



# **Galveston County Consolidation Drainage District's (GCCDD)**

**Goal, Maintenance, and Projects**



# Goal

- ▶ Maintain zero net increase in runoff due to development. Construct and maintain facilities that will contain a 100 year storm runoff in the Clear Creek and Dickinson Bayou watershed which includes the following:

Clear Creek

Medera Ditch

Chigger Creek

Dickinson By-Pass

Cowards Creek

White Hall/Anna Lea Ditch

Mary's Creek

Eagle Creek

Coyote Creek

Mustang Ditch

Box Ditch

Your Ditch

Dickinson Bayou

Lundy Ditch

Volmar Ditch



# Maintenance

- Mowing & Spraying
  - Clearing Obstruction & Desnagging
  - Desilting
  - Erosion Prevention
  - Erosion Repair
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# Maintenance

## Mowing & Spraying



- Mowing and spraying 160 miles of creeks and 180 acres of detention basins are significant activities for GCCDD.
- Mowing and spraying up to 50 feet on both creek banks is done to control vegetation that can restrict water flow.

# Maintenance

## Removing Obstructions & Desnagging



- ▶ Places like the foot bridge across Mary's Creek accumulate debris and requires cleaning to maintain maximum water flow.

# Maintenance

## Desilting



- After years, dirt in the storm water will settle on the bottom of drainage ditches. This requires silt removal to maintain the water flow capacity of the ditches.

# Maintenance

## Erosion Prevention



- ▶ When a creek makes a severe directional change, it can result in bank erosion.
- ▶ Various methods are used to prevent bank erosion. An example of erosion prevention is the concreted bank on Coward's Creek.

# Maintenance

## Erosion Repair



- The low water crossing on Mary's Creek has failed resulting in significant erosion of the bank.
- The eroded bank will be repaired using packed clay.
- A single span bridge will be built to replace the low water crossing.



# Projects

- Development Standards
- Development Reviews Approval
- Purchasing Land for Detention Opportunity
- Baker Road Regional Detention Basin
- Chigger Creek Regional Detention
- Harold Whitaker Storm Water Detention Basin at 1776 Park
- Clearview Detention Basin
- Mary's Creek foot bridge replacement
- FM 1959 Detention Basin
- Cooperate with other governmental bodies to improve drainage

# Projects

## Development Standards

**GALVESTON COUNTY  
CONSOLIDATED DRAINAGE DISTRICT  
(GCCDD)**

**DRAINAGE CRITERIA MANUAL**



Approved: January 26, 2021  
Effective: January 29, 2021

- GCCDD has developed a set of engineering storm water drainage standards that developers must follow to ensure that no new development project increase storm water flow to the creeks.

# Projects

## Development Reviews & Approval



- ▶ The GCCDD's Manager, Engineers, and Directors meet every 2<sup>nd</sup> and 4<sup>th</sup> Tuesday of the month to review, comment on, approve or deny new construction projects for compliance with the GCCDD Engineering standard requirements.

# Projects

## Purchasing Land for Detention Opportunity



- The City of Friendswood and GCCDD look for opportunities to purchase land on the creeks that will provide additional storm water storage.
- Most of the existing land used for storm water storage was purchased via the flood buy out program, which includes the Clearview and Harold Whitaker Storm Water Detention areas.

# Projects

## Baker Road Regional Detention Basin



- ▶ The storm water basin is located on Coward's Creek. It was built and is managed by the GCCDD.
- ▶ The basin can hold 300 acre feet of water. An acre foot is the amount of water required to cover 1 acre of land 1 foot deep.
- ▶ The basin is an example of off-line storm water storage. Off-line storage allows flood stage creek water to enter the basin and remain captured until the flooding threat has decreased. Then the water is allowed to flow back into the creek.

# Projects

## Chigger Creek Regional Detention Basin



- The 33 acre basin was built and is managed by the GCCDD.
- The basin has a capacity of 250 acre feet of water.
- Chigger Creek Basin is an off-line storm water storage facility which captures water during creek flooding and release it when the flooding threat has dissipated.

# Projects

## Harold Whitaker Storm Water Basin



- This Clear Creek in-line storage area was a joint effort between the City of Friendswood and the GCCDD. It was built by removing 110,000 truck loads of dirt. The resulting capacity is 800 acre feet of storage.
- In-line storage is achieved by lowering the creek bank to the ordinary high water level and moving the bank away from the creek channel.

# Projects

## Clearview Detention Basin



- ▶ The south bank of Clear Creek at the end of Clearview is being lowered to the normal high water level and moved away from the creek channel.
- ▶ 40 acre feet of in-line storage is achieved by this project.

# Projects

## Mary's Creek Foot Bridge Replacement



- ▶ Since the existing Mary's Creek foot bridge accumulates debris, it needs to be replaced with a higher free span bridge to ensure maximum creek flow.

# Projects

## Quakers Landing Project



- ▶ The project will remove dirt and vegetation from Galveston County side of Clear Creek, which will move the bank away from the creek bed allowing for 20-acre ft. of inline storage.

# Projects

## FM 1959 Road Detention Basin

- The FM 1959 storm water storage project is an off-line storage project achieved by removing trees, bushes, and dirt from the Harris County side of Clear Creek located between FM 1959 and Timber Creek Golf Course.
- It will provide approximately 1,000-1,800-acre feet of storm water storage which will double the current GCCDD detention storage capacity.
- Other Partners involved in the project are:
  - Harris County Drainage District
  - City of Friendswood
  - Galveston County



# Potential Future Projects for Clear Creek totaling \$135,250,000

- ▶ Forest of Friendswood Detention Pond - \$10,000,000
- ▶ Clearing and De-snagging - \$1,000,000
- ▶ Clear Creek Slope Improvements
  - ▶ Phase 1 – FM 2351 to Second Detention Pond - \$10,000,000
  - ▶ Phase 2 – Second Detention Pond to Golf Course - \$25,000,000
  - ▶ Phase 3 – Golf Course to Banfield's - \$35,000,000
  - ▶ Phase 4 – Banfield's to Dixie Farm Road - \$45,000,000
  - ▶ Phase 5 – Downstream of Whispering Pines - \$5,500,000
  - ▶ Phase 6 – FM 1959 Detention - \$3,750,000



# Potential Future Projects for Coward's Creek

## - \$5,000,000

- Slope repairs upstream of Baker Road - \$350,000
- Slope repairs downstream of Baker Road - \$350,000
- Slope repair at the Nye property - \$300,000
- Slope repairs upstream of FM 518 - \$350,000
- Slope repairs downstream of Castlewood - \$400,000
- Russo property in-line detention - \$2,000,000
- Shadwell property in-line detention - \$1,250,000



# Potential Future Projects for Chigger Creek

## - \$2,500,000

- ▶ Slope repairs downstream of St. Cloud to Windsong - \$425,000
- ▶ Slope repairs downstream of Windsong to Greenbriar - \$525,000
- ▶ Slope repairs of Greenbriar to FM 528 - \$300,00
- ▶ Slope repairs downstream of FM 528 to FM 518 - \$425,000
- ▶ Improvements downstream of FM 518 to Oak Drive - \$325,000
- ▶ Improvements downstream of Oak Drive to Clear Creek - \$500,000



# Potential Future Projects Mary's Creek - \$2,525,000

- Slope repairs from FM 2351 downstream - \$1,500,000
- Baptist Church Improvements - \$500,00
- Slope repairs upstream of FM 2351 to Dunbar - \$525,000



# Projects



- ▶ Cooperation with other governmental entities to improve drainage:
  - ▶ City of Friendswood
  - ▶ City of League City
  - ▶ City of Pearland
  - ▶ City of Dickinson
  - ▶ City of Santa Fe
  - ▶ Galveston County
  - ▶ Harris County
  - ▶ Brazoria County Drainage District 4
  - ▶ Corp of Engineers
  - ▶ TxDOT