

# **Region 8 - Lower Brazos**

## **Regional Flood Planning Group**

**LOWER BRAZOS REGIONAL FLOOD PLANNING GROUP**

**Thursday, May 4, 2023**

**10:00 AM**

**Brazos River Authority**

**4600 Cobbs Dr., Waco, TX 76710**

# Region 8 - Lower Brazos

## Regional Flood Planning Group

- 1. Call Meeting to Order and Attendance**
- 2. Public Input - Public comments on agenda items or flood planning issues  
(limit to 3 minutes each)**

# Region 8 - Lower Brazos

## Regional Flood Planning Group

- 3. Discussion on the Lower Brazos Regional Flood Planning Group (LBRFPG) allowing additional exceptions to the 1 square mile rule beyond those specifically listed by the TWDB**
- 4. Discussion on what additional specific criteria should be recommended to ensure the original intent of “regional” is met**
- 5. Discussion on criteria to ensure these exceptions are applied consistently in the regional flood plan**

# Region 8 - Lower Brazos

## Regional Flood Planning Group

- 6. Discussion on the timing of when the LBRFPG should consider allowing projects meeting the recommended criteria into the regional flood plan**
- 7. Discussion and consideration of any other information that would be beneficial for the full RFPG to consider regarding the 1 square mile rule**

# REGION 8

## LOWER BRAZOS REGIONAL FLOOD PLAN

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*RFPG Technical Committee Meeting*

May 4, 2023



# Presentation Outline

- Discuss 1 Sq Mi guidance
- Other Regions
- Current FMP received
- Recommendation discussion

# FMPs for Amended Plan

## Overview

- Received new FMXs for consideration since approval and submittal of Lower Brazos Regional Flood Plan (**established cutoff date – March 31<sup>st</sup>, 2023**)
  - **Before** the cutoff date: Requests for the inclusion of additional FMPs from City of Stephenville and City of Taylor
  - **After** the cutoff date: Requests for the inclusion of additional FMXs from Cities of Gatesville, Eastland, Nolanville, and Cedar Park
  - All necessary data for inclusion in the RFP should have been developed as part of TWDB requirements for FIF studies
- Several of the FMPs have contributing drainage areas of less than 1 square mile

### **Additional guidance:**

The RFPGs will recommend specific FMPs in the regional flood plan. The primary function of each recommended FMP must be flood risk reduction and they must include quantifiable flood risk reduction benefits. The RFPGs will also identify the reason for their recommendation, based on evaluations initiated in Task 4 and completed Task 5.

This section of the regional flood plan should focus primarily on FMPs with a contributing drainage area greater than or equal to 1.0 (one) square miles **except in instances of flooding of critical facilities or transportation routes or for other reasons, including levels of risk or project size, determined by the RFPG.**

# FMPs under 1 Square Mile

## Past Discussions

### ➤ **December 14<sup>th</sup>, 2021**

- Discussion of the draft FMP list for inclusion in the Technical Memorandum
- Group members expressed desire to enforce 1 square mile threshold even if TWDB does not require
  - Regional Flood Plan should include projects that provide regional benefits

### ➤ **March 24<sup>th</sup>, 2022**

- Discussion of development of BCAs and other information under Task 5
- Group members commented that it is not the purpose of the Regional Flood Plan to address localized drainage issues

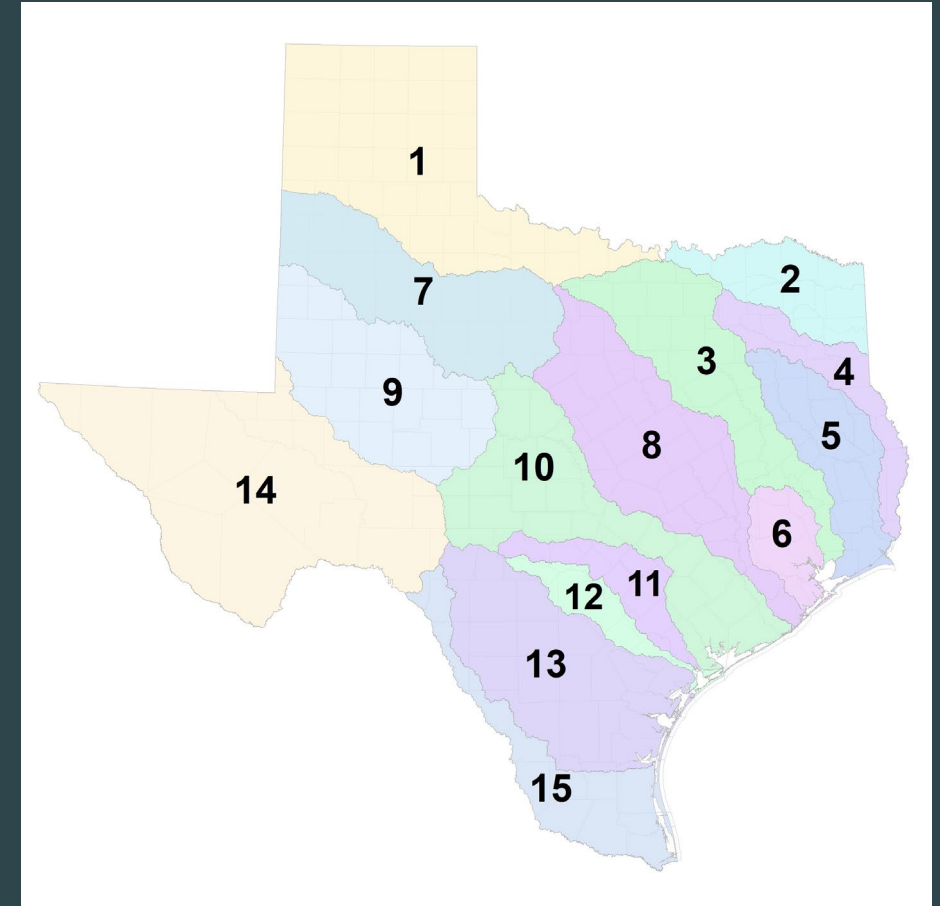
### ➤ **May 26<sup>th</sup>, 2022**

- Discussion of FMPs for recommendation under Task 5
- Group members request 3 FMPs are removed from the recommended list due to not meeting 1 square mile threshold



# FMPs Under 1 Sq Mile

Region	Number of Rec. FMPs	Rec. FMPs > 1 mi	Rec. FMPs < 1 mi
1: Canadian Upper-Red	9	2	7
2: Lower Red-Sulphur-Cypress	3	2	1
3: Trinity	7	2	5
4: Sabine	2	1	1
5: Neches	5	5	0
6: San Jacinto	37	33	4
7: Upper Brazos	3	0	3
8: Lower Brazos	24	24	0
9: Upper Colorado	8	2	6
10: Lower Colorado-Lavaca	35	12	23
11: Guadalupe	28	11	17
12: San Antonio	28	0	28
13: Nueces	0	0	0
14: Upper Rio Grande	14	2	12
15: Lower Rio Grande	2	1	1
<b>Total</b>	<b>205</b>	<b>97</b>	<b>108</b>



# Additional FMEs Received

FME Type and Name	Brief Description	Sponsor	FMX Cost	FMX Area (sq mi)	Date Received
Big Sandy – New Year Creek DMP	Determine source and potential mitigation for flooding at identified creeks.	Washington County	\$483,000	33.2	Already on non-reco list
Nolanville Drainage Master Plan	Atlas 14 H&H modeling and CIP development. Focus on developing BCA and prioritization plan.	City of Nolanville	\$200,000	3.51	April 24
Cedar Park Drainage Master Plan	Atlas 14 H&H modeling and CIP development. Focus on developing BCA and prioritization plan.	City of Cedar Park	\$500,000	25.7	April 24
Brazos River Flood Protection Plan Update	Update to previously completed Brazos FPP to incorporate latest modeling and data and create comprehensive analysis for the Brazos River.		\$500,000	10,000	April 28

# Additional FMPs Received

➤ If all additionally received FMPs are recommended, Lower Brazos RFP will have 45 total FMPs

FMP Type and Name	Brief Description	Sponsor	FMX Cost	FMP Area (sq mi)	Date Received
Prairie Wind Alt 2	Channel and crossing improvements.	Stephenville	\$6,182,000	1.56	January 20
Lingleville Alt 2	Grading and crossing improvements.	Stephenville	\$2,014,000	< 1.0	January 20
County Road 256 Alt 1	Grading and crossing improvements, raising road.	Stephenville	\$4,145,000	4.25	January 20
Morgan Mill Alt 1	Grading and crossing improvements.	Stephenville	\$2,661,000	3.89	January 20
Long St Alt 1	New bridge and raising road.	Stephenville	\$8,993,000	133	January 20
Mallard Lane	New channel and storm sewer system.	Taylor	\$1,917,000	< 1.0	February 9
Annie St – 2 <sup>nd</sup> St	New storm sewer system.	Taylor	\$3,093,000	< 1.0	February 9
KBI Pond Improvements	Pond improvements.	Taylor	\$227,000	< 1.0	February 9
Bel Air Drive	New storm sewer and erosion prevention system.	Taylor	\$1,057,000	< 1.0	February 9
Davis South St – 2 <sup>nd</sup> St	New storm sewer system.	Taylor	\$5,035,000	< 1.0	February 9
City of Eastland CIPs	4 CIP projects developed under a Category 1 FIF study.	Eastland	Unknown	Unknown	April 19
City of Gatesville Projects	3 projects and 4 abridged projects developed under a Category 1 FIF study.	Gatesville	Unknown	Unknown	April 19

# Additional FMPs Received

- Snapshot of 2 of the 5 submitted projects from City of Taylor
- Projects provide benefits to many residential structures as well as reducing ponding across streets

## MALLARD LANE STORM SEWER SYSTEM

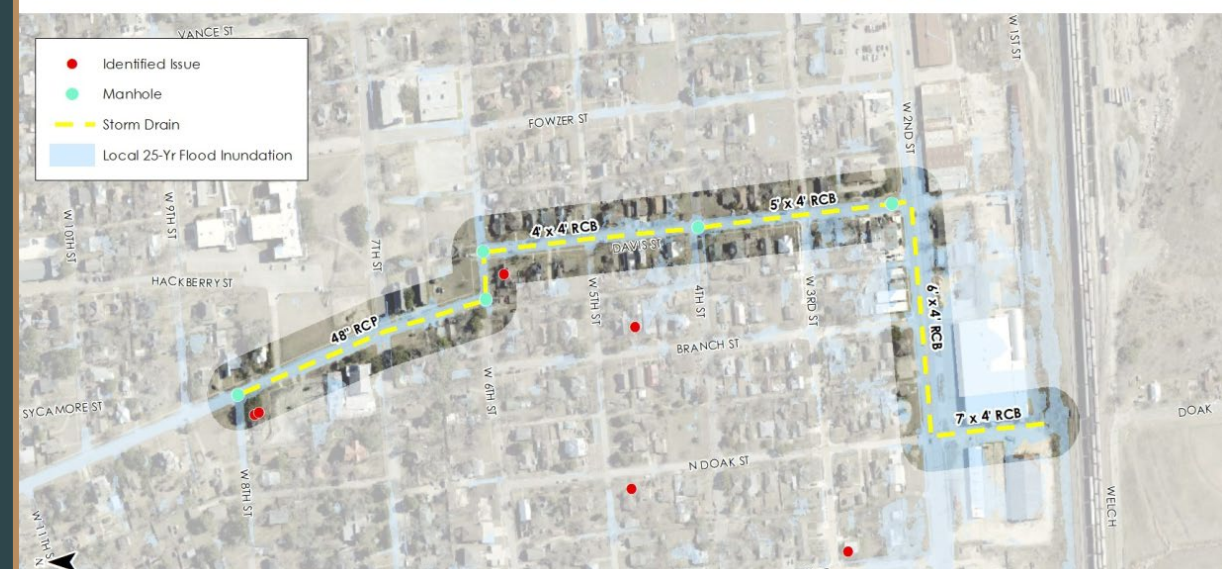


### QUICK FACTS

- ➔ 4 Public Input Points Addressed
- ➔ 70 Structures Benefited
- ➔ 1620 Feet of Storm Drain
- ➔ 490 Feet of Channel Improvements
- ➔ Road Improvements:
- ➔ Increased conveyance by adding a storm sewer system
- ➔ Project Cost Estimate: \$ 1,916,860

**DRAFT**

## DAVIS STREET STORM SEWER SYSTEM



### QUICK FACTS

- ➔ 4 Public Input Point Addressed
- ➔ 65 Structures Benefited
- ➔ 4685 Feet of Storm Drain
- ➔ Road Improvements:
- ➔ Increased conveyance by adding a storm sewer system
- ➔ Project Cost Estimate: \$ 5,035,240

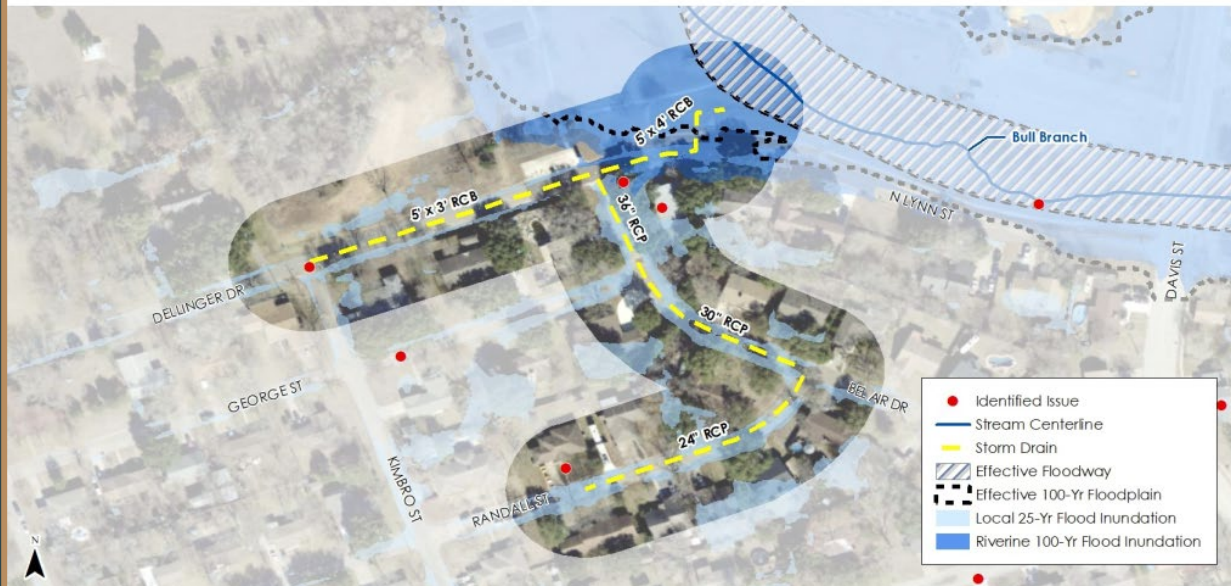
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# Additional FMPs Received

- Snapshot of 2 of the 5 submitted projects from City of Taylor
- Projects provide benefits to many residential structures as well as reducing ponding across streets

## BEL AIR DRIVE STORM SEWER SYSTEM

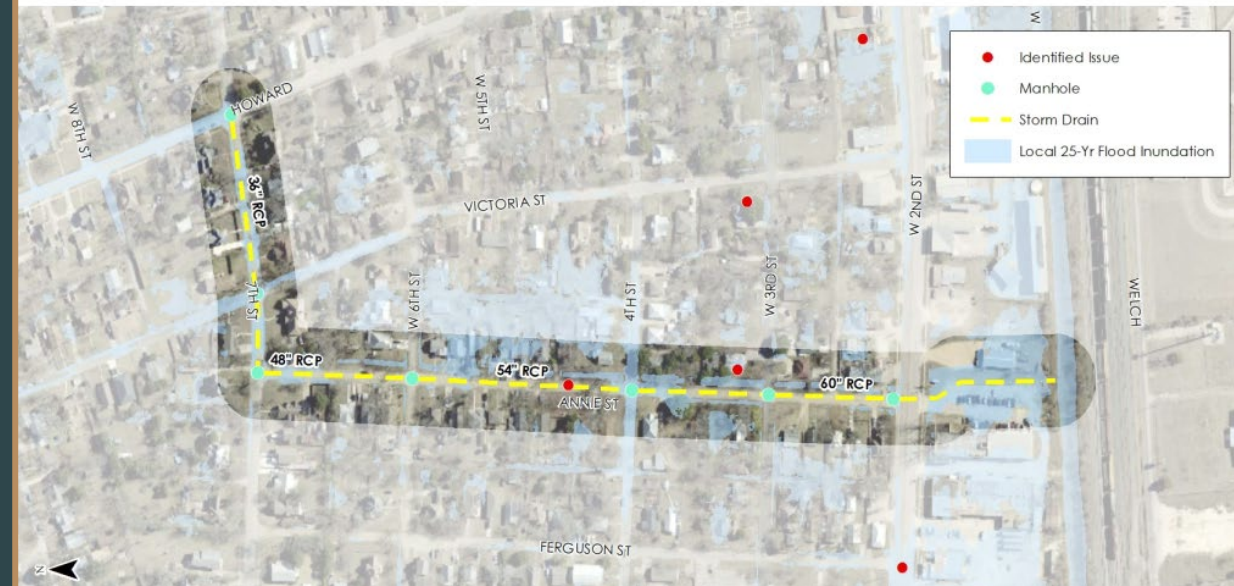


### QUICK FACTS

- ➔ 5 Public Input Points Addressed
- ➔ 25 Structures Benefited
- ➔ 1365 Feet of Storm Drain
- ➔ Road Improvements:
  - ⬆ Increases conveyance by adding a storm sewer system
- ➔ Project Cost Estimate: **\$ 1,057,490**

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## ANNIE STREET STORM SEWER SYSTEM



### QUICK FACTS

- ➔ 3 Public Input Point Addressed
- ➔ 85 Structures Benefited
- ➔ 3790 Feet of Storm Drain
- ➔ Road Improvements:
  - ⬆ Increased conveyance by adding a storm sewer system
- ➔ Project Cost Estimate: **\$ 3,092,650**

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# Benefits Comparison

**FMP > 1 Sq Mi**

## Fairchild Creek Channel Improvements

- Channel improvements to increase flow capacity through creek
- About 30 square mile drainage area
- Removes 931 structures from 100-yr flood risk
- Additional benefits to roads and agricultural areas
- Estimated cost = \$190,448,000

**FMP < 1 Sq Mi**

## Mallard Lane Storm Sewer System

- Addition of storm sewer and channel improvements throughout neighborhood
- Less than 0.50 square mile drainage area
- Reduces risk to 70 structures
- Additional benefits to roads
- Estimated cost = \$1,917,000

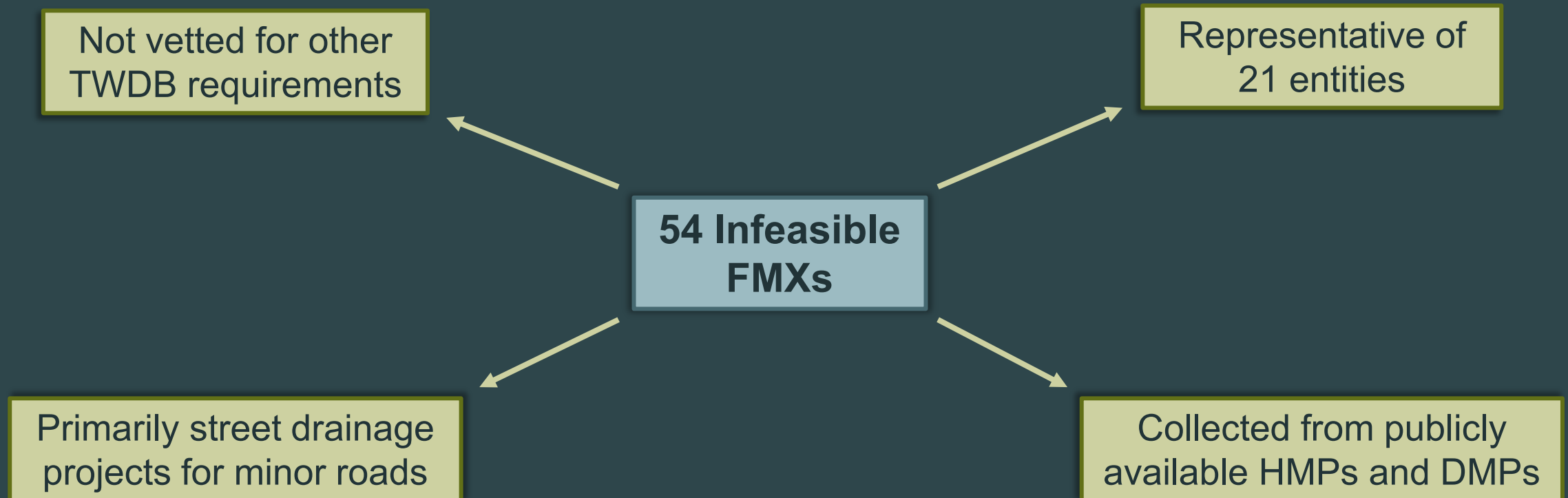
# Non-Recommended FMPs

➤ Did not recommend 3 FMPs due to the 1 square mile limitation

FMP Name	Brief Description	Sponsor	FMP Cost	FMP Area (sq mi)
826 & 827 Vine St Property Flooding	Structural buyouts of (4) homes in the floodplain at identified critical locations.	City of Bryan	\$600,000	0.46
Hazelwood Crossing	Construction of a bridge to alleviate a <b>low water crossing</b> and allow for access to neighborhood during a storm event.	McLennan County	\$616,000	0.89
Panther Bridge Crossing	Construction of a bridge to allow for access to neighborhood during a storm event.	McLennan County	\$668,000	0.86

# Infeasible FMXs

- Many FMXs found during preliminary research were categorized as infeasible due to being localized efforts (< 1 square mile).
  - Were not submitted directly by sponsors, so unknown if there would be sponsorship support.
  - Without models or other supporting data, would not qualify as FMPs – instead would primarily be classified as Preliminary Engineering FMEs and FMSs.





# Recommendations for Small FMPs

## Options discussion

- **1. Recommend FMPs submitted by entities in region**
  - If communities are willing to submit all the necessary data required by the TWDB, then recommend the FMP regardless of contributing area size.
- **2. Recommend FMPs that meet RFPG Goals**
  - If communities are willing to submit all the necessary data required by the TWDB, then recommend the FMP regardless of contributing area size if they align with the goals set by the RFPG.
- **3. Recommend FMPs that meet RFPG Goals and Guidance Principles**
  - If communities are willing to submit all the necessary data required by the TWDB, then recommend the FMP regardless of contributing area size if they align with the goals set by the RFPG and the guidance principles as defined by the RFPG, e.g. levels or risk, project size, etc.

# RFPG Goals

ID	Regional Flood Planning Goals
1	Increase the number of counties and communities enrolled in the NFIP
2	Increase the number of counties and communities that have adopted higher than NFIP standards, including directing development away from the floodplain
3	Increase the number of entities that have adopted the best available data and science for their designs and plans
4	Improve safety at low water crossings by adding warning systems/signage or improving low water crossings in high-risk areas
5	Reduce the number of structures that are at risk of flooding during the 1% annual chance flood event by both structural (flood infrastructure) and non-structural (elevation, acquisition, relocation, etc.) means
6	Reduce the number of critical facilities at risk of flooding during a 1% annual chance of flooding to above the 0.2% annual chance flood event by both structural (flood infrastructure) and non-structural (elevation, buy-outs, relocation, etc.) means
7	Increase the accuracy of flood hazard data in the region by performing detailed studies using the best available terrain, land use, and precipitation data to reduce gaps in floodplain mapping
8	Increase the number of communities with warning and emergency response programs that can detect flooding threats and provide timely warning of impending flood danger
9	Increase the number of flood gauges (rainfall, stream, reservoir, etc.) in the region
10	Increase public outreach and education activities to improve awareness of flood hazards and the benefits of flood planning in the region

# FMPs under 1 Square Mile

## Guidance Principles

### ➤ 31 TAC § 362.3

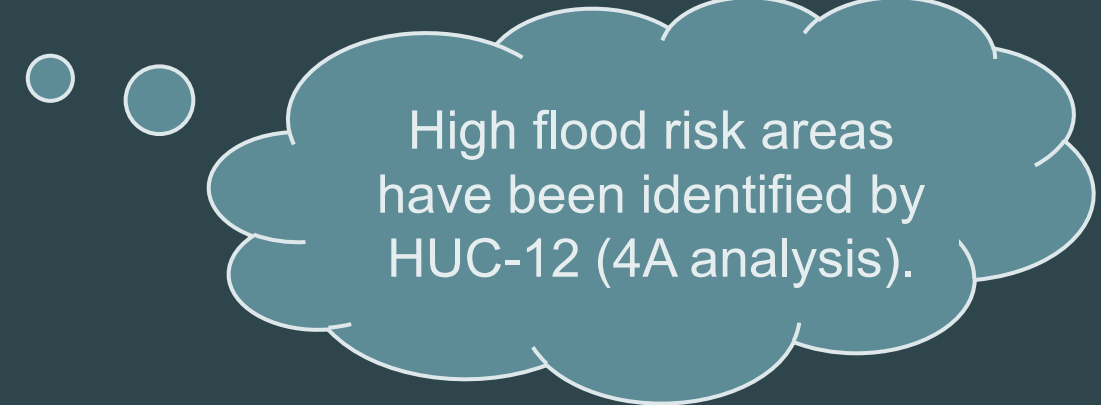
- Development of the regional and state flood plans shall be guided by the following principles. The regional and state flood plans:
- (9) shall focus primarily on flood management strategies and **projects** with a contributing drainage area greater than or equal to 1.0 (one) square miles **except in instances of flooding of critical facilities or transportation routes** or for other reasons, including levels of risk or project size, determined by the RFPG.

### ➤ Instances of flooding of critical facilities

### ➤ Instances of flooding of transportation routes

### ➤ Other reasons

- Levels of Risk ○ ○ ○
- Project Size



High flood risk areas have been identified by HUC-12 (4A analysis).

# FMPs under 1 Square Mile

## Guidance Principles

### ➤ Critical Facilities

- Hospitals, schools (K through 12th), schools for children with special needs, fire stations, police stations, emergency shelters, water and wastewater treatment plants, power generating facilities, power transmitting facilities, assisted living facilities, nursing homes, and others as identified by RFPGs.
- FEMA provides the following definition regarding critical facilities, described here in the FEMA glossary ([www.fema.gov/glossary/critical-facility](http://www.fema.gov/glossary/critical-facility)): “A critical facility provides services and functions essential to a community, especially during and after a disaster. Typical critical facilities include hospitals, fire stations, police stations, storage of critical records, and similar facilities.
- The State of Texas provides the following definition, as described here ([statutes.capitol.texas.gov/Docs/GV/htm/GV.421.htm](http://statutes.capitol.texas.gov/Docs/GV/htm/GV.421.htm)): "Critical infrastructure" includes all public or private assets, systems, and functions vital to the security, governance, public health and safety, economy, or morale of the state or the nation.

# FMPs under 1 Square Mile

## Guidance Principles

### ➤ **Transportation Routes**

- No guidance given in TWDB documentation. RFPG only considers the 1% and 0.2% annual chance at this point. FMPs from local entities may consider other more frequent events
- Considerations:
  - *Overtopping of major thoroughfares/evacuation routes*
  - *Number of **low water crossings** removed from 1% annual chance floodplain*
  - *Street ponding outside of general criteria for local streets*
  - *Emergency vehicle access limited due to high ponding*
  - *Other frequency event benefits are provided by submitting entity*

### **Lower Brazos Flood Planning Region Goal**

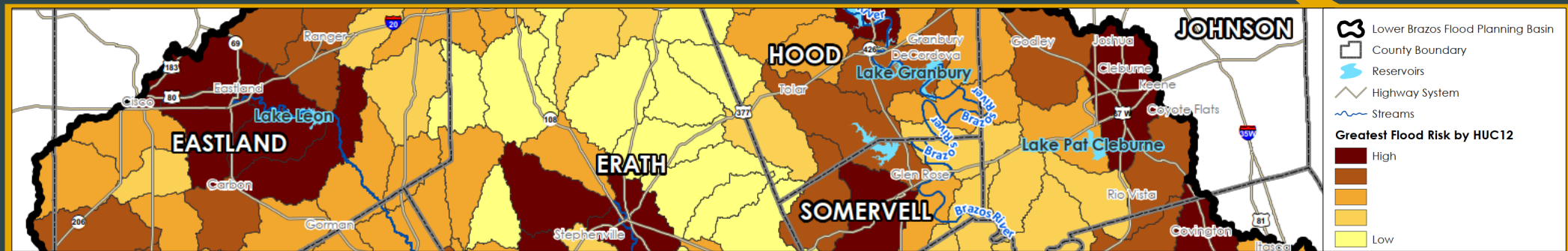
**#4** - Improve the safety at **low water crossings** by adding warning systems/signage or improving low water crossings in high-risk areas.

# FMPs under 1 Square Mile

## Guidance Principles

### ➤ Levels of Risk

- No guidance given in TWDB documentation. RFPG only considers the 1% and 0.2% annual chance at this point. FMPs from local entities may consider other more frequent events
- Considerations:
  - *Percent of structures removed from 1% annual chance floodplain*
  - *Number of structures removed from 1% annual chance floodplain*
  - *Estimated population removed from 1% annual chance floodplain*
  - *High risk area in the flood planning region → Task 4A flood risk analysis*



## Lower Brazos Flood Planning Region Goal

**#5** - Reduce the number of structures that are at risk of flooding during a 1% annual chance flood event by both structural and non-structural means.

# FMPs under 1 Square Mile

## Guidance Principles

### ➤ Size of Project

- No guidance given in TWDB documentation. RFBG only considers the 1% and 0.2% annual chance at this point. FMPs from local entities may consider other more frequent events
- Considerations:
  - *Multiple benefits that are significant and measurable to recreation, agriculture, transportation, quality of life, economic impacts, and resilience goals.*
  - *Percent of structures removed from 1% annual chance floodplain*
  - *Number of structures removed from 1% annual chance floodplain*
  - *Estimated population removed from 1% annual chance floodplain*

### Lower Brazos Flood Planning Region Goal

**#5** - Reduce the number of structures that are at risk of flooding during a 1% annual chance flood event by both structural and non-structural means.

# Path Forward

## Options

- **1. Recommend FMPs submitted by entities in region**
  - If communities are willing to submit all the necessary data required by the TWDB, then recommend the FMP regardless of contributing area size.
- **2. Recommend FMPs that meet RFPG Goals**
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  - If communities are willing to submit all the necessary data required by the TWDB, then recommend the FMP regardless of contributing area size if they align with the goals set by the RFPG and the guidance principles as defined by the RFPG, e.g. levels or risk, project size, etc.



# Looking Ahead

## May 2023 Meeting

- Task 12 Results
  - Regional Watershed Studies
  - FMEs to FMPs
  - Flood Early Warning System
- Approve Task 12 FMPs for inclusion in the Lower Brazos Regional Flood Plan
- Approve Additional FMEs/FMPs provided by regional entities

## June 2023 Meeting

- Approval of Amended Lower Brazos Regional Flood Plan





**QUESTIONS OR  
COMMENTS?**





# Region 8 - Lower Brazos

## Regional Flood Planning Group

- 8. Confirm next meeting date and discuss new business to be considered at next meeting**

# Region 8 - Lower Brazos

## Regional Flood Planning Group

### 9. Adjourn