

# Regional Flood Management Committee

Quarterly Meeting, 7/16/25  
via Zoom



Houston-Galveston  
Area Council



- 1:30 PM**      **Welcome**  
**Roll Call**  
**Public Comment (3 minutes per speaker)**
- 1:45 PM**      **Update: 2025 Hurricane Preparedness Resources**  
Alexandria Watson, Communications Coordinator  
Keith Garber, Principal Graphic Designer
- 2:00 PM**      **Update: San Jacinto Regional Flood Plan**  
Maggie Puckett, P.E., CFM, Associate- Stormwater Management  
Freese and Nichols, Inc.
- 2:10 PM**      **Speaker Presentation: Introduction to Green Infrastructure, an Online Resource**  
Michael Niebuhr, Green Infrastructure Program Coordinator  
Texas Community Watershed Partners (TCWP)
- 2:40 PM**      **Speaker Presentation: Analysis of Flood Reduction Capabilities of Applied Blue-Green Infrastructure**  
Shawn Carter, Research Assistant and PhD Student  
Texas A&M University at Galveston (TAMUG)
- 3:00 PM**      **Legislative Updates**  
Paulina Valero, Senior Government Relations Coordinator
- Other Announcements or Business**  
**Member Roundtable**  
**Next Meeting Reminder**  
**Adjourn**

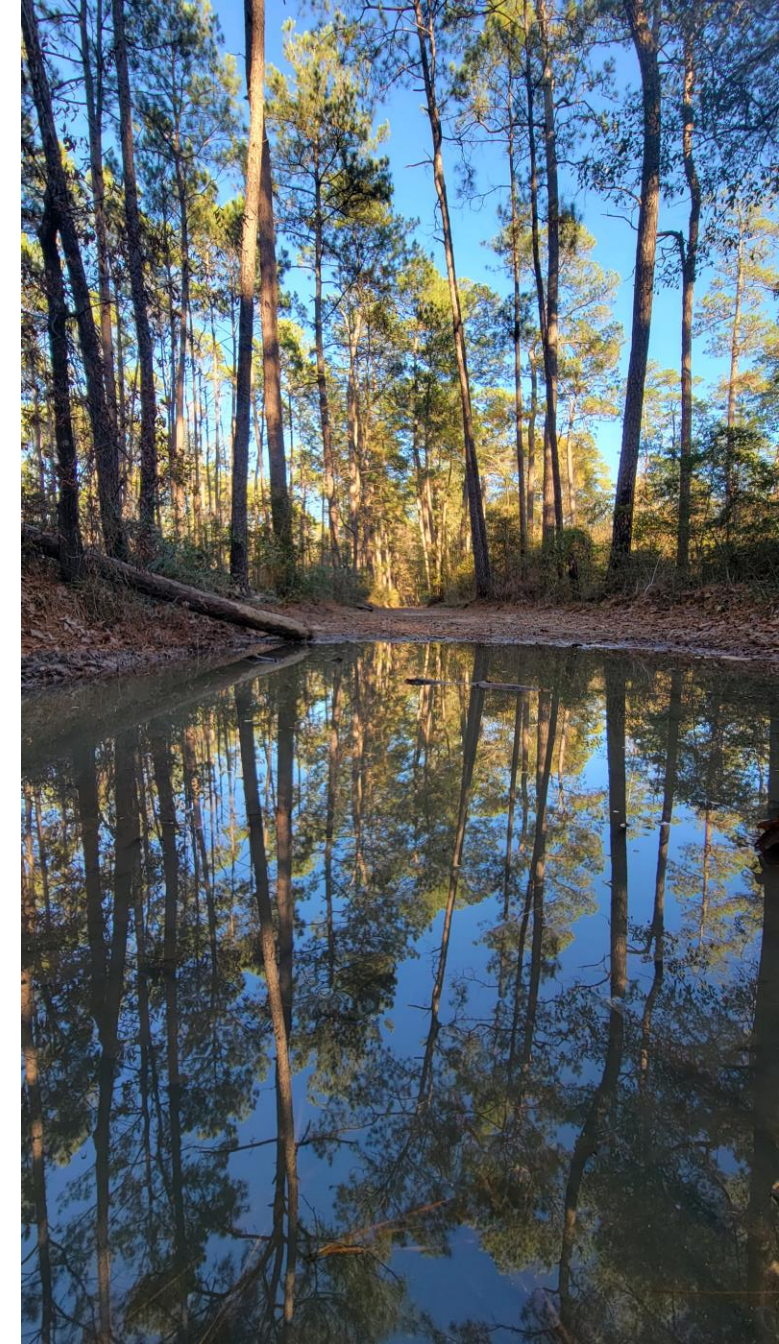




# Roll Call

*Primary and Alternate Board  
Members*



**Please unmute your microphone and voice that  
you are present at the meeting when you hear your  
name called**





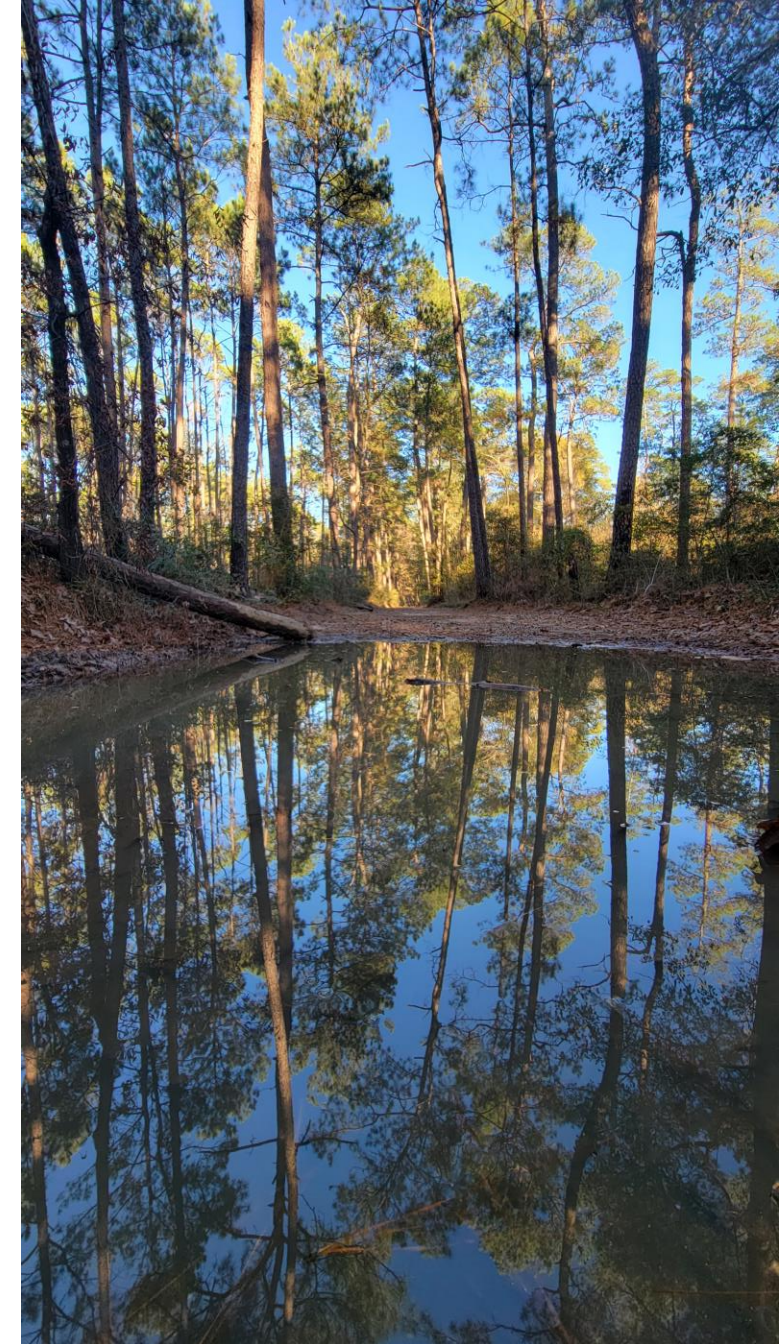
# Public Comment

## *3 Minutes Per Speaker*

click **Reactions** , then click **Raise Hand** 

If you would like to make a public comment, please use the raise hand button. When you are called on you may unmute, announce your name and affiliation/organization, and proceed with your comment.

**We will inform you when your 3 minutes are over**





# Hurricane Preparedness FAQs

## BACKGROUND

The Houston-Galveston Area Council (H-GAC) engages in activities to help communities prepare for hurricane season. These efforts include planning, coordination, and education, aiming to enhance the region's resilience and response capabilities.

The assets created during this internal roll-out plan will direct people to the Houston-Galveston Area Council's hurricane evacuation planning webpage: [Hurricane Preparedness and Evacuation Planning](#) and [Together Against the Weather](#) via a new Hurricane Preparedness intranet page.

## FREQUENTLY ASKED QUESTIONS

### ABOUT THE HURRICANE PREPAREDNESS GUIDE

**1. What is the 2025 Hurricane Preparedness Guide?**

The guide is a comprehensive resource designed to help residents of the Houston-Galveston region prepare for hurricane season, which runs from June 1 through November 30.

**2. Where can I find the 2025 Hurricane Preparedness Guide?**

The guide is available on our intranet page at [bit.ly/HGACHurricane](https://bit.ly/HGACHurricane) and on the H-GAC website at [h-gac.com/hurricane](https://h-gac.com/hurricane).

**3. What information is included in the guide?**

The guide includes details on hurricane forecasting, watches and warnings, evacuation orders, disaster preparedness plans, and special considerations for vulnerable populations.

### PERSONAL PREPAREDNESS PLAN TEMPLATES

**4. What are Personal Preparedness Plan Templates?**

These are customizable templates provided to help you create a detailed plan for your family's safety and preparedness before, during, and after a hurricane.



# Hurricane Preparedness FAQs

## 5. How can I access the Personal Preparedness Plan Templates?

The templates can be found on our intranet page at [bit.ly/HGACHurricane](https://bit.ly/HGACHurricane) and the H-GAC website at [h-gac.com/hurricane](https://h-gac.com/hurricane).

## 6. What should I include in my Personal Preparedness Plan?

Your plan should include evacuation routes, emergency contact information, and a checklist of essential supplies such as water, food, medications, and important documents.

### EVACUATION INFORMATION & MAPS

## 7. How do I know if I need to evacuate?

Evacuation orders are issued based on storm surge risks and other factors. Check the zip code-based evacuation zones in the guide to see if you are in a designated evacuation area.

## 8. Where can I find evacuation routes and maps?

Evacuation routes and maps are included in the guide and can be accessed on our intranet and the H-GAC website.

## 9. What should I do if an evacuation order is issued?

Follow the designated evacuation routes and leave promptly to ensure your safety and avoid traffic congestion.

### SUPPLEMENT GUIDE FOR SENIORS & SPECIAL POPULATIONS

## 10. What is the Supplement Guide for Seniors & Special Populations?

This guide offers additional preparation tips and resources specifically for older adults, individuals with disabilities, and those with medical conditions.

## 11. Why is there a special guide for these populations?

These groups may have unique needs and require additional assistance during emergencies. The guide ensures they have the necessary information to stay safe.



# Hurricane Preparedness

## FAQs

### 12. Where can I access this supplementary guide?

The guide is available alongside other resources on our intranet and the H-GAC website.

## GENERAL QUESTIONS

### 13. What is the difference between a hurricane watch and a hurricane warning?

A hurricane watch means hurricane conditions are possible within 48 hours, while a hurricane warning means hurricane conditions are expected within 36 hours.

### 14. How can I stay informed during a hurricane?

Stay tuned to local news, NOAA Weather Radio, and official social media channels for real-time updates and instructions.

### 15. What items should be in my disaster preparedness kit?

Your kit should include water, non-perishable food, medications, first aid supplies, important documents, and other essentials. Refer to the checklist in the guide for a comprehensive list.

### 16. What if I have pets?

Make a plan for your pets as well. Most emergency shelters do not allow animals, so ensure you have a safe place for them or necessary supplies if you evacuate.

### 17. Are there any workshops to help me with hurricane preparedness?

Yes, we will be hosting workshops to guide staff members through planning their hurricane preparedness plans. The dates and details are to be determined and will be announced soon.

### 18. How can I register for the upcoming workshops?

Registration details will be shared on the intranet and through email notifications once the workshop schedule is finalized.



# Hurricane Preparedness

## FAQs

### 19. Who can I contact for more information?

For any questions or further assistance, please contact your HR team, H-GAC emergency management office, or visit the resources provided on the intranet and our website.

### 20. Why is hurricane preparedness important?

Being prepared can save lives and reduce property damage. It ensures you and your family know what to do, where to go, and what to take with you during a hurricane, thereby increasing your resilience against such natural disasters.



# HGAC RFMC Update



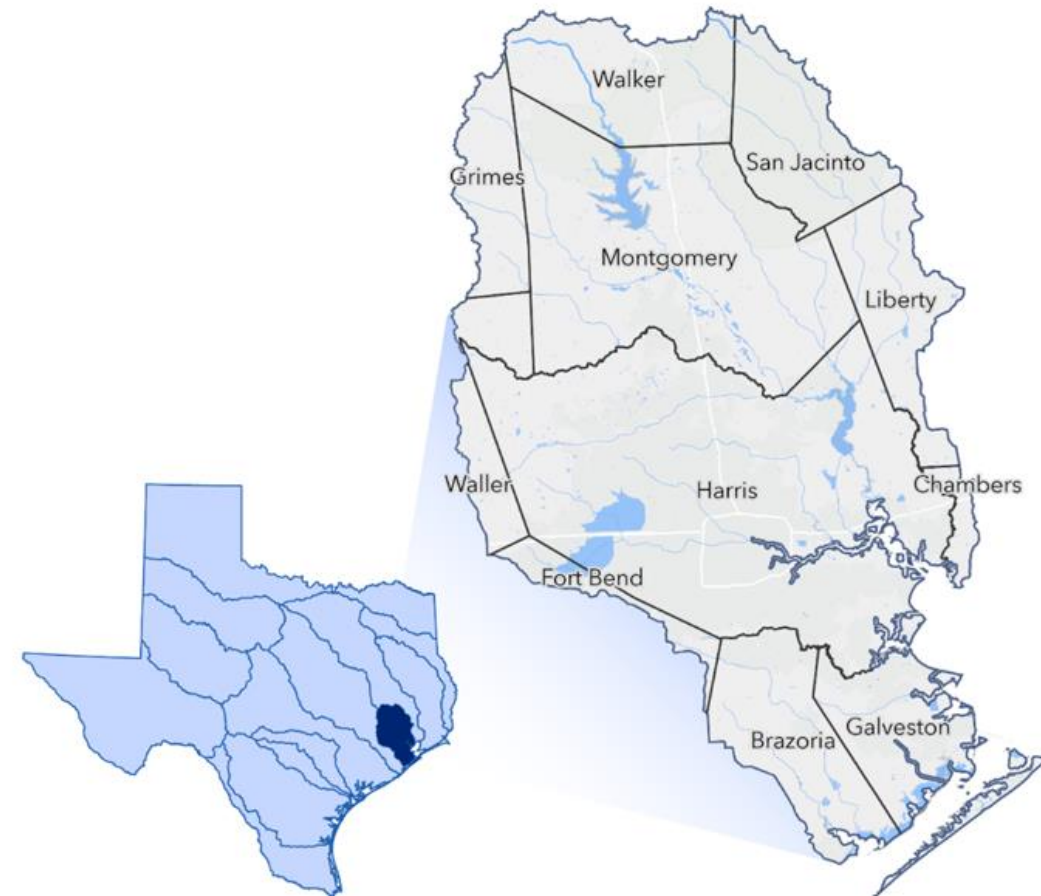
SAN JACINTO REGIONAL FLOOD PLANNING GROUP

**R E G I O N 6**

July 16, 2025

# Agenda

- 2023 San Jacinto Regional Flood Plan Amendment #2
  - Key Changes
  - Accessing Data
  - Preparation for FY2026-2027 FIF Competition
- Development of the 2028 San Jacinto Regional Flood Plan
- Get involved in Regional Flood Planning!



# 2023 San Jacinto RFP Amendment #2

- San Jacinto RFPG chose to use 2<sup>nd</sup> Cycle flood planning budget to expand funding eligibility for stakeholders in FY26-27 FIF Competition
- Distributed Amendment Flyer to stakeholder contact database Fall 2024
- RFPG Approved Amendment #2 at March meeting
- Submitted to TWDB by April 1, 2025

### FLOOD RISK REDUCTION SOLUTIONS

#### HOW TO SUBMIT FOR STATE FUNDING ELIGIBILITY

##### Introduction to Regional Flood Planning

In 2019, the Texas Legislature tasked the Texas Water Development Board (TWDB) initiating the regional and state flood planning processes. Region 6 is one of 15 Regional Flood Planning Groups (RFPG) across the State tasked with developing a regional flood plan. In 2024, TWDB adopted the inaugural State Flood Plan, which incorporated the findings of the 15 Regional Flood Plans. Regional and state flood planning activities are beginning for the next planning and funding cycle.

##### Flood Infrastructure Fund

The TWDB's Flood Infrastructure Fund (FIF) is a funding program that provides financial assistance for drainage and flood risk reduction planning/studies, design, and construction (flood risk reduction solutions). Funding includes grants and low or no interest loans to eligible political subdivisions.

*To be eligible for FIF funding, your flood risk reduction solution(s) must be included in the 2024 State Flood Plan.*

A complete list of currently eligible flood risk reduction solutions is available in the 2024 State Flood Plan Documents at [texasstatefloodplan.org](https://texasstatefloodplan.org).

*The next FIF funding cycle is anticipated to open in 2026. To increase the number of eligible communities, the TWDB and RFPG are providing an opportunity to incorporate additional flood risk reduction solutions into the 2024 State Flood Plan through an amendment process.*

TWDB has established an April 1, 2025 submittal deadline. The RFPG must take action prior to submittal for the amendment; therefore, the RFPG is requesting a Notice of Intent (NOI) from communities considering joining the amendment process. The NOI should be submitted by November 15, 2024, with a full submittal deadline of January 15, 2025. Beyond the amendment process, additional flood risk reduction solutions can be incorporated into the 2028 Regional Flood Plan and could become eligible for future funding cycles. Anticipated timelines to qualify for FY 2026-2027 FIF funding and future funding cycles are included below.

#### TIMELINE

##### Anticipated FY 2026-2027 FIF Funding Cycle

This timeline shows the sequence of events for the funding cycle: Call for Sponsor FMXs (Today), Submit Notice of Intent (Nov. 15, 2024), Full FMX Submittal (Jan. 15, 2025), Amended 2023 RFP Approved by RFPG (April 1, 2025), TWDB Amends State Flood Plan (Early 2026), and 2026 FIF Applications.

##### Future Funding Cycles

This timeline shows the sequence of events for future funding cycles: Submit FMX to RFPG (Spring 2025), RFPG Drafts 2028 RFP (August 2025), and Future Funding Cycles (February 2027).

### TYPES OF ELIGIBLE SOLUTIONS

Flood risk reduction solutions are classified into 3 categories, Flood Management Evaluation (FME), Flood Management Strategy (FMS), and Flood Mitigation Projects (FMP).

#### FLOOD MANAGEMENT EVALUATION

Studies to Assess Flood Risk or Identify Potential Projects

Examples:

- Watershed Planning Study
- Project Feasibility Study
- Dam Evaluations

#### FLOOD MANAGEMENT STRATEGY

Policy Changes, Education, & Awareness

Examples:

- Outreach & Education Programs
- Flood Warning Systems
- Drainage Criteria Development
- Property Acquisition or Elevation

#### FLOOD MITIGATION PROJECT

Structural Project to Reduce Flood Risk

Examples:

- Open Channel Projects
- Road Crossing Improvements
- Storm Drain Projects
- Detention Projects

For inclusion in the 2024 Plan Amendment, all proposed FMEs, FMSs, and FMPs received must be reviewed for completeness, alignment with RFPG-adopted flood mitigation and floodplain management goals, and recommended by the RFPG. The submittal checklist below identifies key requirements of each flood risk solution type.

#### SUBMITTAL CHECKLIST

FME	FMS	FMP	Requirements
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Notice of Intent by November 15, 2024
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Project/Study Name
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Scope Description
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shapefile (Study area or Project Area)*
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Estimated Study Cost (Non-Construction)
		<input type="checkbox"/>	Estimated Construction Cost
		<input type="checkbox"/>	Hydrologic & Hydraulic Models
		<input type="checkbox"/>	Pre & Post Project 100yr Floodplains
		<input type="checkbox"/>	Benefit Cost Analysis
		<input type="checkbox"/>	No Negative Impacts Certification
		<input type="checkbox"/>	Pre & Post Project Flood Risk Exposure*

\*Technical Consultant will provide additional detail following Notice of Intent

#### GET INVOLVED

If interested in submitting a FME, FMS, or FMP in the 2024 Flood Plan Amendment, please reach out to the San Jacinto Technical Consultant at [SJRFPG.TechCon@freese.com](mailto:SJRFPG.TechCon@freese.com) or 832-937-5318.

For information on the RFPG and its meetings, please visit [sanjacintofloodplanning.org](https://sanjacintofloodplanning.org). Meeting attendance is available online or in person.

To learn more about the 2023 Regional Flood Plan visit our storymap located on the home page of our website.



# Changes to FMEs, FMSs, FMPs

## Changes to FMEs

- New submittals:
  - HCFC
  - Chambers County
  - Grimes County
  - Coastal Prairie Conservancy
  - SJRA
- Subdivided components of San Jacinto Regional Master Drainage Plan (SJRMDP) proposed projects into FMEs for further study and optimization

## Changes to FMSs

- Recommendations from Chambers County FIF Study
- Floodplain Preservation
- Flood Warning and Forecasting
- Participation in NFIP Community Rating System
- Drainage Criteria Manual Updates

## Changes to FMPs

- Recommendations from Chambers County FIF Study
- City of Houston, HCFC advanced FMEs to FMPs
- Subdivided select SJRMDP projects into individual project components to position for FIF funding
- New submittals:
  - HCFC
  - Taylor Lake Village
  - Bellaire

# 2023 San Jacinto RFP Amendment #2

FMX	FMX Removed	FMX Added	Original FMX Count	Amended Count	Original Estimated Cost	Amended Total Est. Cost
FME	9	67	405	463	\$905,377,000	\$956,203,000
FMP	2	38	70	106	\$31,685,213,000	\$33,030,634,000
FMS	-	11	65	76	\$1,199,622,720	\$1,320,511,720
Total	11	116	540	645	\$33,790,212,720	\$35,307,352,720

# Accessing Amendment #2 Data

The screenshot shows the San Jacinto Regional Flood Planning Group (SJRFPG) website. The header includes the SJRFPG logo and the text "REGION 6". The navigation menu includes links for Home, About SJRFPG, Meetings, RFPG Resources, Technical Documents (highlighted with a red box), Join Distribution List, FAQs, and Contact Us. The main content area displays the "2nd Cycle - 2028 Plan" section, which is currently empty. Below this, the "1st Cycle - 2023 Plan" section is visible. Under the "1st Cycle - 2023 Plan" section, there is a "StoryMap" link and a "Regional Flood Plan, Amendment No. 2 - April 2025" link (highlighted with a red box). A red arrow points from the "Regional Flood Plan, Amendment No. 2 - April 2025" link to the list of documents below it:

- 2023 Regional Flood Plan Region 6 – 2nd Amendment
- 06\_RFP\_Table\_15\_Recommended\_Flood\_Management\_Evaluations
- 06\_RFP\_Table\_16\_Recommended\_Flood\_Management\_Projects
- 06\_RFP\_Table\_17\_Recommended\_Flood\_Management\_Strategies

Below the list of documents, there are two more links: "Regional Flood Plan, Amendment No. 1 – July 2023" and "Regional Flood Plan – January 2023".

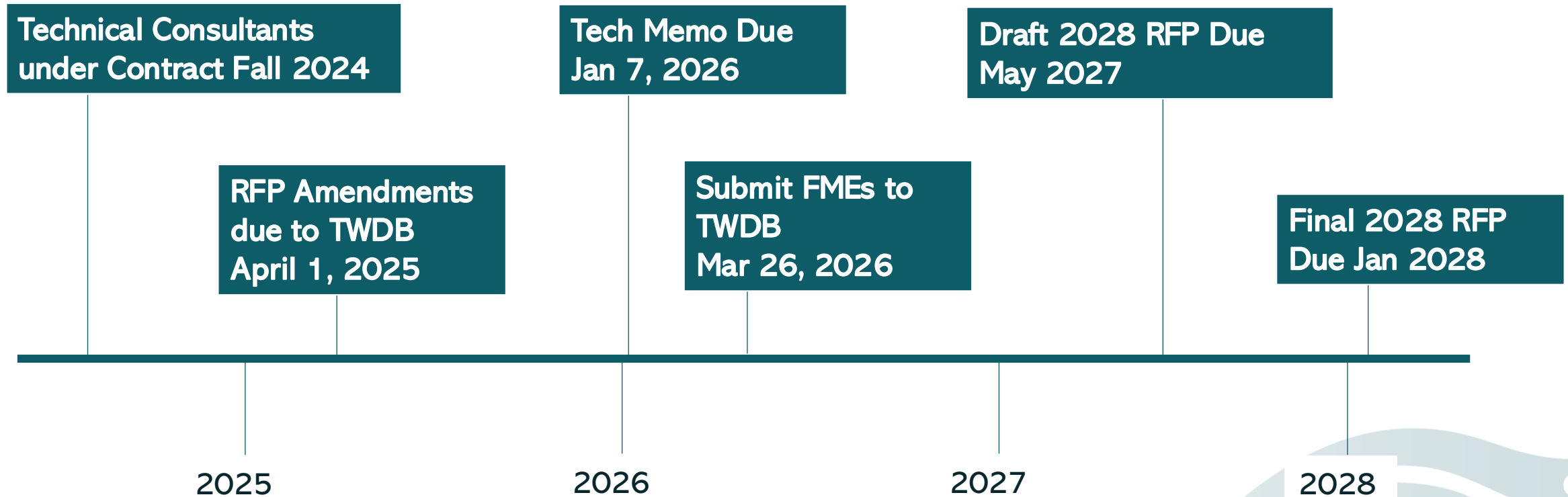
Visit the San Jacinto RFPG website at:

[Sanjacintofloodplanning.org](https://Sanjacintofloodplanning.org)

Excel spreadsheets provided to support preparation for call for FIF abridged applications in 2026



# 2028 Flood Planning Cycle - Schedule



Meeting	Milestone/Action
January 2025	RFPG Meeting 2028 RFP Overview, Task 1, Amendment Update Discuss Process to Select FMEs to Perform (Task 4C)
March 2025	RFPG Meeting – <i>Action Taken</i> Recommend FMXs; Adopt Amendment Finalize Public Survey Review Task 1, Task 2A/2B, Task 4C
May 2025	RFPG Meeting – <i>Action Taken</i> Select FMEs to Perform (Task 4C) Overview of Minimum Standards (Task 3A)
August 2025	RFPG Meeting Review results of Tasks 2A/2B – <i>Pending MAAPnext Availability</i> Task 3B Needs Analysis Consider updates to goals (Task 3C)
September 2025	RFPG Meeting – <i>Action Needed</i> Adopt Goals (Task 3C); Recommend Min Standards (Task 3A)
November 2025	RFPG Meeting – <i>Action Needed</i> Vote to Approve Tech Memo Discuss FIF Technical Assistance ahead of FY26-27 Call for Apps

## RFPG Meeting Content - Past & Future



# Get Involved in Regional Flood Planning!

Join the Distribution List!

Take the Survey!  
*Questionnaire and Webmap*

Submit Projects to  
[SJRFPG.TechCon@freese.com](mailto:SJRFPG.TechCon@freese.com)





# Green Infrastructure for Texas



# Green Infrastructure for Texas

## Introduction to Green Infrastructure Online Course

### NO COST & SELF-PACED

#### Designed for Professionals

- City Managers
- Elected Officials
- Environmental Specialists
- Emergency Mgmt Coordinators
- Landscape Architects
- Municipal Engineers
- Parks and Rec Dir.
- Public Works
- Stormwater Manager
- Zoning & Planning



#### Learn

Basic green infrastructure (GI)  
concepts and practices



#### Analyze

How GI can benefit and be  
implemented into your community



#### Evaluate

Ways your community could  
integrate GI into their local and  
municipal plans



Ghirardi WaterSmart Park  
League city, Tx

[tcwp.tamu.edu/resources/introduction-to-green-infrastructure](https://tcwp.tamu.edu/resources/introduction-to-green-infrastructure)

[www.agrilife.org/gift](http://www.agrilife.org/gift)



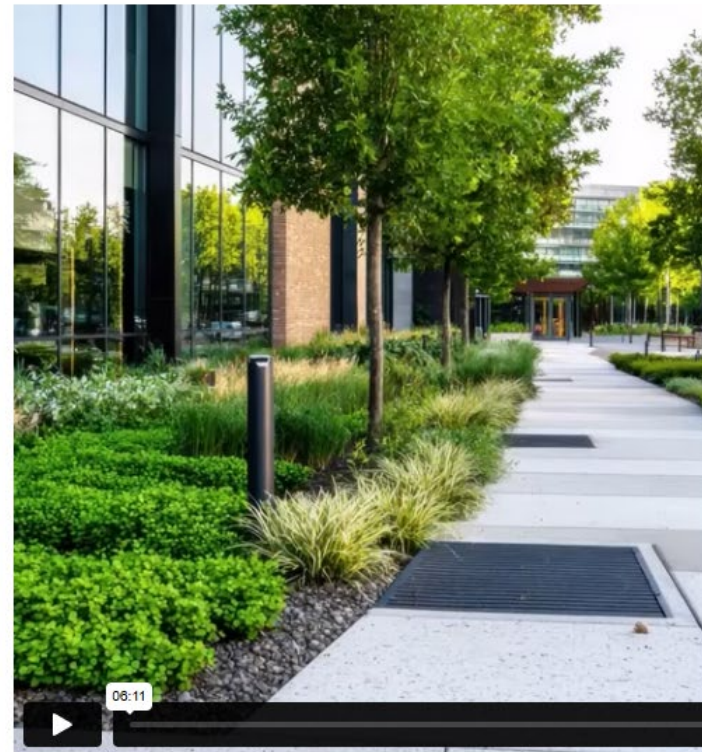
TEXAS A&M  
AGRI LIFE  
EXTENSION

DISASTER ASSES  
AND RECOVERY

Funded by the Texas General Land

## Online Training Course

<https://tcwp.tamu.edu/resources/introduction-to-green-infrastructure/>



## What is Green Infrastructure?

Section 1



TEXAS  
GENERAL  
LAND OFFICE

TEXAS A&M  
AGRI LIFE





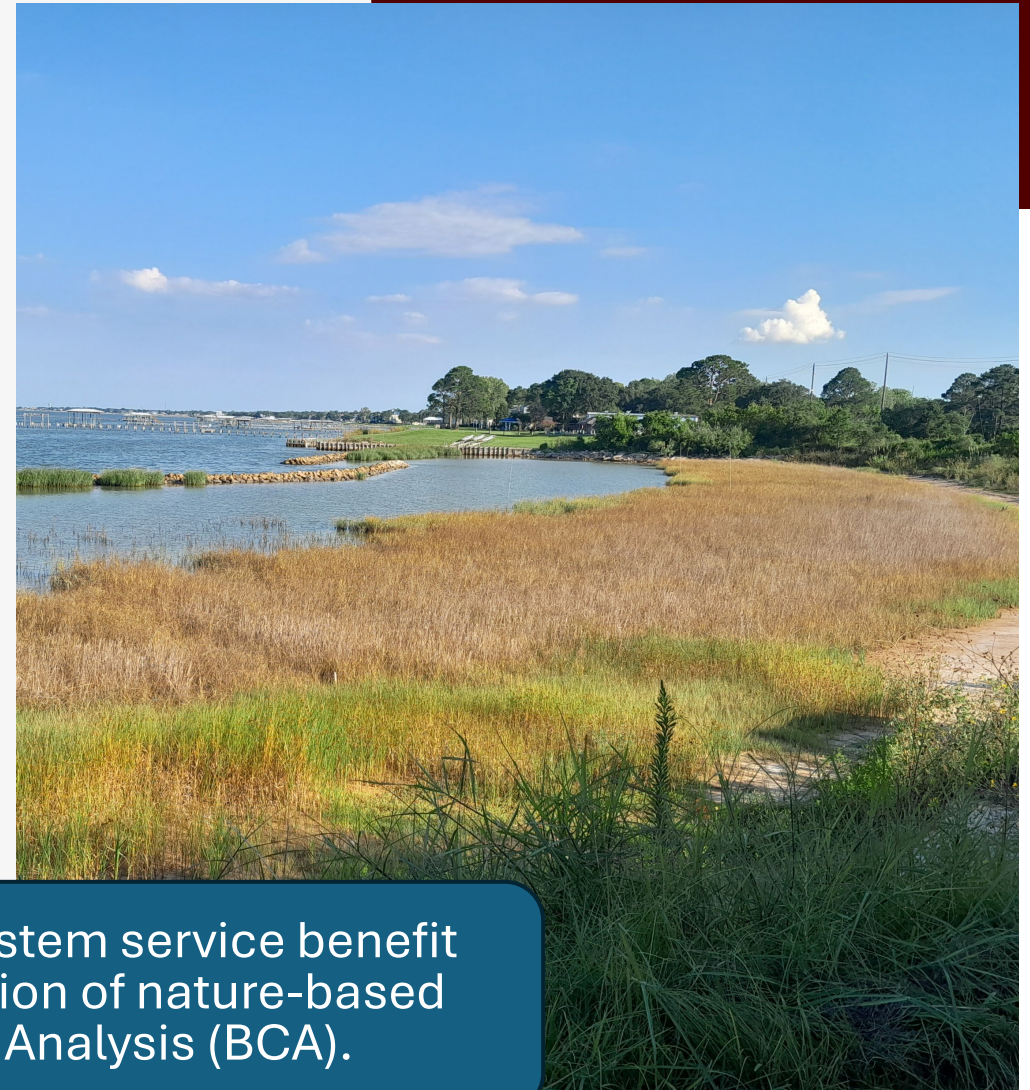
# Ecosystem Service Values for Texas

Quantifying Environmental Benefits for  
Benefit-Cost Analysis of Green Infrastructure



Funded by the Texas  
General Land Office

Develop Texas-specific ecosystem service benefit values to support the evaluation of nature-based solutions in Benefit-Cost Analysis (BCA).





# Frequently Used BCA Tools

- Two frequently used BCA Tools are publicly available:
- [FEMA BCA Toolkit](#)
- [Texas Water Development Board \(TWDB\) BCA Input Tool](#)

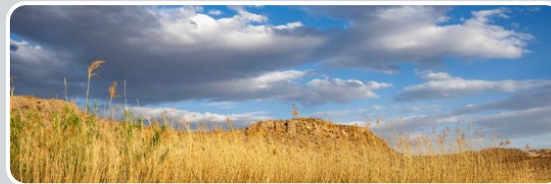
Does the project include any green infrastructure or ecosystem elements?		Yes
Type of habitat	Acres	FEMA (\$2025)
Urban green open space		\$ 17,834.48
Rural green open space		\$ 12,201.03
Riparian		\$ 42,688.67
Forest		\$ 14,446.83
Coastal wetland		\$ 10,276.54
Inland wetland		\$ 9,376.84
Coral reefs		\$ 8,170.74
Shellfish reefs		\$ 3,163.87
Beaches and dunes		\$ 345,017.51

# Priority ecosystems

- This study employed a combination of preliminary desktop research and collaborative discussions with to identify priority ecosystems for ecosystem service valuation:



Wetlands



Grasslands/  
Prairies



Urban Green  
Open Space

## Summary of Texas Ecosystem Service Values (2021 USD/acre/year)

Ecosystem service	Wetlands	Grasslands/Prairies	Urban Green Open Space
Aesthetic Value	921	-	9,820
Air Quality	-	-	-
Biological Control	-	-	-
Climate Regulation	289	236	2,891
Erosion Control	-	-	-
Existence Value	-	-	-
Flood and Storm Hazard Risk Reduction	4,349	363	104
Food Provisioning	1,988	129	-
Habitat	3,792	286	5,872
Pollination	-	-	-
Recreation/Tourism	1,271	95	1,305
Research and Education	-	-	-
Water Filtration	-	-	-
Water Supply	5,937	190	-
Water Quality*	401	330	-
Soil Quality*	-	312	-
Total estimated benefits	19,000	2,000	20,000

All values displayed in 2021 USD/acre/year.

Average values for each ecosystem service have been rounded to the nearest whole dollar.

Total estimated benefits have been rounded to the nearest \$1,000.

FEMA’s published values distinguish between Coastal Wetlands (\$8,995) and Inland Wetlands (\$8,171), a level of detail not possible using the Texas-specific literature available to date

## Engineering Design Sets (TBA)

- Bioswales
- Stormwater Outfalls
- Rain Gardens
- Biorententions
- etc

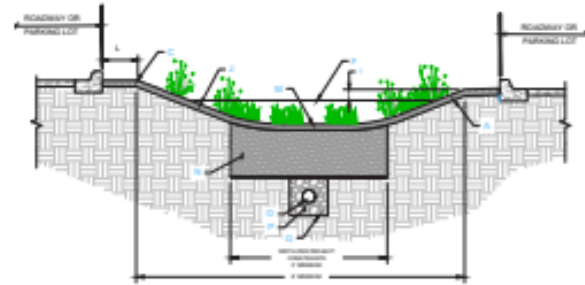
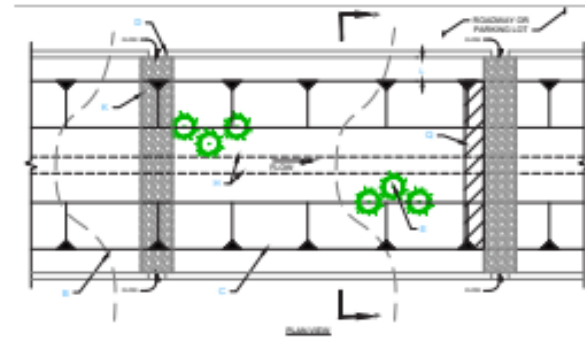
### CAD Details

#### General Notes

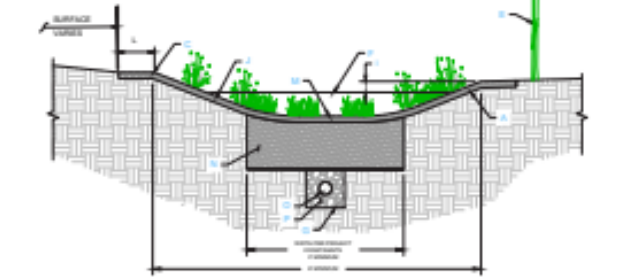
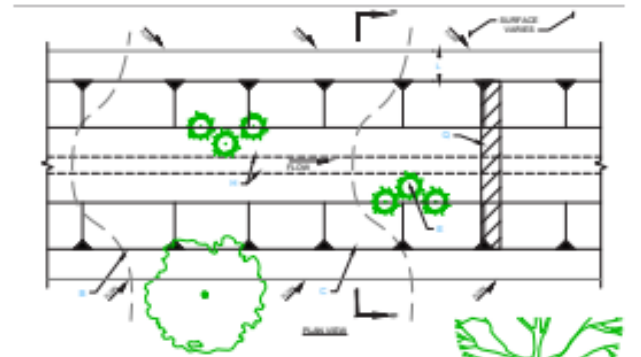
1. Trees and shrubs should be located in accordance with inundation zone and elevation zone.
2. Check dams as necessary depending on site longitudinal slope.
3. Mulch type and location per project plans shall be informed by evaluation of hydraulic conditions and may be used for erosion prevention, slope stabilization, or design preference. Organic mulch may be used where design velocity is less than 1 fps.
4. Stable grass lining may be used in place of mulch per project plans.
5. Avoid compaction of bioswale bottom during and after construction to maintain infiltration rate.

#### Legend

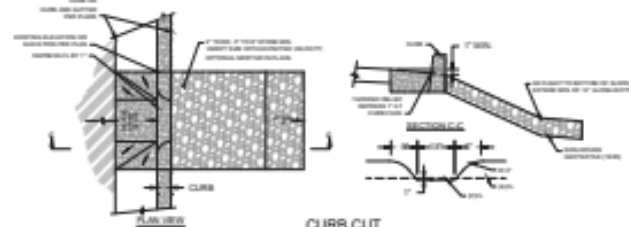
- A. Ground cover, rock, or mulch as appropriate.
- B. Conceptual design contour.
- C. Top of bioswale/channel/ditch.
- D. Curb opening / drainage notch.
- E. Plants per project plans.
- F. Water surface at desired ponding depth.
- G. Scarify subgrade to depth of 12" min.
- H. 2-foot row planting zone: groundcover or rock preferred.
- I. 3" freeboard, min. or as required by local guidance.
- J. 3H:1V side slope or flatter, typ.
- K. Erosion protection at flow inlet. Compact subgrade below erosion protection to 95% of max density. Refer to project plans for dimensions and details.
- L. 2' step out when bioswale along roadway. 1' setback along other pedestrian routes. Cross slope shall match shoulder or 2% max.
- M. Filter trench.
- N. Engineered media / permeable soils.
- O. Perforated underdrain.
- P. Gravel-filled trench.
- Q. Optional check dam.



BIOSWALE - URBAN



BIOSWALE - RURAL



CURB CUT



**Green infrastructure is not complicated.  
Green infrastructure is not easy.**

Michael Niebuhr  
Green Infrastructure Program Coordinator  
Michael.Niebuhr@ag.tamu.edu



# Other Announcements or Business





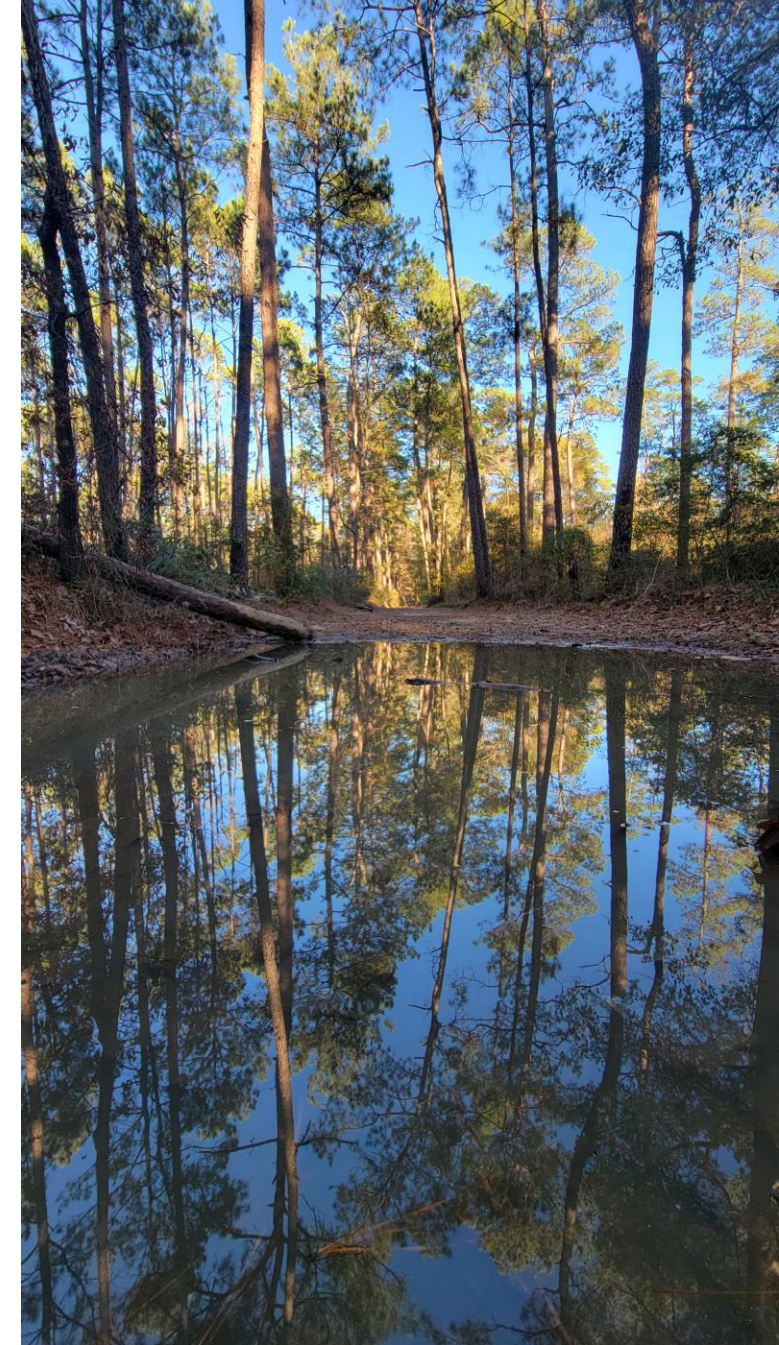
# Member Roundtable





# **2025 Meeting Dates**

**October 15<sup>th</sup>**- In-person, at H-GAC





We are adjourned,  
thank you for  
attending!

## **Contact**

*Amanda Ashcroft, AICP,  
CFM*

*Senior Planner, H-GAC  
713-993-4545*

*Amanda.Ashcroft@h-  
gac.com*

