

Water Environment Association of Texas

Harris County Flood Control District
October 24, 2018

*Alan R. Black, P.E. – Engineering Division Director
Harris County Flood Control District*

Agenda

- **HCFCFCD**
- **Harvey**
- **Recovery and Repairs**
- **Bond Program Quick Start**
- **Federal Partnership Opportunities**
- **Interagency Collaboration**
- **Construction Outlook**

The Flood Control District...

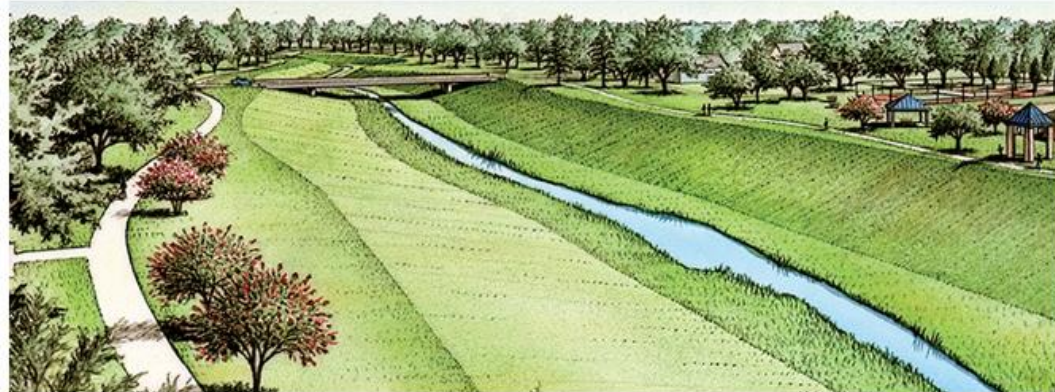
- We are a special purpose district created by the Texas Legislature in 1937 in response to devastating floods in 1929 and 1935.
- Identified as local sponsor for federal partners and projects.
- Our primary jurisdiction is open channel drainage system.

OUR MISSION

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

Devise the Plans

- Evaluate the existing environment
- Conduct engineering and hydrological analyses
- Develop and compare alternatives
 - Include community and natural considerations
- Prepare construction plans



Implement the Plans

- Widen and deepen our bayous and creeks
- Excavate large stormwater detention basins
- Voluntary home buyouts
 - Severe repetitive loss
 - Floodplain restoration



Maintain the Infrastructure

2,500 miles of bayous and creeks and more than 130 stormwater detention basins

- More than 35,000 acres of right-of-way!
- Perform routine cyclical maintenance
- Implement vegetation management program
 - Selective clearing of invasive species
 - Planting native grasses, trees and wildflowers



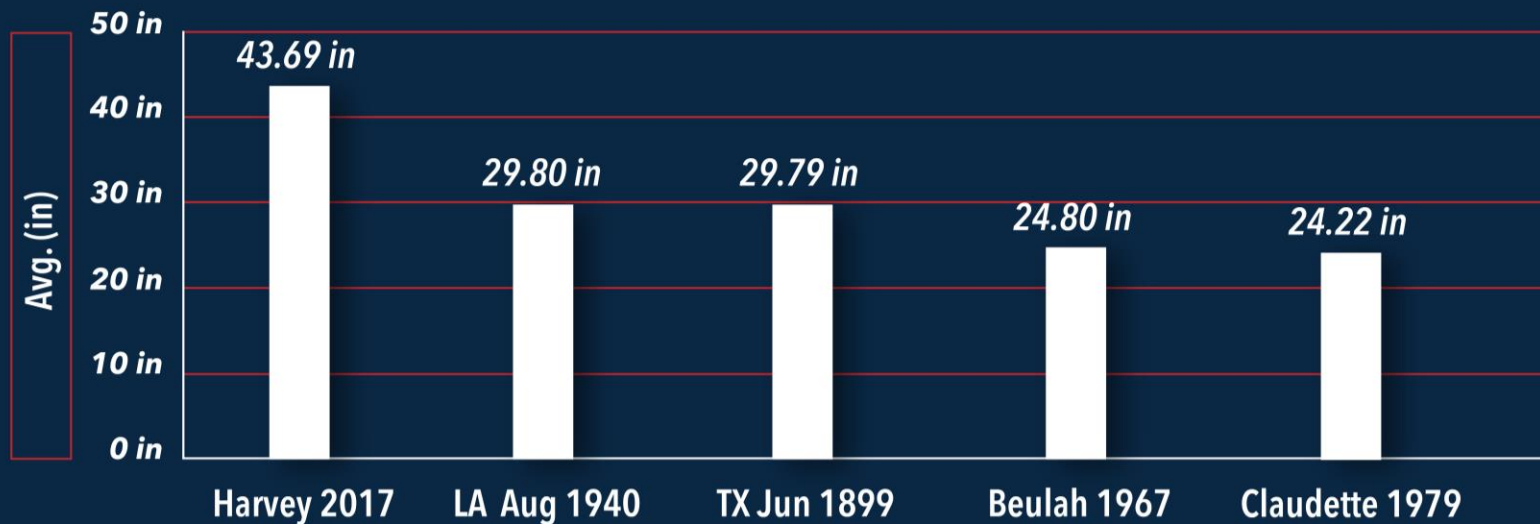
What the Harris County Flood Control District does **NOT** do:

- We do not regulate land development
- We do not adopt Flood Insurance Rate Maps (FIRMs), which are used to set flood insurance rates and to regulate land development.
- We do not have jurisdiction over drainage for highways and streets, including roadside ditches and storm sewers.

Harvey Smashes US Rainfall Records

2,000
square miles

Duration: 120 h

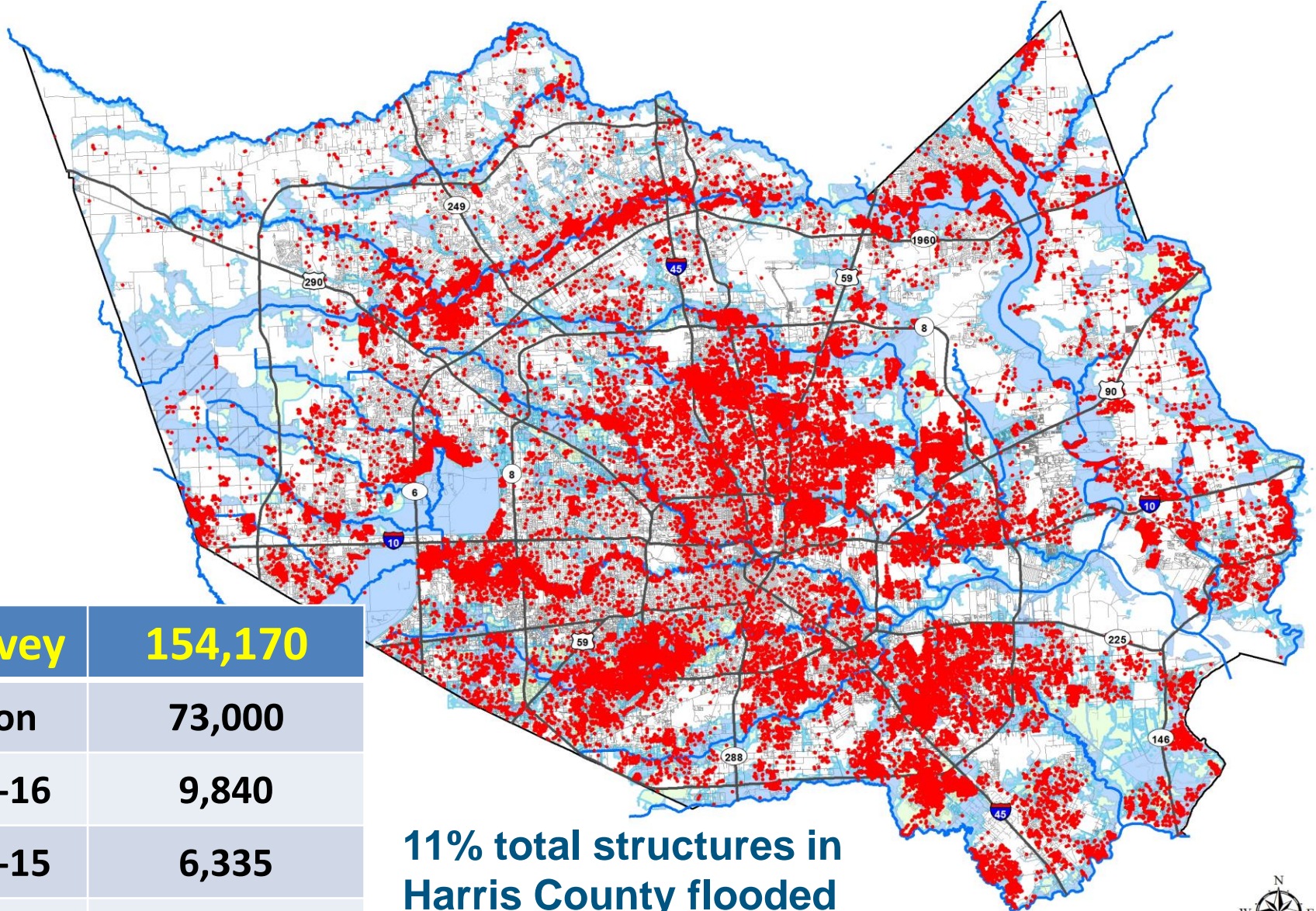


47% over previous record

TX State Climatologist

- **1530 Billion gallons**
- **Fill Astrodome 4790 times**
- **Supply US water usage for 26 days**

Harvey House Flooding



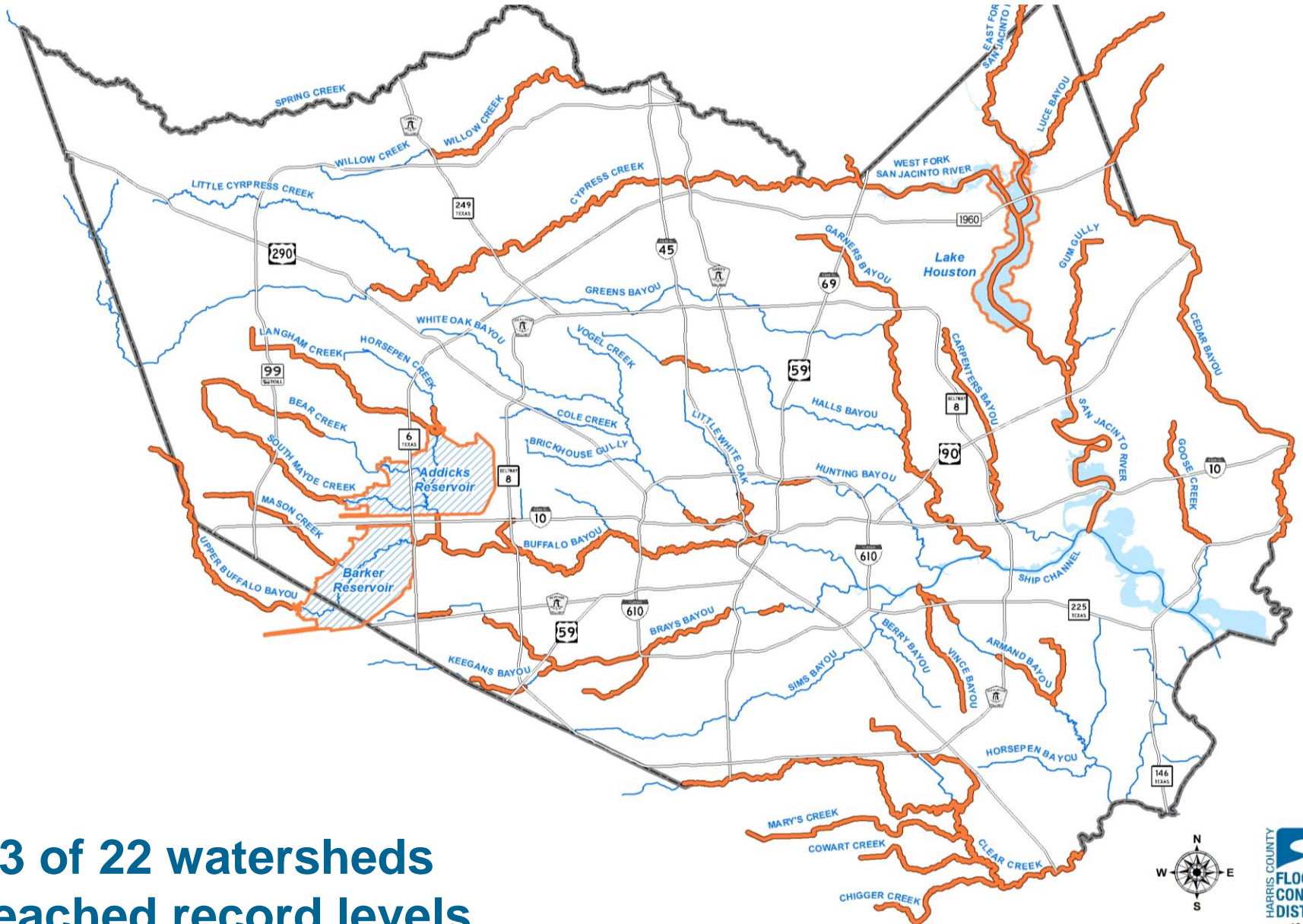
| | |
|---------------|----------------|
| Harvey | 154,170 |
| Allison | 73,000 |
| 4-18-16 | 9,840 |
| 5-25-15 | 6,335 |
| 6-19-06 | 3,370 |

**11% total structures in
Harris County flooded
105,340 or 68% outside 1% floodplain**



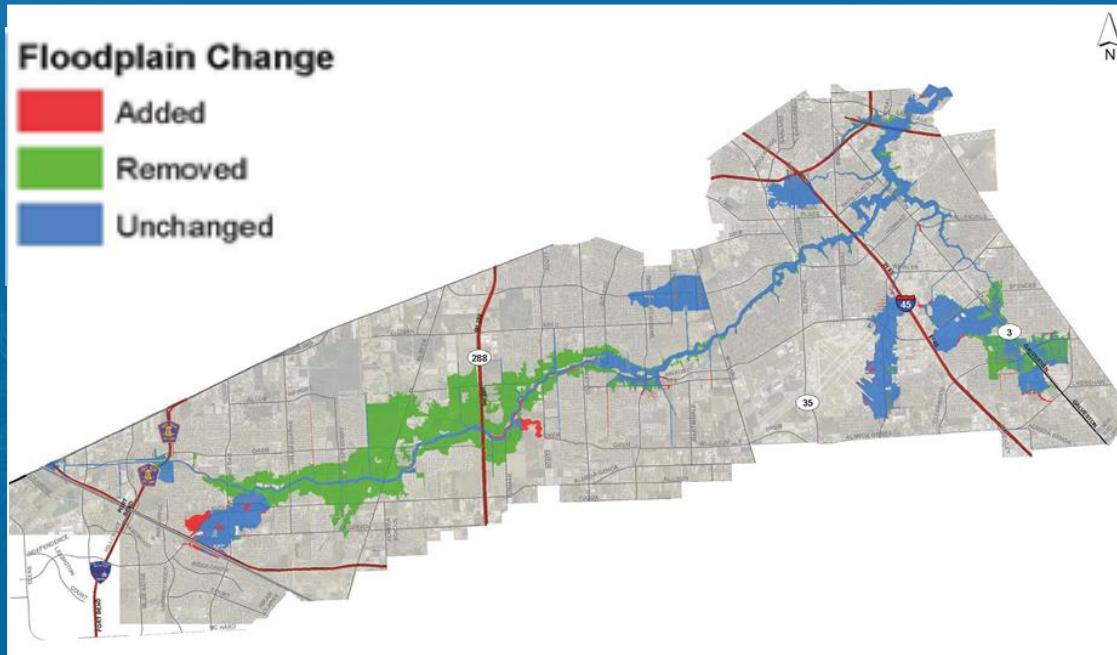
Record Flood Levels

Hurricane Harvey, August 25-29, 2017



13 of 22 watersheds
reached record levels

Resiliency



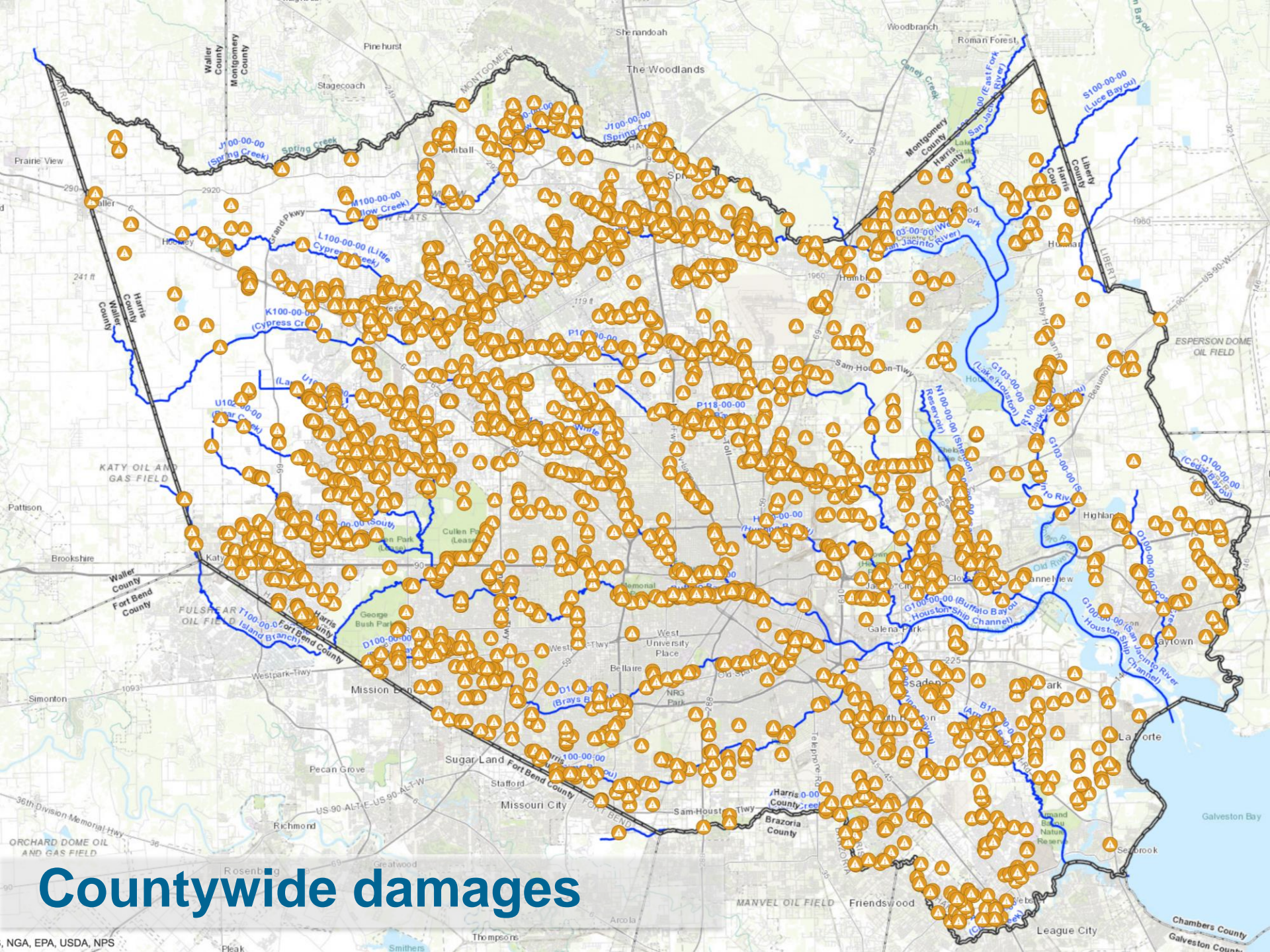
Sims Risk Map 1% Floodplain Change

On Sims Bayou, an estimated 70 properties sustained damage during Harvey. That number would have been more than 6,570 if not for the \$395 million Sims Bayou federal project, completed in 2015.

- Major projects are required
- Partnerships are key for robust response
- Federal, state, local dollars???

Homes Built in Subdivision Development Post 2009 Unincorporated Harris Co.

- 75,000+ single family homes were built in subdivisions developed to the new standards.
- 467 Homes flooded were built in subdivisions developed in 2009 and later or 1.5%.



Countywide damages

Inverness Forest Pump Station (K600-01-00)



Horsepen Creek (U106-00-00)



09/03/2017 13:21

S. Mayde Creek (U101-00-00) at Greenhouse Rd



Buffalo Bayou (W100-00-00)





Recovery and Repairs

- **\$8.9 million in debris removal**
- **\$5.5 million in emergency repairs**
- **\$150 million repair investment needed**
 - \$80 million from NRCS
 - \$17 million from FEMA
 - \$2 million from USACE
 - \$51 million local (HCFCD)

Bond Progress

Since August 25th

- **\$11M in Construction Awards (primarily repairs)**
 - \$110M in new advertisements through EOY
- **Commissioners Court**
 - 41 new projects authorized
 - 55 projects already underway
 - Total of \$1.4 Billion “in motion”
 - Approved increase in Commercial Paper to \$250M
 - Approved 20 new staff positions (expect 70+ in total)

Bond Progress

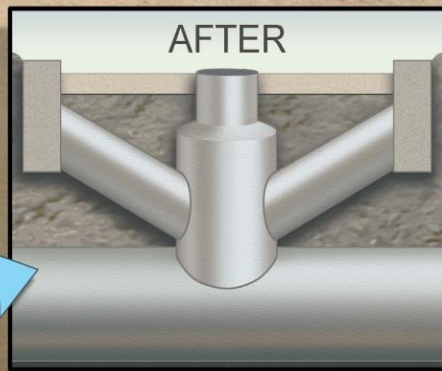
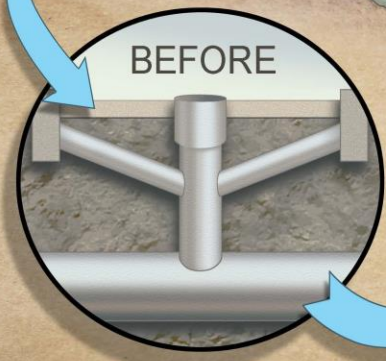
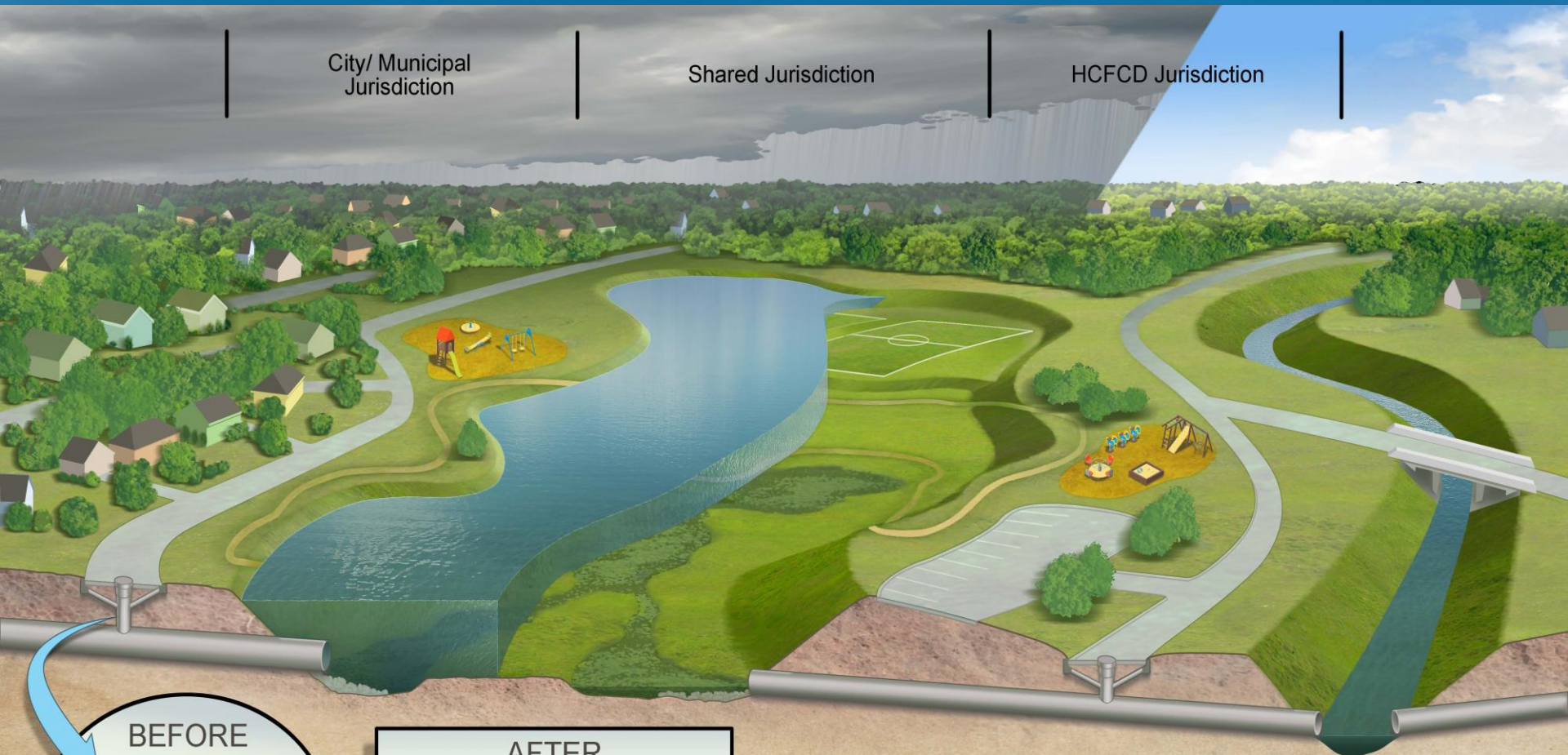
Since August 25th

- **Planning \$5B in Projects over 10 years**
 - “Readiness”
 - Benefitting as many people as possible
 - Opportunities for Federal funding
 - Local Partners
 - Staff Resources
- **Development of Reporting System**
 - Full transparency
 - Similar to Bond Program interactive map

Interagency Collaboration

- **Local**
 - City of Houston
 - Harris County
 - Local Municipalities
 - Adjacent Counties
- **State**
- **Federal**

Local Collaboration



1. County/Municipal neighborhood drainage and HCFCJ infrastructure pre-dates current criteria. Neighborhood streets are re-graded and re-constructed by the City with more inlets and bigger storm sewers to get the water out of the neighborhood faster.
2. That increased flow is mitigated in a new stormwater detention basin that HCFCJ constructs in consultation with the City who then maintains the basin. Water is held in the basin and slowly released through a restricted outfall pipe.
3. The stormwater detention basin also provides greenspace and opportunities for recreation such as public parks, which the City constructs and maintains
4. Because the increased flows are mitigated in the stormwater detention basin, the water flowing to the HCFCJ maintained channel is unchanged and does not increase flooding elsewhere.




Interagency Collaboration



- Local
- **State**
 - General Land Office (GLO)
 - TDEM
 - TWDB
 - SJRA
- Federal





Proposed CDBG-DR 2nd Tranche Projects
Harris County and City of Houston
 9/24/2018

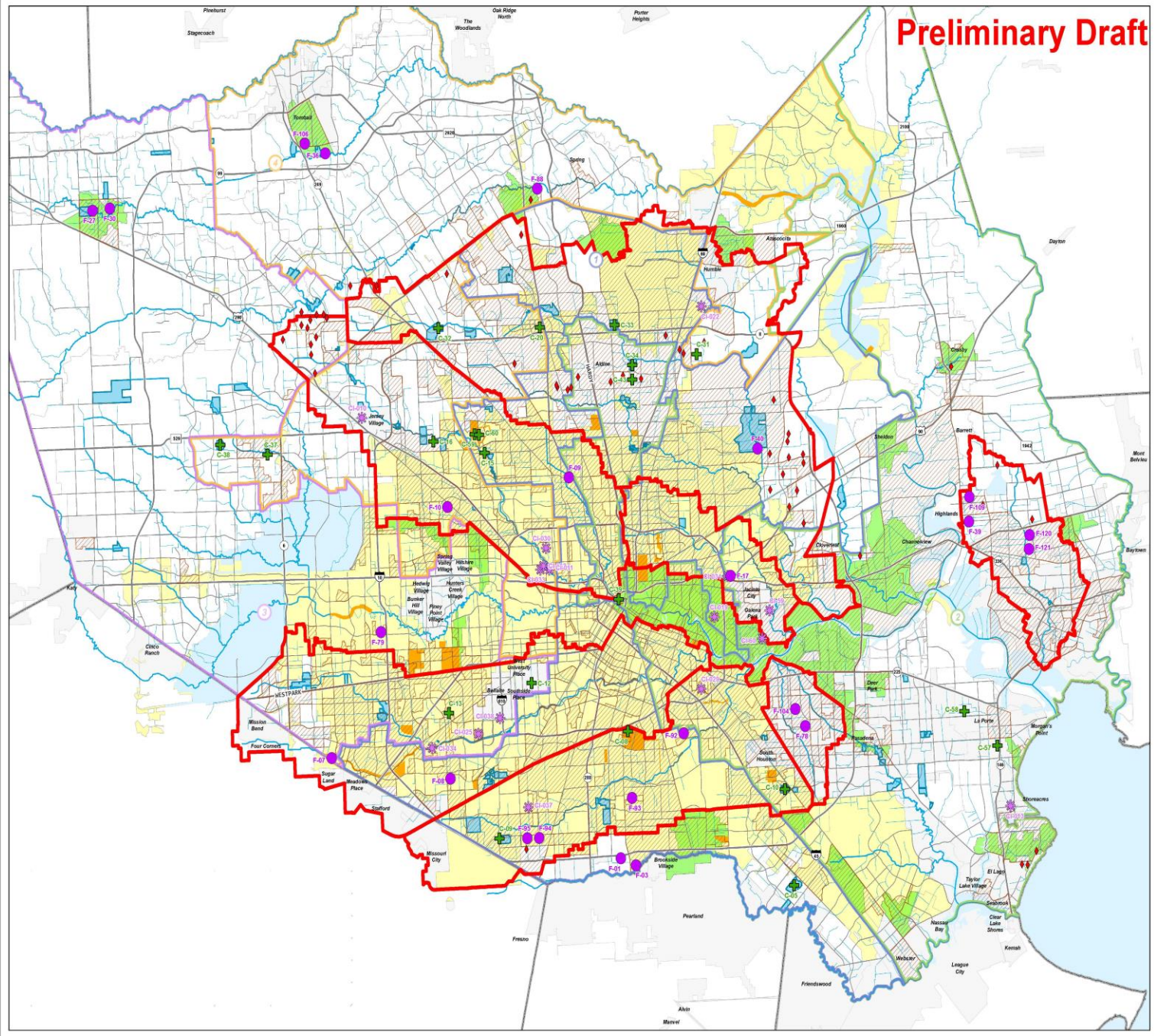
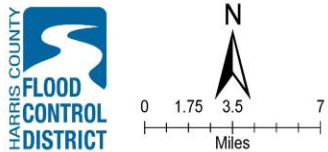
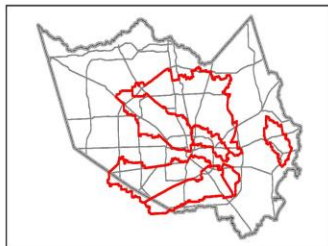
Preliminary Draft

-  Community Input
-  Proposed Local-Only Project
-  Proposed Cost-Shared Project
-  Proposed Drainage Improvements
-  Watersheds with > 51% LMI
-  Subwatershed > 51% LMI
-  HUD LMI Target Areas
-  City of Houston Projects

- Jurisdictions**
-  Other Municipalities
 -  City of Houston
 -  Unincorporated Harris County

- Transportation**
-  Highways
 -  Major Roads

- Hydro**
-  Major Channels
 -  Stream Centerlines
 -  Waterbodies
 -  Detention Basins

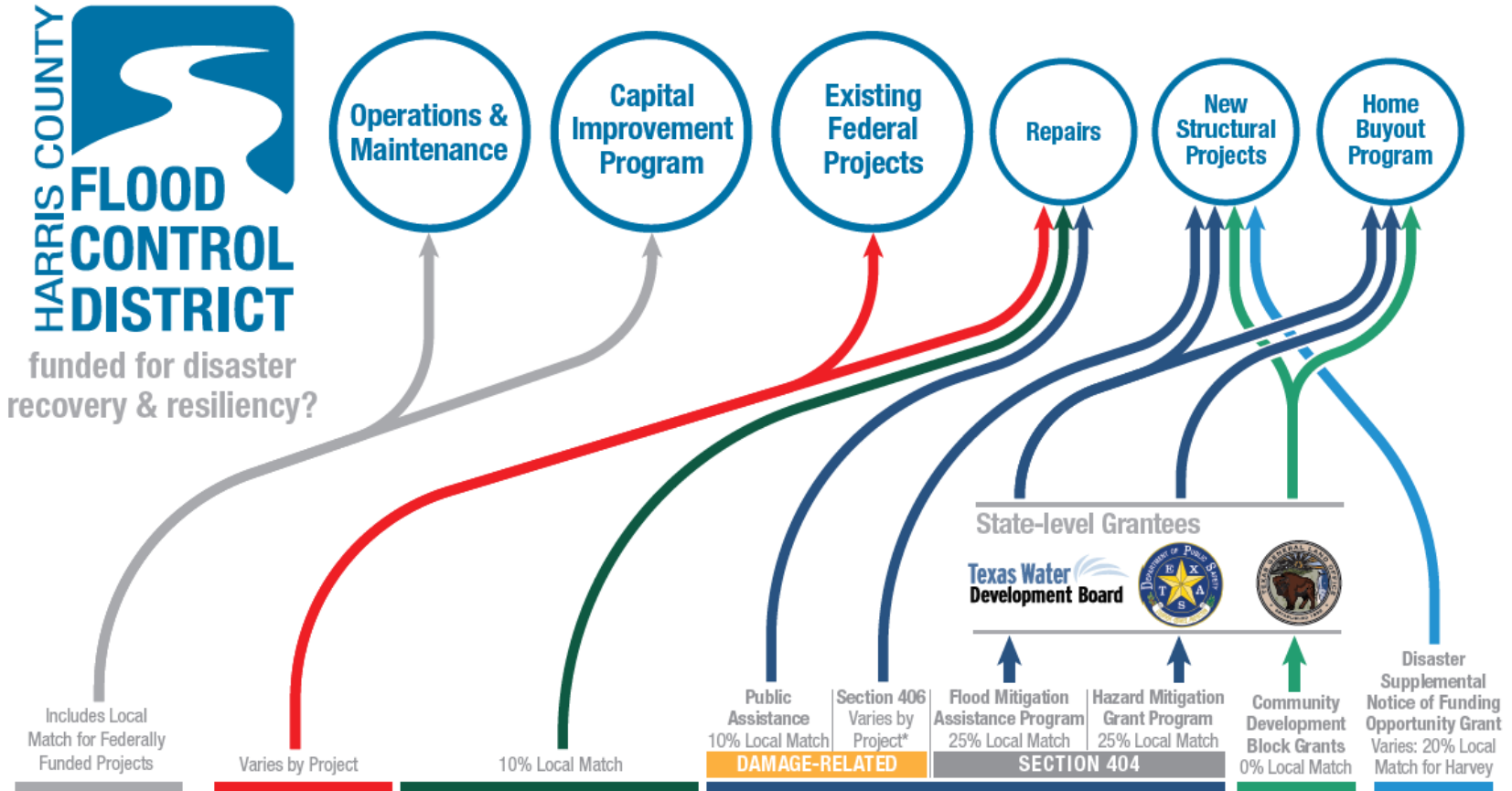


Interagency Collaboration

- Local
- State
- **Federal**
 - USACE
 - USDA (NRCS)
 - FEMA
 - HUD
 - EDA
 - Others

Partnership Opportunities

How is
HARRIS COUNTY FLOOD CONTROL DISTRICT
 funded for disaster recovery & resiliency?



US Army Corps of Engineers



United States Department of Agriculture
 Natural Resources Conservation Service



FEMA

*10% Local Match for Hurricane Harvey



EDA



\$2-3 Billion





HCFCD.org