Update from Consultant Team

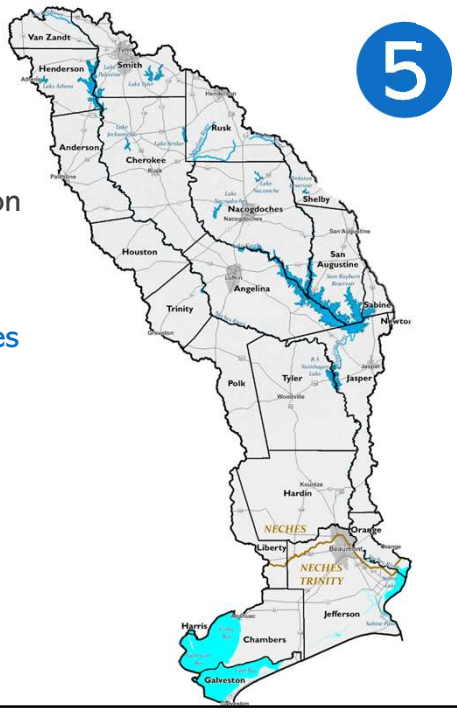
Neches Regional Flood Planning Group

January 22, 2025

1

Agenda

- 2023 Amended Flood Plan Updates
  - Task 10 – Public Participation and Plan Adoption
- Update and overview of
  - Task 1 - Planning Area Description
  - Task 2A - Existing Condition Flood Risk Analyses



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2023 Amended Flood Plan Update

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Notice of Intent Feedback Received

- Stakeholders that have responded to the notice of intent:
  - Orange County Drainage District
  - Jefferson County Drainage District 6
  - Jefferson County Drainage District 7
  - Hardin County
  - City of Vidor
  - City of Lindale


FLOOD RISK REDUCTION SOLUTIONS

HOW TO SUBMIT FOR STATE FUNDING ELIGIBILITY

Introduction to Regional Flood Planning

FME	FMS	FMP	Requirements
❑	❑	❑	**Notice of Intent by December 16, 2024**
❑	❑	❑	Project/Study Name
❑	❑	❑	Scope Description
❑	❑	❑	Shapefile (Study area or Project Area)*
❑	❑	❑	Estimated Study Cost (Non-Construction)
		❑	Estimated Construction Cost
		❑	Hydrologic & Hydraulic Models
		❑	Pre & Post Project 100yr Floodplains
		❑	Benefit Cost Analysis
		❑	No Negative Impacts Certification
		❑	Pre & Post Project Flood Risk Exposure*

Spring 2025 August 2025 February 2027

GET INVOLVED

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Notice of Intent Feedback Received

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	Name	FMX Classification	Sponsor
1	Community Safe Room	FMS	City of Vidor
2	Outreach and Education Program - Flood Insurance	FMS	City of Vidor
3	Outreach and Education Program - Flood Preparedness	FMS	City of Vidor
4	Elevation of Repetitive Loss Structures	FMS	City of Vidor
5	Acquisition of Repetitive Loss Properties	FMS	City of Vidor
6	Demolition and Clearance of Flood Damaged Commercial Structures	FMS	City of Vidor
7	Anderson Gully Crossings	FMP	City of Vidor
8	Terry Gully Detention Pond at W. Circuit Dr.	FMP	City of Vidor
9	Fred's Pond (S.Dewitt @ Dogwood)	FMP	City of Vidor

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Notice of Intent Feedback Received

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	Name	FMX Classification	Sponsor
10	Boggy Creek Channel Study* (different from existing FME)	FME	Hardin County
11	Black Creek Study* (different from existing FME)	FMP	Hardin County
12	Upper Mill Creek	FMP	Hardin County
13	Holland Rd. Drainage	FMP	Hardin County
14	Gore Store Rd. Drainage	FMP	Hardin County
15	Beaverbrook Crossing Replacement (New Bridge over Black Creek)	FMP	Hardin County
16	Bridge City Drainage Improvement Project	FMP	Orange County Drainage District
17	Shreveport Pump Station	FMP	Jefferson County Drainage District 7

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Notice of Intent Feedback Received

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	Name	FMX Classification	Sponsor
18	Sour Lake Channel Improvements	FMP**	Jefferson County Drainage District 6
19	Little Pine Island Bayou Channel Improvement	FMP	Jefferson County Drainage District 6
20	Coon Marsh Gully Channel Improvements	FMP	Jefferson County Drainage District 6
21	Coleman Gully Property Elevation	FMP	Jefferson County Drainage District 6
22	Pine Island Bayou Channel Improvements	FMP	Jefferson County Drainage District 6
23	Boggy Creek Tributary 1 Improvements	FMP	Jefferson County Drainage District 6
24	Boggy Creek Tributary 2 Improvements	FMP	Jefferson County Drainage District 6
25	Nome Conveyance Improvements	FMP**	Jefferson County Drainage District 6

***previously included in Cycle 1 as an FMP*

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Notice of Intent Feedback Received

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	Name	FMX Classification	Sponsor
26	Mayhaw Bayou Channelization & Regional Detention	FMP*	Jefferson County Drainage District 6
27	Green Pond Flow Diversion	FMP**	Jefferson County Drainage District 6
28	Mayhaw Bayou Diversion Improvements	FMP	Jefferson County Drainage District 6
29	North Fork Taylors Bayou Regional Detention and Channelization	FMP*	Jefferson County Drainage District 6
30	South Fork Taylors Bayou Regional Detention and Channelization	FMP*	Jefferson County Drainage District 6

**previously included in Cycle 1 as an FME*
***previously included in Cycle 1 as an FMP*

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Notice of Intent Feedback Received

	Name	FMX Classification	Sponsor
31	Upper Hillebrandt Bayou Conveyance Improvements and Detention	FMP	Jefferson County Drainage District 6
32	Channel 110 Conveyance Improvements Upstream of LNVA Canal	FMP	Jefferson County Drainage District 6
33	South Beaumont Tributary and Storm Sewer Conveyance Improvements Upstream of LNVA Canal	FMP	Jefferson County Drainage District 6
34	Lavaca Diversion	FMP	Jefferson County Drainage District 6
35	Corley Diversion	FMP**	Jefferson County Drainage District 6

***previously included in Cycle 1 as an FMP*

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Summary of Updates - Additional FMEs

FME	Description	Sponsor(s)	Study Cost
City of Anahuac Master Drainage Plan	Perform H&H modeling to identify and define flood risk, develop conceptual alternatives to reduce flood risk, develop OPCC for conceptual alternatives, and rank projects. Conceptual alternatives should evaluate feasibility of nature based solutions.	Anahuac	$400,000
City of Stowell Master Drainage Plan	Perform H&H modeling to identify and define flood risk, develop conceptual alternatives to reduce flood risk, develop OPCC for conceptual alternatives, and rank projects. Conceptual alternatives should evaluate feasibility of nature based solutions.	Chambers	$250,000
City of Winnie Master Drainage Plan	Perform H&H modeling to identify and define flood risk, develop conceptual alternatives to reduce flood risk, develop OPCC for conceptual alternatives, and rank projects. Conceptual alternatives should evaluate feasibility of nature based solutions.	Chambers	$250,000

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Summary of Updates - Additional FMPs

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FMP	Description	Type	Sponsor(s)	Study Cost
Double Bayou Trunkline Improvements	Install underground storm sewer system in the vicinity of Belton Lane, also upsize Belton Lane crossing to 2-6'x3' RCBs.	Comprehensive	Chambers	$24,121,000
Oak Island Drainage Improvements	Construct diversion channel to Trinity Bay to mitigate flooding in Oak Island.	Channel	Chambers	$1,489,000
Double Bayou West Fork Improvements	Construct 120-acre detention basin to mitigate flooding along Double Bayou West Fork.	Comprehensive	Chambers	$172,900,992
IH-10 Crossing Improvements	Upsize four culvert crossings along the IH-10 corridor to reduce inundation upstream of IH-10.	Comprehensive	Chambers	$76,723,000
Winnie Stowell Airport Improvements	Construct a levee around the Winnie Stowell airport to protect the area from the 100-year event. Roadway edits to Oak Island Road and Airport Road alongside a new pump station are also included.	Comprehensive	Chambers	$12,187,000
Teacherville Channel Improvements	Construct the roadside ditch and culvert improvements along Meadow Lane, Evans Street, Meadowlark Lane, Meadowcroft Lane, Dugat Road, and Franzen Road.	Comprehensive	Chambers	$27,008,000
Anahuac Drainage Improvements	Upsize culvert crossing at FM 563 and conduct channel improvements for the section of channel downstream of the crossing.	Comprehensive	Chambers	$5,669,000

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Chambers FIF Project Locations

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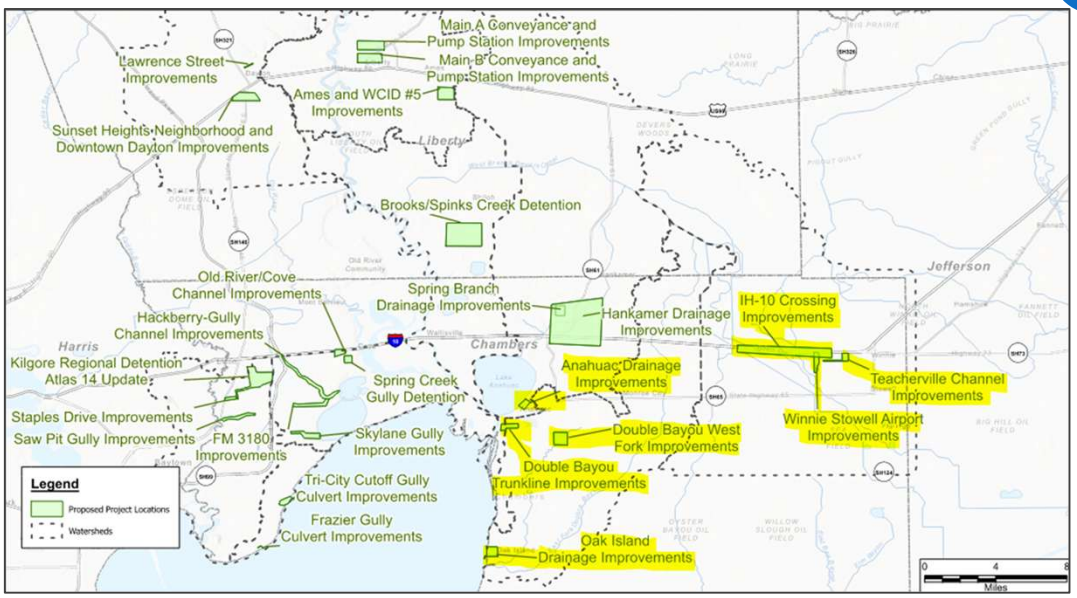

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Double Bayou West Fork Improvements

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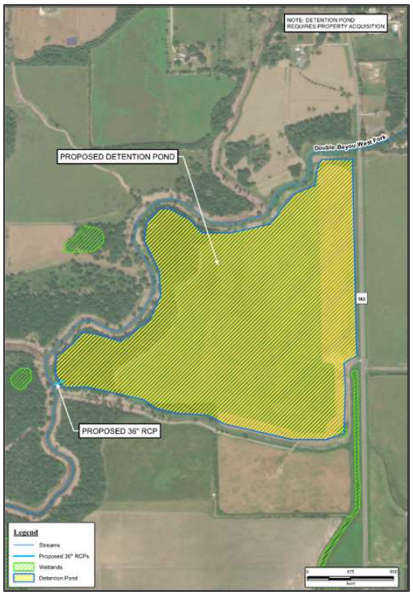
- FMP Components
  - 120-acre detention pond to be placed along Double Bayou West Form w/ 36" RCP outfall
  - Pond to have approximately 1200 ac-ft of storage capacity
  - Proposed improvements will require property acquisition
- BCR Analysis
  - Cost: $172,901,000
  - BCR = 0.02
  - 21 structures removed from 100-YR flood risk



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Double Bayou West Fork Improvements

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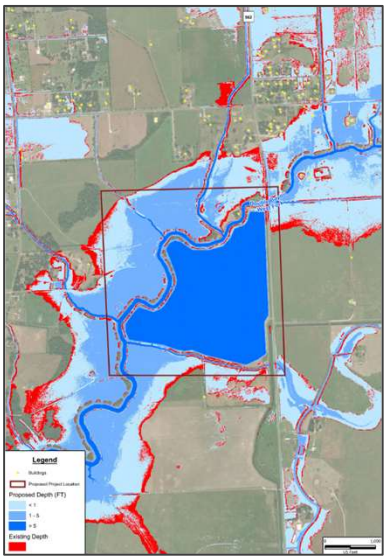
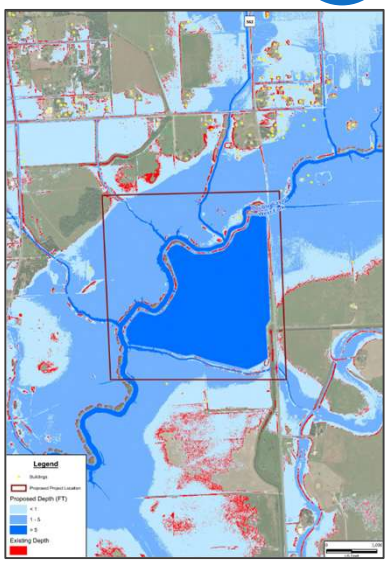


Project 10-YR Benefit



Project 100-YR Benefit

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Oak Island Drainage Improvements

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- FMP Components
  - Proposed channel to divert water west from the tributary into Trinity Bay
  - Proposed channel to be 5 ft deep with a 50 ft bottom width and 4:1 side slopes
  - Proposed improvements will require property acquisition
- BCR Analysis
  - Cost: $1,489,000
  - BCR = 5.32
  - 24 structures removed from 100-YR flood risk

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Oak Island Drainage Improvements

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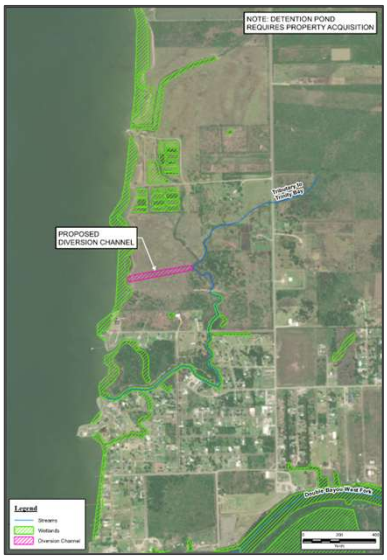

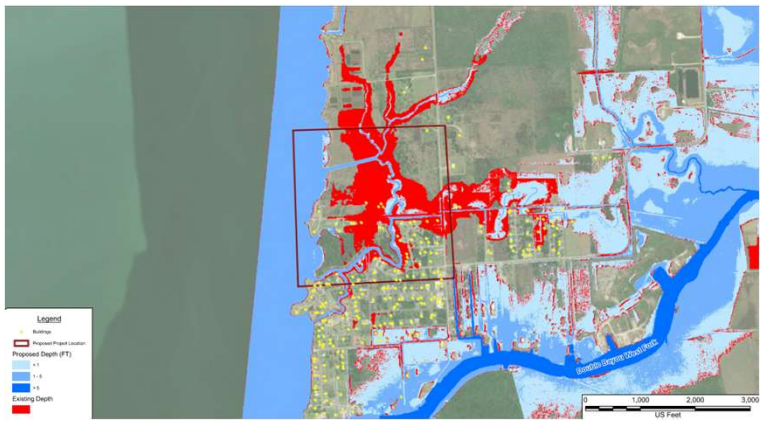

Project 10-YR Benefit

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Double Bayou Trunkline Improvements

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- FMP Components
  - Proposed underground storm sewer
    - 1st system: 6'x3' RCB trunkline with 36" laterals running west from Texas Avenue to outfall into a tributary to Double Bayou.
    - 2nd system: 8'x8' trunkline with 36" laterals flowing west to outfall into the Trinity River.
  - 2 4'x4' RCB systems on Magnolia Avenue and Galveston Avenue
  - Improved culvert crossing at Belton Lane to upsize from 2-48" RCPs to 2-6'x3' RCBs
- BCR Analysis
  - Cost: $24,121,000
  - BCR = 2.09
  - 44 structures removed from 100-YR flood risk

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Double Bayou Trunkline Improvements

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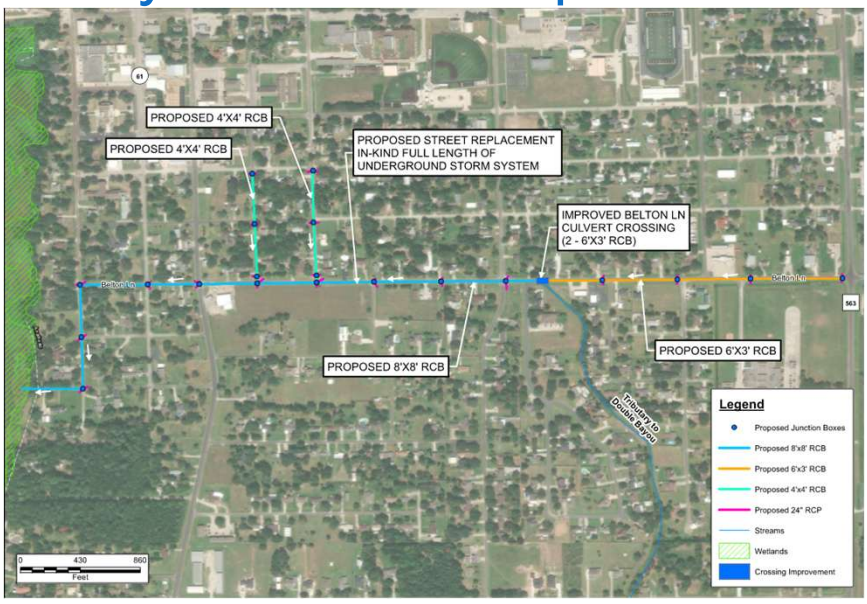

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IH-10 Crossing Improvements

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- FMP Components
  - Deepening and widening of Spindletop Bayou and Rush Ditch near IH-10
  - Improved culvert crossings at Ogden Ditch, Rush Ditch, Spindletop Bayou, and an unnamed channel. All crossings converted to bridge crossings.
- BCR Analysis
  - Cost: $76,723,000
  - BCR = 0.01
  - 4 structures removed from 100-YR flood risk

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IH-10 Crossing Improvements

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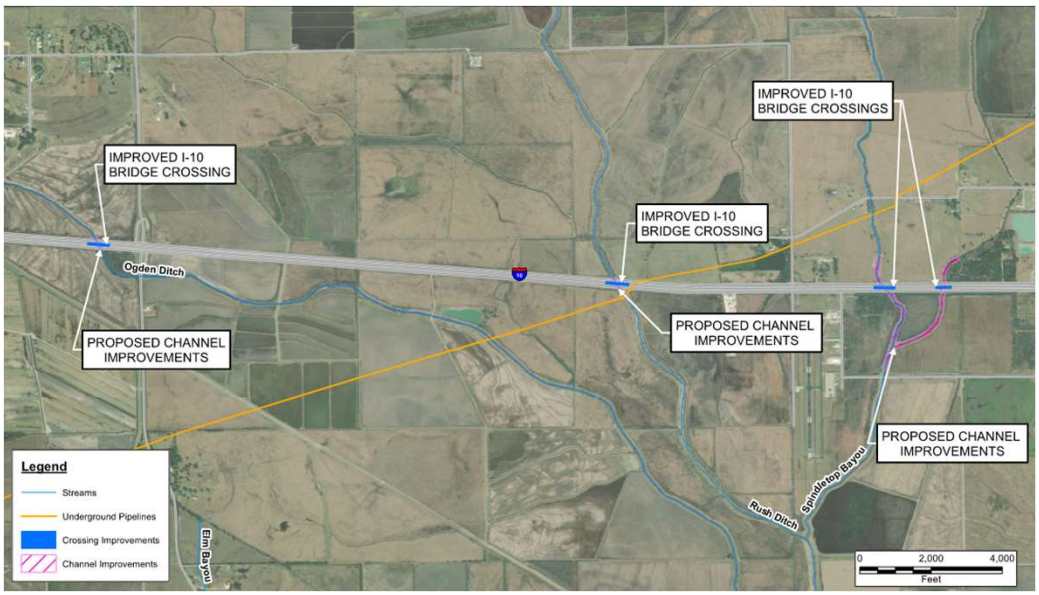

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Winnie Stowell Airport Improvements

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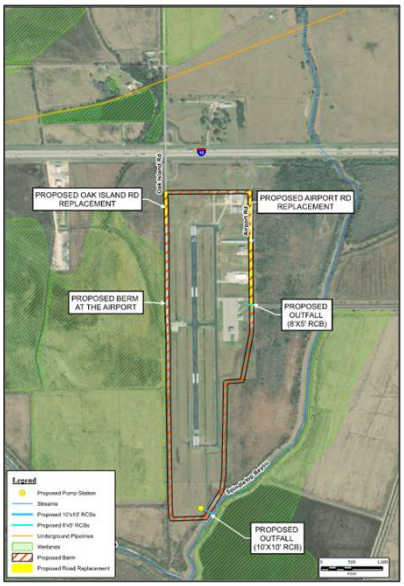
- FMP Components
  - Proposed berm along perimeter of airport to protect from major storm events
    - Road replacement required at Oak Island Road and Airport Road to allocate for proposed berm
  - Proposed 8'x5' RCB at existing east ditch and a 10'x10' RCB at the existing south ditch
  - Proposed Pump Station to pump water outside of the berm perimeter
- BCR Analysis
  - Cost: $12,187,000
  - BCR = 0.49
  - 58 structures removed from 100-YR flood risk



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Winnie Stowell Airport Improvements

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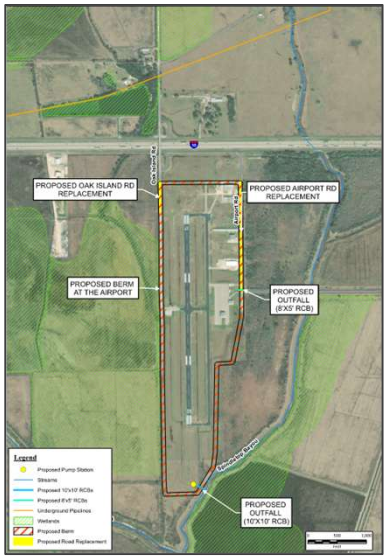
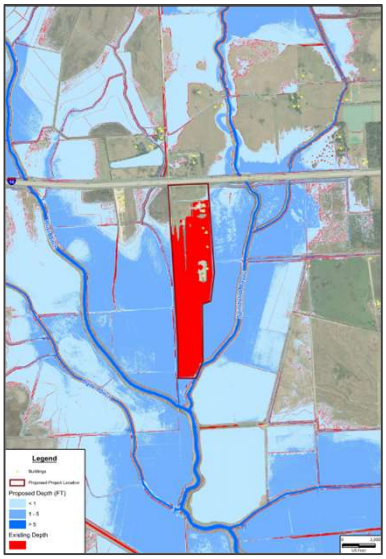
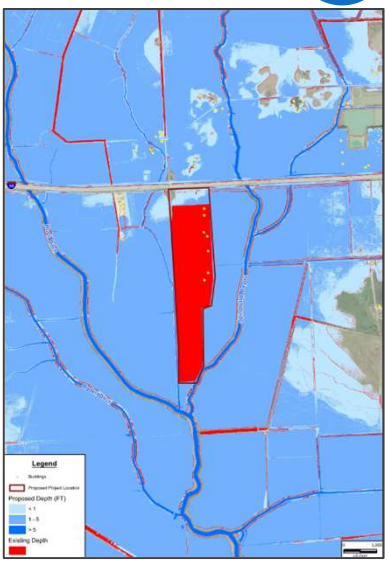




Project 10-YR Benefit



Project 100-YR Benefit

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Teacherville Channel Improvements

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- FMP Components
  - Deepen and widen the tributary to Spindletop Bayou from FM 1406 to the confluence at Spindletop Bayou.
  - Neighborhood roadside ditch improvements to take place alongside a multitude of culvert crossing upgrades
- BCR Analysis
  - Cost: $27,008,000
  - BCR = 0.39
  - 27 structures removed from 100-YR flood risk

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Teacherville Channel Imrpovements

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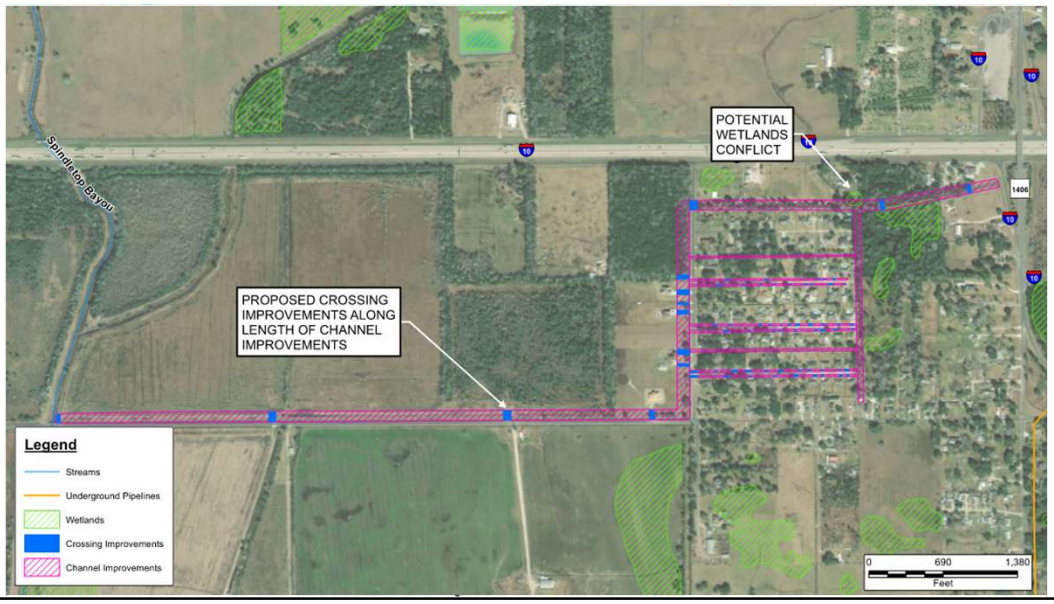

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Anahuac Drainage Improvements

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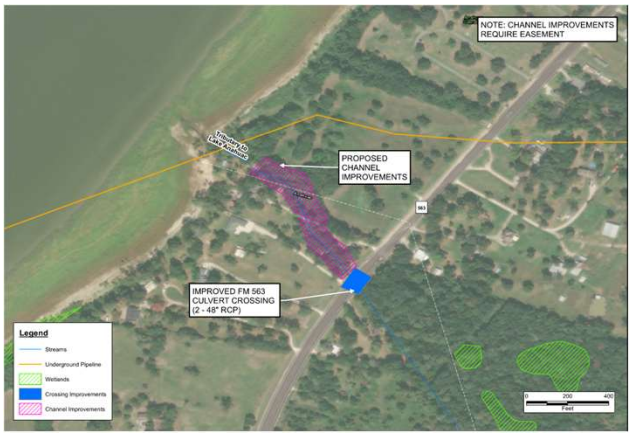
- FMP Components
  - Deepen and widen the tributary to Lake Anahuac downstream of FM 563
  - Improved culvert crossing under FM 563 from 2-24" RCPs to 2-48" RCPs
  - Proposed improvements require property acquisition
- BCR Analysis
  - Cost: $5,669,000
  - BCR = 0.01
  - 18 structures removed from 100-YR flood risk



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Anahuac Drainage Improvements

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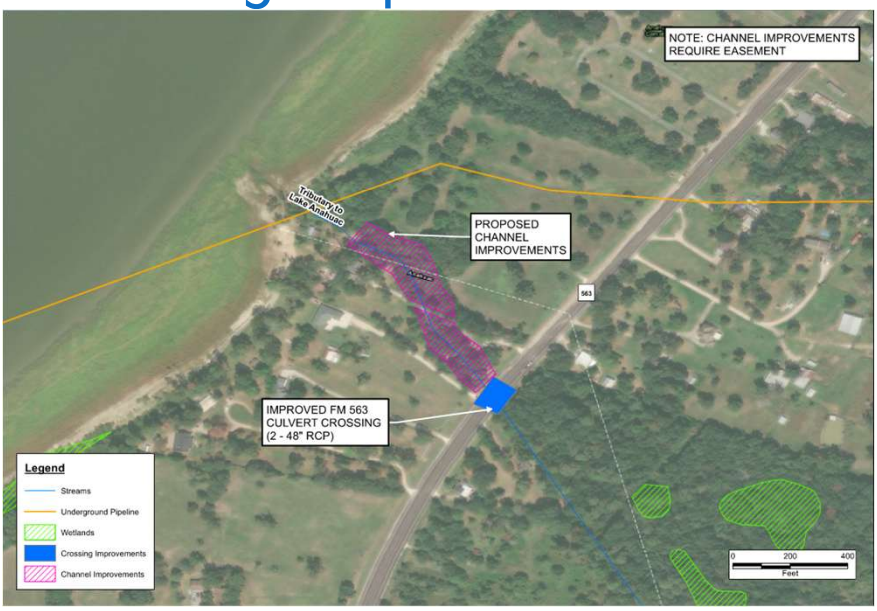

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Summary of Updates - Additional FMSs

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FMS	Description	Sponsor(s)	Study Cost
SE Texas R.A.I.N. Gage Network Improvements*	Re-location and installation of rain and stream gages throughout jurisdiction.	Chambers	$444,375*
Community Rating System*	Join the Community Rating System to reduce flood insurance premiums and flood risk for residents.	Chambers	$69,022*
Flood Model and Map Management System*	Develop and implement a web-based system to manage flood models and mapping and regulate future development.	Chambers	$345,111*
Chambers County Property Acquisition*	Develop and implement a web-based system to manage flood models and mapping and regulate future development.	Chambers	$3,451,112*
Chambers County Drainage Criteria Manual Update	Update Drainage Criteria Manual for the County to minimize and eliminate the possibility of future development adversely impacting downstream communities.	Chambers	$150,000

**costs split with San Jacinto and Trinity RFPs*

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Amendment Process for RFPG Consideration

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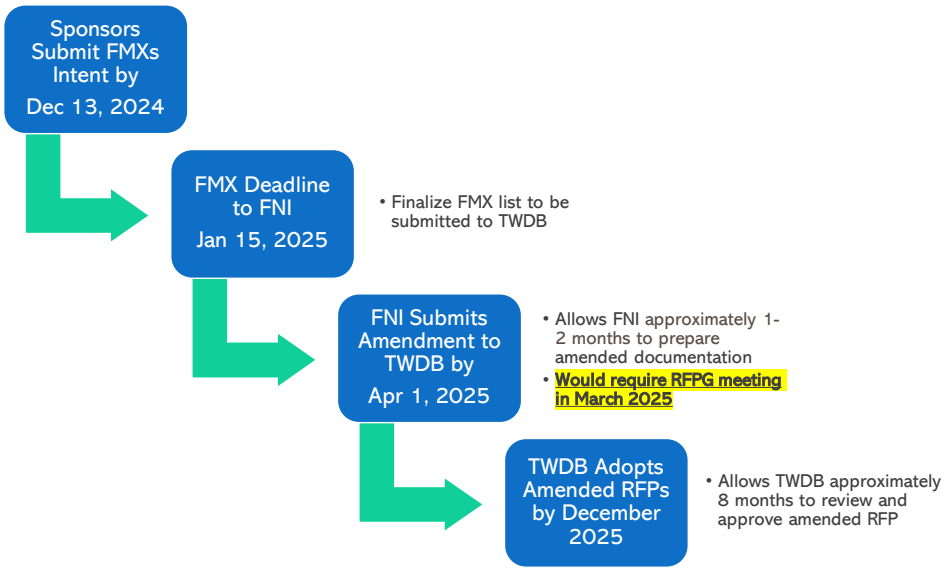

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2nd Cycle Overview Update

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Task 1 – Planning Area Description

- Summarizes the Flood Planning Region
- Inventory Natural Features and Constructed Major Flood Infrastructure
- Describe Ongoing Flood Mitigation Projects

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Task 1 – Planning Area Description

- Region 5 by the numbers:
  - 11,542 square miles
  - 1,019,184 people in the region (2020 Census)
    - 3.5% of Texas population
  - 24 counties and 79 municipalities
    - Harris and Newton County have minimal areas within region
  - 92% rural by land area
  - 2 urbanized areas account for over 60% of the region's population
  - 9,673 stream miles
  - Addition of dam & levee inventory
  - Specific inventory of low water crossings

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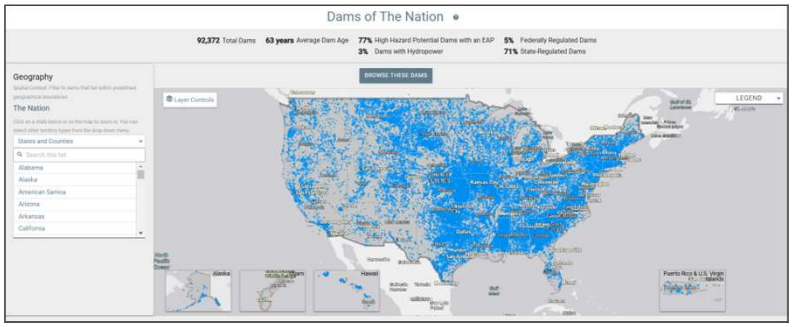
Task 1 – Planning Area Description

- Dam and Levee Inventory
  - National Inventory of Dams (USACE)
  - National Levee Database (USACE)
  - State Regulated Dams (TCEQ)

"Include a specific levee and dam inventory including the location, designated owner of every major levee and dam located within the regional planning area, and an indication of whether levees have FEMA accreditation or not."



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Task 1 – Planning Area Description

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- Highlights from Technical Guidance:
  - Low Water Crossings (LWC) defined as roadway stream crossings inundated in the 2-YR event.
  - New requirement to denote confidence behind the functionality and condition of infrastructure
    - **High:** Data used for classification came from the entity through findings of a study or analysis
    - **Low:** Data used for classification is based on asset attributes and assumptions
    - **None:** No data available to determine classification
  - For GIS digitization, minimum length of features set to 500 ft.

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Task 1 – Planning Area Description

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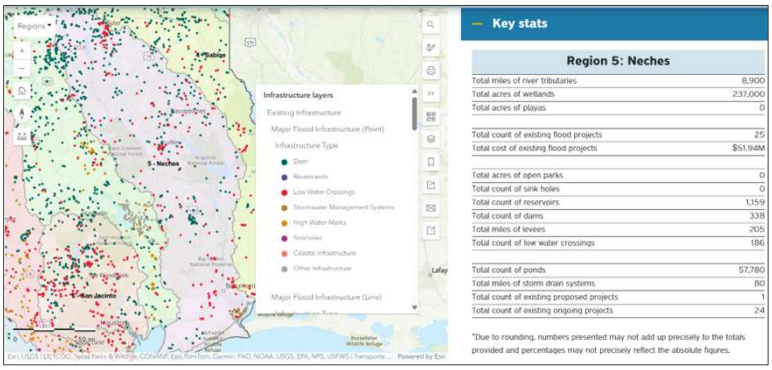
- This cycle aims to improve understanding of ***functionality*** and ***condition*** of stormwater assets.
  - Most infrastructure identified in Cycle 1 unable to have functionality and condition determined

Information on Task 1 data collected in the 2023 Neches RFP can be found on nechesfloodplanning.org and the State Flood Plan Viewer.



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Task 1 – Planning Area Description

5

- Public survey intended to capture new/updated information since last cycle
- Aim to launch soon to begin capturing data
- Apply lessons learned
- Couple with existing resources:
  - Webmapping
  - Website Storymap
  - State Flood Plan Viewer

Last cycle public survey incorporated webmap, data upload, and public/stakeholder variants

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Task 1 – Planning Area Description

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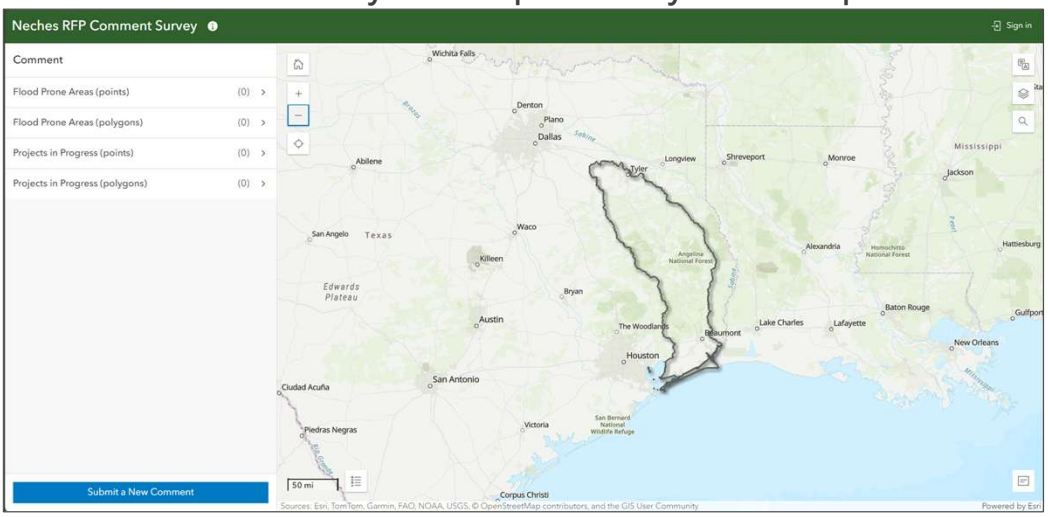
- 2028 RFP Public Survey Webmap currently in development



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Task 1 – Planning Area Description

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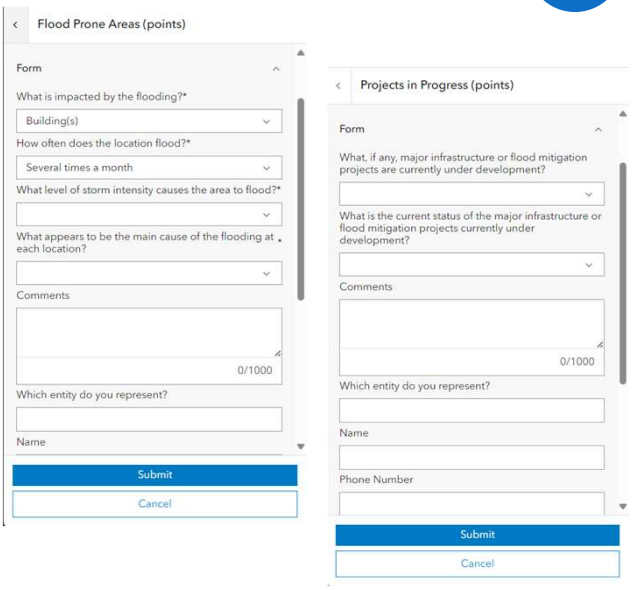
- Survey now has an option to record locations of ongoing flood mitigation projects
  - Will ask what type of infrastructure (canal, weirs, storm drain system, etc.) is part of the improvements
  - Will also ask what phase the project is in (conceptual phase, preliminary design, construction, etc.)



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Task 1 – Planning Area Description

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- Information to be received
  - Infrastructure Assessment Toolkit
    - Toolkit that can be used by city/county engineers and municipal staff to supply information on the condition and function of existing flood infrastructure within their jurisdiction.

Table 3-5: Roadway Stream Crossings, Culverts, and Bridges Condition Classification Guidance

	DEFICIENT	NON-DEFICIENT
HIGH	Documented as deficient in a report or study performed in the last 10 years ***OR*** institutional knowledge of structural deficiency	Documented as non-deficient in a report or study performed in the last 10 years
LOW*	Age is greater than 50 years ***OR*** institutional knowledge of structural deficiency, ***OR*** there is limited O&M budget relative to the amount of infrastructure managed by the asset owner	Age is less than 50 years ***AND*** no institutional knowledge of deficiency

**Use engineering judgment to assess whether these characteristics can inform, with a low confidence level, the condition (deficiency) classification.*

Table 3-6: Roadway Stream Crossings, Culverts, and Bridges Functionality Classification Guidance

	FUNCTIONAL	NON-FUNCTIONAL
HIGH	Documented as functional in a report or study performed since 2018 (NOAA Atlas 14 publication date)	Documented as non-functional in a report or study performed since 2018 (NOAA Atlas 14 publication date)
LOW*	No institutional knowledge of capacity concerns, ***OR*** based on Task 2 Existing Flood Risk Exposure, there appears to be capacity to pass the 100-yr event	Institutional knowledge of capacity concerns

**Use engineering judgment to assess whether these characteristics can inform, with a low confidence level, the functionality (capacity) classification.*

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Task 2 – Flood Risk Analyses

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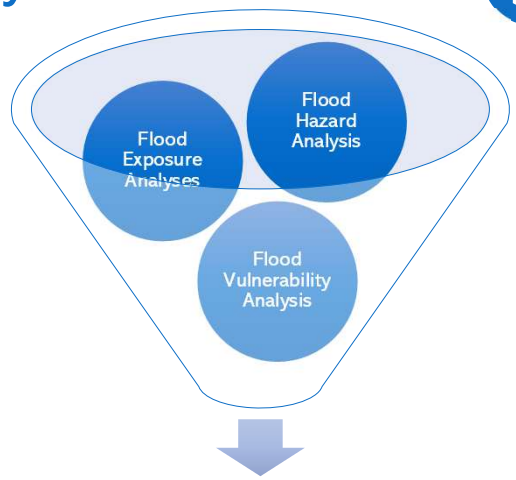
- Perform existing and future condition flood risk analyses for the region that comprises of:
  - Flood *hazard* analyses that determine location, magnitude and frequency of flooding
  - Flood *exposure* analyses to identify who and what may be harmed in the region
  - Flood *vulnerability* analyses to identify vulnerabilities of communities and critical facilities



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Task 2A – Existing Flood Hazard

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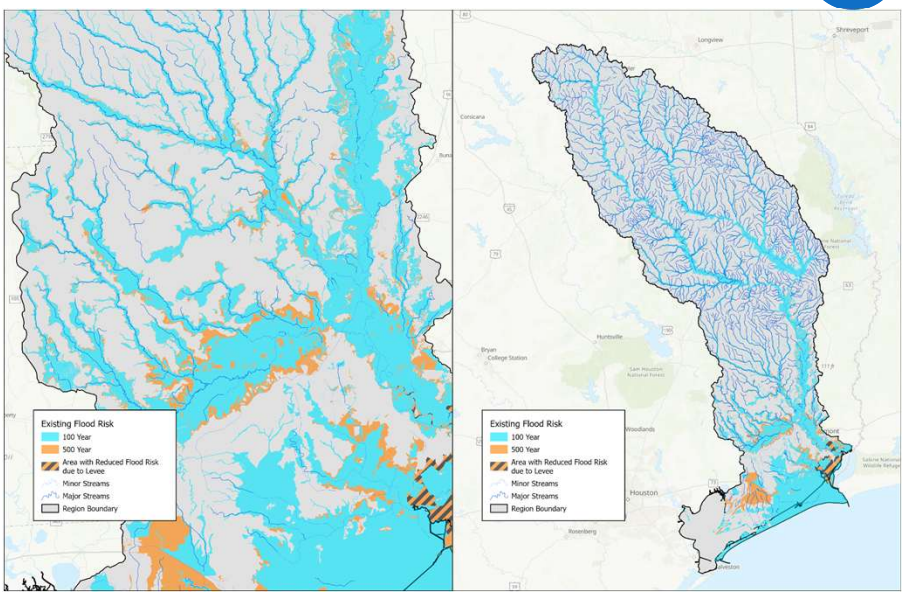
NFHL Pending
NFHL Preliminary
NFHL Detailed
BLE
NFHL Approximate



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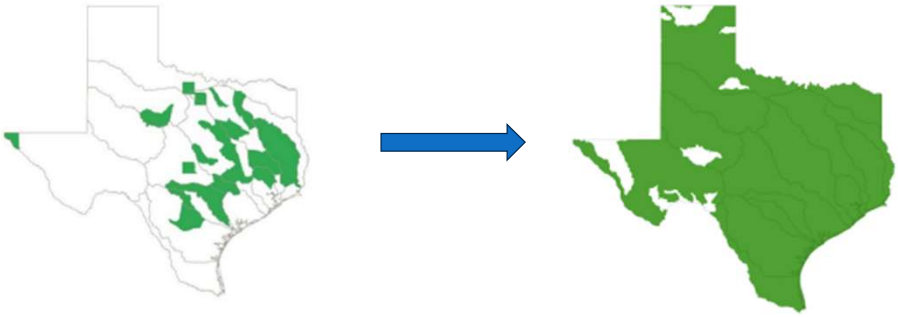
BLE Overview

- A *significant* increase in BLE coverage throughout Texas for Cycle 2.



Cycle 1 BLE Coverage

Cycle 2 BLE Coverage

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Task 2 – Flood Risk Analyses

- Highlights from Technical Guidance:
  - Both Existing and Future Flood Risk Analyses to consider 10-YR event in addition to the 100-YR and 500-YR events
  - Vulnerability analyses shall include the Social Vulnerability Index from the CDC in addition to the new flood-specific SVI for Texas (TX F-SVI)
    - Buildings data shall include both SVI values in addition to daytime and nighttime population values
  - TWDB is currently developing a Future Conditions dataset that accounts for future climate variability and associated rainfall patterns, sea level rise, land subsidence, and land use change
    - RFPG may choose to utilize other or more accurate future condition flood hazard information, but requires thorough documentation and approval from Executive Administrator

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Task 2 – Flood Risk Analyses

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- Information to be received
  - Updated Floodplain "Quilt"
    - GIS Feature class from TWDB that compiles floodplain information from multiple sources to construct a single flood hazard dataset for the entire flood planning region
  - 2028 Flood Planning Buildings Dataset
    - Updated statewide buildings dataset that will include CDC SVI and TX F-SVI values in addition to daytime and nighttime population values
  - Future Condition Flood Hazard Dataset
    - Statewide Future Condition Flood Hazard for the year 2060 that accounts for future climate variability, associated rainfall patterns, sea level rise, land subsidence, and land use change

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Planning Schedule

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Jan/Feb

- Technical Consultant to begin coordination 2nd Amendment updates for 1st Cycle RFP
- Technical Consultant to commence 2nd Cycle Regional Flood Plan

March

- Technical Consultant to provide copy of Amended 1st cycle RFP for RFPG comment
- RFPG to vote to approve the 2nd Amendment to the 2023 Regional Flood Plan

April

- Technical Consultant to submit 2nd amendment of the 2023 Regional Flood Plan
- Technical consultant to proceed with work on 2nd Cycle Regional Flood Plan

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