

**Roberto Vega**

**Harris County Flood Control District  
Stormwater Quality Department**

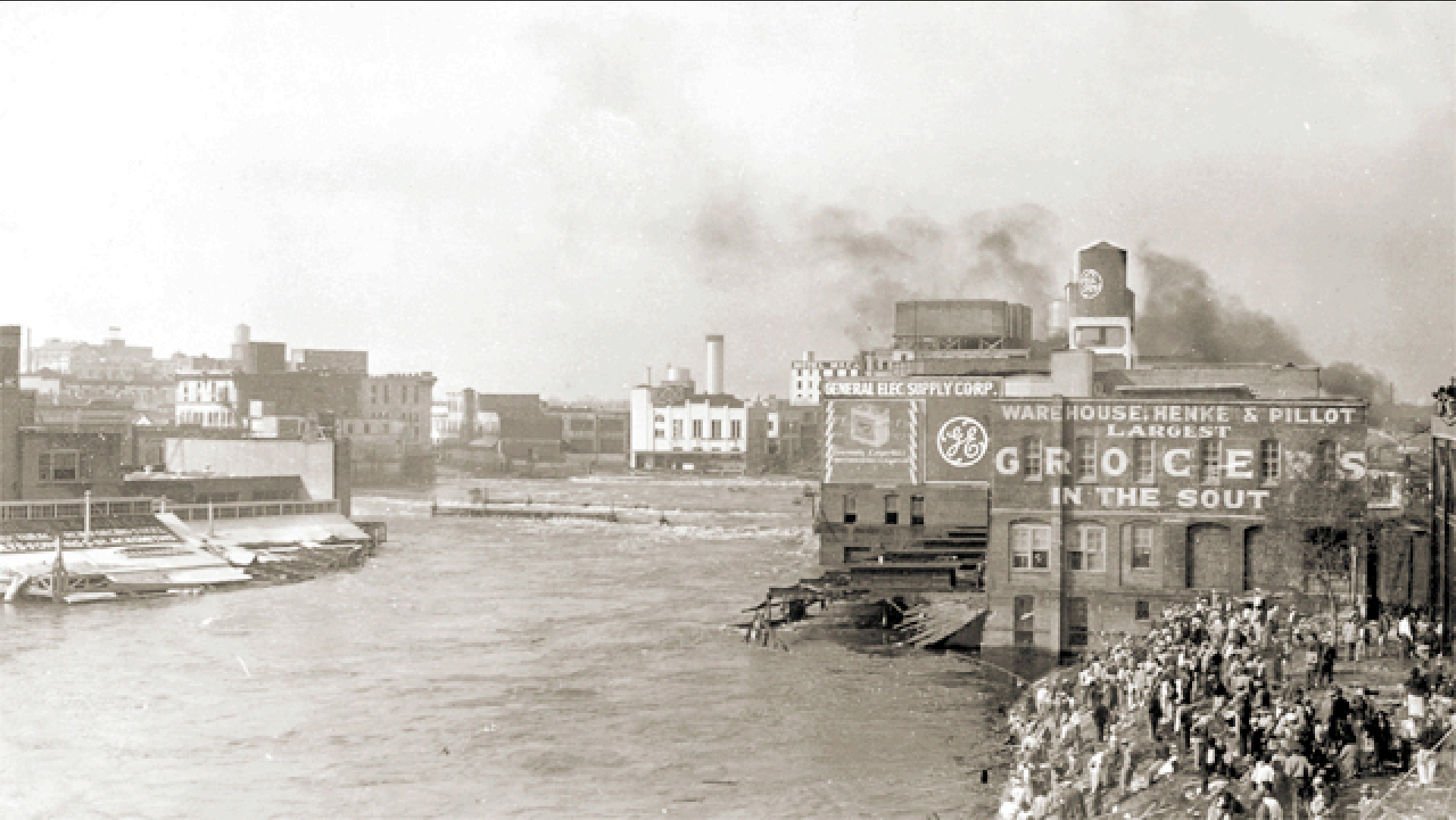
Urban Riparian Symposium – April 1, 2020

A silhouette of tall grasses or reeds in the bottom right corner of the slide, set against a light green background.

# Flood Damage Reduction and Water Quality

- Overview of HCFCD
- Watersheds
- Environmental Services
- Capital Projects
- Permitting
- Natural Stable Channel Design





# 1937

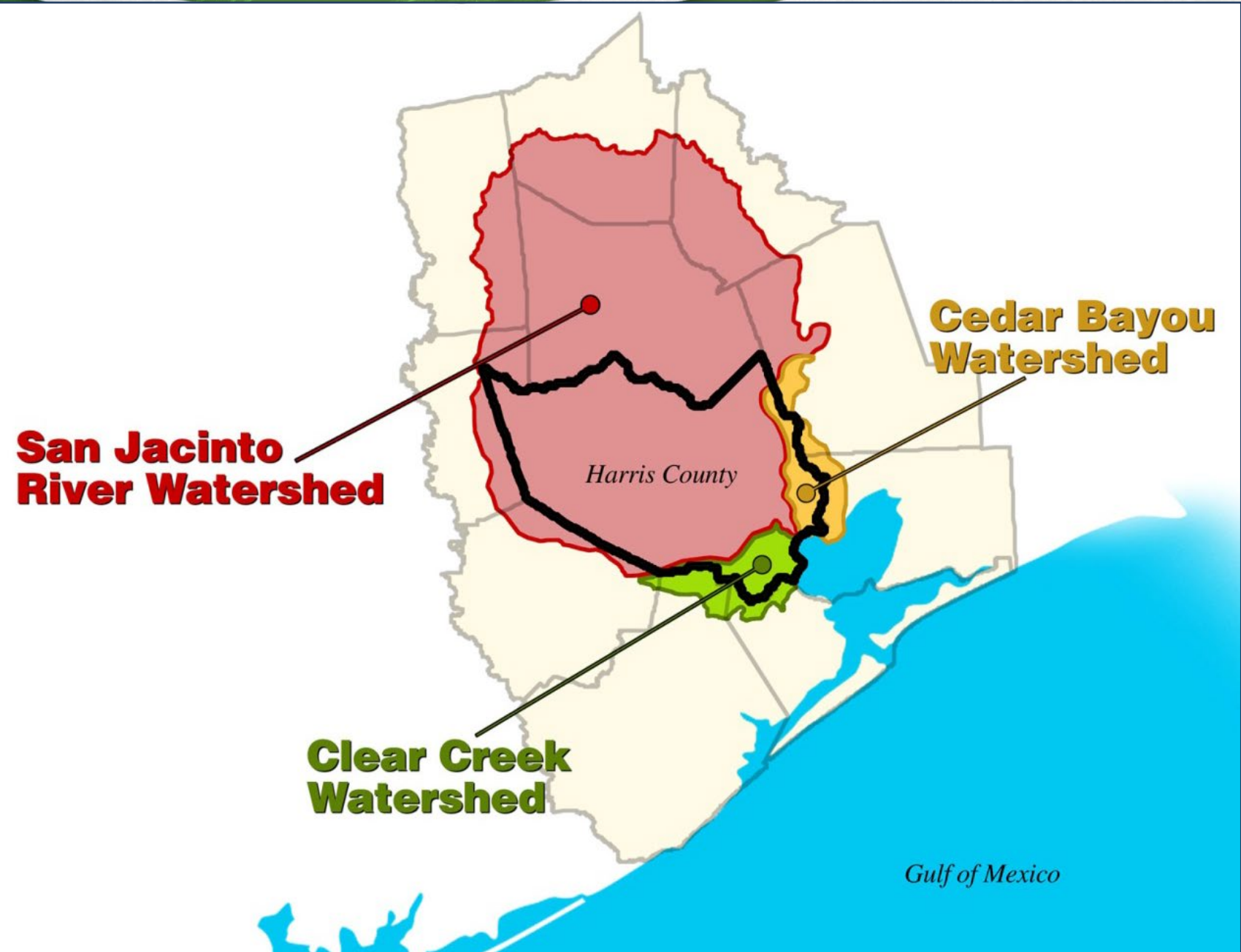


# The District is Created

# Our Mission

- Provide flood damage reduction projects that work, with appropriate regard for community and natural values.

# Harris County Watersheds



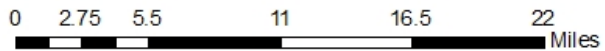
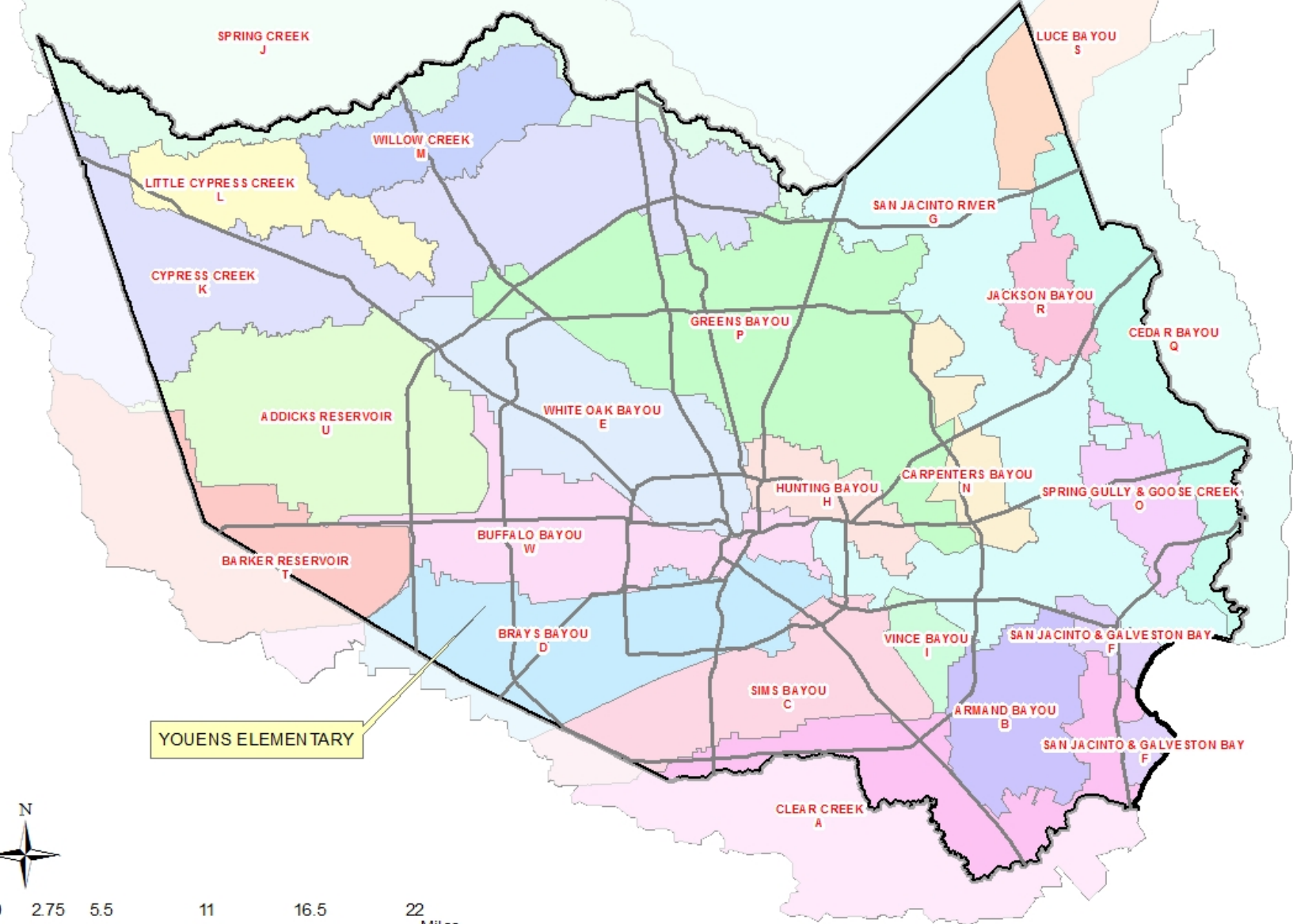
**San Jacinto  
River Watershed**

**Cedar Bayou  
Watershed**

**Clear Creek  
Watershed**

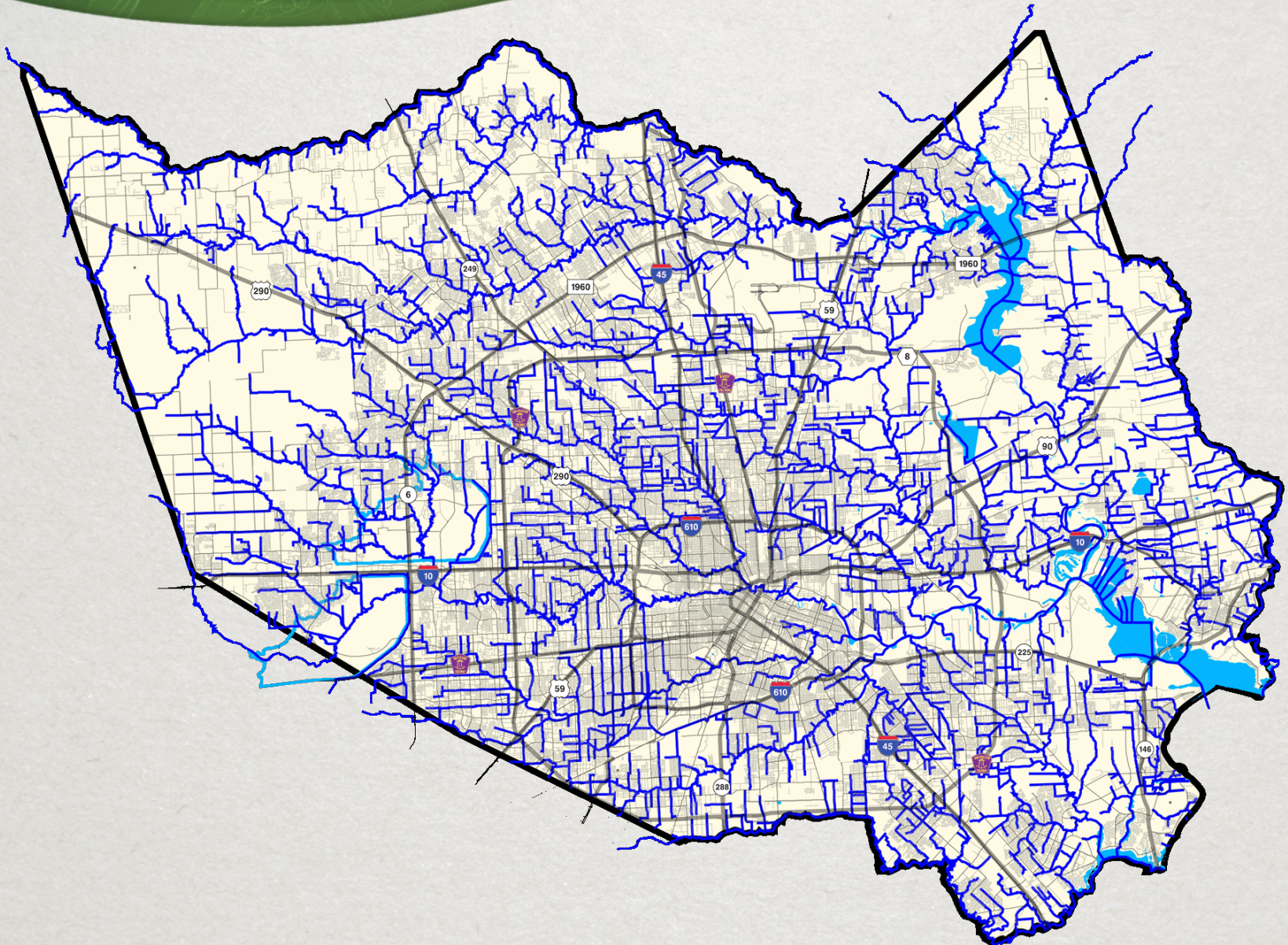
*Gulf of Mexico*

# HARRIS COUNTY WATERSHEDS





# Total Drainage Network



# Harris County Flood Control District

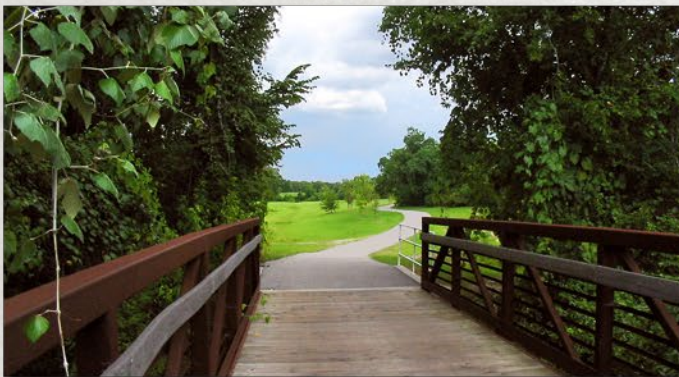
## Flood Damage Reduction with Ecosystem Services:

- Detention Volume Requirements
- Base flow Input
- Available Land – ROW
- Multiuse facilities
- Aesthetics
- Intent
- Price Tag

# Channels



# Detention Basins





# Erosion Repair



# Turf Establishment



# Wetlands Planting

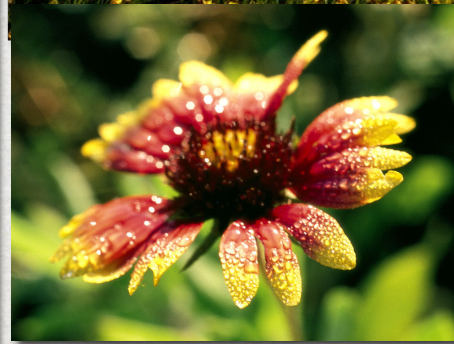
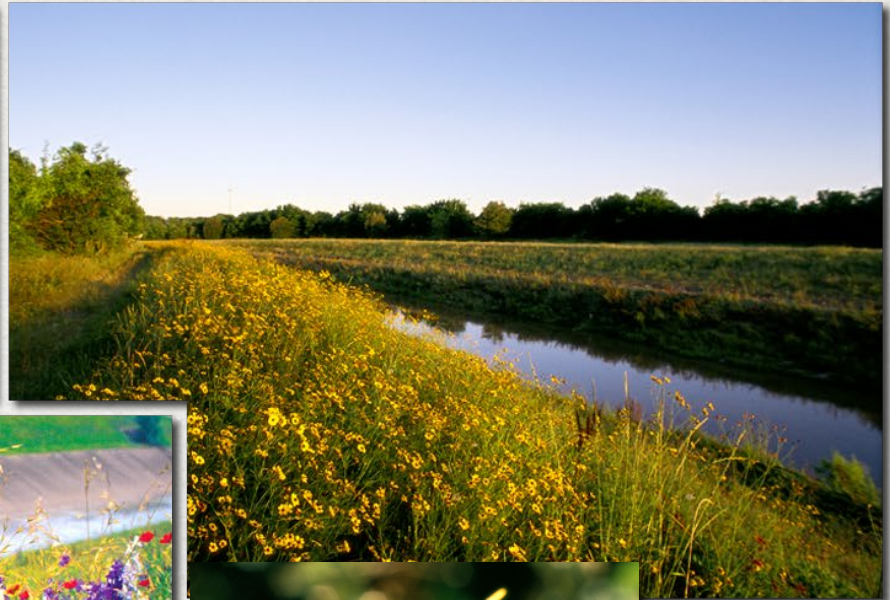




# Tree Planting



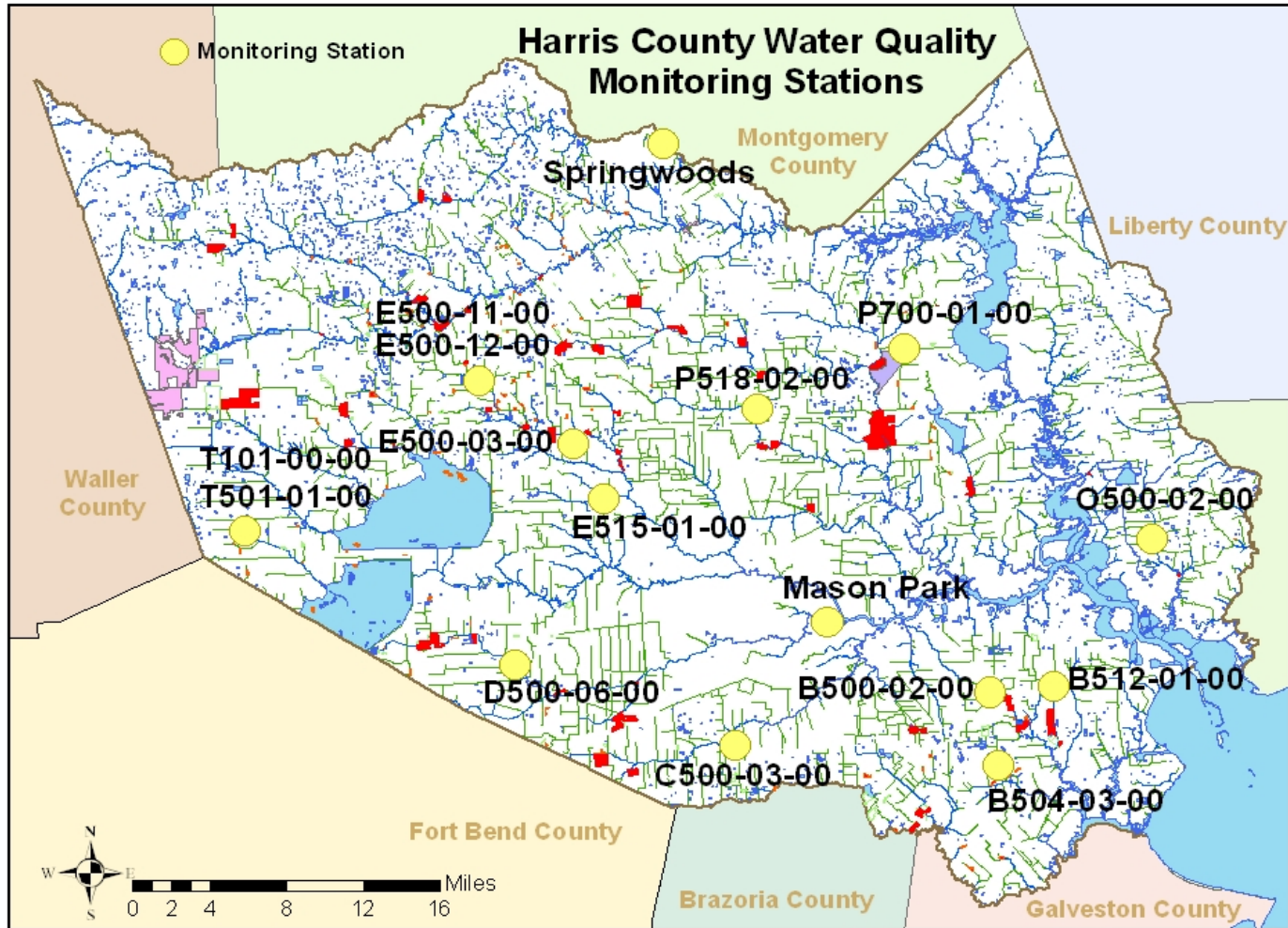
# Wildflower Planting



# Trails



# Water Quality Monitoring



# Water Quality Monitoring

- **STORM WATER MONITORING**
- **AMBIENT MONITORING**
- **CONSTRUCTION MONITORING**



## LaMotte 2020we Turbidity Meter

- Turbidity



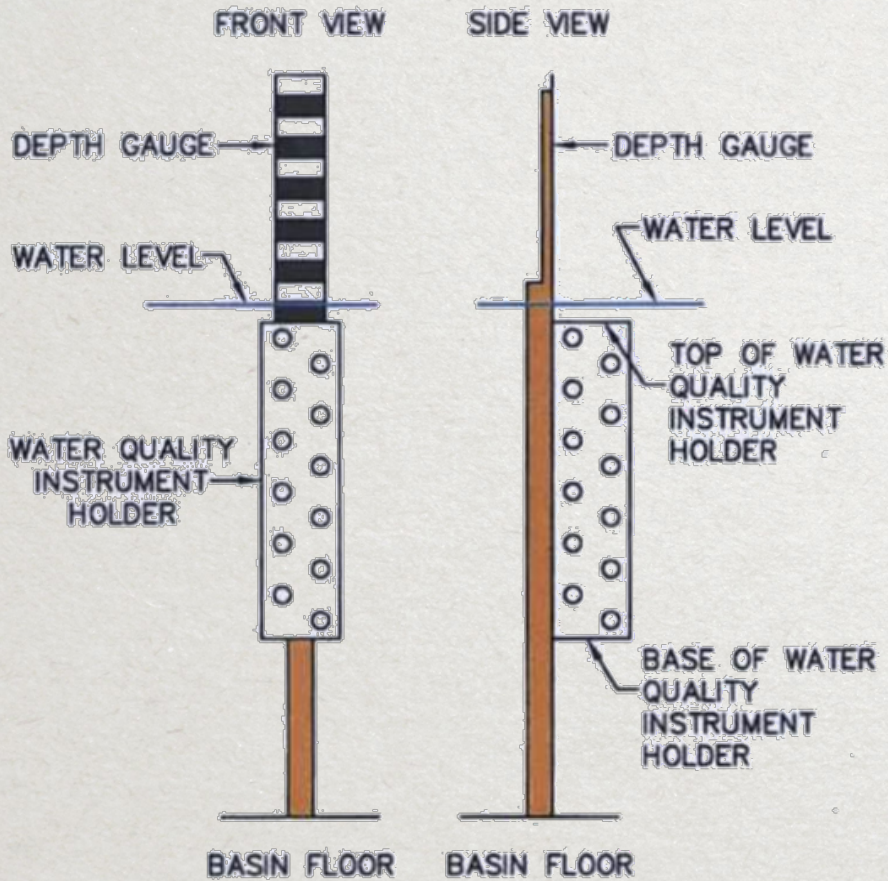
Photo Copyright ©2012 LaMotte Company

## YSI 6920V2 Sonde

- pH
- Temp.
- Turbidity
- Dissolved Oxygen
- Electrical Conductivity
- Chlorophyll



# Basin Deployment



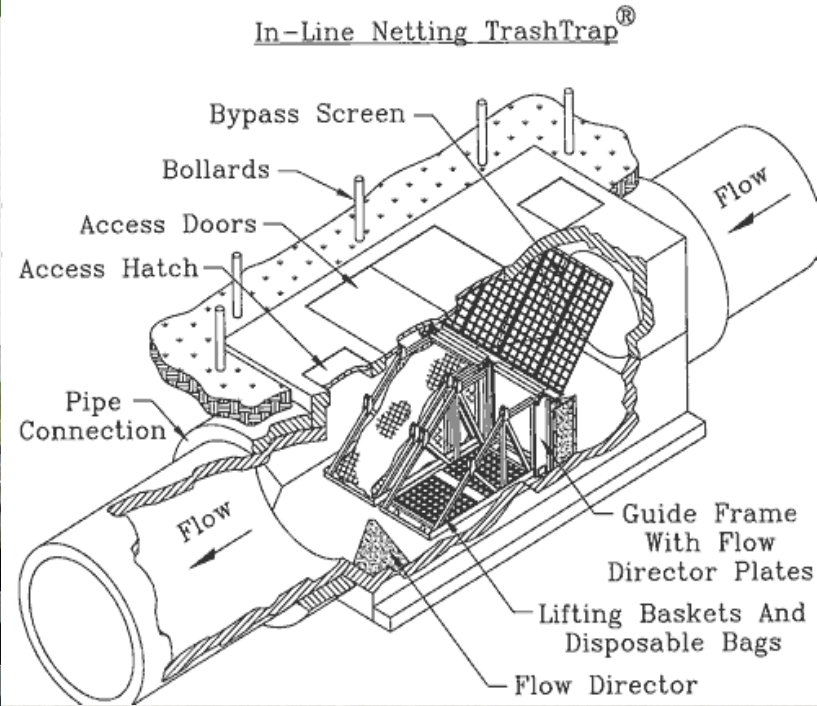
# Discrete Sampling





# Floatables Control

Fresh Creek Technologies, Inc. ®



# Floatables Control

- Buffalo Bayou Partnership (BBP) Agreement
  - Maintain Floatables Booms
  - Operate Floatables Collection
    - W100-00-00/ D100-00-00
    - Skimmer and Bio-vacuum boats
    - Land- based crews
    - Recycling and disposal
    - Program Summaries for MS-4 Annual Report



# Floatables Control



Rebuilt Bio-Vacuum on W100-00-00

# Floatables Control



Skimmer boat at Dock 8; Port of Houston

# Floatables Control



BBP Boom; W100-00-00 @ Drennan Street; d/s of Hirsch Bridge

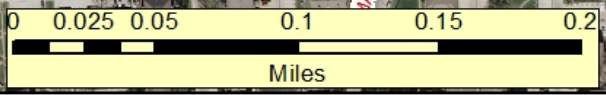


**D500-06-00  
FLOATABLE DEBRIS  
February 2012**



Assumed 6 Inches deep

3.13 ac/ft  
136319 cubic feet  
5048 cubic yard  
631 8-yard trucks





1. Major Modifications – concrete, mowing and routine maintenance





8%

Horsepen Creek



43%

2. Major Modifications – grass, mowing and routine maintenance



8%



43%

Rummel Creek



1.

24%



3.



2.

3. Significant  
Modifications  
allowed to naturalize



8%



43%



24%

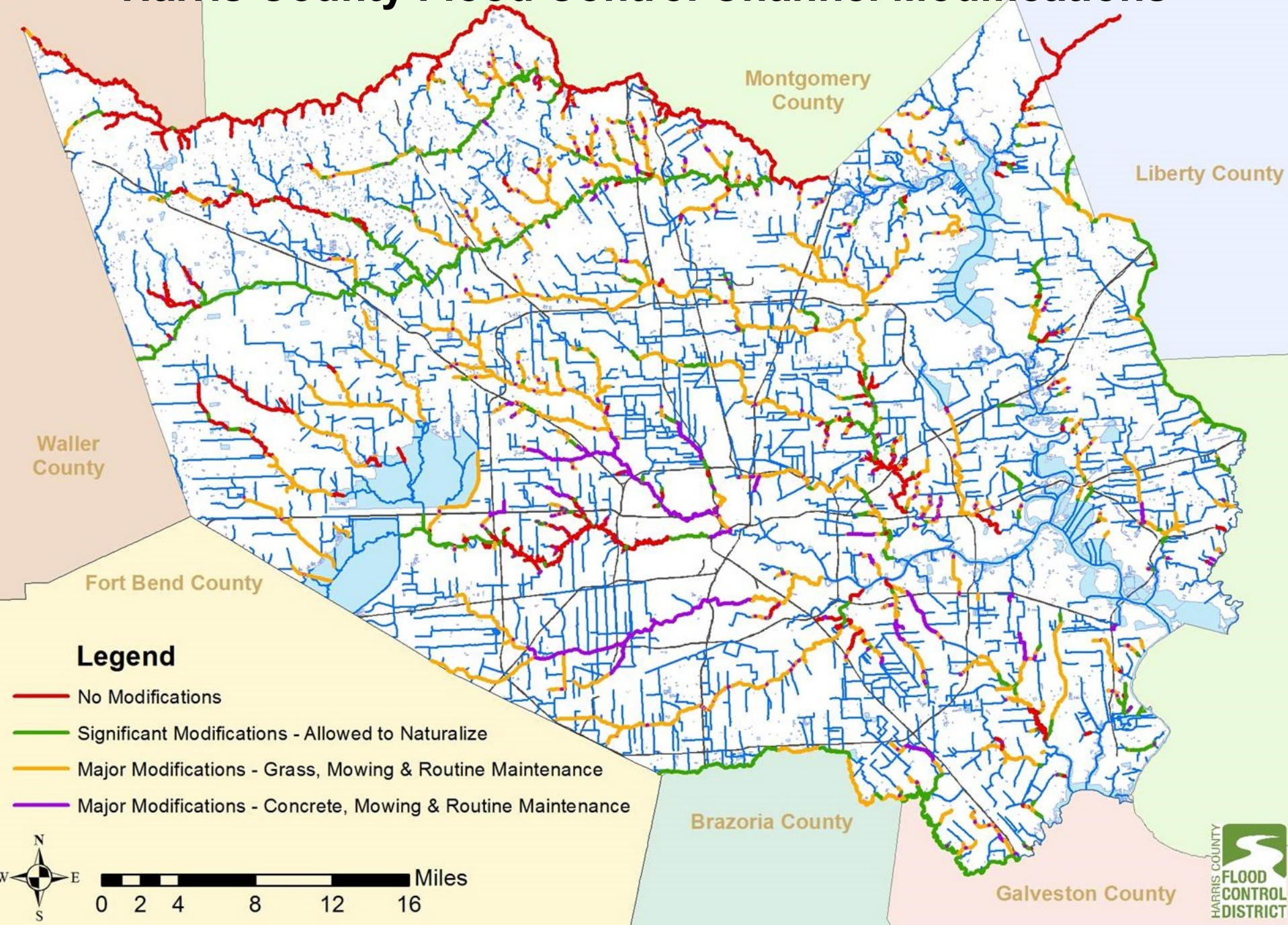


25%

Big Gulch  
Tributary

4. No Modifications

# Harris County Flood Control Channel Modifications



# Natural Stable Channel Design



# Natural Stable Channel Design

Cypress  
Creek @  
Meyer Park



# Natural Stable Channel Design



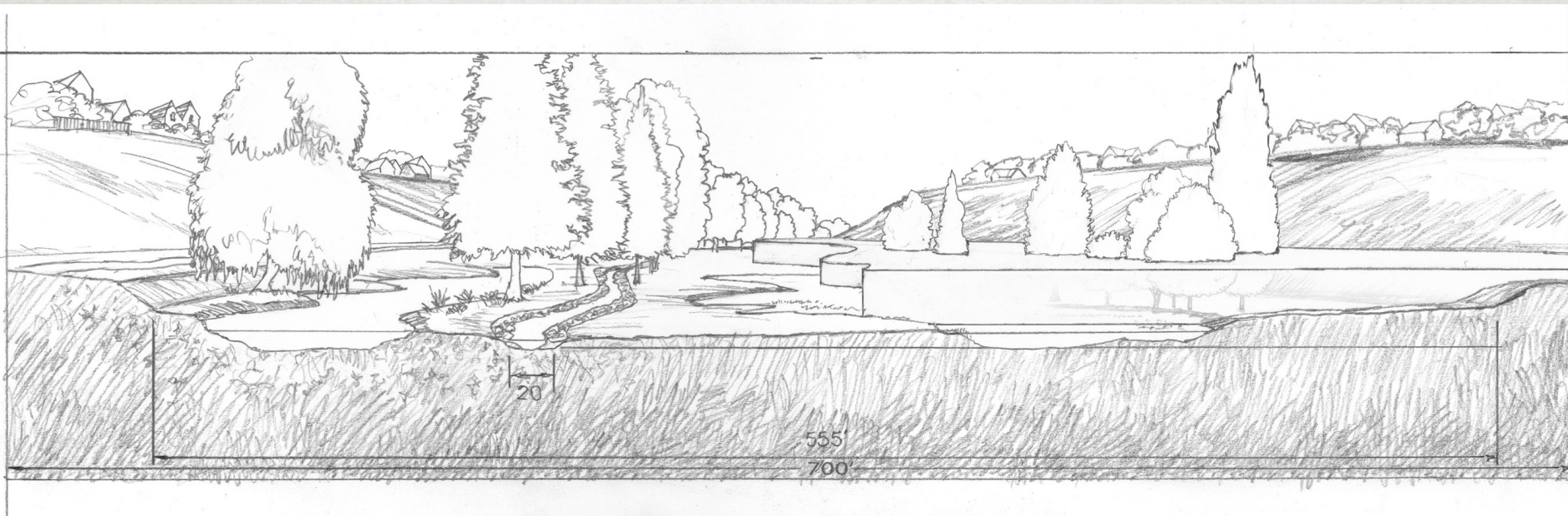
Langham  
Creek  
Conceptual  
Layout

# Natural Stable Channel Design

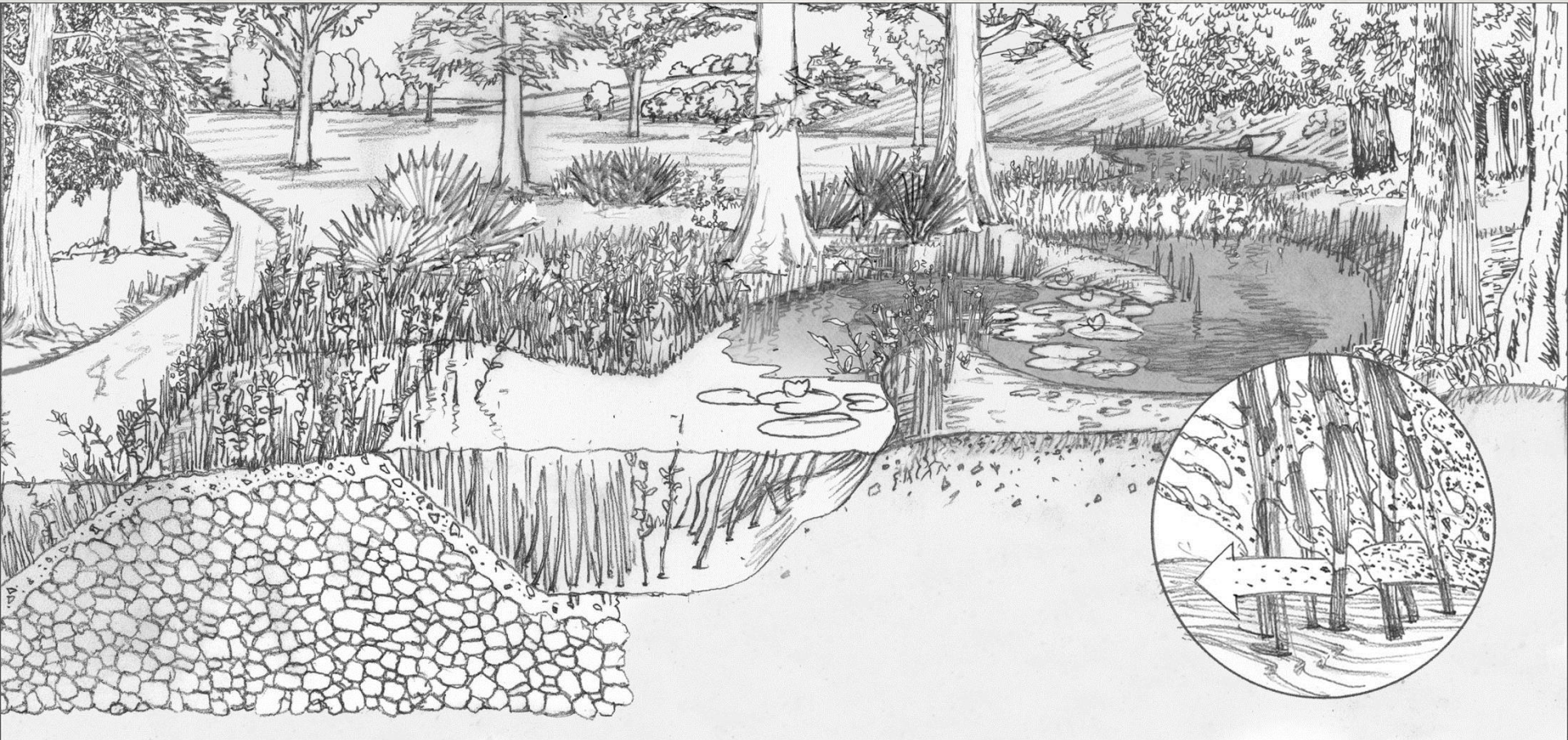




# Natural Stable Channel Design



# Natural Stable Channel Design

















# Wildlife



# Wildlife



# Wildlife

2013-07-24 3:53:53 PM M 1/10



POLISHING POND



# Wildlife



90°F



POLISHING POND



# Wildlife

2013-12-26 12:56:19 PM M 8/10



SUB B BYPASS

RECONYX



# Wildlife



**QUESTIONS?**

