



# Fort Bend County Watershed Study

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- Fort Bend County Drainage Criteria Manual Review/Update
- Brazos River Floodplain Master Plan
- Develop and Update Master Drainage Plans
- Brazos River Erosion Study
- Barker Reservoir Monitoring Studies

# Drainage Criteria Manual Review/Update

- Overall review of the current DCM
- Update Policies
- Analysis to evaluation of methods and procedures
- Documentation and Implementation
  - Update the DCM text
  - Develop guidelines for evaluation of drainage impact analyses for new developments
  - ACEC review

# Important Changes for the DCM

- Atlas 14 adoption and implementation
- “No Adverse Impact” floodplain management policies, development within the Brazos River Floodplain
- design storm/flood events related to channels, bridges/culverts, detention basins, storm sewers, and levees/pumps systems

# About Fort Bend County Drainage Criteria Manual

## **DRAINAGE CRITERIA MANUAL**



**FORT BEND COUNTY**

**DRAINAGE DISTRICT**

COUNTY JUDGE  
ROBERT HEBERT

COMMISSIONER, PRECINCT 1  
RICHARD MORRISON

COMMISSIONER, PRECINCT 2  
GRADY PRESTAGE

COMMISSIONER, PRECINCT 3  
ANDY MEYERS

COMMISSIONER, PRECINCT 4  
JAMES PATTERSON

Revised 2011

- Original version of Drainage Criteria Manual is Dated 1987 (by Espey Houston & Associates Inc.).
- Current Drainage Criteria Manual is Dated 2011 (Revised by Dodson and Associates)
- Can be downloaded from Fort Bend County website  
<http://www.fortbendcountytexas.gov/index.aspx?page=336>

# Brazos River Floodplain Master Plan

- Data collection and model review
- Update Hydrologic Model
- Development of new Hydraulic Model:
- 2-D Model Calibration to Historical Storms
- 1-D Model Calibration to Historical Storms
- USGS streamflow gage at Richmond
- Evaluation of conveyance within the Brazos River Floodplain
- Coordination with National Weather Service (NWS)

# Existing Brazos River Models

- Brazos River Effective Model (2014)

Model Completed on 2009



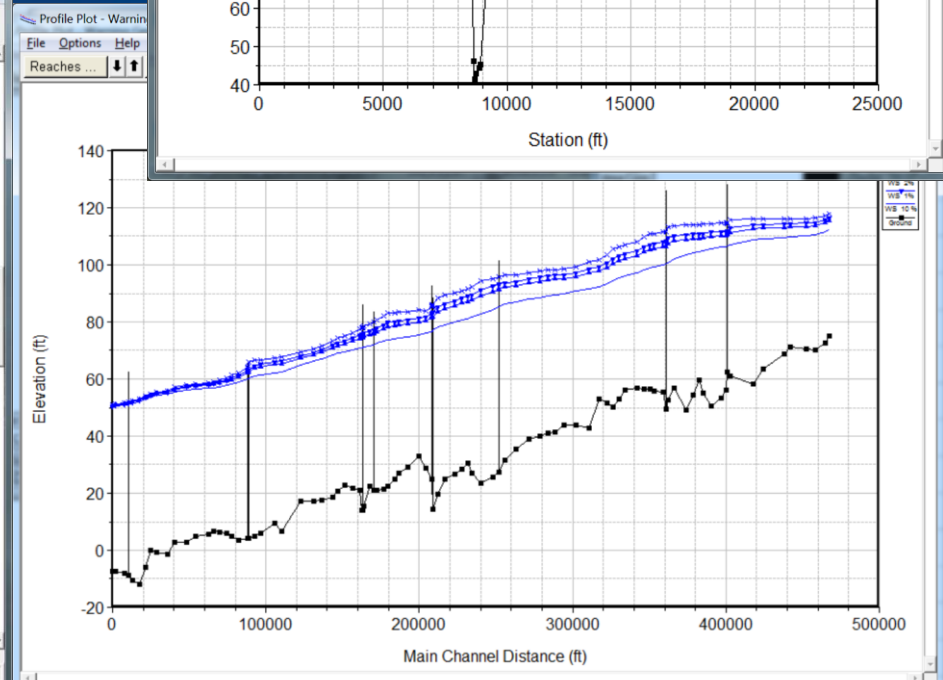
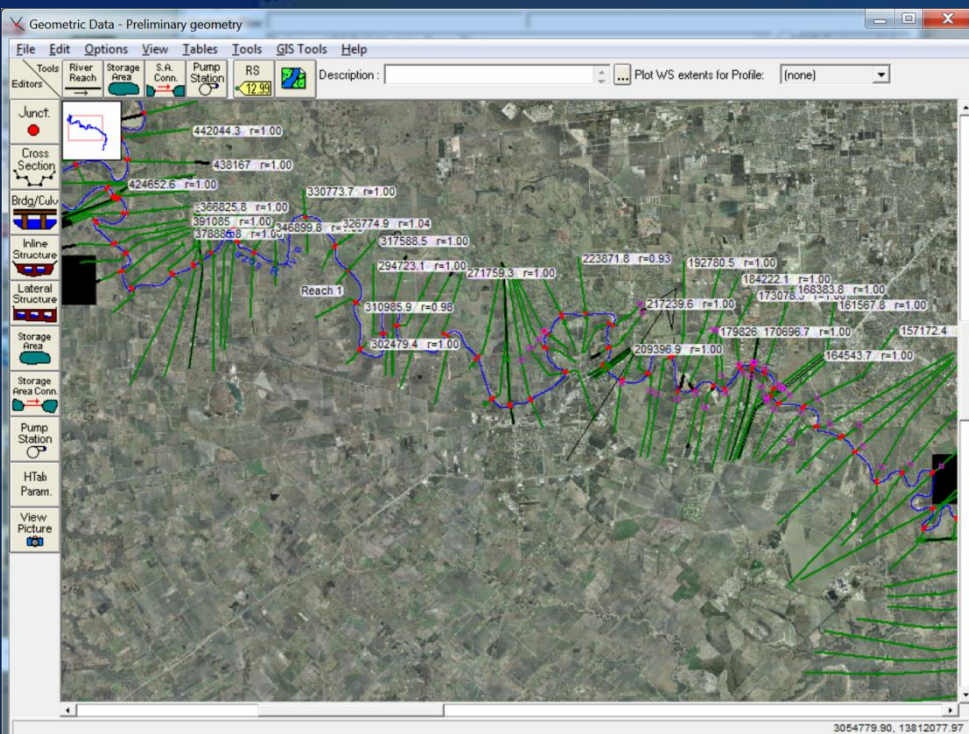
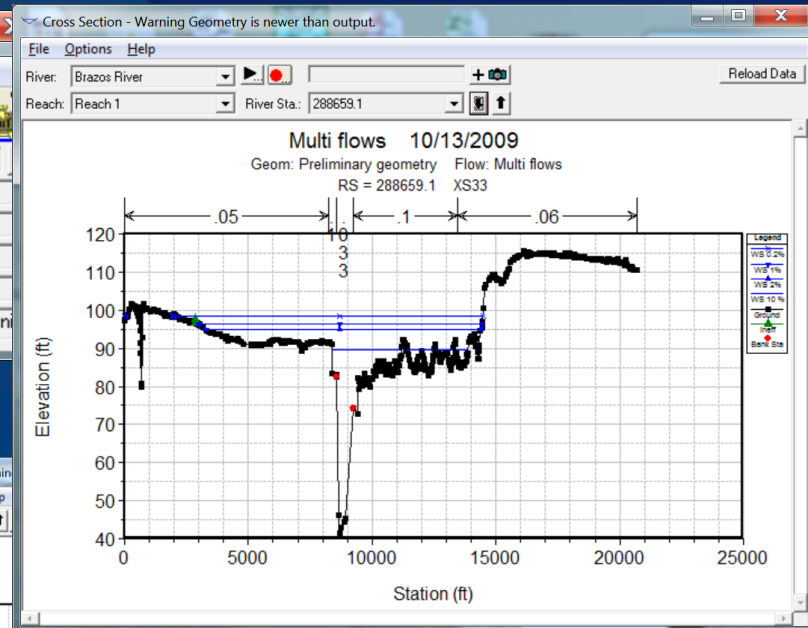
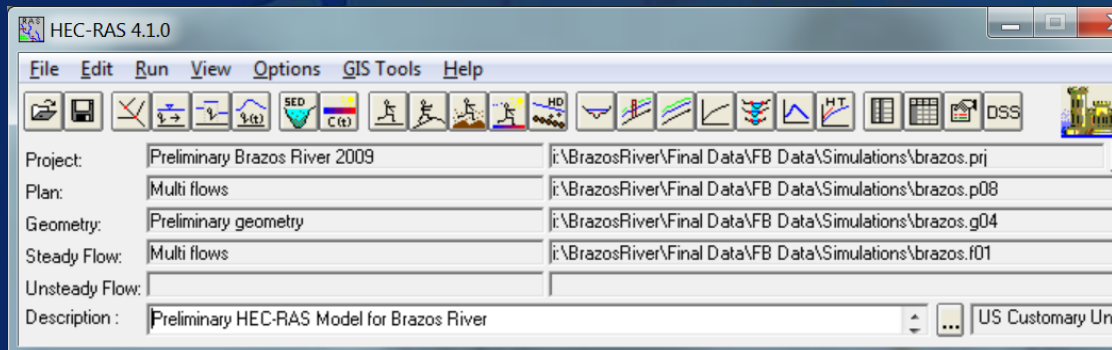
- Brazos River Authority Model (2018)



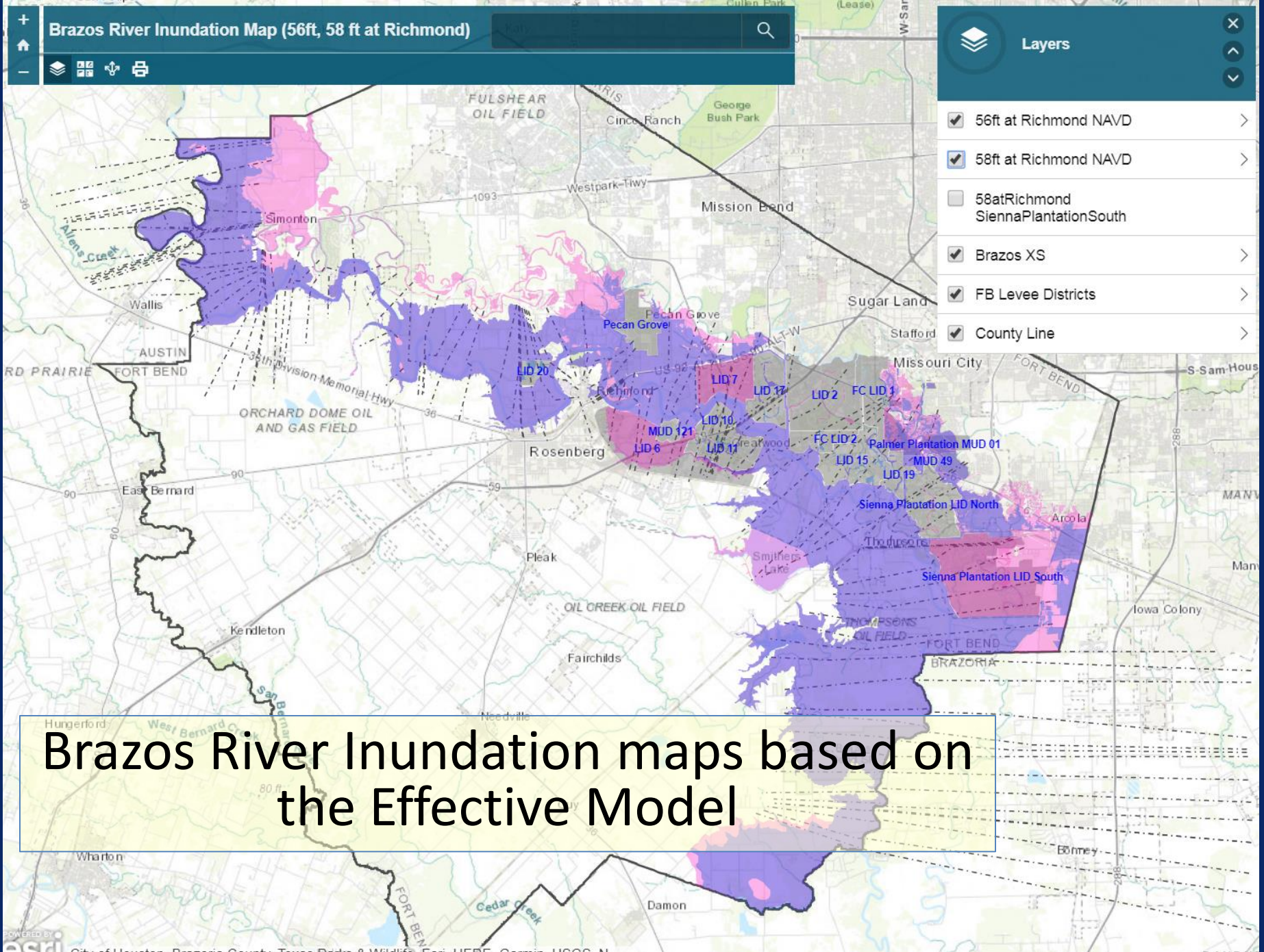


# Brazos River Effective Model (2014)

## Model Completed on 2009

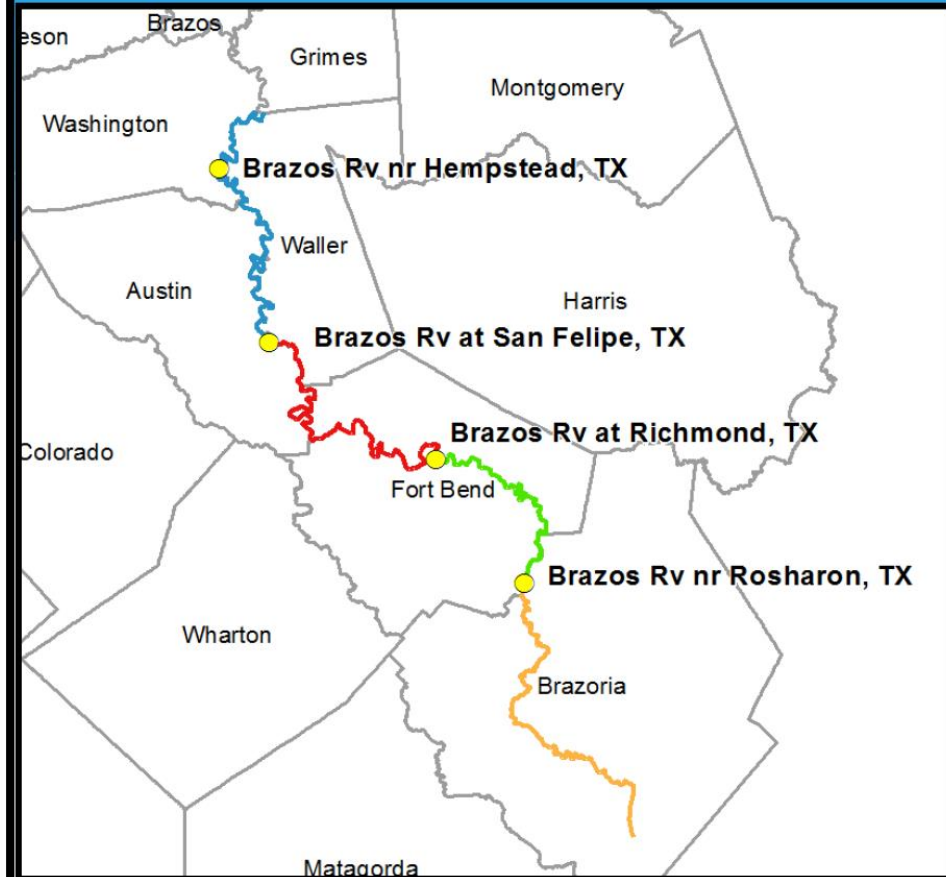
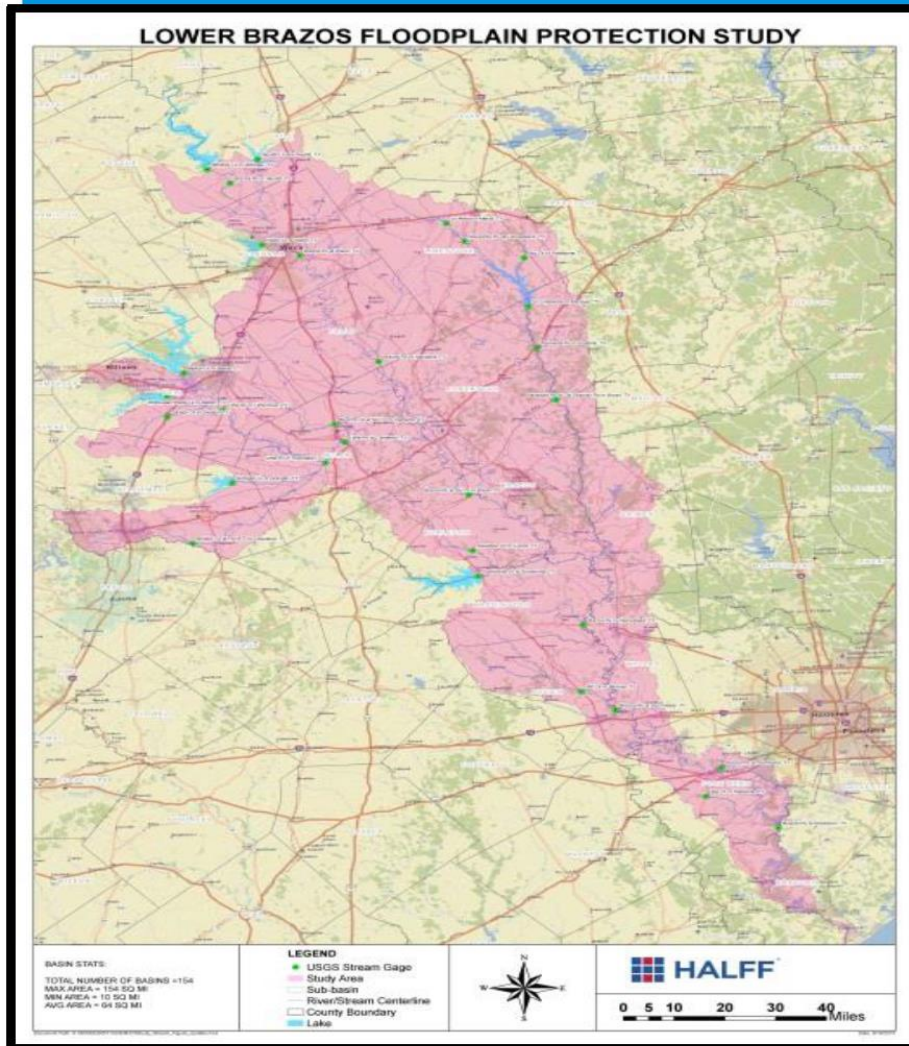








# Halff Model -- Low Brazos River Models 2018

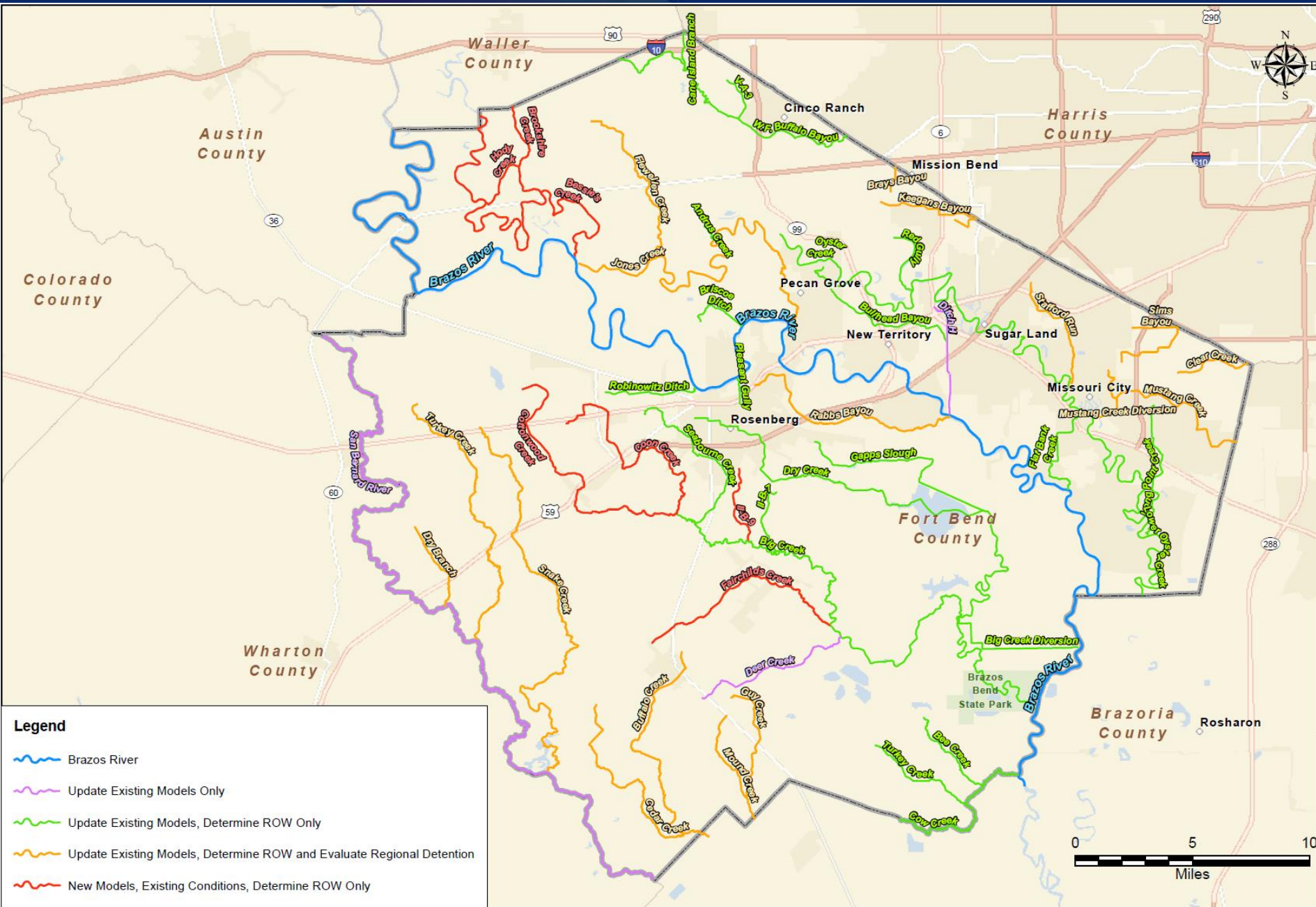


# Develop and Update Master Drainage Plans

- Existing Conditions Analysis:
  - ❖ Define/Update current conditions for each studied stream watershed
    - ✓ Hydrologic Analysis
    - ✓ Hydraulic Analysis
    - ✓ Prepare inundation mapping for the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year storm
    - ✓ Prepare water surface profiles for the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year storms
- Alternative analysis for existing levels of development:
  - ❖ Size a drainage system that provides a 100-year level of service along the selected channels (See Table 1) assuming current levels of development
    - ✓ Determine ROW required for existing conditions
    - ✓ Evaluate regional detention for selected streams
    - ✓ Conduct a high-level environmental assessment for proposed infrastructure and document findings

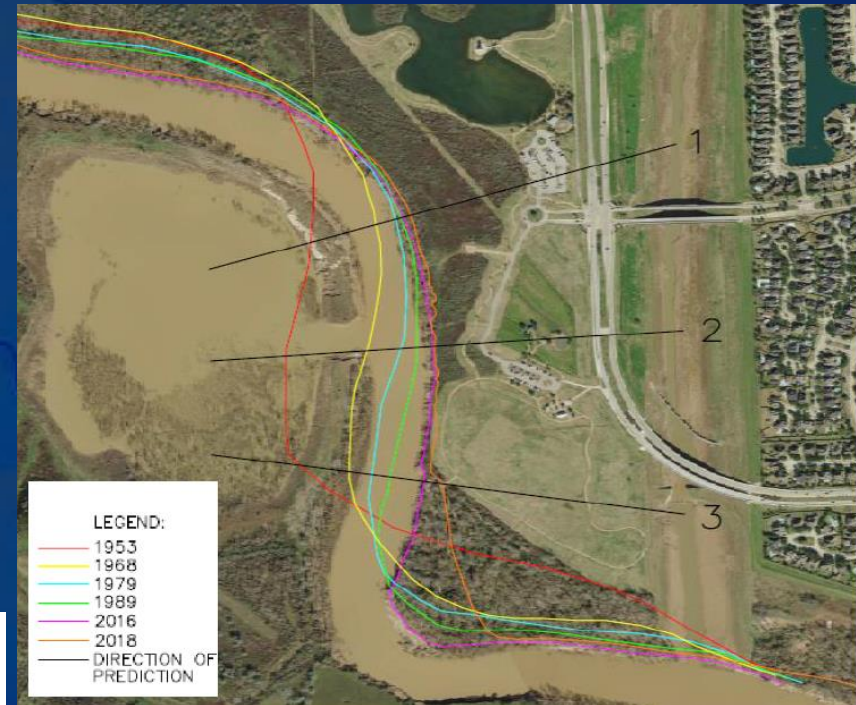


# Streams To Study



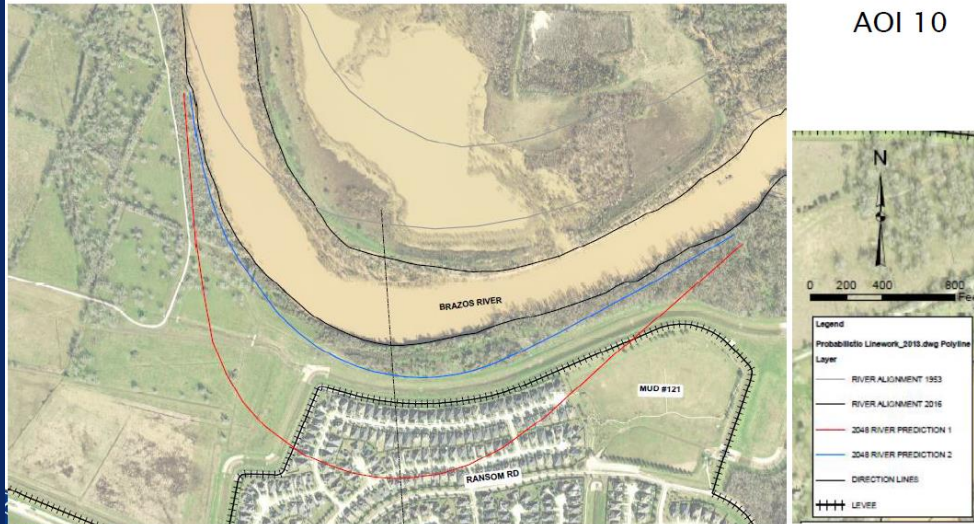


# Brazos River Erosion Study



## Probable positions of the Brazos River bank in 2048

AOI 10



## Value of Consequences (\$)

- ▶ For each site:
  - Value of Property behind levee system
  - Value of Levee
  - Value of Infrastructure (bridges, parks, pipelines, towers)
  - Does not include socioeconomic impacts
  - Cost evaluated for each Prediction



# Barker Reservoir Monitoring Studies

