location: Within the district (Sugar Land, TX)
- Project Cost: \$8,000,000
- Project Funding Source: Bond
- Project Status: Proposed

#### **Project Name: Additional Detention**

LID 7 proposes to add approximately 100 acre feet of detention to the district's internal drainage system.

- Project Location: Within or adjacent to the current district boundaries (Sugar Land, TX)
- Project Cost: Not provided
- Project Funding Source: Bond
- Project Status: Proposed

### **Fort Bend County LID 11**

#### **Project Name: Pump Station No. 1 Expansion**

LID 11 proposes to expand the capacity of their Pump Station No. 1 by constructing a new pump station at this location.

- Project Location: Pump Station No. 1 (Sugar Land, TX)
- Project Cost: \$5,993,440
- Project Funding Source: Bond (Project cost also shared with MUD 116)
- Project Status: Proposed

## Proposed Projects

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### **Project Name: Pump Station No. 2 Expansion**

LID 11 proposes to expand the capacity of their Pump Station No. 2 by constructing a new pump station at this location.

- Project Location: Pump Station No. 2 (Sugar Land, TX)
- Project Cost: \$3,710,040
- Project Funding Source: Bond
- Project Status: Proposed

### **Project Name: TXDOT Storm Sewer Sluice Gates**

LID 11 proposes to install sluice gates on storm sewers at two locations along TXDOT roads within the district.

- Project Location: North side of LID 11 along I-69 (Sugar Land, TX)
- Project Cost: \$691,450
- Project Funding Source: Bond (Project cost will be shared with MUD 116 at the west location)
- Project Status: Proposed

## **Fort Bend County LID 14**

### **Project Name: Hydraulic Study**

LID 14 proposes to complete a hydraulic study of the District's drainage system under several rainfall scenarios (recently released Atlas 14 100-year event as well as current 10-year, 50-year, 100-year and 500-year criteria). LID 14 will use this analysis to evaluate options for expansion of permanent pumping capacity.

- Project Location: LID 14
- Project Cost: \$16,250
- Project Funding: Existing Budget
- Project Status: Proposed

## **Fort Bend County LID 15**

### **Project Name: Hageron Road Storm Water Pump Station**

LID 15 proposes to construct a new storm water pump station to service the Snake Slough watershed. The pump station will allow for a pumping capacity of 50,000 gallons per minute and will have natural gas backup power. The project has been designed and will be sent out to bid in October 2018.

- Project Location: South of Hageron Road, approximately 2300 feet west of LJ Parkway (Sugar Land, TX)
- Project Cost: \$2,600,000
- Project Funding Source: Bond
- Project Status: Proposed

## Proposed Projects

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### **Project Name: Hagerson Road Interconnect**

LID 15 proposes the construction of a watershed interconnect that would tie the Steep Bank Creek watershed to the Snake Slough watershed. The connection will normally be closed, but can be opened in times of emergency to provide relief for one system or the other. The project will be put out for bid in October 2018.

- Project Location: North side of Hagerson Road west of LJ Parkway (Sugar Land, TX)
- Project Cost: \$1,200,000
- Project Funding Source: Bond
- Project Status: Proposed

### **Project Name: University Boulevard Interconnect**

LID 15 proposes the construction of a watershed interconnect that would tie the Steep Bank Creek watershed to the Alcorn Bayou watershed. The connection would be via underground storm sewer. The connection will normally be closed, but can be opened in times of emergency to provide relief for one system or the other.

- Project Location: University Boulevard west of LJ Parkway (Sugar Land, TX)
- Project Cost: \$600,000
- Project Funding Source: Bond
- Project Status: Proposed

### **Project Name: Levee Hard Surfacing**

LID 15 proposes to “hard surface” its levee top for access in and around the levee district during flooding situations. The hard surface would also provide a path to move emergency operations equipment and materials to areas should the need arise without damaging the levee top.

- Project Location: LID 15 levee top (Sugar Land, TX)
- Project Cost: \$1,600,000
- Project Funding Source: Bond
- Project Status: Proposed

### **Project Name: Emergency Operations Center**

LID 15, in conjunction with LID 19, proposes to construct an emergency operations center at the Alcorn Bayou Pump Station within the Riverstone master planned community. The operators for LID 15 and LID 19 will be able to monitor all pump stations and water levels from this on-site location.

- Project Location: Alcorn Bayou Pump Station (Sugar Land, TX)
- Project Cost: \$700,000
- Project Funding Source: Bond
- Project Status: Proposed

# Proposed Projects

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## Fort Bend County LID 17

### **Project Name: Drainage Facility Improvements**

LID 17 has several proposed improvements for its drainage facility including installing sluice gates at Pump Stations 1 and 2, the installation of flap gates on storm sewer outfalls to Bullhead Bayou, and the main lake weir wall diversion (emergency lowering of water in the amenity lake system to provide additional storage volume in an emergency event). LID 17 authorized the engineering for these improvements at its most recent meeting.

- Project Location: Various locations within LID 17 (Sugar Land, TX)
- Project Cost: \$2,500,000
- Project Funding Source: Existing budget
- Project Status: Proposed

### **Project Name: Pumping Capacity Addition at Pump Stations 1 & 2**

LID 17 proposes to add additional pumping capacity at both of its pump stations. LID 17 is still evaluating the desired additional pumping capacity, which could vary from 10,000 gallons per minute up to approximately 160,000 gallons per minute.

- Project Location: Various locations within LID 17 (Sugar Land, TX)
- Project Cost: \$4,500,000
- Project Funding Source: To be determined
- Project Status: Proposed

## Fort Bend County LID 19

### **Project Name: Steep Bank Creek Pump Station Expansion**

LID 19 proposes to expand the pumping capacity of the Steep Bank Creek pump station by at least 40,000 gallons per minute.

- Project Location: Steep Bank Creek Pump Station at Thompson Ferry Rd (Sugar Land, TX)
- Project Cost: \$2,000,000 (estimated)
- Project Funding Source: Bond
- Project Status: Proposed

### **Project Name: Levee Hard Surfacing**

LID 19 proposes to “hard surface” its levee top for access in and around the levee district during flooding situations. The hard surface would also provide a path to move emergency operations equipment and materials to areas should the need arise without damaging the levee top.

- Project Location: LID 19 levee top (Sugar Land, TX)
- Project Cost: \$1,900,000
- Project Funding Source: Bond
- Project Status: Proposed

# Proposed Projects

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## Fort Bend County LID 20

### **Project Name: Emergency Access Road**

LID 20 proposes to build an emergency, one-way access road from the north side of the district's levee at Wembley Way to FM 723 after construction of Kingdom Heights Section Five.

- Project Location: Northwest corner of LID 20 at FM 723 (Rosenberg, TX)
- Project Cost: \$120,000
- Project Funding Source: Unknown
- Project Status: Proposed

### **Project Name: Levee Raising**

LID 20 will raise its levee 0.1' for a 100 foot stretch at the intersection of the district's levee and Kingdom Heights Boulevard. LID 20 is currently waiting on dry weather to begin this project.

- Project Location: Kingdom Heights Boulevard and the LID 20 levee (Rosenberg, TX)
- Project Cost: \$12,000
- Project Funding Source: Existing budget
- Project Status: Proposed

## First Colony LID 1

### **Project Name: Various projects**

First Colony LID has several proposed projects including a new pump station to be shared with LIDs 15 and 19; Flat Bank Creek Closure/Pump Station with multiple entities; adding volume to ponds south of SH 6; adding volume to Ditch B (north of SH 6); raising/cleaning up the levee top slopes to "refresh" conditions; and small maintenance projects to aid in levee operations.

- Project Location: Various locations within FCLID 1 (Sugar Land, TX)
- Project Cost: Not provided
- Project Funding Source: Various sources
- Project Status: Proposed

## Sienna Plantation LID

### **Project Name: Channel 4 Widening**

Sienna Plantation LID proposes to widen the bottom width of Channel 4 from 10 feet to 50 feet.

- Project Location: Channel 4 (Missouri City, TX)
- Project Cost: \$7,900,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

### **Project Name: Channel 1 Detention Facility**

Sienna Plantation LID proposes to construct a detention facility for Channel 1.

- Project Location: Channel 1 (Missouri City, TX)
- Project Cost: \$9,400,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

# Proposed Projects

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## **Project Name: 600 Acre-foot Regional Storage Facility**

Sienna Plantation LID proposes to construct a 600 acre-foot storage facility to complete their required storage requirements per their MDP.

- Project Location: Sienna Plantation LID (Missouri City, TX)
- Project Cost: \$8,000,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Pump Station No. 4 (Phase 2)**

Sienna Plantation LID proposes to complete the build out of a fourth pump station pending the completion of Phase 1 of this project. (Phase 1 is currently in progress.)

- Project Location: Sienna Plantation LID (Missouri City, TX)
- Project Cost: \$9,600,000 (Phase 2)
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Internal Back-Up Sluice Gates at South Pump Station**

Sienna Plantation LID proposes to install internal back-up sluice gates at the South Pump Station.

- Project Location: South Pump Station (Missouri City, TX)
- Project Cost: \$1,700,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Internal Back-Up Sluice Gates at North Pump Station**

Sienna Plantation LID proposes to install internal back-up sluice gates at the North Pump Station.

- Project Location: North Pump Station (Missouri City, TX)
- Project Cost: \$1,900,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Flap Gate at Oyster Creek South Outfall**

Sienna Plantation LID proposes to install a flap gate at the Oyster Creek South Outfall.

- Project Location: Oyster Creek South Outfall (Missouri City, TX)
- Project Cost: \$260,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Pump Station Conversion**

Sienna Plantation LID proposes to install a storm water pump station at the Woods Acreage Estates Outfall Structure.

- Project Location: Woods Acreage Estates Outfall Structure (Missouri City, TX)
- Project Cost: \$2,100,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

# Proposed Projects

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## **Project Name: Revised Operational Schedule**

Sienna Plantation LID proposes to revise the operational schedule at Long Point Slough and Oyster Creek in order to close gates more efficiently during river events.

- Project Location: Long Point Slough and Oyster Creek (Missouri City, TX)
- Project Cost: \$10,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Revise Plan of Reclamation**

Sienna Plantation LID proposes to revise its current Plan of Reclamation to update the requirements for gate closures at Long Point Slough and Oyster Creek.

- Project Location: Sienna Plantation LID (Missouri City, TX)
- Project Cost: \$10,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Tiger Dam Implementation Procedures**

Sienna Plantation LID proposes to develop specific operational procedures for the implementation of Tiger Dams to protect the southeast segment of the south levee system.

- Project Location: Sienna Plantation LID (Missouri City, TX)
- Project Cost: \$10,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Water Surface Monitoring Equipment**

Sienna Plantation LID proposes to install internal and external water surface monitoring equipment at strategic locations inside and outside the District.

- Project Location: District Outfall Structures (Missouri City, TX)
- Project Cost: \$45,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Rainfall Monitoring Equipment**

Sienna Plantation LID proposes to install rainfall monitoring equipment at District Outfall Structures.

- Project Location: District Outfall Structures (Missouri City, TX)
- Project Cost: \$15,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Pump Station Flood Protection Wall**

Sienna Plantation LID proposes to construct a flood protection wall or levee around all pump station electrical controls and generators.

- Project Location: Sienna Plantation LID Pump Stations (Missouri City, TX)
- Project Cost: \$1,200,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

# Proposed Projects

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## **Project Name: Outfall No. 2 Conversion**

Sienna Plantation LID proposes to convert Outfall No. 2 to a pumping station with a pumping capacity of 400,500 gallons per minute.

- Project Location: Outfall No. 2 (Missouri City, TX)
- Project Cost: \$15,600,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Slope Paving**

Sienna Plantation LID proposes to slope pave the external face of the Sienna Plantation levee along the Brazos River.

- Project Location: External levee along the Brazos River (Missouri City, TX)
- Project Cost: \$10,000,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Internal Drainage Improvements**

Sienna Plantation LID proposes to implement improvements to the Sienna Point internal drainage system.

- Project Location: Sienna Point (Missouri City, TX)
- Project Cost: \$3,000,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: Lighting Installation**

Sienna Plantation LID proposes to install lighting at all pump stations and major outfall structures/gates.

- Project Location: Sienna Plantation LID pump stations and outfall structures/gates (Missouri City, TX)
- Project Cost: \$600,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: North Pump Station Access Improvements**

Sienna Plantation LID proposes to expand the working area of the North Pump Station and improve access to the pump station.

- Project Location: North Pump Station (Missouri City, TX)
- Project Cost: \$1,300,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## **Project Name: South Pump Station Access Improvements**

Sienna Plantation LID proposes to expand the working area of the South Pump Station and improve access to the pump station.

- Project Location: South Pump Station (Missouri City, TX)
- Project Cost: \$2,600,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## Proposed Projects

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### **Project Name: Brazos River Erosion Project**

Sienna Plantation LID proposes to participate in a project that will work to restore and prevent river erosion along the Brazos River where and ox-bow is encroaching towards the southern levee.

- Project Location: Sienna Plantation LID (Missouri City, TX)
- Project Cost: \$15,000,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

### **Project Name: Channel 1 Widening**

Sienna Plantation LID proposes to widen Channel 1 from Scanlan Road to the Main Channel.

- Project Location: Channel 1 (Missouri City, TX)
- Project Cost: \$2,300,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

### **Project Name: Main Channel Widening**

Sienna Plantation LID proposes to widen the main channel along Sienna Point

- Project Location: Main Channel (Missouri City, TX)
- Project Cost: \$4,500,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

### **Project Name: Gulf Coast Water Authority Sluice Gates**

Sienna Plantation LID proposes to install Back-up Sluice Gates on the GCWA Canal Levee Structure at Sienna Parkway.

- Project Location: Sienna Parkway Structure (Missouri City, TX)
- Project Cost: \$500,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

### **Project Name: Gulf Coast Water Authority (GCWA) Pump House Sluice Gates**

Sienna Plantation LID proposes to install gate valves or sluice gates at the GCWA pump house to prevent Brazos River infiltration.

- Project Location: GCWA Pump House (Missouri City, TX)
- Project Cost: \$250,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

### **Project Name: Flat Bank Creek Clean Out**

Sienna Plantation LID proposes to clean out all vegetation from Flat Bank Creek and regrade slopes to increase conveyance and prevent vegetation from damaging pump station outfall structure.

- Project Location: Flat Bank Creek (Missouri City, TX)
- Project Cost: \$2,600,000
- Project Funding Source: Bond or Existing budget
- Project Status: Proposed

## Proposed Projects

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### Fort Bend County MUD 46

#### Project Name: Pump Station

MUD 46 proposes build a small pump station on top of its levee by its gate.

- Project Location: Pump Station #1, on the top of the levee by the gate (Missouri City, TX)
- Project Cost: Unknown
- Project Funding Source: Bond
- Project Status: Proposed

### City of Richmond

#### Project Name: Street Elevation

The City of Richmond proposes to raise approximately 1,000 feet of roadway by 3 feet on Second Street to create a natural barrier to the Brazos River, which floods when the river gets above major flood stage. This project would also install a flood gate at the outfall on Second Street and install a storm water pump station inside the detention area upstream of the flood gate to mitigate localized flooding when the river is at flood stage.

- Project Location: 200 Block of North Second Street (Richmond, TX)
- Project Cost: \$2,100,000
- Project Funding Source: Grant
- Project Status: Proposed

### Fresh Water Supply District No. 2

#### Project Name: Water Plant Elevation

Fresh Water Supply District No. 2 proposes to elevate the mechanical, electrical, and disinfection facilities of its water plant to above the 100 year floodplain.

- Project Location: Rio Brazos Water Plant, 940 Cummings Road (Rosenberg, TX)
- Project Cost: \$320,000
- Project Funding Source: FEMA grant
- Project Status: Proposed

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## RESPONDENTS TO SURVEY

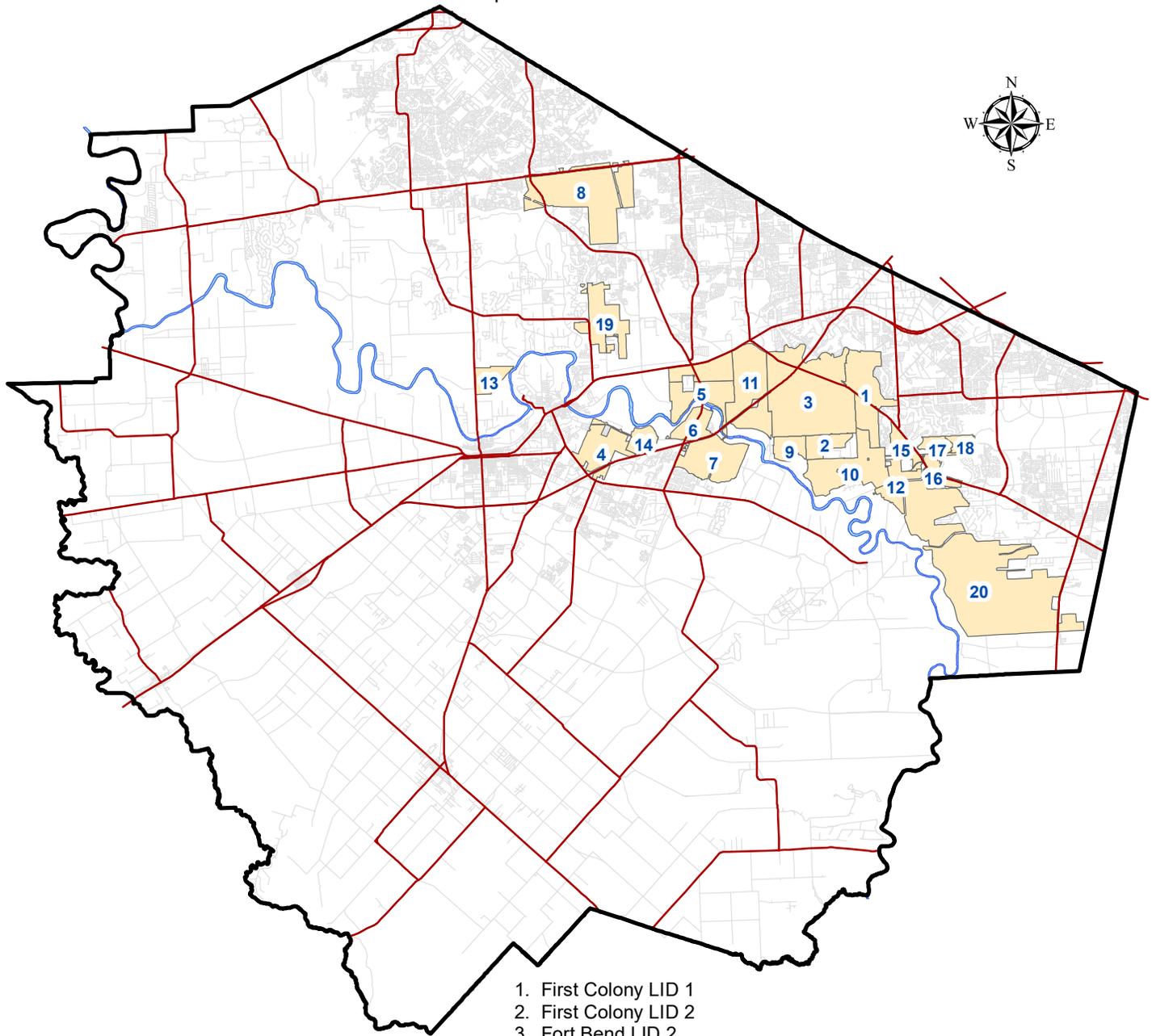
The following lists denote which LIDs and MUDs replied to the Flood Mitigation Project Survey, even if it was to state that no projects have been completed, are in progress, or are proposed.

### Levee Improvement Districts:

| Replied to Survey | LID Name  |
|-------------------|---|
| ✓                 | Fort Bend LID #2 (Sugar Land, First Colony, Sweetwater) |
| ✓                 | Fort Bend LID #6 (FBC Justice Center, Del Webb)         |
| ✓                 | Fort Bend LID #7 (New Territory)                        |
| ✓                 | Fort Bend LID #10 (River Park)                          |
| ✓                 | Fort Bend LID #11 (Greatwood)                           |
| ✓                 | Fort Bend LID #12 (Cinco Ranch)                         |
| ✓                 | Fort Bend LID #14 (Avalon)                              |
| ✓                 | Fort Bend LID #15 (Riverstone)                          |
| ✓                 | Fort Bend LID #17 (Telfair)                             |
| ✓                 | Fort Bend LID #19 (Riverstone)                          |
| ✓                 | Fort Bend LID #20                                       |
| ✓                 | First Colony LID #1 (Sugar Land)                        |
| ✓                 | First Colony LID #2 (Sugar Land)                        |
| ✓                 | Sienna Plantation                                       |
| ✓                 | Palmer Plantation MUD 1                                 |
| ✓                 | Palmer Plantation MUD 2                                 |
| ✓                 | Pecan Grove MUD   |
| ✓                 | Fort Bend MUD 46  |
| ✓                 | Fort Bend MUD 49  |
| ✓                 | Fort Bend MUD 121                                       |

# Fort Bend County MUDs and LIDs with Levee Operations

Updated: 11/2/2018



1. First Colony LID 1
2. First Colony LID 2
3. Fort Bend LID 2
4. Fort Bend LID 6
5. Fort Bend LID 7
6. Fort Bend LID 10
7. Fort Bend LID 11
8. Fort Bend LID 12
9. Fort Bend LID 14
10. Fort Bend LID 15
11. Fort Bend LID 17
12. Fort Bend LID 19
13. Fort Bend LID 20
14. Fort Bend MUD 121
15. Fort Bend MUD 46
16. Fort Bend MUD 49
17. Palmer Plantation MUD 1
18. Palmer Plantation MUD 2
19. Pecan Grove MUD
20. Sienna Plantation LID

## Legend

-  Roads
-  Highways
-  Brazos River
-  MUDs/LIDs
-  County Line

**Fort Bend County  
Emergency Management**  
307 Fort Street  
Richmond, TX 77469  
281.342.6185



## Respondents to Survey

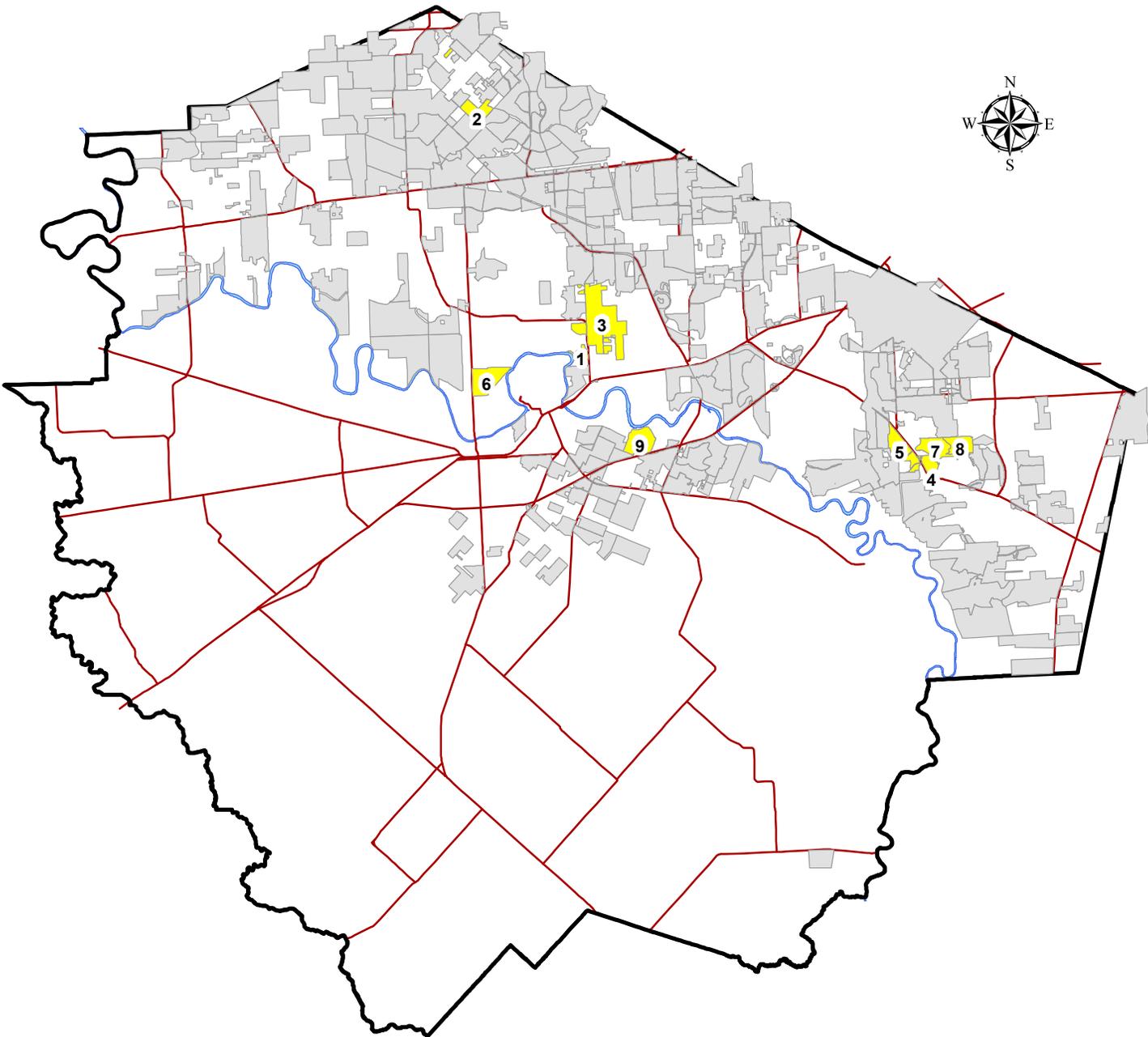
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### Municipal Utility Districts:

| Replied to Survey | LID Name                |
|-------------------|-------------------------|
| ✓                 | Palmer Plantation MUD 1 |
| ✓                 | Palmer Plantation MUD 2 |
| ✓                 | Pecan Grove MUD         |
| ✓                 | MUD 46                  |
| ✓                 | MUD 49                  |
| ✓                 | MUD 121                 |
| ✓                 | MUD 145                 |
| ✓                 | MUD 176                 |
| ✓                 | MUD 185                 |

# Responses from Fort Bend County MUDs

Updated: 11/2/2018



- 1. Fort Bend MUD 145
- 2. Fort Bend MUD 185
- 3. Pecan Grove MUD
- 4. Fort Bend MUD 49
- 5. Fort Bend MUD 46
- 6. Fort Bend MUD 176
- 7. Palmer Plantation MUD 1
- 8. Palmer Plantation MUD 2
- 9. Fort Bend MUD 121

**Legend**

-  MUD Responses
-  Highways
-  Brazos River
-  County Line

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