

Region 3 Trinity Flood Planning Group Meeting Tuesday, June 3, 2025 9:00 a.m.

The Region 3 Trinity Flood Planning Group (R3TRFPG) will hold a public meeting in-person pursuant to Texas Government Code, Section 551.127. This meeting will be conducted in a hybrid format.

In-person:
Trinity River Authority General Office
5300 S. Collins St.
Arlington, TX 76018

Virtually:

Via WebEx videoconference at:

https://trinityra.webex.com/trinityra/j.php?MTID=m18bcb173867e902034559d29ccf6458a or via phone at 1-408-418-9388 access code 2480 851 9800

Webinar password: 53347789

Members of the public may attend, participate and/or address the RFPG in person, or they may virtually access the meeting using the videoconference link or teleconference information provided above. Members of the public wishing to address the Trinity RFPG during the meeting are encouraged to follow the registration and comment procedures found below.

MEETING AGENDA

- 1. Call to order
- 2. Roll call
- 3. * Approval of minutes from the previous meeting
- 4. Acknowledgement of written public comments received
- 5. Receive registered public comments on specific agenda items limit 3 minutes per person
- 6. TWDB Update
- 7. Update from the Policy Subcommittee
- 8. Update from the Nominating Committee
- 9. Update from Region 3 Technical Consultant
 - a. Task 1 Planning Area Description
 - b. Summary of participation in Data Collection Tool
 - c. Task 2 Existing (Task 2A) and Future (Task 2B) Conditions Flood Risk Analyses Update
 - d. Task 3B Mitigation Needs Analysis Update

Trinity Regional Flood Planning Group June 3, 2025 Meeting Notice and Agenda, continued

- e. Technical Subcommittee Report on Tasks 4A & Task 4C
 - i. *Consider approving sponsor outreach for 2028 Flood Plan (FMX solicitation) based on Technical Subcommittee recommendation
 - *Consider approving process to promote potential FMEs to FMPs based on Technical Subcommittee recommendation
- f. Outreach update
- g. Project schedule
- 10. Updates from liaisons for adjoining coastal regions
 - a. Region 5 Neches RFPG
 - b. Region 6 San Jacinto RFPG
- 11. Updates from Planning Group Sponsor
- 12. Receive registered general public comments limit 3 minutes per person
- 13. Announcements
- 14. Confirm meeting date for next meeting
- 15. Consider agenda items for next meeting
- 16. Adjourn

ORAL PUBLIC COMMENTS

If you wish to provide oral public comments at the meeting, you are encouraged to register in advance by emailing info@trinityrfpg.org no later than 8:00 a.m. on June 3, 2025, providing your name, phone number, email address and who are you representing, and indicating if you wish to comment on a specific agenda item or provide general comments. During the meeting, those who have registered to speak, either in-person or virtually, will be called upon by the Chair during the appropriate comment period. At the discretion of the Chair, unregistered attendees who wish to speak may also have the opportunity to provide oral comments during the public comment periods of the agenda.

- Those participating by videoconference will be asked to use the "raise hand" function, visible by hovering the cursor over the attendee's name onscreen, to indicate their interest in speaking during the appropriate public comment period.
- Those participating by teleconference will be asked to enter *3 to indicate their interest
 in speaking and to be placed into the queue in order to be called upon during the
 appropriate public comment period.

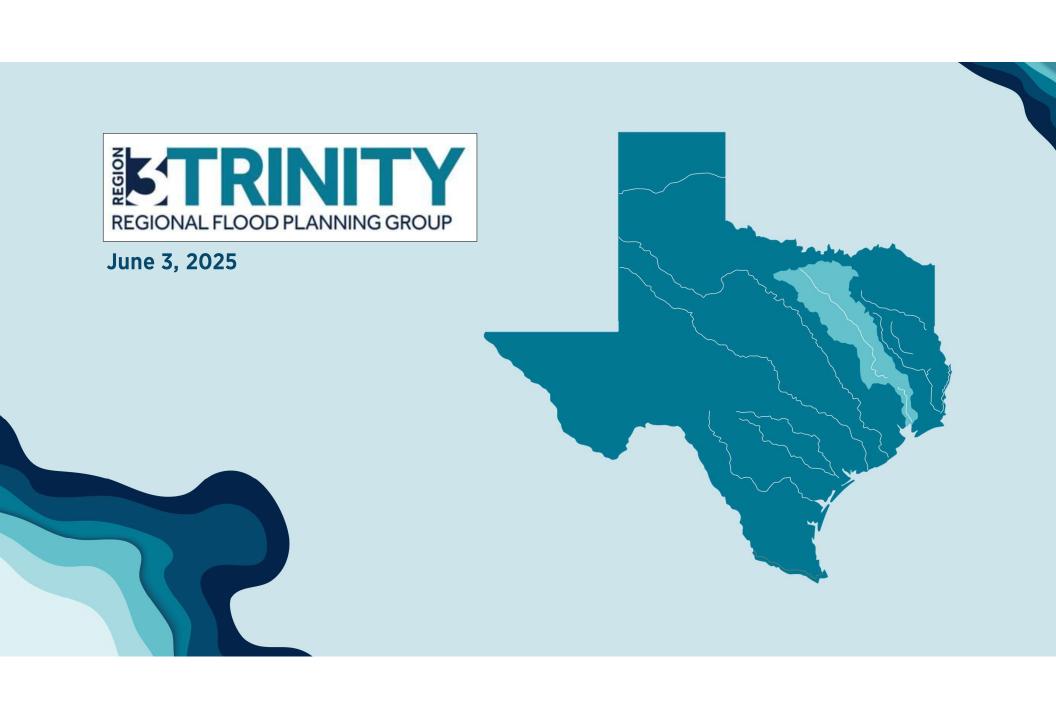
WRITTEN PUBLIC COMMENTS

If you wish to provide written comments prior to or after the meeting, please email your comments to info@trinityrfpg.org and include "Region 3 Trinity Flood Planning Group Meeting" in the subject line of the email.

Additional information may be obtained from:

Alexis Long at: (817) 467-4343 or by email at: longas@trinityra.org Physical location: 5300 South Collins Street, Arlington, TX 76018

^{*} Denotes Action Item





1. Call to order



2. Roll call



3. Approval of minutes

Region 3 Trinity Flood Planning Group Meeting Wednesday, March 12, 2025 1:00 p.m.

The Region 3 Trinity Flood Planning Group convened a public meeting, in person as well as virtual, on Wednesday, March 12, 2025, 1:00 p.m.

Chairman Glenn Clingenpeel opened the meeting at 1:05 p.m.

Voting Members Present:

Chad Ballard
Sano Blocker (absent)
Melissa Bookhout
Glenn Clingenpeel
Rachel Ickert (absent)
Craig Ottman, alternate for Rachel Ickert
Scott Harris
Andrew Isbell (arrived after roll call)
Jordan Macha
Lauren Plunk, alternate for Galen Roberts
Galen Roberts (absent)
Matt Robinson
Lissa Shepard
Sarah Standifer

10 voting members were present at the time of roll call, constituting a quorum.

Ex Officio Members Present:

Susan Alvarez
Steve Bednarz
John Blount
Justin Bower (absent)
Todd Burrer (absent)
Humberto (Bert) Galvan
Diane Howe (absent)
Lonnie Hunt
Risa King (absent)
Neely Kirkland
Manuel Martinez (absent)
Katie Koslan
Andrea Sanders
Mark LeMense, alternate for Andrea Sanders
Matthew Lepinski

Lisa McCracken (absent) Greg Waller (absent)

Adam Whisenant (absent) Amanda Young (absent)

Approval of the Minutes of the December 11, 2024, Meeting

Motion: Lissa Shepard moved to approve the minutes as presented; Second: Matt Robinson; Action: Minutes were unanimously approved.

Acknowledgement of written public comments received

No written public comments were received.

Receive registered public comments on specific agenda items

No registered public comments were received.

TWDB Update – Katie Koslan, TWDB

Katie Koslan, TWDB, provided an update. On February 28th, TWDB sent an email regarding updates to two key resources: the buildings dataset and the infrastructure assessment toolkit. Recipients were encouraged to review the resources available on the TWDB Flood Planning webpage. On February 21st, TWDB distributed its February newsletter, which included updates on TWDB Flood Planning staff, information on obtaining BLE data, and minor revisions to Exhibit C. The newsletter was posted on the TWDB website.

On January 31st, TWDB hosted a conference call covering Exhibit C and D guidance documents, data updates, and potential schedule changes. A recording and slideshow of the webinar were made available on the TWDB website. Following the conference call, TWDB proposed changes to interim deliverable deadlines, including the Technical Memorandum, the list of FMEs for TWDB, and the Draft Regional Flood Plan. These changes were proposed in response to requests from several RFPGs for deadline extensions. RFPGs were expected to vote on allowing the regional sponsor to amend their contract with TWDB, as well as the subcontract with Technical Consultants.

Craig Ottman from TRWD inquired about the adoption timeline of the Amended 2023 Regional Flood Plan into the State Flood Plan and its alignment with the FY26-27 FIF cycle. Ms. Koslan stated that the Amended 2023 Regional Flood Plan would be presented to TWDB in March 2026, after which the State Flood Plan would be amended upon TWDB's approval. She confirmed that the State Flood Plan would not be amended before the FY26-27 FIF cycle. However, FMXs recommended in the Amended 2023 Regional Flood Plan would remain eligible for funding through the FY26-27 FIF cycle, as they would ultimately be included in the amended State Flood Plan.

Update from the Policy Subcommittee – Craig Ottman, TRWD

No updates were provided.

<u>Update from the Nominating Committee</u> – Scott Harris, Gulf Coast Authority

Scott Harris was actively engaged in this matter and stated that he would inform the committee if any assistance was required.

<u>Updates from Region 3 Technical Consultant</u> – Stephanie Griffin, Halff

Stephanie Griffin, Halff, provided a review of the agenda, starting with the 2023 Regional Flood Plan amendment request and the need for voting members approval. Voting members will also be asked to authorize TRA to amend its contract with TWDB. The agenda also included a review of Chapter 1, an update on Chapter 2, an introduction to Chapter 3 and Chapter 4, an update on public outreach activities, and a status update on the project schedule.

- a. Amendment requests for 2023 Region 3 Trinity Regional Flood Plan Stephanie Griffin, Halff
 - I. Assessment and findings of requests received

Stephanie Griffin, Halff, presented the flood plan amendment details, including submittals of 8 FMEs, 31 FMPs, and 6 FMSs from various entities. The FMXs included drainage master plans, drainage improvements, nature-based solutions projects, and floodplain buyout programs from multiple cities and counties.

II. *Consider approval of amendment to submit to TWDB by April 1, 2025.

Chairman Glenn Clingenpeel called for a motion to approve the amendment to the 2023 Regional Flood Plan.

Motion: Scott Harris moved to approve the amendment to the 2023 Regional Flood Plan.

Second: Lissa Shepard; Action: Motion passed unanimously.

b. *Consider authorizing the TRA to amend its contract with TWDB and with Halff to accommodate TWDB's proposed modified schedule.

The Technical Memo was originally due September 19, 2025 and is now due January 7, 2026. The List of FMEs to be performed by TWDB was originally due January 26, 2026 and is now due March 26, 2026. The 2028 Region 3 Trinity Regional Flood Plan was originally due February 26, 2027 and is now due May 26, 2027.

Chairman Glenn Clingenpeel called for a motion to authorize the TRA to amend its contract with TWDB and with Halff.

Motion: Sarah Standifer moved to authorize the TRA to amend its contract with TWDB and with Halff.

Second: Matt Robinson; Action: Motion passed unanimously.

- c. 2028 Regional Flood Plan Update Sam Amoako-Atta, Halff
 - I. Task 1 Planning Area Description Update Sam Amoako-Atta, Halff

Sam Amoako-Atta, Halff, provided an update on Chapter 1. Tables, graphics, figures and text have been updated from the 2023 Region 3 Trinity Flood Plan. The planning area description, historical flood events, agricultural land use, flood infrastructure, social demographics, and economic activities are a few descriptions that have been updated. Summary infographics have been created for each chapter. Current and proposed flood mitigation projects are under review. An excel based tool was developed to assess flood infrastructure conditions and functionality. An update on current and proposed flood mitigation projects and the flood infrastructure assessment tool will be provided at the next R3RFPG meeting.

The TWDB developed a new asset for assessing social vulnerability, referred to as Texas Flood Social Vulnerability Index (TX F-SVI). This index was specifically designed for the state of Texas. The Technical Consultants requested a complete set of supporting documentation from TWDB. A comprehensive review of the TX F-SVI dataset was conducted, comparing it against the CDC SVI to identify differences and evaluate its applicability. In addition, the Technical Consultants sought to obtain updated building footprint data to support spatial analysis. Although a dataset was released recently, it was based on 2020–2021 data and did not fully reflect the extent of recent regional development. The associated population data remained tied to 2019 estimates, necessitating further efforts to update and align population figures with current conditions to support accurate analysis and future data exports. The Technical Consultants identified opportunities to revise and enhance attribute data to improve the accuracy and functionality of the SVI analysis. These revisions were aimed at ensuring the tool's relevance and utility for future planning efforts.

The Technical Consultants anticipated completing all internal revisions and QAQC by early May. The revised dataset was scheduled for submission to the R3RFPG on May 13, 2025 for review and comment. The response period was projected to conclude by June, with final revisions to follow. Upon completion, the dataset and related documentation were to be published for public comment and incorporated into the remaining chapters of the planning documentation.

II. Update on participation in Data Collection Tool - Audrey Giesler Klump, Halff

Audrey Giesler Klump, Halff, presented a map illustrating outreach progress, showing that 26 communities had participated in the Data

Collection Survey at the time. Communities shown in black text had not yet completed the survey. As of that morning, the number of respondents had increased to 42, nearly doubling previous participation, including new responses from Houston County and other non-metro communities in the upper part of the basin.

Personalized outreach, such as targeted emails, phone calls, and direct assistance with survey completion, proved highly effective in boosting both the number of responses and their quality. In some cases, survey questions were provided in text format to help respondents prepare answers in advance. Additionally, some communities opted to have a consultant complete the survey on their behalf.

For guaranteed inclusion in the 2028 Regional Flood Plan, the Data Collection Tool survey was to close on February 11 and be removed from the website by March 1. Due to anticipated extensions from the TWDB, the survey remained open. The Technical Consultants proposed March 31 as the new closure date to avoid confusion with the upcoming request for regional FMX submissions. This separation of timelines aimed to prevent overlap and maintain clarity for participating communities.

III. Task 2 Existing (Task 2A) and Future (Task 2B) Conditions Flood Risk Analyses Update – Sam Amoako-Atta, Halff

Sam Amoako-Atta, Halff, provided an update on Chapter 2 which focused on flood risk mapping, flood exposure, and identifying data needs across the region. The Technical Consultants reviewed Base Level Engineering (BLE) data to assess existing coverage and identify gaps. Requests for additional data were submitted to the appropriate mapping departments, including the Texas General Land Office. Efforts were underway to secure remaining BLE data to improve regional mapping and planning. Preliminary datasets from FEMA were also reviewed, particularly those included in the latest flood data quilt provided by the TWDB. The region was fortunate to have updated mapping for nearly all counties, with only four remaining without updates. For two of those counties, preliminary data had recently become available.

The Technical Consultants began prioritizing data needs by county and study type to inform and build the flood data quilt, ranging from detailed engineering analyses to BLE. They aimed to build a comprehensive foundation of data for each area, including new and updated datasets. Efforts also included assembling data on coastal flooding, with 15 coastal flood events documented and over 300 datasets compiled. These were sourced from FEMA, regional agencies, and local communities, forming the basis for a centralized, accessible repository to support future planning and decision-making.

Flood exposure was identified as a primary focus, particularly regarding Critical Facilities that provide essential services to communities during and

after flood events. These assets, both public and private, were recognized for their role in supporting security, governance, public health and safety, the economy, and overall community stability. The Technical Consultants followed TWDB established guidance to engage the R3RFPG in identifying and validating a comprehensive list of Critical Facilities. These included schools, police stations, hospitals, and key infrastructure such as telecommunications and communication facilities. The R3RFPG were asked to review the list to ensure no important assets were omitted before finalizing data collection for the flood exposure analysis.

During the discussion on Critical Facilities, participants reviewed and expanded the list of facilities essential to maintaining community function during and after flood events. In addition to standard facilities like police stations, hospitals, and schools, several other Critical Facilities were identified for inclusion. Suggestions included data centers, information technology infrastructure, public works facilities, and transportation maintenance facilities such as those used to clear roads and restore access. Participants emphasized the importance of communications infrastructure, including both government dispatch centers and privatesector radio stations that support public information efforts during emergencies. Emergency management facilities, particularly in larger cities, were highlighted as critical, along with water treatment plants, lift stations, and solid waste transfer stations, which are vital for public health and recovery efforts. There was also recognition of county jail facilities and state prisons as critical under the broader law enforcement category. Other suggested categories included courthouses, assisted living facilities, and general government or administrative offices, such as purchasing departments, which are necessary for logistics and operational continuity during response and recovery.

The R3RFPG recommended aligning the critical facility categories with those used in state-approved hazard mitigation plans to ensure consistency with FEMA and the Texas Division of Emergency Management documentation. Additionally, the Technical Consultants planned to use a newly released FEMA dataset that catalogs all known buildings in the U.S. to verify and supplement the current Critical Facilities list. The R3RFPG also requested a graphic that maps Critical Facility locations to better understand 1D vs 2D BLE differences.

Sam Amoako-Atta also discussed the Technical Consultants approach to future conditions analysis, noting that they were still waiting for the TWDBs release of the official 2060 future conditions dataset, which was expected in late spring. Upon receipt, the dataset would be reviewed to determine its suitability for use within the region. If deemed appropriate, it would be integrated into the project and shared with the R3RFPG for feedback. In the interim, the Technical Consultants explored potential alternative data sources and methodologies in case the forthcoming dataset proved inadequate or was delayed further. This included

examining FEMA's National Risk Index and other datasets to evaluate their potential for informing future conditions mapping.

Concerns were raised regarding the assumptions underlying the future conditions data, especially around climate change impacts such as temperature and precipitation projections. It was noted that such assumptions often rely on speculative models with limited resolution or reliability, which could affect the accuracy and credibility of the dataset. The Technical Consultants emphasized the importance of transparency in reviewing and validating any dataset used, and they planned to involve the R3RFPG in each step of the evaluation process. Despite the uncertainty, there was cautious optimism based on the high quality of a recent related dataset, which gave the Technical Consultants hope that the future conditions data might also meet expectations.

IV. Introduction to criteria and emergency need (Task 3B) - Julie Jones, Nathan D. Maier

Julie Jones, Nathan D. Maier, provided an update on Task 3B, which focused on reviewing and refining criteria to assess flood mitigation needs and emergency conditions. No decisions were requested at that time; instead, R3RFPG members were asked to begin considering the analytical approach. The slides presented the criteria previously used by the TWDB and served as a foundation for future decision-making. Discussions highlighted the role of social vulnerability, historical flood impacts, and the availability of supporting data in defining emergency needs. The approach aimed to prioritize areas with limited resources or heightened exposure to flood risks.

There was considerable discussion. The R3RFPG stressed the need to align selected criteria with both current vulnerabilities and future risks, ensuring that mitigation efforts are strategic, equitable, and forward-looking. The discussion set the stage for refining scoring methods and identifying priority areas for flood mitigation planning.

The R3RFPG requested the TX F-SVI database and metadata for review. The TX F-SVI report can be viewed on the <u>TWDB 2028 Regional Flood Plan Working Documents (2024-2028) website</u>.

V. Determine approach for soliciting FMXs (Task 4A) - Audrey Geisler Klump, Halff

Audrey Geisler Klump, Halff, provided an update on Task 4A, which focused on identifying FMXs for the Regional Flood Plan. No immediate decisions were required, but the R3RFPG were encouraged to consider reactivating the Technical Subcommittee to support this task. The

discussion reviewed how FMXs were identified in the previous cycle, primarily through FEMA Flood Insurance Studies and community submissions. Communities with outdated data were prioritized. For the current cycle, many of the same data sources will be used, though significant updates are not anticipated. New opportunities include incorporating the mitigation needs analysis, which was previously unavailable due to timing constraints. Interest in project submissions has increased significantly, with prior expectations exceeded and requests already being received for opening the submission window for the 2028 Regional Flood Plan. The importance of criteria outlined in Exhibit C was emphasized, including the need to address outdated or insufficient flood risk information, consider social vulnerability, and include nature-based solutions. The R3RFPG also discussed the need to assess gaps in regional participation and ensure underrepresented areas, particularly in the lower basin, are adequately engaged. There was support for opening the FMX submission window early to accommodate community interest, though a formal closure date has not yet been determined. That date will be a key item for the Technical Subcommittee, as submissions must be reviewed and finalized ahead of the TWDB January 2026 Technical Memorandum deadline. The presentation concluded by underscoring the importance of early planning, proactive outreach, and strategic scheduling for FMX data collection to ensure comprehensive and timely inclusion in the 2028 Regional Flood Plan.

VI. Determine approach for selecting FMEs to upgrade to FMPs (Task 4A) -Audrey Geisler Klump, Halff

Chapter 4A addressed the process of selecting FMEs for potential upgrade to FMPs, a new task for this cycle that builds on previous efforts under Task 12 in the first planning cycle. In the first planning cycle, FMEs were often proposed as FMPs but lacked sufficient data to qualify, so they were instead listed as FMEs. The goal now is to use available resources to complete those gaps and promote qualifying FMEs to FMPs. During the last cycle, no modeling was performed by the Technical Consultants, which was not uncommon among other regions. However, in this cycle, modeling is expected to play a larger role, especially for FMEs submitted to the TWDB for review. TWDB may conduct modeling themselves or expect the R3RFPG to complete it, depending on available resources. The R3RFPG acknowledged that determining which FMEs are upgraded will require close coordination with TWDB and a clear selection approach. The Technical Subcommittee, which is expected to be reconvened, will be tasked with developing criteria for this selection process. Factors such as emergency needs, social vulnerability, available resources, and the potential to identify viable projects will be considered. A formalized approach to reviewing and promoting FMEs is required and will be finalized prior to the next R3RFPG meeting in June.

Mr. Rivera, Freese and Nichols, asked: Does TWDB plan to focus their efforts on rural and low-income communities?

Ms. Koslan, TWDB, responded: Yes, that is why we have this task. I believe it is written into the scope of work with that emphasis specifically.

VII. *Consider establishing Technical Subcommittee to review FMXs –Glenn Clingenpeel

Chairman Glenn Clingenpeel appointed Andrew Isbell, Craig Ottman, Lissa Shepard, Sarah Standifer, Matt Robinson, Scott Harris, and Galen Roberts to the Technical Subcommittee.

VIII. Outreach update – Dorothy White, Cooksey

Dorothy White, Cooksey, provided an update. The outreach update focused on recent efforts to engage the public and stakeholders in the flood planning process. The Technical Consultants updated its database of interested parties using website sign-ups, emails, meeting attendees, and commenters. A series of emails about data collection and timelines was distributed, reaching approximately 1,200 contacts. These emails had an open rate of 47.4% and a click rate of 12.2%, both significantly above average for government campaigns. Media advisories were issued and followed up with local outlets, resulting in regional news coverage. The website was updated with new Region 3 boundary information and upcoming meeting dates, and a LinkedIn group was launched to further engage stakeholders. This group was linked on the website and in email footers and was used to post reminders and updates. Region 3 boundary adjustments were made based on hydraulic reality, correcting minor discrepancies along planning group edges.

d. Project schedule – Stephanie Griffin, Halff

Stephanie Griffin, Halff, provided an overview of the upcoming meeting schedule, beginning with finalizing the amendment approval and coordinating the necessary cover letter. The next R3RFPG meeting was scheduled for June 3rd, during which Chapter 1 approval would be sought, along with updates from the Technical Subcommittee on the finalization of the approach to identify FMXs and a review of Task 3B. R3RFPG and Officer elections were discussed, with clarification needed on whether they should occur in July, when terms expire, or be deferred to August. The R3RFPG noted the 90-day posting requirement for open positions and determined to verify whether terms could be extended to allow for August elections. It was also confirmed that, although no seats were currently open, some positions were at the two-year mark, allowing members to reapply or continue serving if reappointed. The R3RFPG planned to consult legal counsel to confirm election procedures and eligibility, particularly for members seeking reelection. Consensus dates for upcoming meetings were acknowledged, and the group emphasized the importance of staying on schedule to meet the TWDB Technical Memorandum deadline of January 10, 2026.

<u>Updates from liaisons for adjoining coastal regions</u>

- a. Region 5 Neches RFPG: No liaison was present to provide an update.
- b. Region 6 San Jacinto RFPG: Scott Harris, Gulf Coast Authority, stated there were no updates.

Update from Planning Group Sponsor – Chairman Glenn Clingenpeel, TRA

A poll will be sent out to determine the August R3RFPG meeting date.

Receive registered public comments – limit 3 minutes per person

No registered public comments were received.

<u>Announcements</u>

No announcements were made.

Confirm meeting date for next meeting

Tuesday, June 3, 9:00 AM at the Trinity River Authority of Texas General Office 5300 S Collins Street, Arlington, TX 76018

Consider agenda for next meeting

<u>Adjourn</u>

2:59 pm adjourned

HELD DECEMBER 11, 2024.		
SCOTT HARRIS, Secretary REGION 3 TRINITY FLOOD PLANNING GROUP	Date	
GLENN CLINGENPEEL, Chair REGION 3 TRINITY FLOOD PLANNING GROUP	Date	

THE ABOVE AND FOREGOING ARE CERTIFIED TO BE TRUE AND CORRECT MINUTES OF THE REGULAR MEETING OF THE REGION 3 TRINITY FLOOD PLANNING GROUP

4. Acknowledgement of written comments received

5. Public comments on agenda items



6. TWDB update

7. Policy Subcommittee update

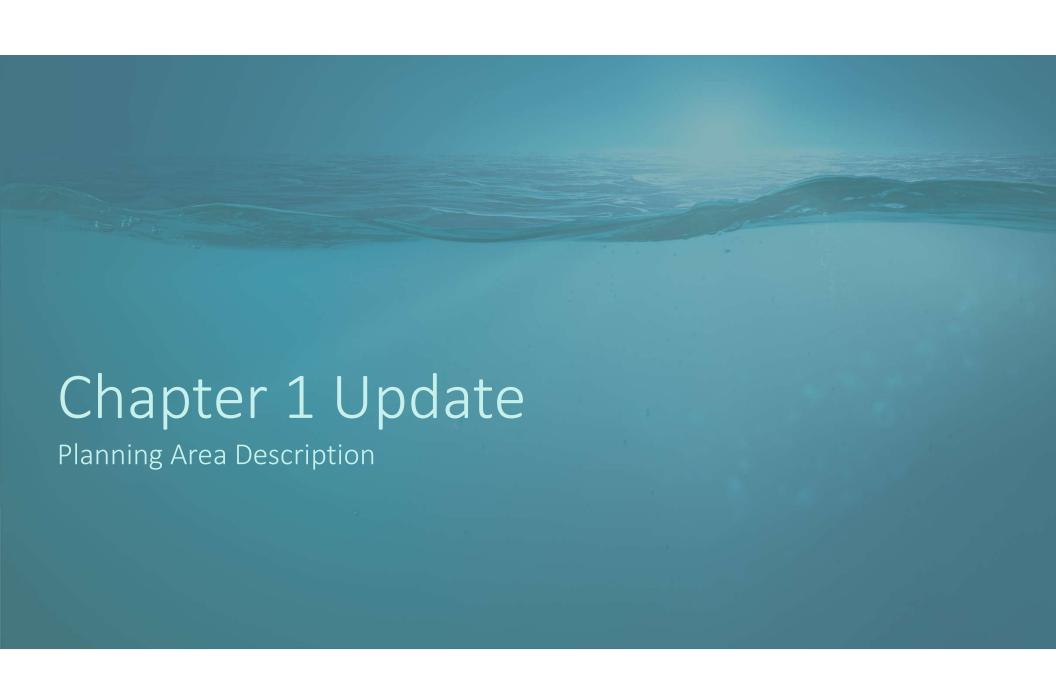
8. Nominating Committee update

9. Consultant update



CONSULTANT UPDATE

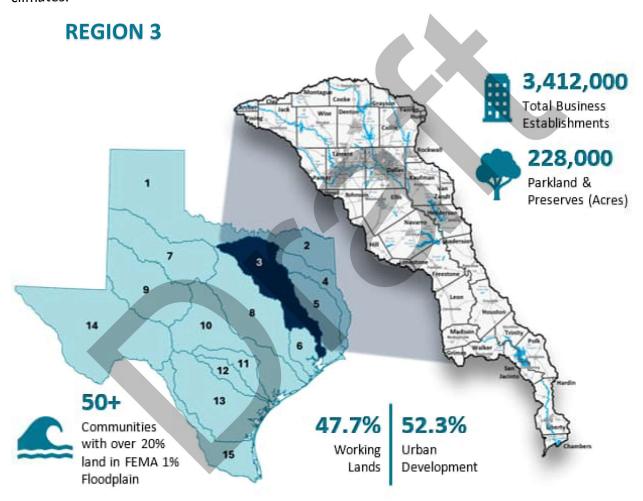
- Chapter 1 Draft
 - Findings recap
 - Data collection tool update
- Chapter 2 Update
 - · Existing conditions update
 - Future conditions investigation
- Chapter 3 Update
- Chapter 4 introduction
 - Approach to identify FMXs
 - Approach to select FMEs to advance to FMPs
- Public outreach updates
- Project schedule





COMMUNITY PROFILE OVERVIEW

The Trinity Region, stretching from Gainesville to Anahuac, covers a diverse range of landscapes and communities, and includes approximately 46,800 stream miles and a total drainage area of about 17,900 square miles. One of the state's most populated flood planning areas, the Trinity Region is expected to have 96 communities with populations over 25,000 by 2060. The area experiences a variety of flood risks due to its mix of arid, subtropical, agricultural, and urban climates.



PRIMARY INDUSTRIES

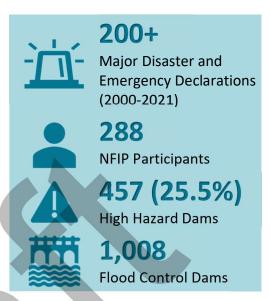




FLOOD RISK IN THE TRINITY REGION

This region is bordered by the Red River Basin to the north, the Sabine and Neches River Basins to the east, and the Brazos and San Jacinto River Basins to the west and south.

In a major flood event, there are often losses incurred. In the Trinity Region, these reported losses include property damage, agricultural damage, physical injuries, and loss of life. Since 2000, the region has experienced an estimated \$6.8 billion in property damage and \$2 million in crop damage. These figures, sourced from the NOAA storm events database, represent only the documented losses; actual totals for agriculture, property, and life losses are likely higher. The most substantial losses are observed in densely populated metropolitan areas prone to flash flooding and coastal regions susceptible to tropical storms and hurricanes.



FLOOD MITIGATION PROJECTS

There are 110 structural and non-structural flood mitigation projects in progress in the Trinity Region, with 69 planned for the future.



Structural Flood Mitigation Projects (Currently under construction)



Mitigation Projects (Currently being implemented)

Non-Structural Flood

FLOOD INFRASTRUCTURE

FUNCTIONAL / DEFICIENT **Dams**



Levees

Ponds

Wetlands

Reservoirs















FLOOD MITIGATION PROJECTS

Structural

- Conveyance Improvements
- Levees/Flood Walls
- Local Storm Drainage Improvements

Non-Structural (Nature)

Administrative/

Societal/Other

- Nature based projects
- Urban Planning and Maintenance
- Flood Warning Systems
- Floodplain Management Ordinances Property Elevations
- Flood Insurance (NFIP Participation)
- Outreach/Community Engagement

- Dams/Reservoirs/Detention/Retention Basins
- Roadway Crossing Improvements
- Property Floodproofing
- Nature Planning Improvements
- Erosion Control Measures
- Property Buyouts/Acquisition
- Equipment Procurement
- Flood Study/Assessment
- Technology Improvements

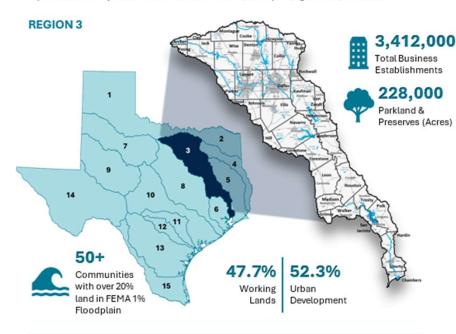
Summary Infographics



CHAPTER 1

COMMUNITY PROFILE OVERVIEW

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TRINITY REGIONAL FLOOD PLAN

Summary Infographics

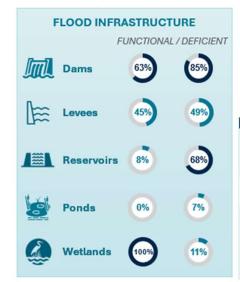


CHAPTER 1

FLOOD RISK IN THE TRINITY

This region is bordered by the Red River Basin to the north, the Sabine and Neches River Basins to the east, and the Brazos and San Jacinto River Basins to the west and south.

In a major flood event, there are often losses incurred. In the Trinity Region, these reported losses include property damage, agricultural damage, physical injuries, and loss of life. Since 2000, the region has experienced an estimated \$6.8 billion in property damage and \$2 million in crop damage. These figures, sourced from the NOAA storm events database, represent only the documented losses; actual totals for agriculture, property, and life losses are likely higher. The most substantial losses are observed in densely populated metropolitan areas prone to flash flooding and coastal regions susceptible to tropical storms and hurricanes.





Major Disaster and **Emergency Declarations** (2000-2021)



288 Participants



457 (25.5%) High Hazard Dams



1,008 Flood Control Dams

FLOOD MITIGATION PROJECTS

There are 110 structural and non-structural flood mitigation projects in progress in the Trinity Region, with 69 planned for the future.



93

Structural Flood Mitigation Projects (Currently under construction)



Non-Structural Flood Mitigation Projects (Currently being implemented) Flood Mitigation Projects				
Non-Structural (Nature)	▼ Nature based projects ▼ Urban Planning and Maintenance ▼ Nature Planning Improvements ▼ Erosion Control Measures			
Administrative/Societal/Other	→ Flood Warning Systems → Floodplain Management Ordinances → Property Elevations → Flood Insurance (NFIP Participation) → Outreach/Community Engagement → Property Bayouts/Acquisition ← Equipment Procurement → Flood Study/Assessment → Technology Improvements			

TRINITY REGIONAL FLOOD PLAN



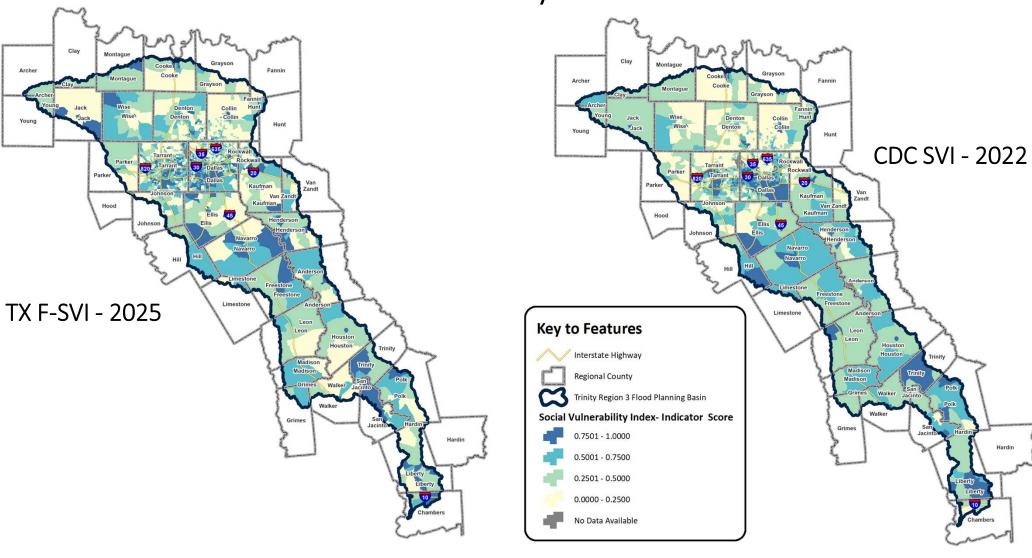


<u>Texas Flood Social Vulnerability</u> <u>Index (TX F-SVI)</u>

• Flood-Specific SVI for Texas

DIMENSION	VARIABLE	TX F-SVI	CDC SVI
	Income	Х	
	Poverty	Х	Х
Socio-Economic	Unemployment	Х	Х
	Housing Value	Х	Х
	Employment Type	Х	
	Environmental Risk Factors	Х	
Place and Status	Migration	Х	
	Renters	Х	
		•	
Socio-Cultural	Language	Х	Х
Socio-Cultural	Minority	Х	Х
Durolity	Rural-Urban	Х	
Rurality	Mobile Homes	Х	Х
	Housing Age	Х	
Infrastrucure	Access to phone/internet	Х	
	No Vehicle	Х	Х
	Age	X	X
Socio-Demographic	Disability	Х	Х
	Single Parent Household	Х	Х
	Crowding		Х
	Group Quarters		X
	Housing Tyoe		X
	No health insurance		X
	No high school diploma		۸
Total		18	15

Social Vulnerability Index



Summary of Asset Classification

CONDITION reflects the physical state of an asset. It's classified as:

- Deficient (requires repair or replacement)
- Non-Deficient (in good condition)
- Unknown

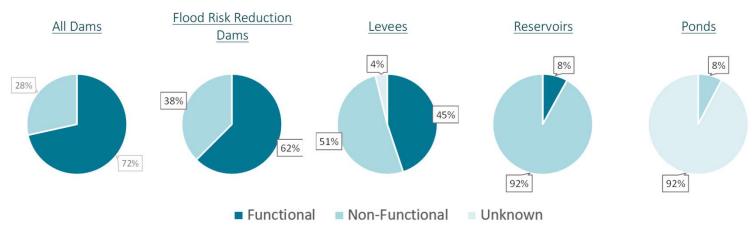
FUNCTIONALITY indicates whether an asset is delivering its intended level of service. It's classified as:

- Functional
- Non-Functional
- Unknown

Infrastructure types analyzed: dams, levees, reservoirs, ponds, and wetlands*

*Please note, as natural infrastructure, wetlands are not graded for functionality.

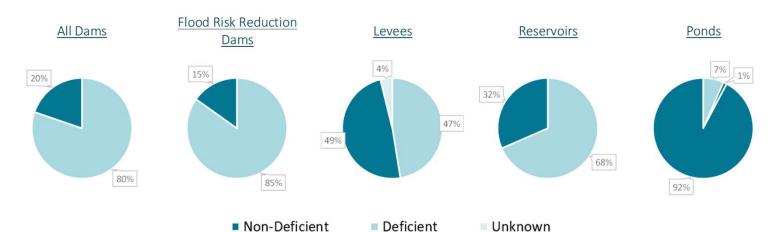
Functionality of Constructed Features



	Functional		Non-Functional		Unknown	
Dams (all)	1,322	72%	526	28%	0	0%
Dams (flood)	630	62%	378	38%	0	0%
Levee	35	45%	40	51%	3	4%
Reservoir	22	8%	251	92%	0	0%
Ponds	0	0%	1,416	8%	16,845	92%
Wetlands	-	-	-	-	-	-
Total	2,009		2,611		16,848	

*Non-functional indicates that the structure is not meeting the intended level of service.

Condition of Constructed Features

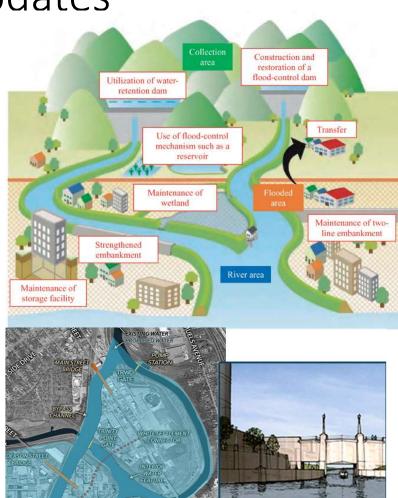


	Non-Deficient		Deficient		Unknown	
Dams (all)	365	20%	1,483	80%	0	0%
Dams (flood)	153	15%	855	85%	0	0%
Levee	38	49%	37	47%	3	4%
Reservoir	86	16%	187	34%	0	0%
Ponds	212	1%	1,204	7%	16,845	92%
Wetlands	25,976	89%	3,054	11%	0	0%
Total	26,8	30	6,820		17,121	

Chapter 1 Updates



- Non-Structural Flood Mitigation
 Projects currently being
 implemented
- Planned Structural Flood
 Mitigation Projects with potential
 funding to construct and expected
 year of completion
- Planned Non-Structural Flood
 Mitigation Projects with potential
 funding to construct and expected
 year of completion

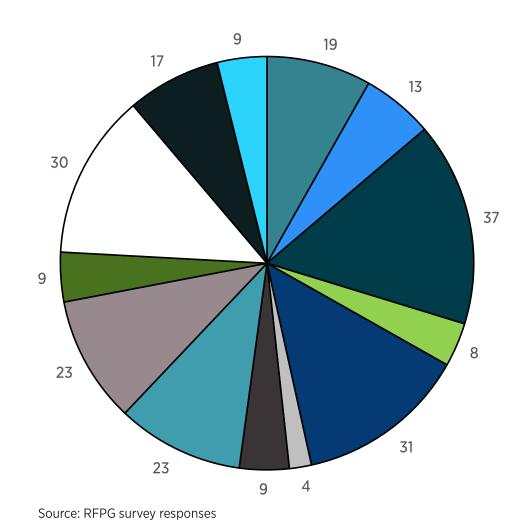


Current Data Collection of Regulations

Type of Regulation	Count
Drainage Criteria Manual/Design Manual	114
Land Use Regulations	284
Ordinances (Floodplain, Drainage, Stormwater, etc.)	274
UDC and/or Zoning Ordinance with Map	284

Sources: RFPG survey responses and consultant team research

Current Data Collection - Flood Actions

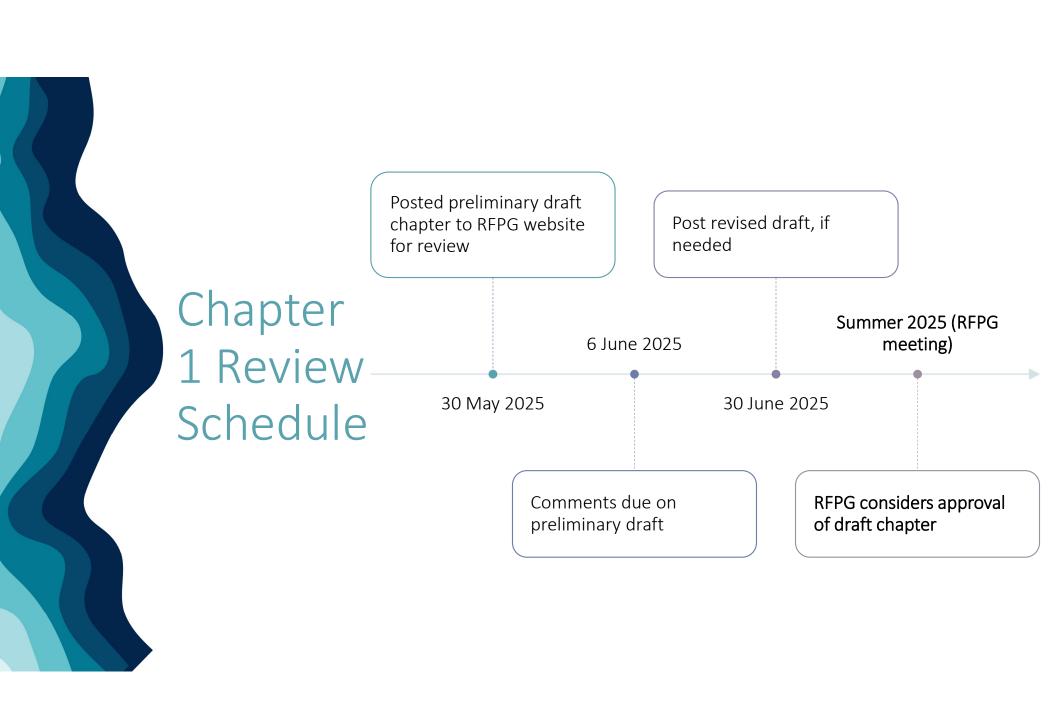


- Channel, canal conveyance improvements
- Flood warning system, stream/rain gauges
- Floodplain management ordinances
- Levees, flood walls
- Local storm drainage systems, tunnels
- Nature-based projects
- Property elevations
- Regional dams, reservoirs, detention, retention basins
- Roadway and crossing improvements, bridges, culverts
- Property floodproofing and/or flood retrofits
- ☐ Flood insurance (participation in the NFIP)
- Flood awareness outreach and/or education
- Property buyouts/acquisition

Current Data Collection of Flood Actions

Subcategory of Hazard Mitigation Plan	Total Count
Infrastructure Improvement	276
Urban Planning and Maintenance	275
Education & Awareness for Citizens	276
Drainage Control & Maintenance	275
Equipment Procurement for Response	281
Flood Study/Assessment	274
Outreach and Community Engagement	275
Installation/Procurement of Generators	210
Buyout/Acquisition	141
Technology Improvement	281
Flood Insurance Education	243
Natural Planning Improvement	273
Erosion Control Measure	258

Source: Hazard Mitigation Plans across the region





Draft 2028 Trinity Regional Flood Plan

Chapter 1 Link:

https://trinityrfpg.org/wp-content/uploads/2025/05/Trinity-RFP-Chapter-1-DRAFT-2025-05-27.pdf

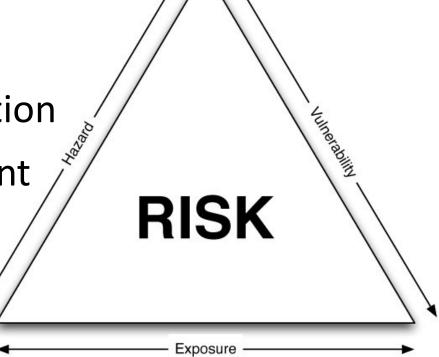


Task 2 - Purpose

Flood Risk Mapping

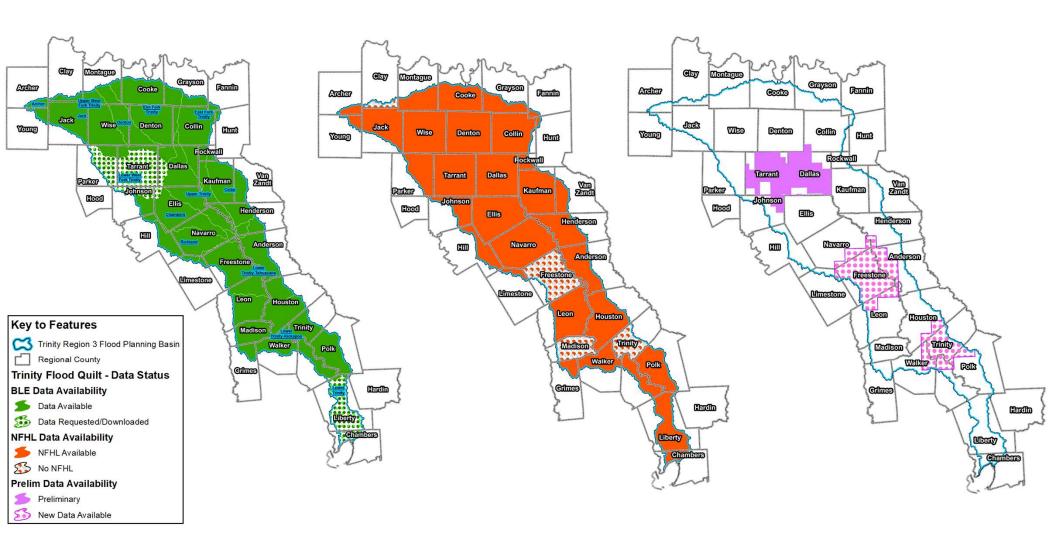
Flood Exposure Estimation

Vulnerability Assessment



CHAPTER 2 Existing Conditions Approach

Task 2A – Flood Mapping Data Sources



Task 2A – Flood Mapping Data Sources and Prioritization

Data Prioritization



		Pending Data	
1	National Flood Hazard Layer	Preliminary Data	
		Effective Data	
2	Base Level Engineering Data		
3	NFHL (Approximate Study Areas)		
4	First American Flood Data Services (FAFDS)		
		Fathom	
5	Other Potential Data Sources	USACE of Federal Data	
	other Potential Data Sources	Regioal Data	
		Local Data	

LOMR Cutoff Date - May 2025

Task 2A – Existing Conditions Flood Risk Assessment

FLOOD TYPE

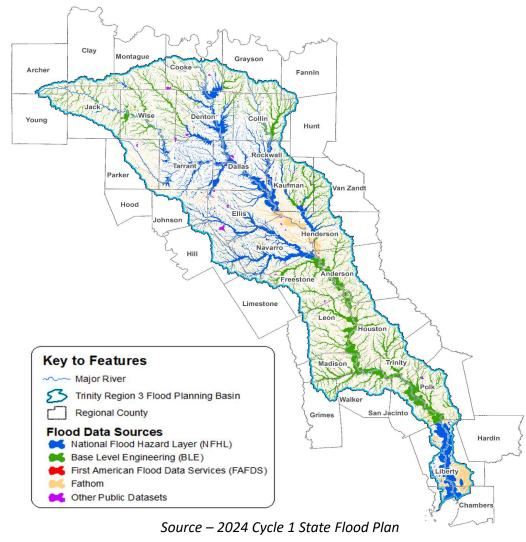
- Riverine
- Coastal
- · Pluvial including Urban flooding

FLOOD EVENT TYPES

- 10-Year
- 100-Year
- 500-Year
- Other

DATA SOURCES

- TWDB Flood Quilt
- FEMA
- Regional/Community Data
- FATHOM





Responsive Communities

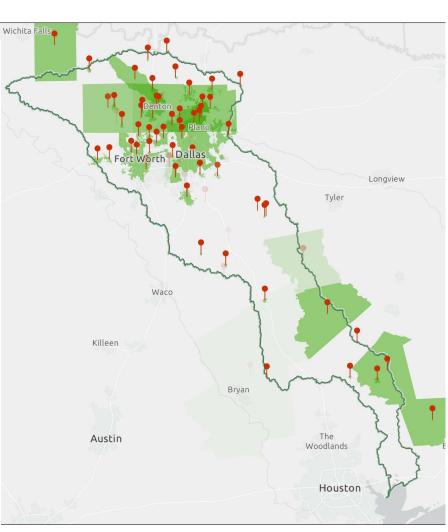
Complete responses in blue; partial responses in black

1.	Allen	24.	Denton (City)
2.	Anderson County	25.	Denton County
3.	Angus	26.	Dish
4.	Anna	27.	Duncanville
5.	Argyle	28.	Enchanted Oaks
6.	Aurora	29.	Farmers Branch
7.	Bowie	30.	Fate
8.	Boyd	31.	Forest Hill
9.	Brazos Valley Council	32.	Garrett
	of Governments	33.	Grand Prairie
10.	Buffalo	34.	Grand Prairie MURD
11.	Callisburg	35.	Grapevine
12.	Caney City	36.	Groveton
13.	Carrollton	37.	Hardin County
14.	Cedar Hill	38.	Haslet
15.	Celina	39.	Highland Park
16.	Clay County	40.	Houston County
17.	Clear Creek Watershed	41.	Iola
	Authority	42.	Keller
18.	Colleyville	43.	Lake Worth
19.	Collin County SWCD	44.	Leonard
	#535	45.	Lewisville
20.	Combine	46.	Lindsay
21.	Dallas (City)	47.	Livingston
22.	Dawson	48.	Log Cabin

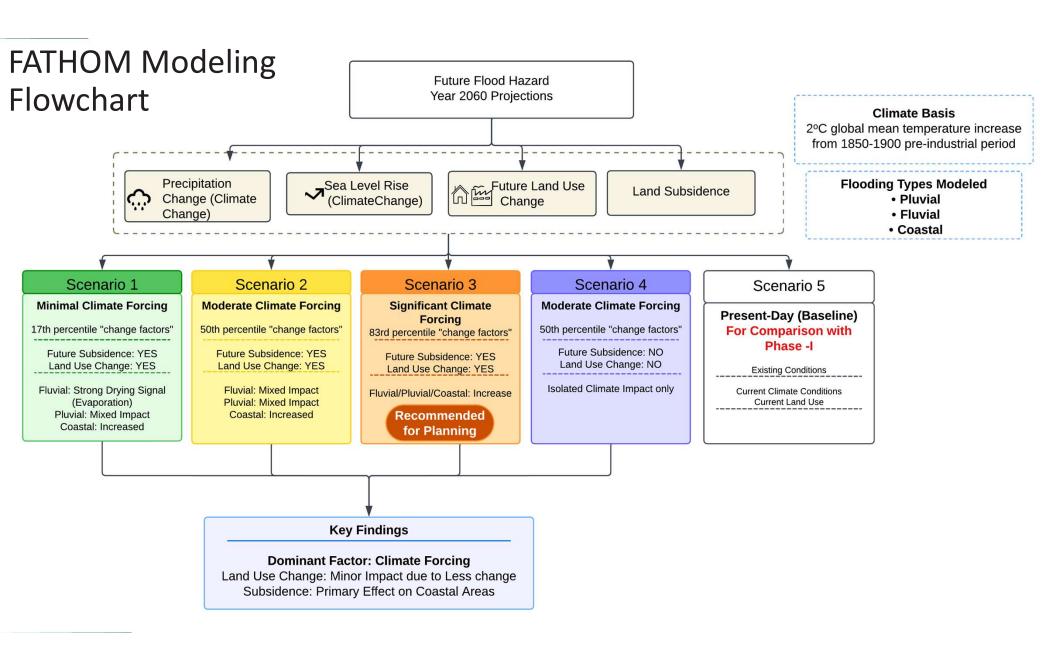
49. McKinney

23. Decatur

spo	nses in black —
50.	Mexia
51.	North Texas MWD
52.	Oak Leaf
53.	Plano
54.	Point Blank
55.	Polk County
56.	Ponder
57.	Richland Hills
58.	Sanger
59.	Tarrant Regional Water
	District
60.	The Colony
61.	Tioga
62.	Trinity River Authority
	(not shown)
63.	Waxahachie
64.	Weatherford
65.	Willow Park
66.	Wilmer
67.	Wise County
68.	Wortham



CHAPTER 2 Future Conditions Approach



Definitions of Future Scenarios -FATHOM Phase 2

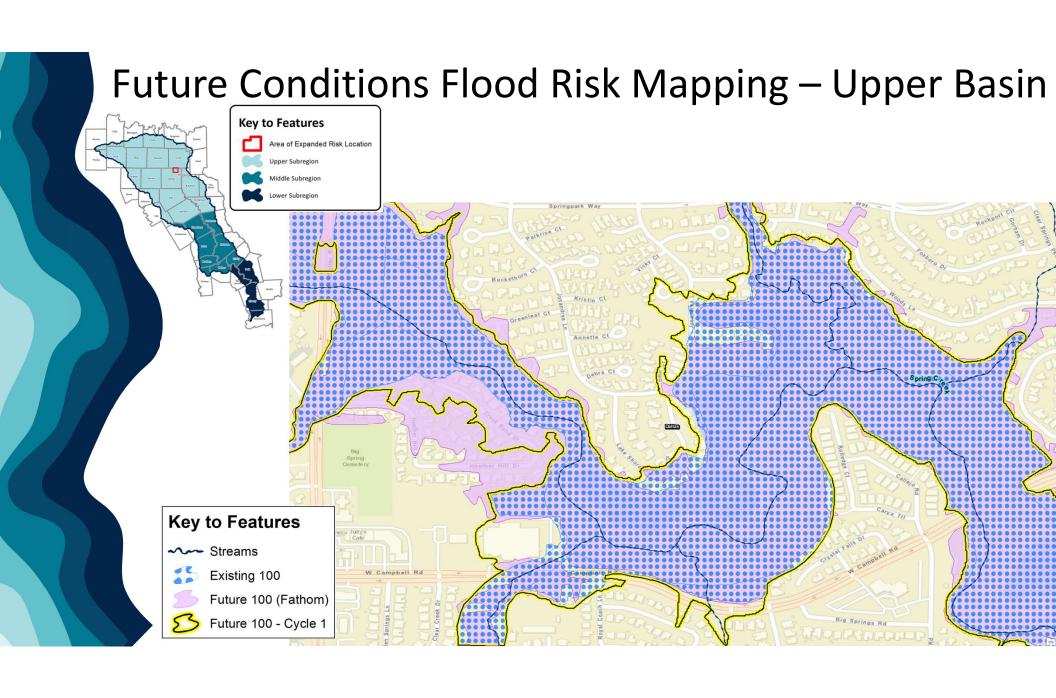
- Scenario 1 (*Minimal Climate Forcing* (17%)+ Land Use + Subsidence):
 - Shows relatively small changes compared to Scenario 5.
 - Reflects conservative climate change assumptions.
- Scenario 2 (<u>Moderate Climate Forcing</u> (50%) + Land Use + Subsidence):
 - Shows intermediate floodplain expansion relative to Scenario 5.
 - Adds modest increases in depth and extent due to moderate climate projections.
- Scenario 3 (<u>Significant Climate Forcing</u> (83%)+ Land Use + Subsidence):
 - Represents worst-case future conditions.
 - Shows largest increases in flood extent and depth versus Scenario 5.
- Scenario 4 (Moderate Climate Forcing (50%)):
 - Represents moderate future climate impact conditions only.
- **Scenario 5**: Benchmark scenario with updated DEM, bathymetry, and roughness using present-day conditions.

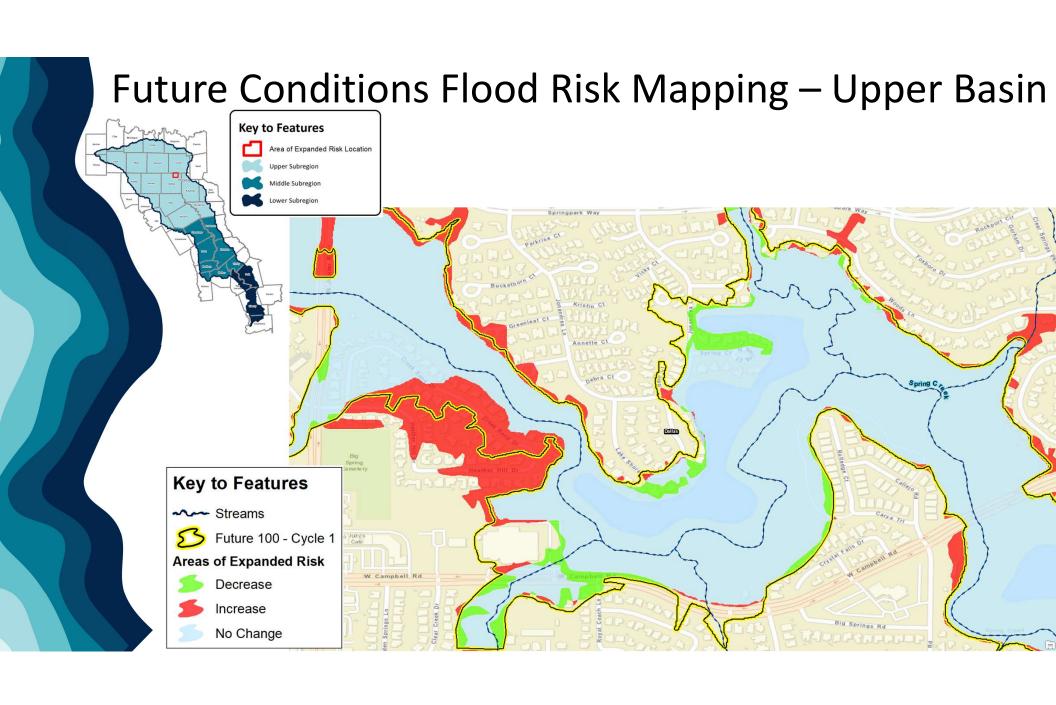
Modeling and Inputs

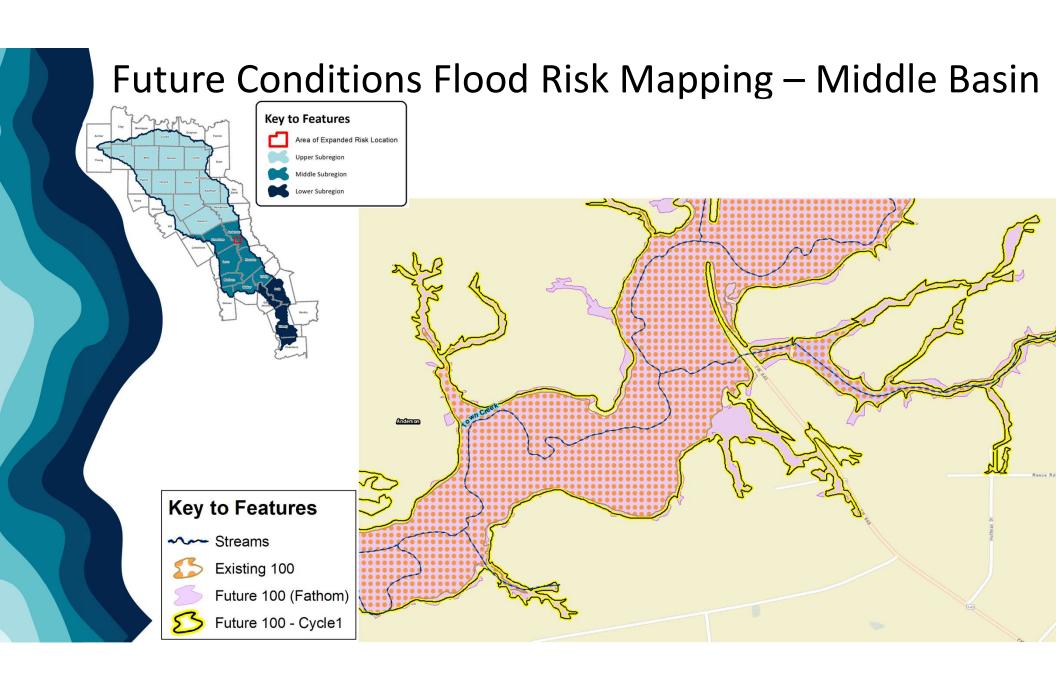
Feature/Component	Phase 1	Phase 2	Impacts
Pluvial BC	NOAA Atlas 14 IDF; Rain on Grid	NOAA Atlas 14 + Climate Forcing (GCM-based)	Rainfall intensity adjusted for 2060; improved future risk representation
Fluvial BC	USGS Gauge Data; Peak Flows; No Hydrograph	USGS Gauge + RFFA + Dynamic Hydrograph (Parabolic Curve)	Peak flows + hydrograph simulation; more realistic flood wave modeling
Coastal BC	NOAA Tide Gauges; At-site RFA	NOAA + Regional RFA (Regional Frequency Analysis)	Regionalized surge analysis; broader and more accurate coastal modeling
DEM	Older LiDAR	TxGIO 2023 LiDAR (30m sim \rightarrow 3m output)	High-resolution terrain; improves floodplain delineation
LULC	Global Human Settlement Layer	USGS 2021 & 2060 Projections (250 m)	Better reflects future urbanization; influences roughness & runoff
Manning's n	Constant roughness statewide	Spatially Varying (LULC-based)	Improves flood wave attenuation; more realistic depths
Channel Depth	"Mild slope" assumption	Optimized per slope/width profile	Least squares optimization; enhanced hydraulic realism
Levee & Defenses	Limited levee data	USACE National Levee Database	Levee protection integrated; refined defense standards
Land Subsidence	Not modeled	NOAA & HGSD GPS data (kriging)	DEM modified for 2060 scenarios; represents ground deformation
Infiltration	Not explicitly modeled	LULC-based infiltration adjustments (urban vs rural)	Basic infiltration subtracted from rainfall; urban areas assume minimal infiltration
Evaporation	Not explicitly modeled	Considered as minor; assumed negligible for flood peak events	Evaporation not a primary factor during flood simulations

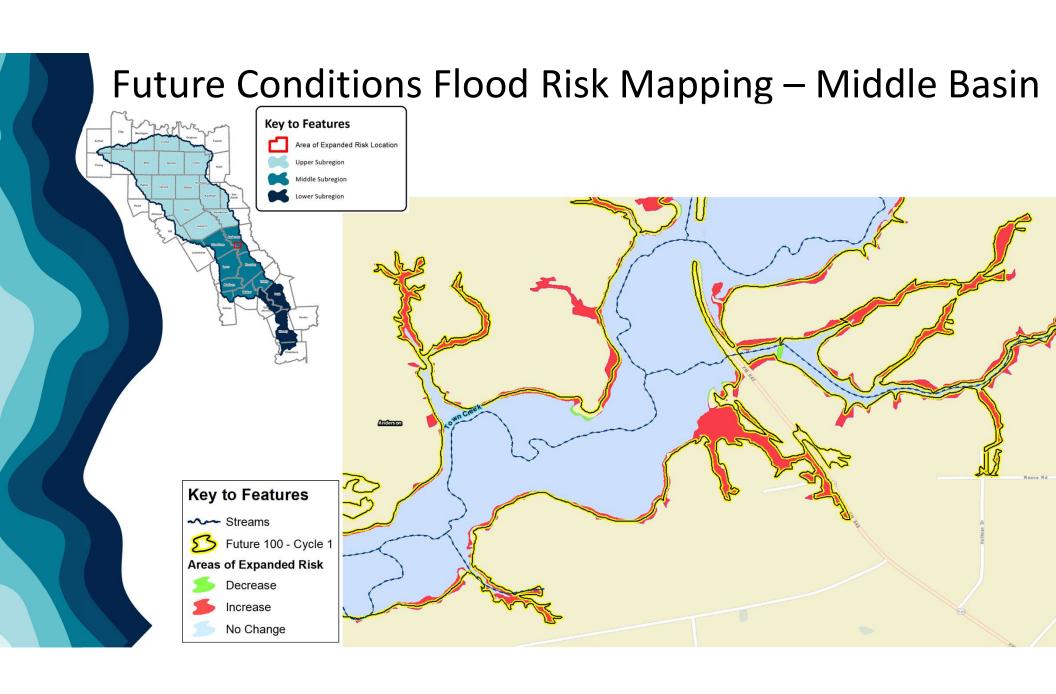
Comparisons between Fathom Phase 1 vs. Phase 2

Flood Types	Flood Extent	Flood Depth	Reason
Pluvial	Phase 2 <phase1< td=""><td>Phase 2>Phase 1 (+0.1ft average)</td><td>Updated DEM, improved bathymetry, spatially variable Manning's n</td></phase1<>	Phase 2>Phase 1 (+0.1ft average)	Updated DEM, improved bathymetry, spatially variable Manning's n
Fluvial	Phase 2>Phase 1	Phase 2>Phase 1 (+0.4 ft average)	Improved DEM, better urban drainage assumptions
Coastal	Phase 2 <phase1< td=""><td>Phase 2>Phase 1 (+2 ft average)</td><td>New levee data, refined storm surge boundary conditions (new RFA)</td></phase1<>	Phase 2>Phase 1 (+2 ft average)	New levee data, refined storm surge boundary conditions (new RFA)

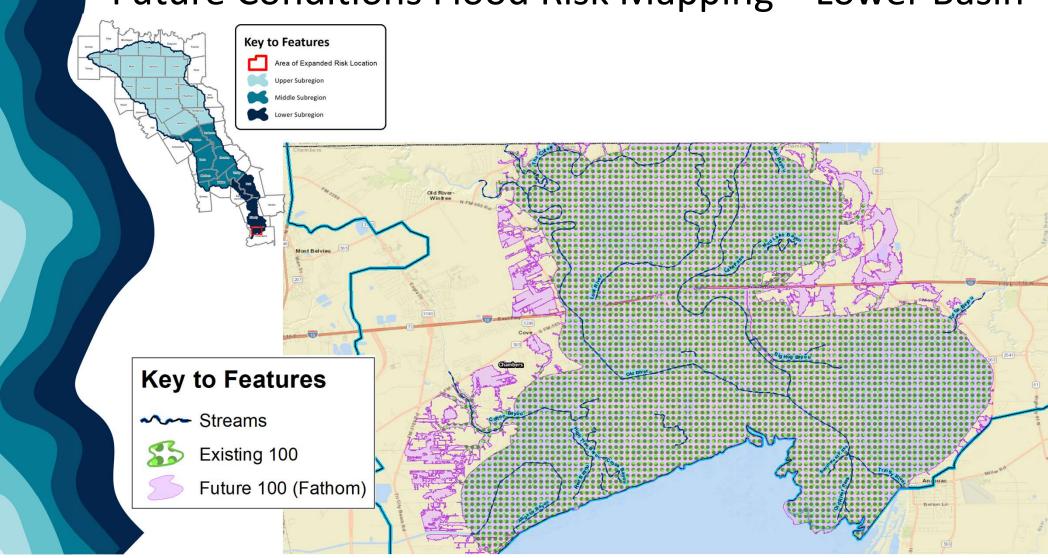








Future Conditions Flood Risk Mapping – Lower Basin



Future Conditions Flood Risk Mapping – Lower Basin **Key to Features** Area of Expanded Risk Location Middle Subregion Lower Subregion **Key to Features** ---- Streams Areas of Expanded Risk Decrease Increase No Change

Future Conditions Flood Risk Mapping

Flood Boundary Standard (FBS) Audits

Risk Class Parameters

- Population
- · Population growth
- Housing units
- Flood insurance policies
- Flood insurance claims
- Repetitive loss claims
- · Repetitive loss properties annually
- · Declared flood disasters

Self Certification

Table <8P - Floodplain Boundary Standard Audit Report

1. Review Type

OIS-Based

DIS-Based

Emily Cubb

Emily Cub

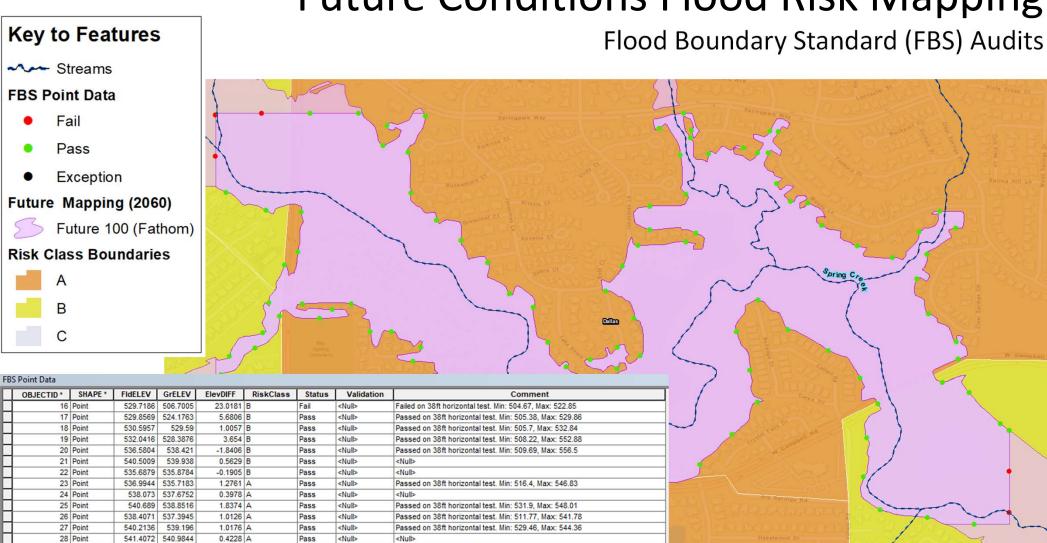
	8 Description	9. Results		
7. Number		Approximate (Zone A)	Detailed (Zone AE)	10 Comments
1	Names of stream reaches audited		East Fork Trinity River Tributaries	
2	Total stream length audited		12.5	
3	Number of floodplain boundary points audited		1,432	
4	Number of floodplain boundary points passed		1,112	
5	Number of floodplain boundary points failed		320	
	Overall pass/fail	Pass:	Pass:98.25%	
0	percentages for study audit risks	Fait:	Fail: 1.75%	1
7	Stream Name and length that passed audit		12.2	
Flood	map products produced for swith the FEMA Floodplain B for Flood insurance Rate N	loundary Standard	Signed:	cPA b

for Flood Insurance Rate Maps	<pm></pm>
Separation of the separation o	

Risk	Characteristics	Delineation Reliability of the floodplain boundary per study methodology ¹	
Class	Characterione	Enhanced	Base Study
Α	High Population and densities within the floodplain, and/or high anticipated growth	+/- 1.0 foot/ 95%	+/- 1/2 contour 95%
В	Medium Population and densities within the floodplain, and/or modest anticipated growth	+/- 1.0 foot/ 90%	+/- 1/2 contour 90%
С	Low Population and densities within the floodplain, small or no anticipated growth	+/- 1.0 foot/ 85%	+/- 1/2 contour 85%
D	Undetermined Risk, likely subject to flooding	NA	NA
E	Minimal risk of flooding; area not studied	NA	NA

The difference between the ground elevation (defined from topographic data) and the computed flood elevation.

Future Conditions Flood Risk Mapping



29 Point

542.5657

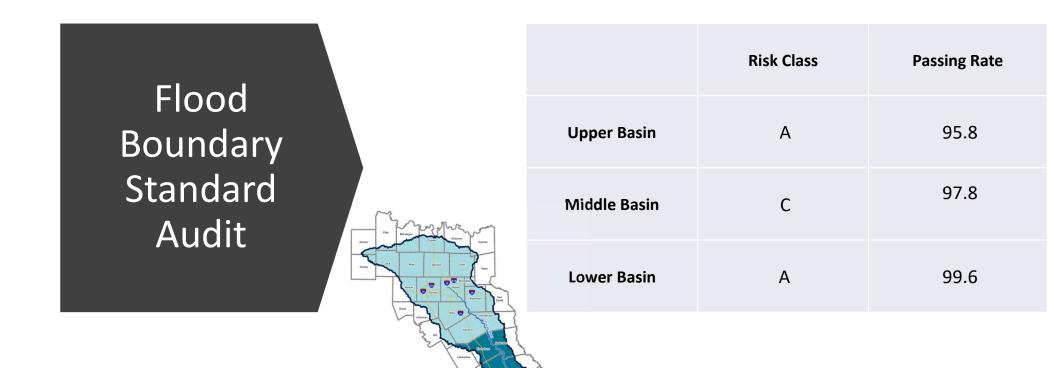
541.9106

0.6551 A

Pass

<Null>

Future Conditions Flood Risk Mapping



Upper Subregion Middle Subregion

Recommendations

- Scenario 3 (Significant Climate Forcing + Subsidence + Land Use Change) is recommended for robust planning.
- TWDB is performing additional reviews of the future conditions data
- <u>Recommendation:</u> Use Scenario 3. Maintain at least existing flood hazard area if future floodplains shrink.

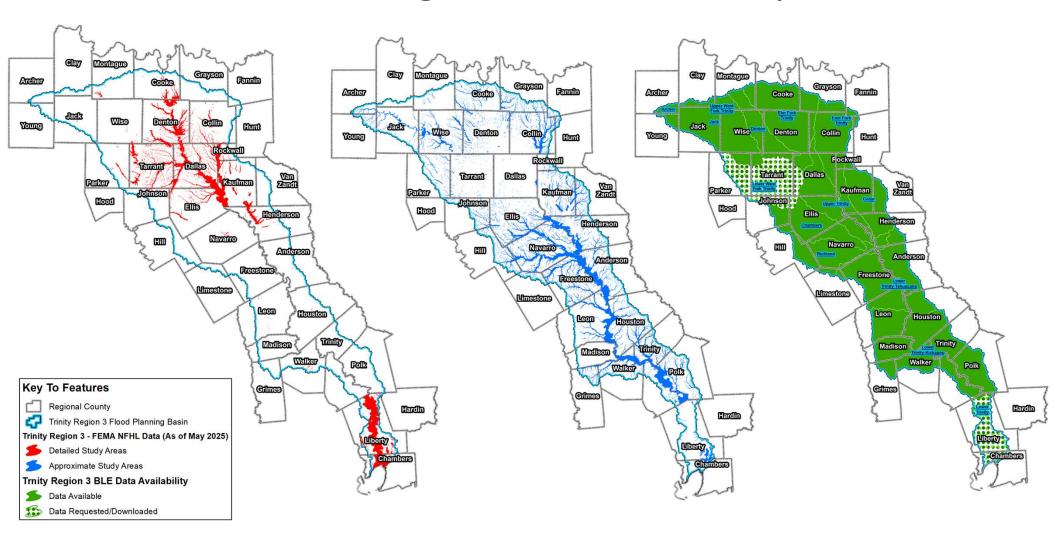


Flood Mitigation Needs Analysis

- 1. Most prone to flooding that threatens life and property
- 2. Locations, extent, and performance of current floodplain management and land use policies and infrastructure
- 3. Social Vulnerability Index (SVI) analysis
- 4. Participation in NFIP
- 5. Emergency need
- 6. Existing modeling analyses and flood risk mitigation plans
- 7. Previously identified and evaluated flood mitigation projects
- 8. Historic flooding events
- 9. Previously implemented FMPs
- Additional other factors deemed relevant by the Trinity RFPG

Flood Mitigation Needs Analysis Montague Archer Cooke Jack Denton Collin Young Clunt **L**imestone 2023 Flood Plan 2028 Flood Plan Leon Houston Trinity Regional Flood Planning Basin **Key to Features** Madison Regional County Polk **Regional County** USACE Hydrology Model* Trinity Region 3 Flood Planning Basin Other FEMA Studies* Clarello **Trinity BLE Data Status** FEMA CTP Studies* **Data Availability BLE Studies*** Data Available **FMP Model Areas** Data Requested/Downloaded *Model supporting FMEs, FMSs, and Floodplain Mapping.

Flood Mitigation Needs Analysis





Task 4A FMX Solicitation

Technical Subcommittee Recommendation

Individual outreach to existing RFP participants

Individual outreach to entities with updates to their HMPs since Cycle 1

Advertise on trinityrfpg.org

Email Blasts

Social Media Outlets

• LinkedIn

• "X" Posts

Task 4A FMX Solicitation Schedule June 2025: Sept 30, 2025: May 2025: RFPG Mtg to Technical Call for Close FMX consider **FMXs** Subcommittee Solicitation approval of Meetings Window Task 4A Process Process received FMXs: Determine FMX feasibility Dec 2025: GIS data submittal reg's RFPG Mtg to Jan 7, 2026: Christmas & TWDB-Req'd Tables consider **Submit Tech** New Years! Section 4A of Chapter 4 approval of Memo (4B) Provide for RFPG Review **Tech Memo** Meet TOMA Reg's



Task 4C FMX Source & Selection

Technical Subcommittee Recommendation

Solicit New FMXs

- Consider new FMEs & Cycle 1 FMEs for FMP Promotion
- May require TWDB approval to start Task 4C (NTP requirement on Task 5).

Determine Ranking

- Rank based on 2028 data under 2024 SFP criteria
- In case of tie, FME that has been in the plan longer should be promoted.
- Remove FMEs with no sponsor interest

Path Forward

- Same criteria to be used for RFPG and TWDB selection
- FMEs not modeled to added to 2028 Plan as FMEs.

Task 4C Schedule Technical Subcommittee Recommendation

Technical Subcommittee Meeting

TS recommends criteria for internal FME ranking

Outreach for FMX solicitation & sponsor confirmation

Begin FME to FMP modeling efforts (may require TWDB NTP)

June 3

October 2025

May 14

June 4, 2025 – Sept 30, 2025

October 2025

RFPG Meeting

Consider approving approach to select FMEs to convert to FMPs

RFPG Meeting

Consider approving FME to FMP conversion lists (RFPG & TWDB)







Public Outreach & Engagement

Stakeholder Outreach

- Updated stakeholder contact list based on outreach call updates
 - 971 total contacts (906 email subscribers)
- Updated database of "interested parties" who receive e-notifications
 - Website sign-ups
 - o Email sign-ups
 - Meeting attendees/commenters
- Developed, distributed e-blasts regarding TRFPG voting position nominations and Technical Subcommittee meeting

Media Outreach

- Updated media list
- Continued media follow-up to gain news coverage opportunities for ongoing plan process updates



Public Outreach & Engagement

Website & Social Media

- Removed Data Collection links and references after deadline passed
- Updated meeting information for recent and upcoming TRFPG meetings on website
- Added meeting information for Technical Subcommittee meeting on website, LinkedIn and X
- Posted notice soliciting nominations for TRFPG voting positions on website, LinkedIn and X

LOOK-AHEAD

August 2025

- RFPG and Officer Elections!!!
- Approval of Chapter 1 (Task 1)
- Existing exposure analysis results (Task 2A)
- Floodplain management practices (Task 3A)
- Flood mitigation needs (Task 3B)
- Update on goals and residual risks (Task 3C)
- Update on potentially feasible FMXs (Task 4A)

October 2025 @

- Future exposure analysis results (Task 2B)
- Approval of Chapter 2
- Results of Tasks 3A, 3B, 3C
- Approval of Chapter 3

December 2025 @

- Approval of Task 4A
- Approval of Tech Memo (Task 4B)
- Update on FMEs for RFPG to perform (Task 4C)

January 7, 2026

Consultant sends Tech Memo to TWDB

Notes: indicates target date.

Yellow highlight indicates hard deadline.

10. Updates from adjoining coastal regions

11. Updates from Planning Group Sponsor

12. Receive registered general public comments

Limit 3 minutes per person

13. Announcements

14. Consider meeting date for next meeting

Determined during Look-Ahead discussion.

15. Consider agenda items for next meeting



16. Adjourn