

HCFCD Bond Program

and the Challenge of Managing Environmental Compliance



March 18, 2021

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GET FLOOD INSURANCE

EVERYONE NEEDS IT

Flooding conditions can occur year-round, and you do not have to live in the 100-year floodplain to be at risk.

Flood loss claims as a result of Hurricane Harvey

- Approximately 68% were outside of the FEMA mapped 100-year floodplain.

Hurricane Season: June-Nov
Flood Season: Year-round

Agenda

- About Harris County Flood Control District (HCFCD)
- HCFCD Bond Program
- Partner Funding
- Environmental Regulatory Compliance and Challenges
- Q&A
- Tour of HCFCD Website (time permitting)

Harris County Flood Control District

- A special purpose district created in 1937 by the Texas Legislature
- In response to floods that devastated the Houston-area in 1929 and 1935
- Serves as a local partner to leverage federal dollars for flood damage reduction
- Harris County Commissioners Court serves as our board of directors or governing body

Our Mission

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

Harris County Watersheds

What is a watershed?

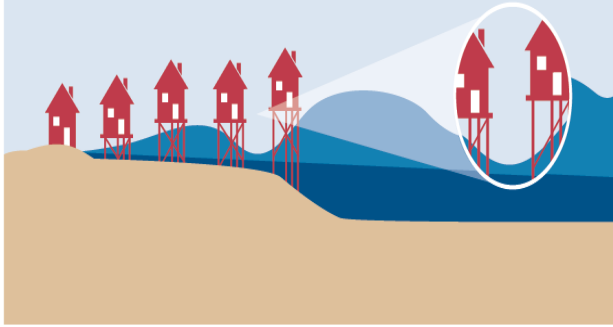
A geographical region of land or "drainage area" that drains to a common channel or outlet, mostly creeks and bayous in Harris County. Drainage of the land can occur directly into a bayou or creek, or through a series of systems that may include storm sewers, roadside ditches, and/or tributary channels.



Why is Harris County Flood Prone?

- Prone to extreme rainfall including tropical storms, and hurricanes
- Flat, slow-draining landscape
- Clay soils that do not soak up excess rainfall quickly

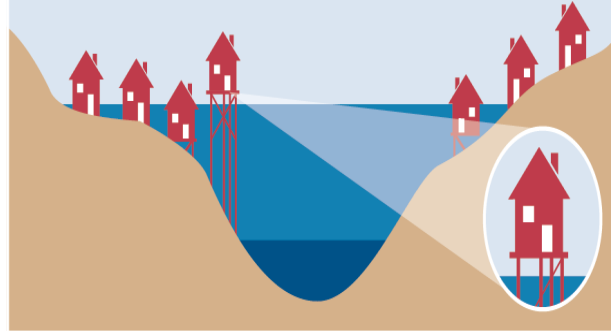
COASTAL



OCCURS WHERE:

- Ocean and large lake coastlines
- Tropical Storms & Hurricanes exacerbate flood chance/reach
- Storm surge likely
- Wave action possible

MAJOR RIVER



OCCURS WHERE:

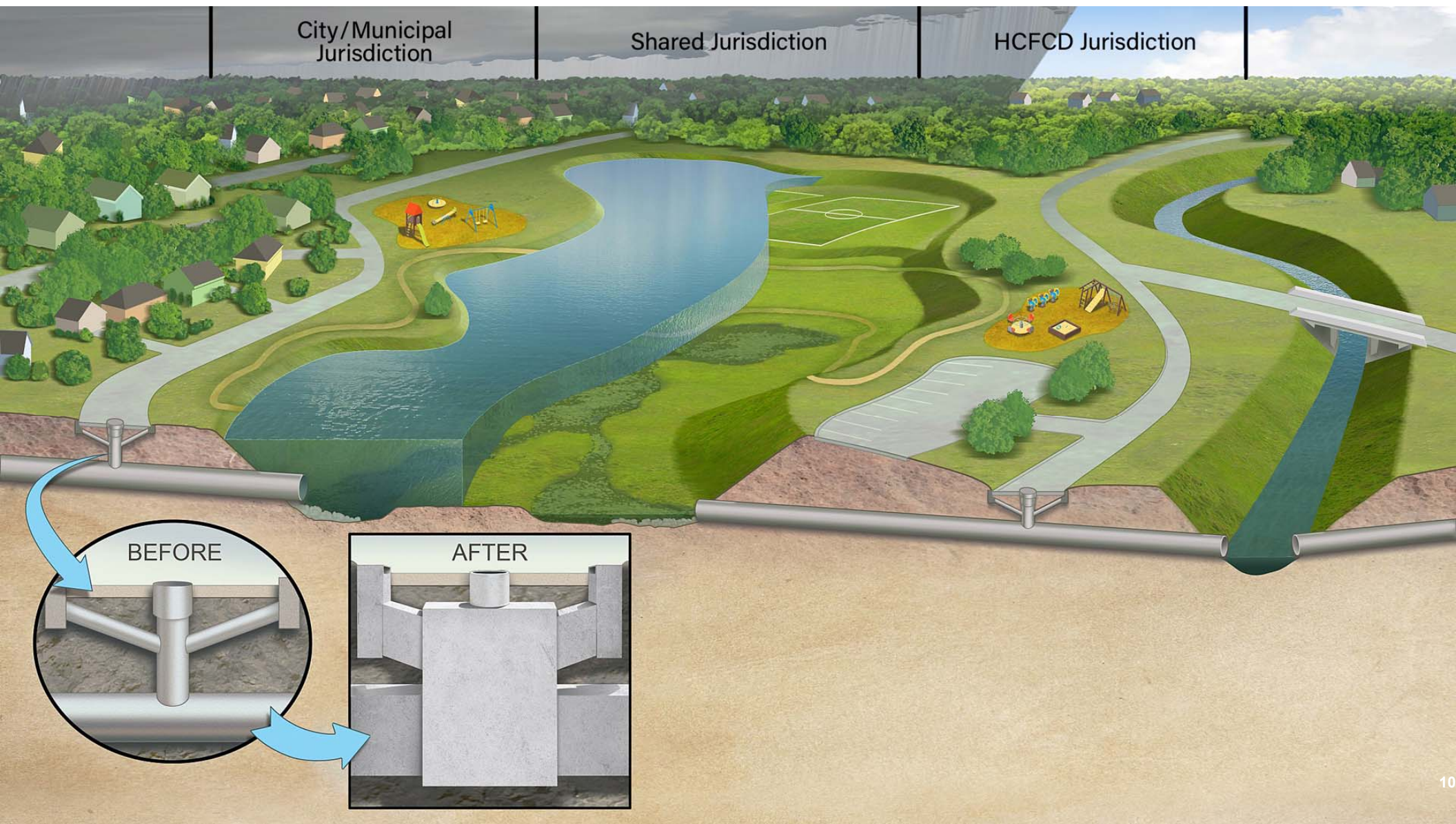
- Expansive natural floodplain
- Major Rivers and Streams
- Low-lying riverbeds
- Flood water gather and spread
- Streams drain slowly

OVERLAND/LOCAL DRAINAGE



OCCURS WHERE:

- Local drainage overwhelmed
- Ditches, swales, and pipe systems unable transport all flood water
- May occur ANYWHERE



Bond Approved on August 25, 2018

As updated May 2020

- 181 projects across all watersheds (149 initiated – fourth quarter 2020)
- 38 projects added based on community input (\$400M+)

\$2.5B Bond funds

+ ~\$2.4B Partner funds (\$680M received)

= **~\$4.9B Total anticipated**



Channel
Modification



Stormwater
Detention



Channel
Maintenance



Storm
Repair



Home
Buyouts

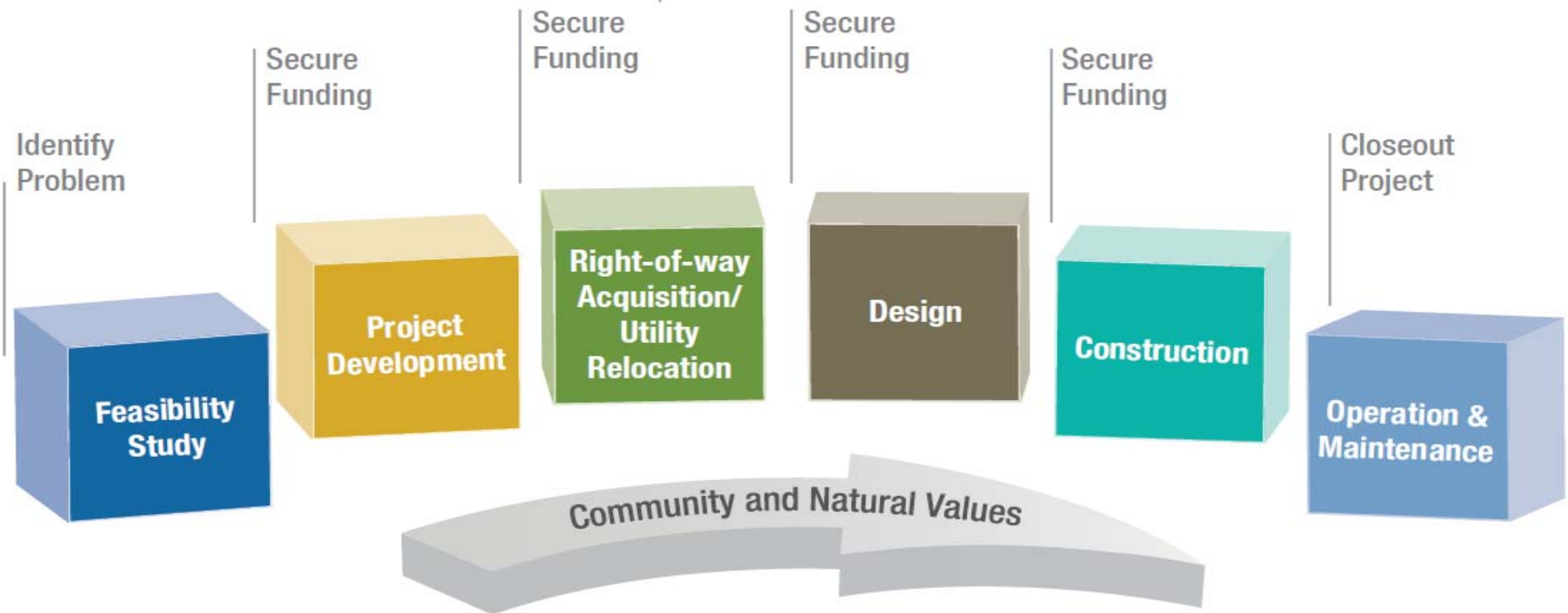


Engineering
Study



Other
Jurisdiction

Flood Damage Reduction Project Lifecycle



Bond Progress

Status Tracker is live: <http://www.harriscountyfemt.org/cb>

Construction

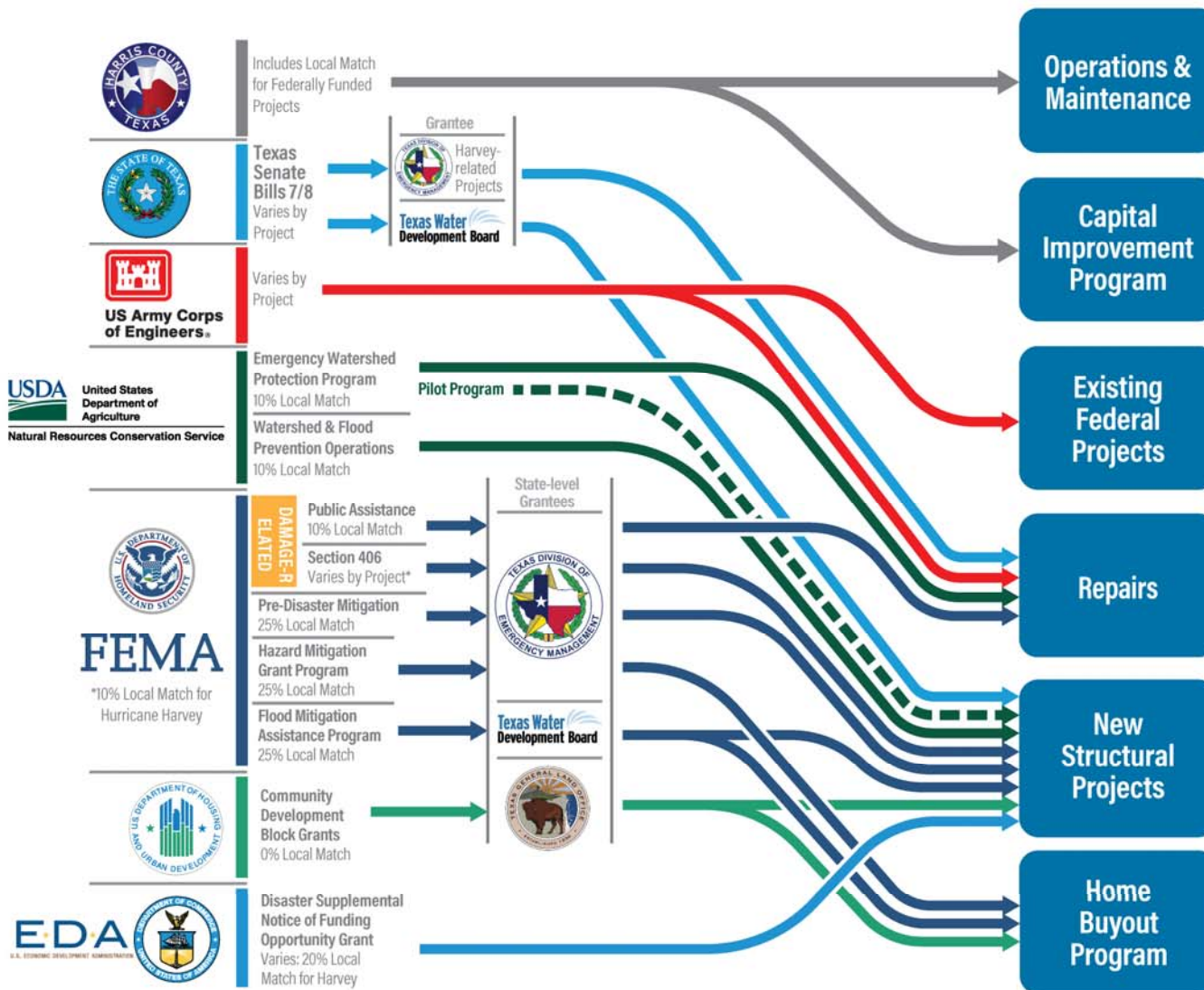
- \$400M bid since 8/25/2018 (66 projects)
- \$371M in active construction contracts (62% complete overall)
- Closed 2020 awarding \$144M in Construction Projects
- Estimate \$520M in construction awards for 2021

Overall – Total \$3.5 Billion in project value underway

- 160 bond projects Initiated since 8/28/2018 (88% of the portfolio)
- \$553M in authorized funds
- CIP Expenditures averaging \$40M per month

HARRIS COUNTY

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



Federal Funds

Applied for vs Awarded

- Applied for \$2.5 billion
(plus \$588 million local share)
- Awarded \$952 million
(plus \$336 million local share)

Total Project Value ~ \$1.3 billion

Environmental Regulatory Challenges

Are Federal Funds Involved?

- Yes – NEPA
- No – Follow the Law
- Maybe ???

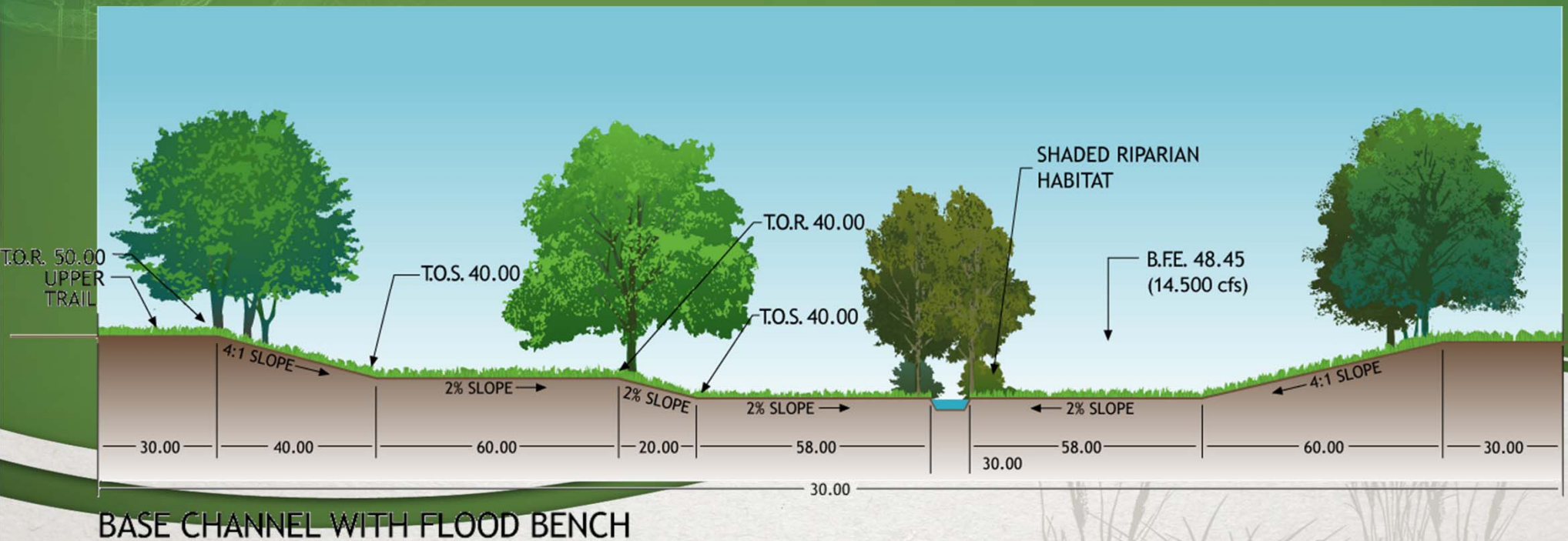
Environmental Regulatory Challenges

How to mitigate impacts

- Nationwide Permit(s)
- Self Compensating Mitigation
- Off-site Mitigation

Self- Compensating

Stream Corridor



Environmental Regulatory Challenges

Wetlands Credits !!

- Greens Bayou WMB
- Crosby Eastgate WMB
- Katy Hockley WMB
- Clear Creek WMB

Mitigation Banking Sites Overview



Katy Hockley Mitigation Bank
K700-01-00



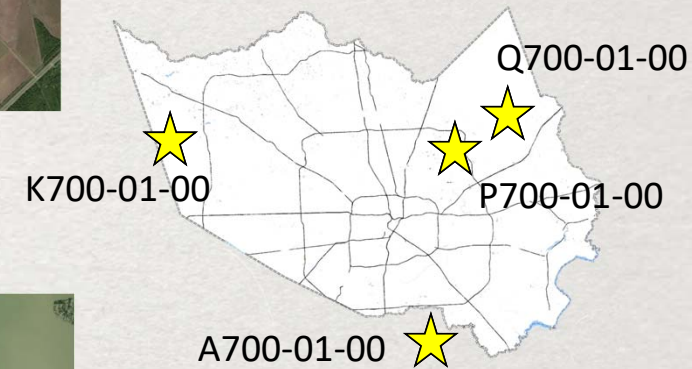
Crosby Eastgate Mitigation Bank
Q700-01-00



Clear Creek Regional Mitigation Bank
A700-01-00

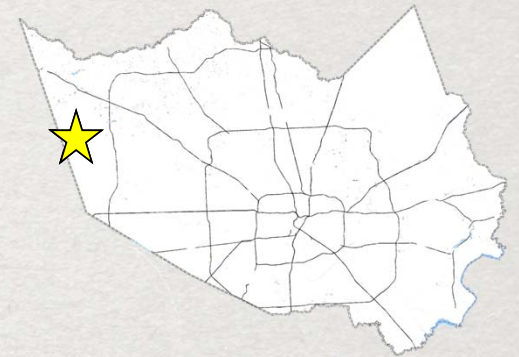
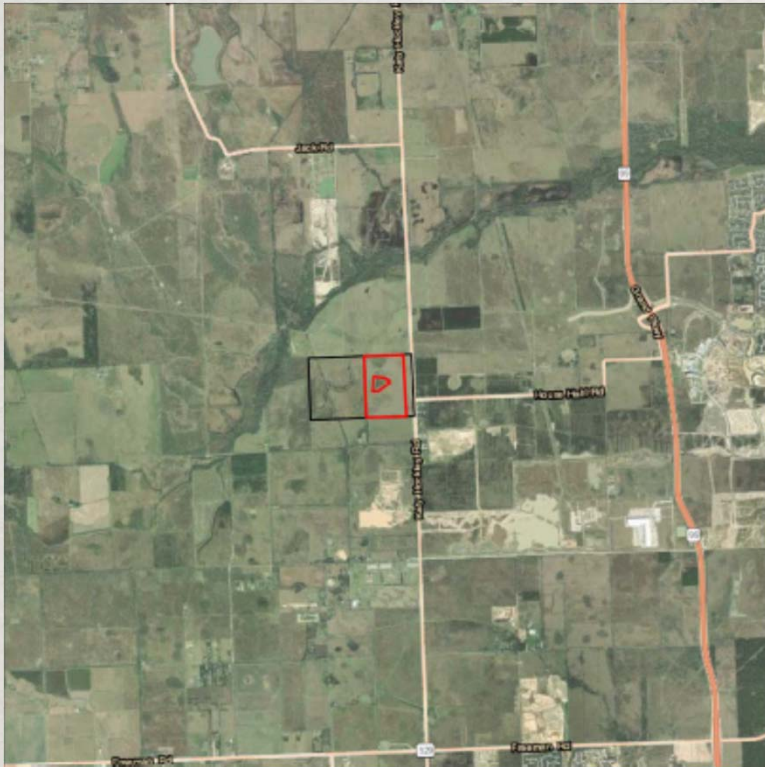


Greens Bayou Mitigation Bank
P700-01-00



Katy Hockley Mitigation Bank

K700-01-00
Katy Hockley
Mitigation Bank
Construction Plan



Katy Hockley Mitigation Site

Mitigation Bank wetlands will mimic existing prairie potholes that were successfully restored on the site in 2014.



Summary & Conclusions

- More than Drainage and Flood Control
- Detention basins improve water quality and replace habitat
- Natural Stable Channel Design creates functional lift
- Mitigation banking when options constrained

Stormwater Treatment



- Plant nutrient uptake and filtration
- Extended detention
 - Sediment settling
 - UV breakdown
- Shading of water
- Re-establishment of ecosystem services

Questions

Go see our website!!

www.hcfcd.org