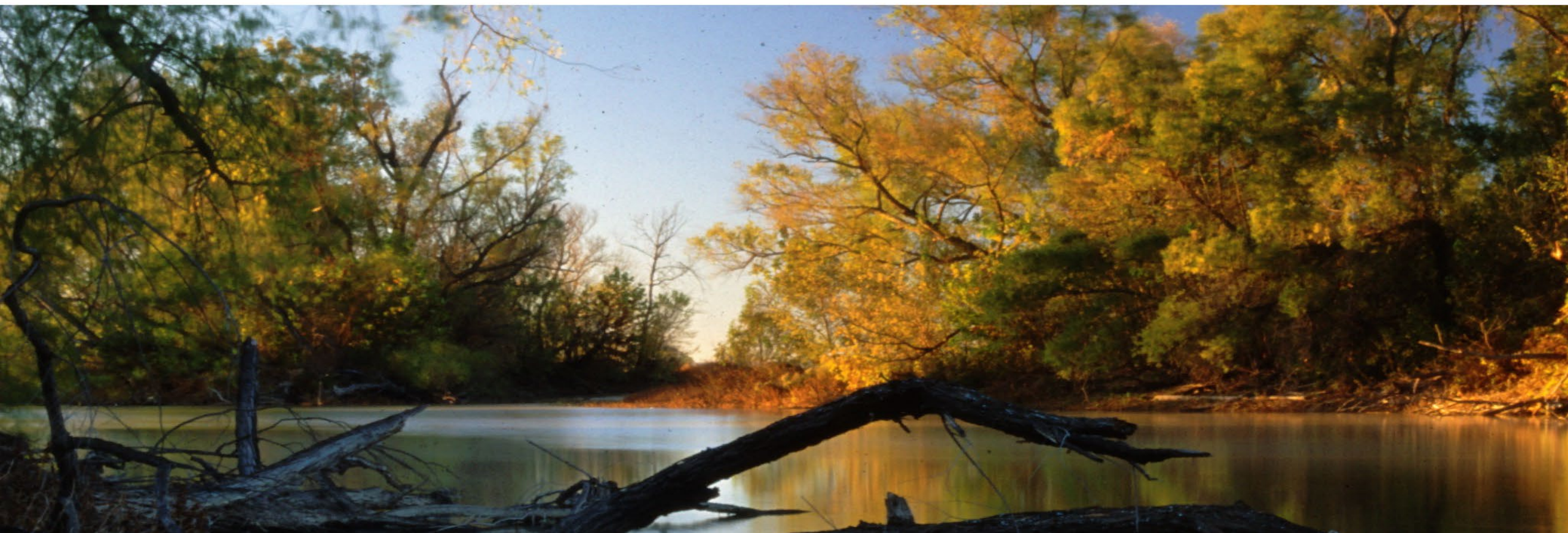


Region 3 Flood Planning Group

December 2, 2022



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Agenda

1. Origin and Overview of State Flood Planning
2. Region 3 Flood Planning Group
3. Region 3 Flood Plan

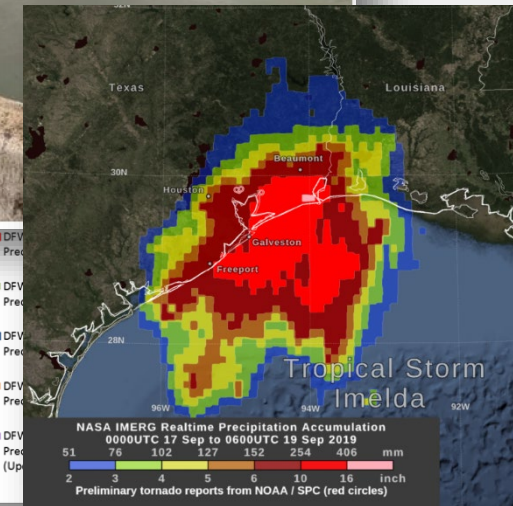
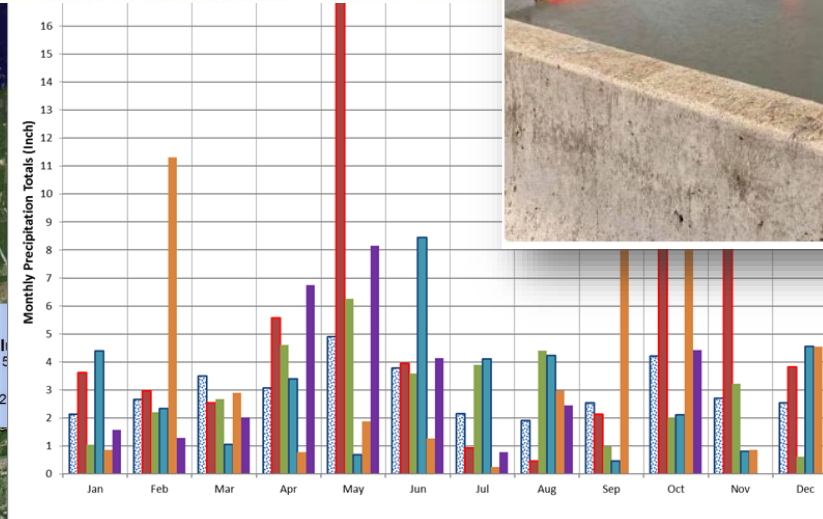
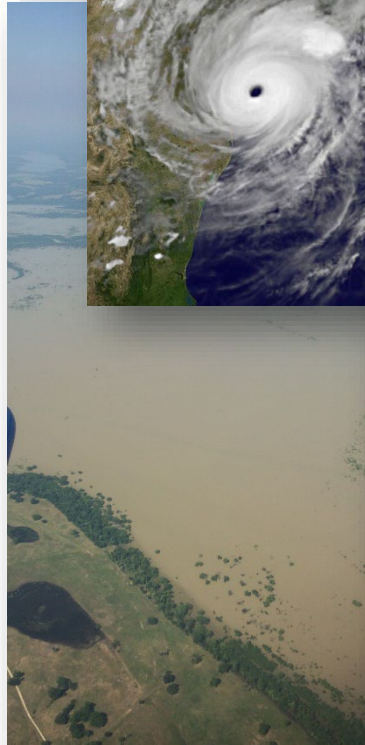
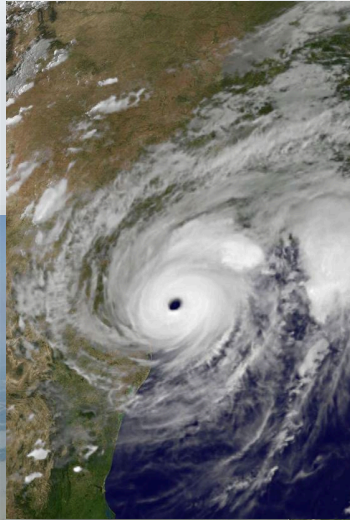


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Texas Drought 2011 - 2014



A Difficult 5 Years



2015 -2016

2017

2018

2019

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Juxtaposition of Drought and Flood

- Five years of drought 2010 - 2014
- Five years of flooding 2015 - 2019
- Creates strong perception that “something has changed”



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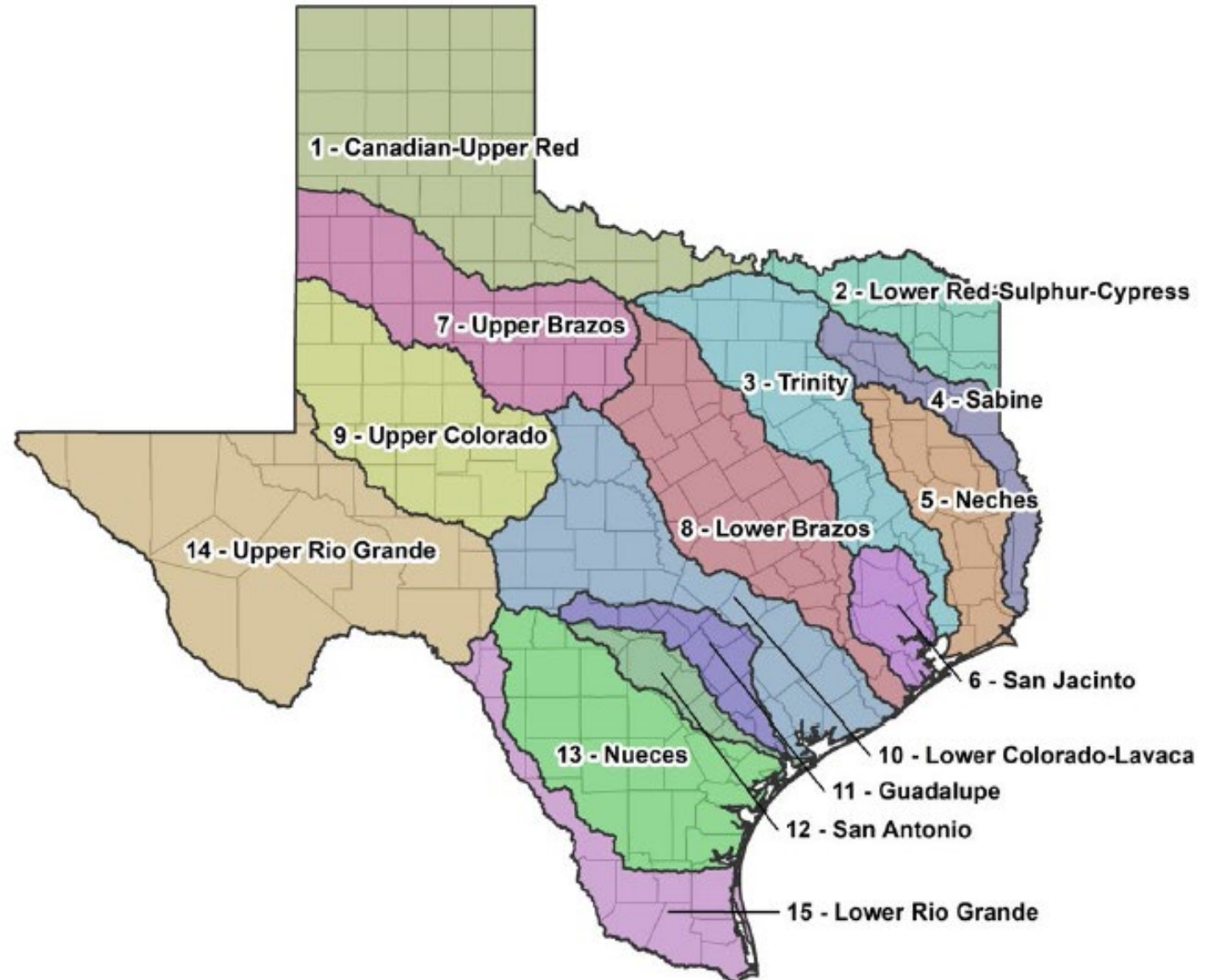
State Legislature Reacts

- In 2019 Texas Legislature passed SB 8 to established the first-ever State Flood Plan
- SB 8 charged the TWDB with developing, implementing and overseeing the process
- Regional flood planning is similar to the regional water planning process



Flood Planning

- 15 Flood Planning Regions
- Trinity Basin is one region – Region 3



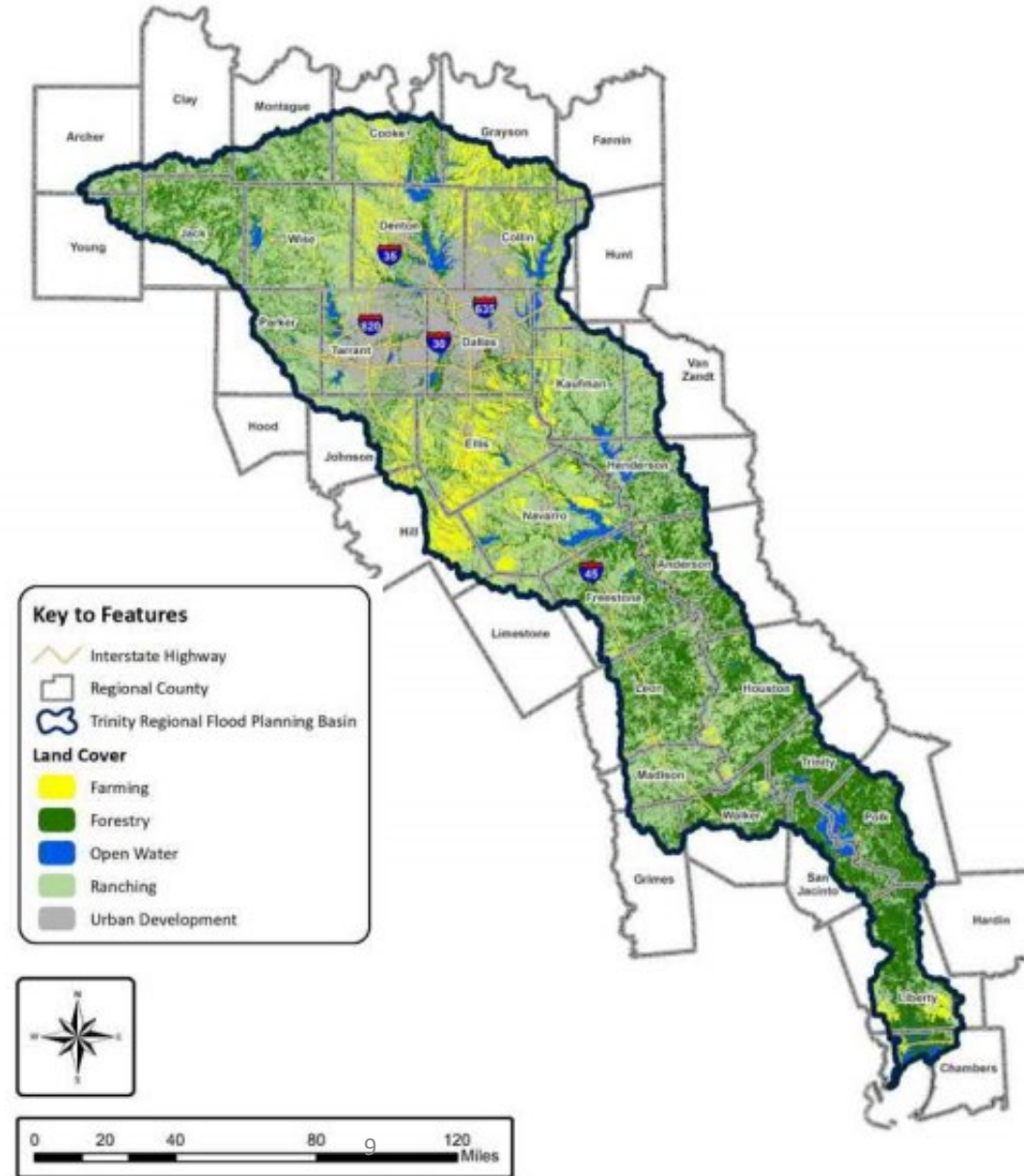
First-ever Regional Flood Plan for Texas' Trinity River Basin Underway

- Bottom up approach
- The Trinity RFPG is among 15 regional flood planning groups designated in April 2020
- This group's plan will then become part of Texas' first-ever State Flood Plan



Region Three, the Trinity River Basin

- Approx. 18,000 sq. mi.
- Dallas-Fort Worth-Arlington SMA, population app. 7.8 million people
 - Service/Tech industry heavy economy
- Middle and lower basin important agricultural areas
 - Row crops in Blackland prairies
 - Ranchland in middle Trinity
 - Rice in lower Trinity



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Membership

12 interest groups (voting)

7 *ex-officio* groups (state agencies)

TWDB appointed flood planning
group members on October 1, 2022

Voting Members

Agriculture

Counties

Electric Generating Utilities

Environmental Interests

Flood Districts

Industry

Municipalities

Public

River Authorities

Small Business

Water Districts

Water Utilities

Non-Voting Members

Texas Parks and Wildlife Department

Texas Division of Emergency Management

Texas Department of Agriculture

Texas State Soil and Water Conservation Board

General Land Office

Texas Water Development Board

Texas Commission on Environmental Quality

Federal Emergency Management Agency

National Weather Service / River Forecast
Center

United States Army Corps of Engineers

Council of Governments x 3

Flood Plan Expectations – First Round

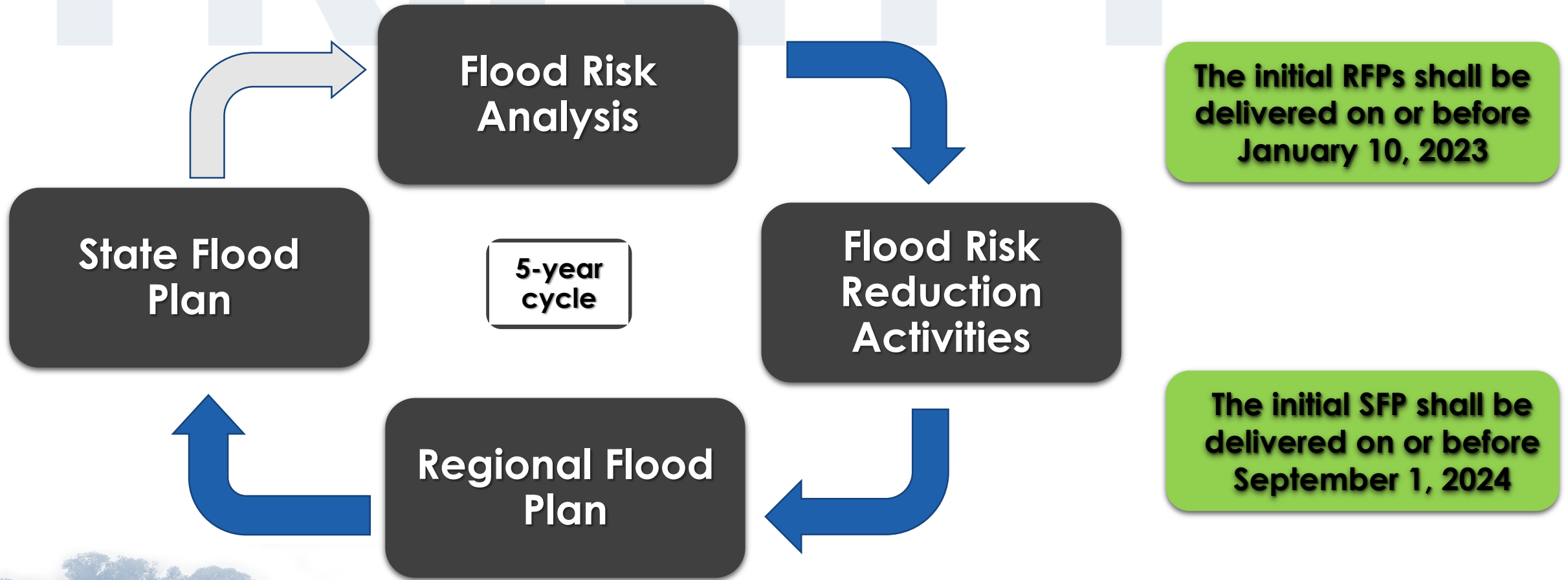
What to Expect

- Significant increase in knowledge about flooding in the Trinity basin
- Consolidation of information and resources
- Make funding sources available to local and regional entities
- Understand what we don't know
 - Where are our data gaps?
 - What studies and evaluations are needed?

What NOT to Expect

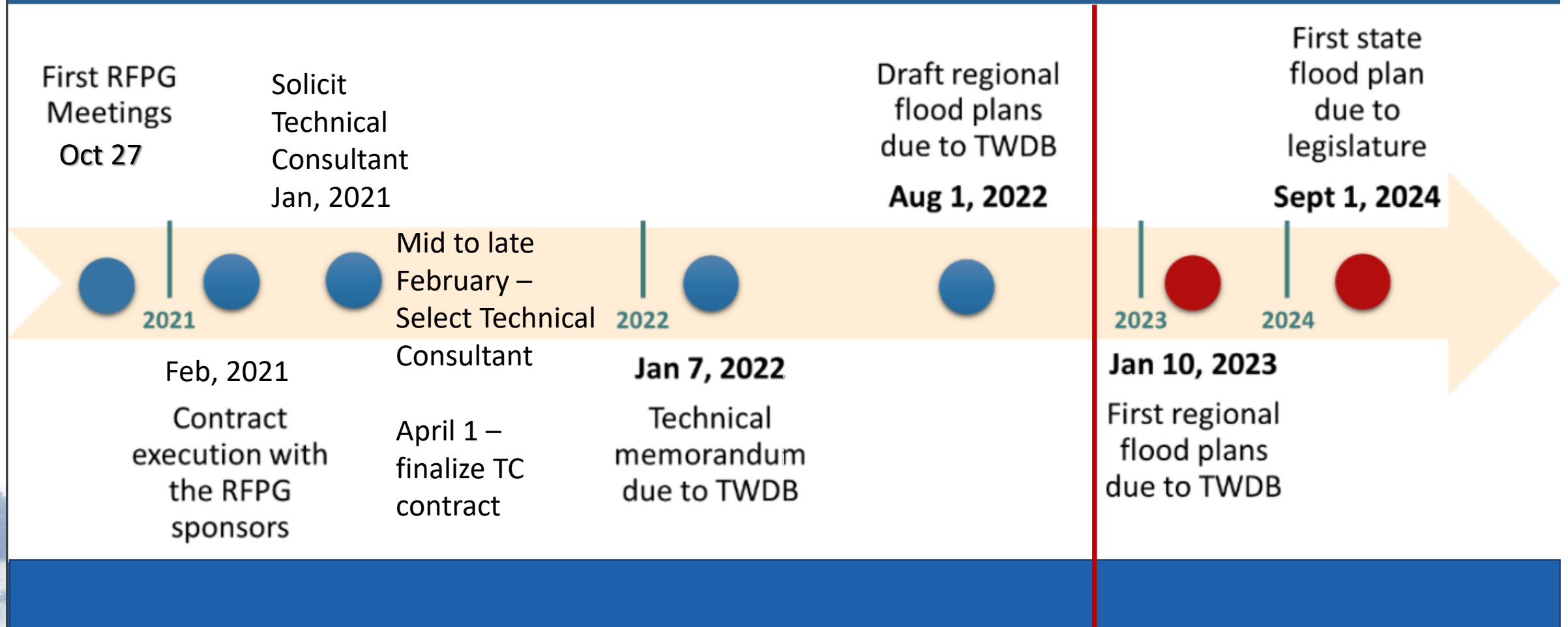
- An end to flooding
- A list of “silver bullet” projects that will fix specific flooding issues
- Understand all facets of flooding the basin
- Flood control projects that will significantly benefit water supply

Regional Flood Plan Cycle



Regional Flood Planning, First Round Timing

Timeline



TWDB Workplan – First Round Planning

- Task 1 - Planning Area Description
- Task 2 – Existing and Future Flood Risk Analysis
- Task 3 – Evaluation and Recommendation – Floodplain Management and Flood Reduction Goals
- Task 4 – Flood Mitigation Needs Analysis
- Task 5 – Recommendation of Flood Management Evaluations, Strategies and Projects
- Task 6 – Impact of Regional Flood Plan
- Task 7 – Flood Response Information and Activities
- Task 8 – Administrative, Regulatory and Legislative Recommendations
- Task 9 – Flood Infrastructure Financing Analysis
- Task 10 – Adoption of Plan and Public Participation

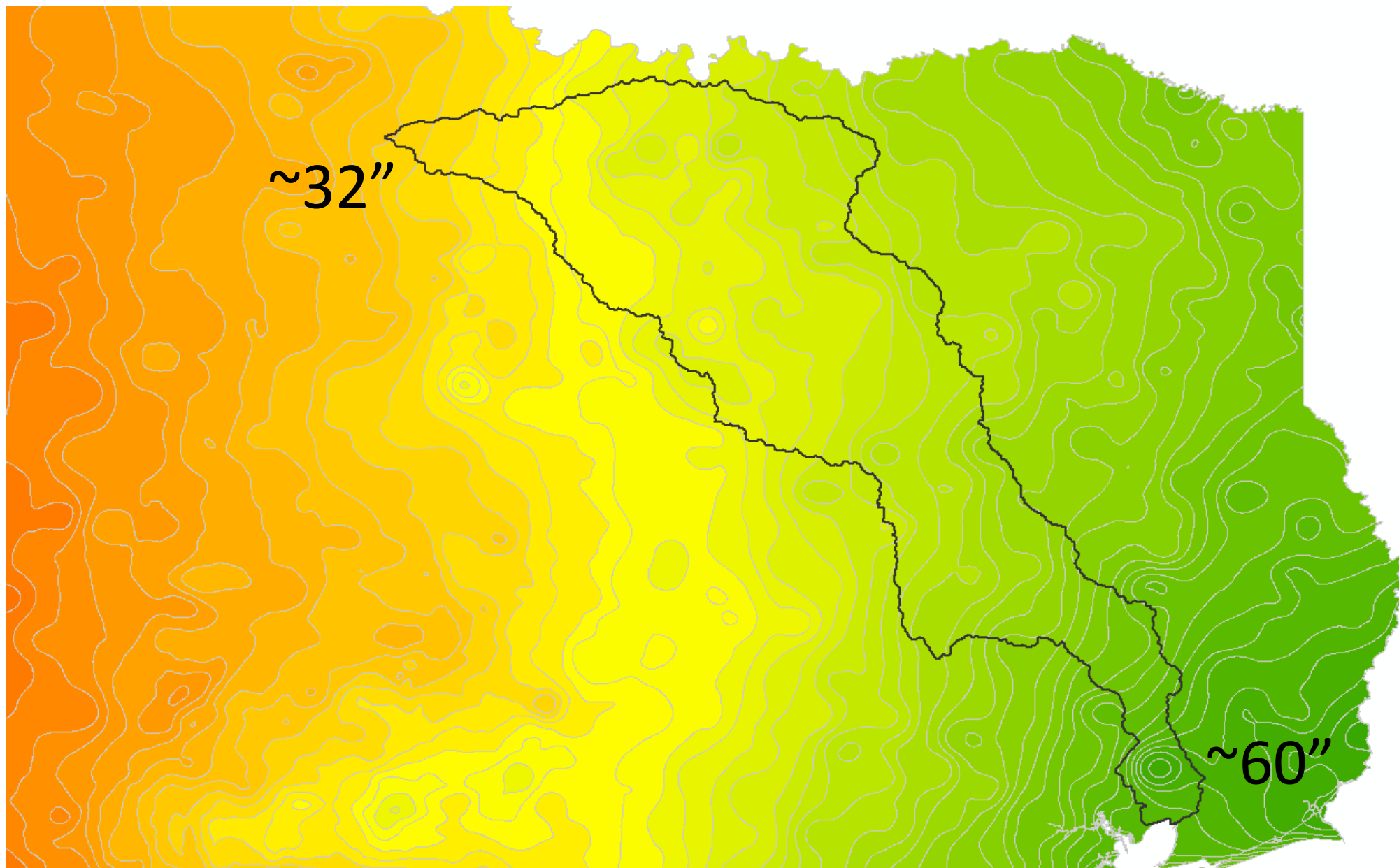
Task 1 - Planning Area Description

There are five types of floods that impact the Trinity Region:

1. **Coastal floods** – any flooding in coastal area
2. **Flash floods** – result from intense rainfall and rapid runoff
3. **Pluvial floods** – upland flooding
4. **Fluvial / riverine floods** – overtopping of river banks
5. **Urban floods** – similar to pluvial floods but unique to

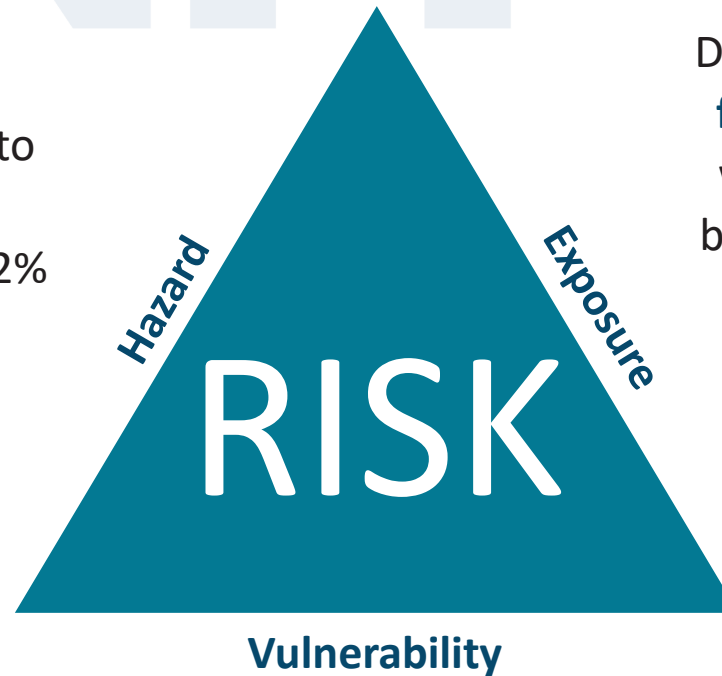


Rainfall Distribution, Trinity Basin



Task 2 - Existing and Future Flood Risk Analysis

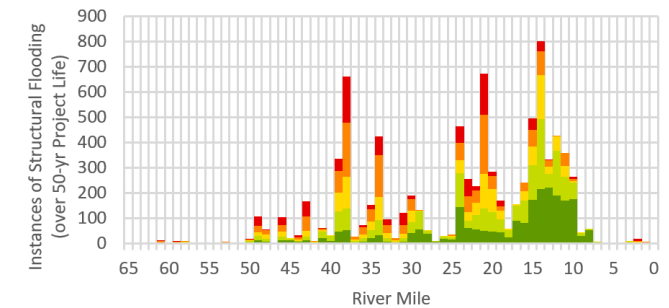
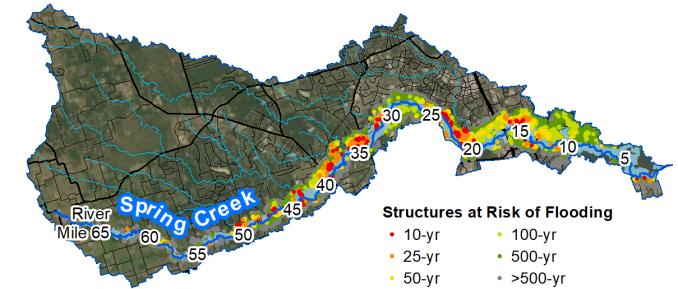
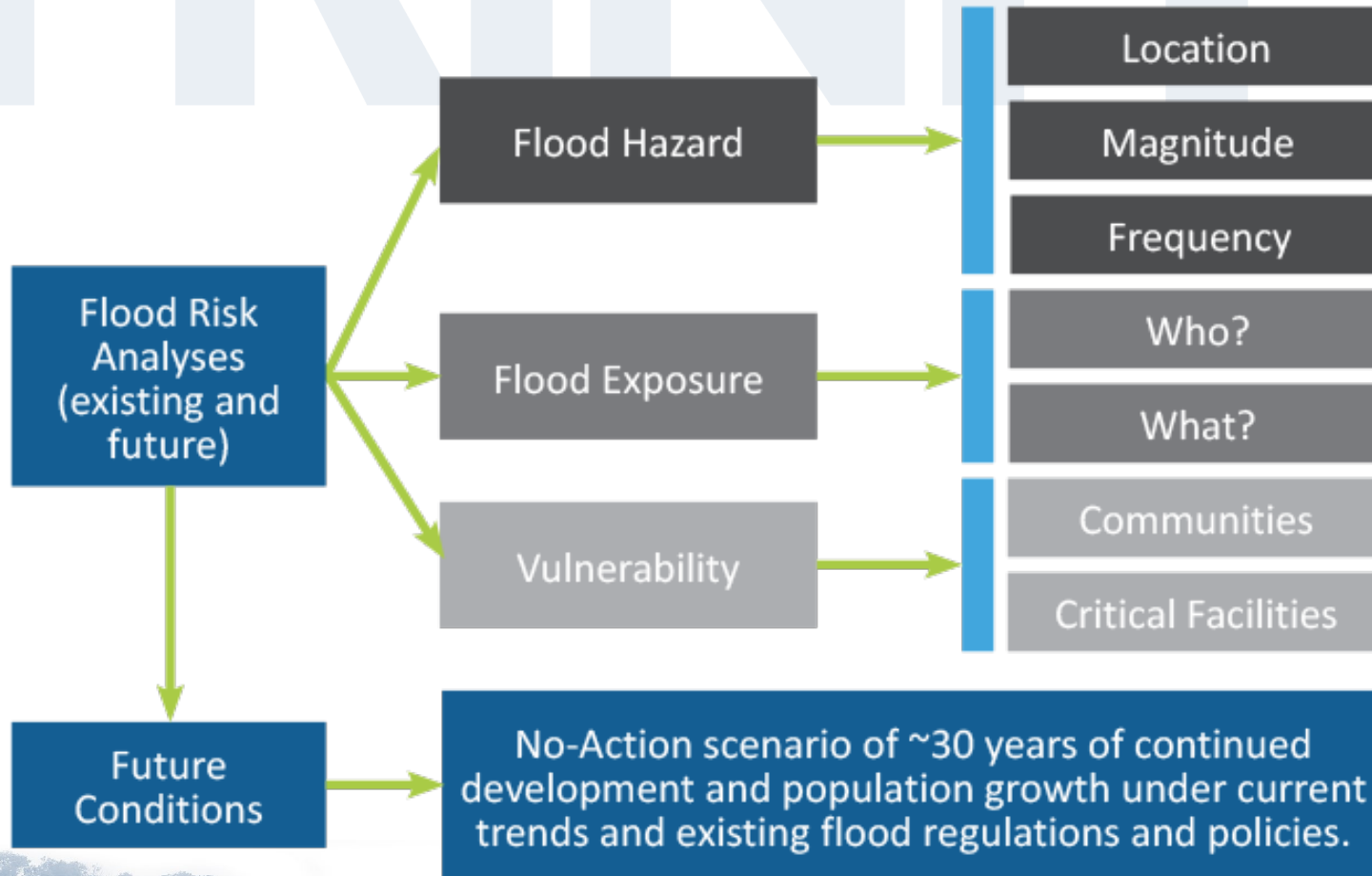
Perform existing and future condition **flood hazard analyses** to determine the location and magnitude of both the 1% and 0.2% annual chance storm events



Develop existing and future condition **flood exposure analyses** to identify who and what might be harmed by both the 1% and 0.2% annual chance storm events

Perform existing and future condition **vulnerability analyses** to identify vulnerability of communities and critical facilities

Flood Risk Analysis



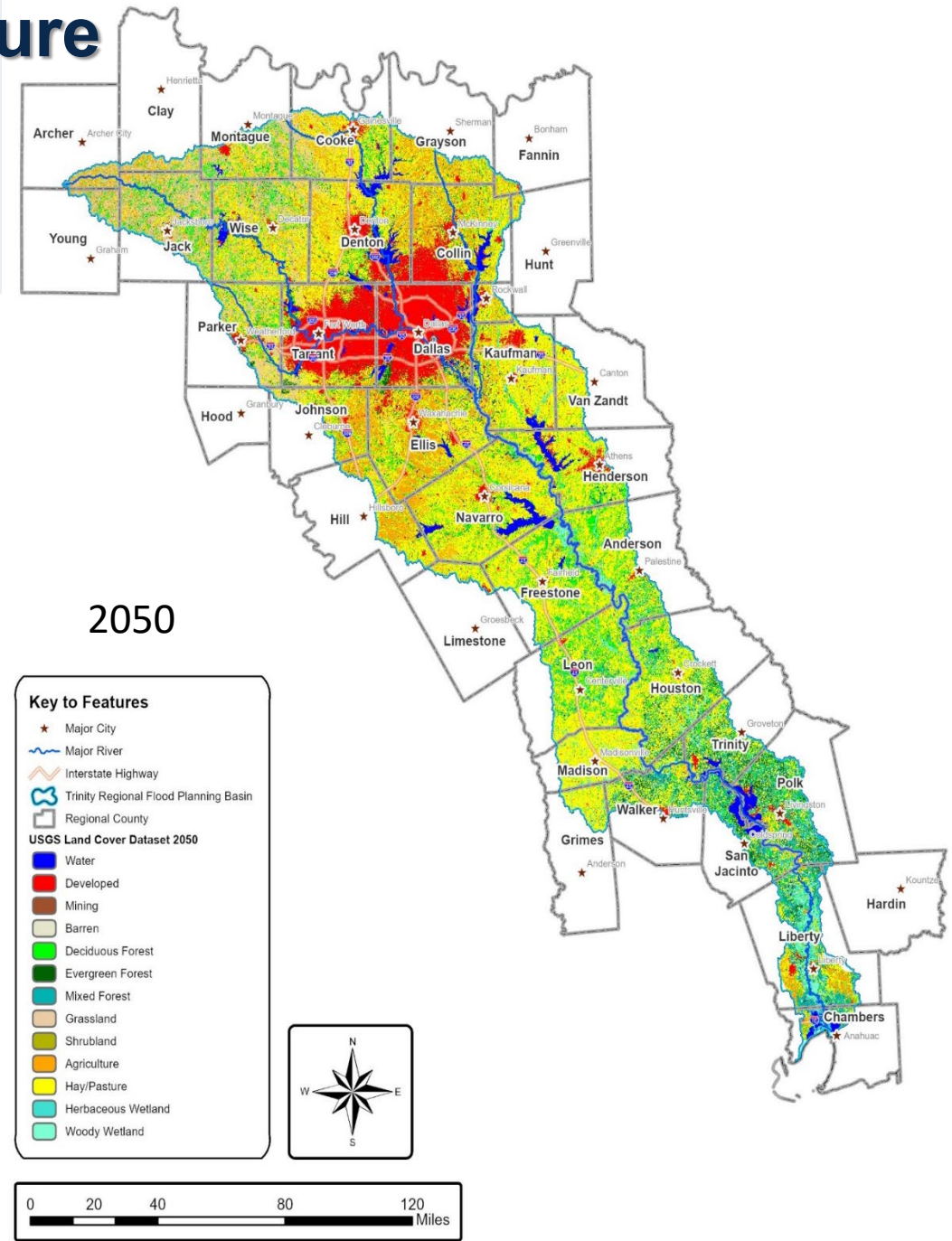
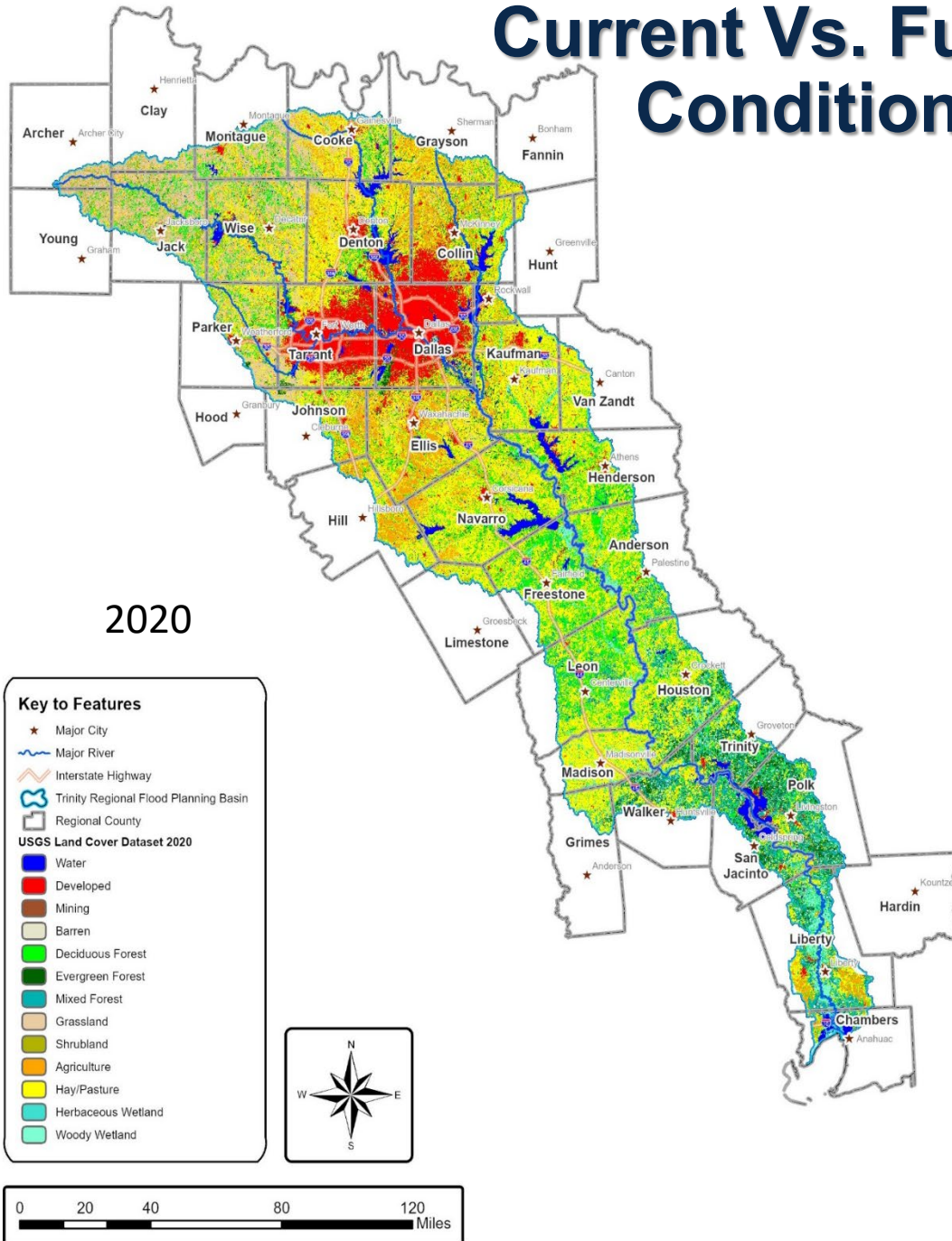
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Task 2 - Existing and Future Flood Risk Analysis

HAZARD	EXPOSURE	VULNERABILITY
Land Use	Structures and Buildings	Social Vulnerability
Precipitation	Critical and Public Infrastructure	Resiliency
Flood Control Infrastructure	Agriculture Area	
	Population	

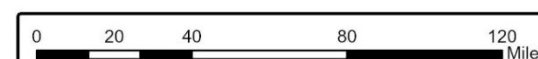
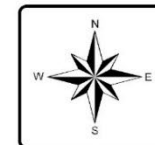
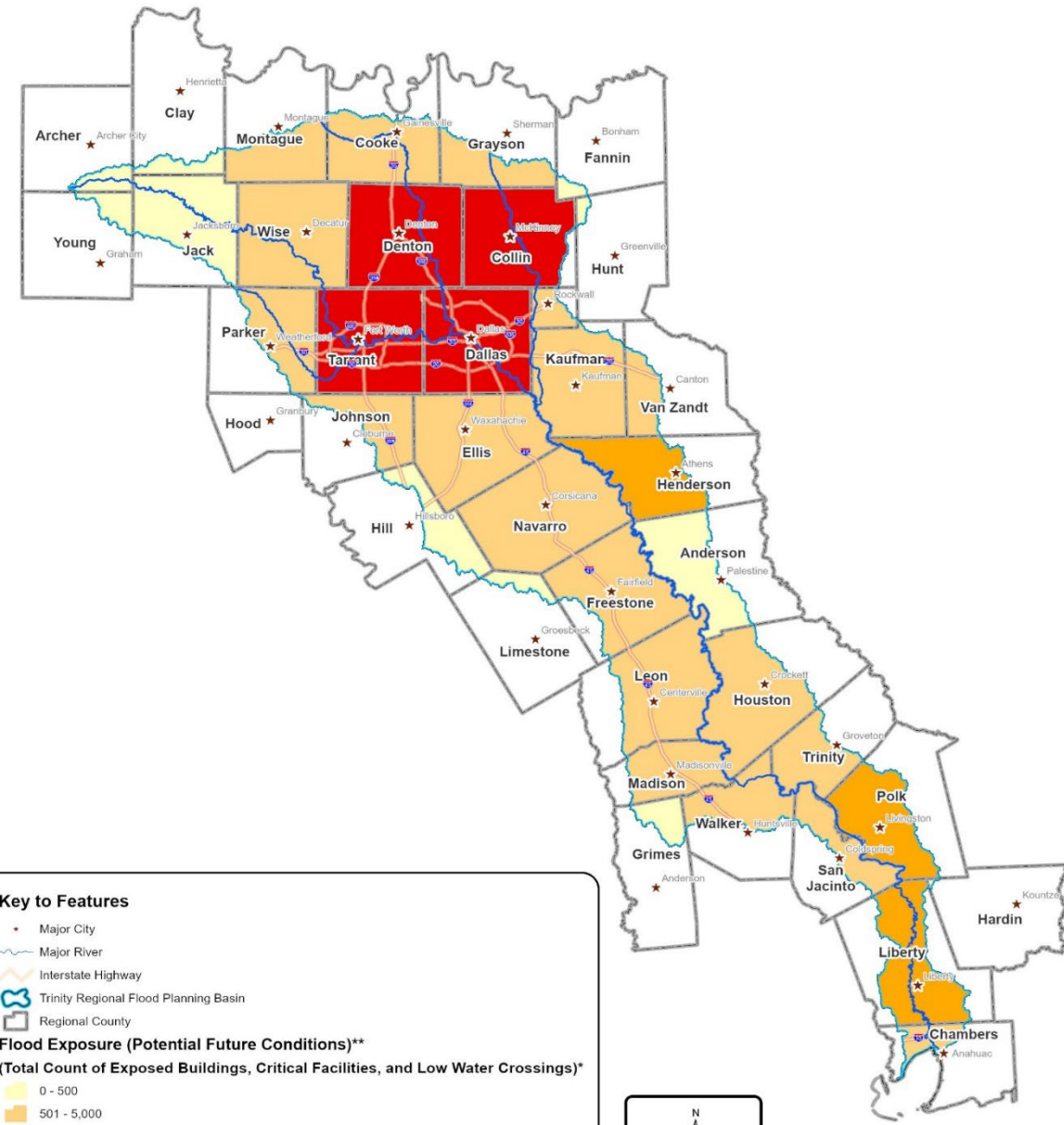
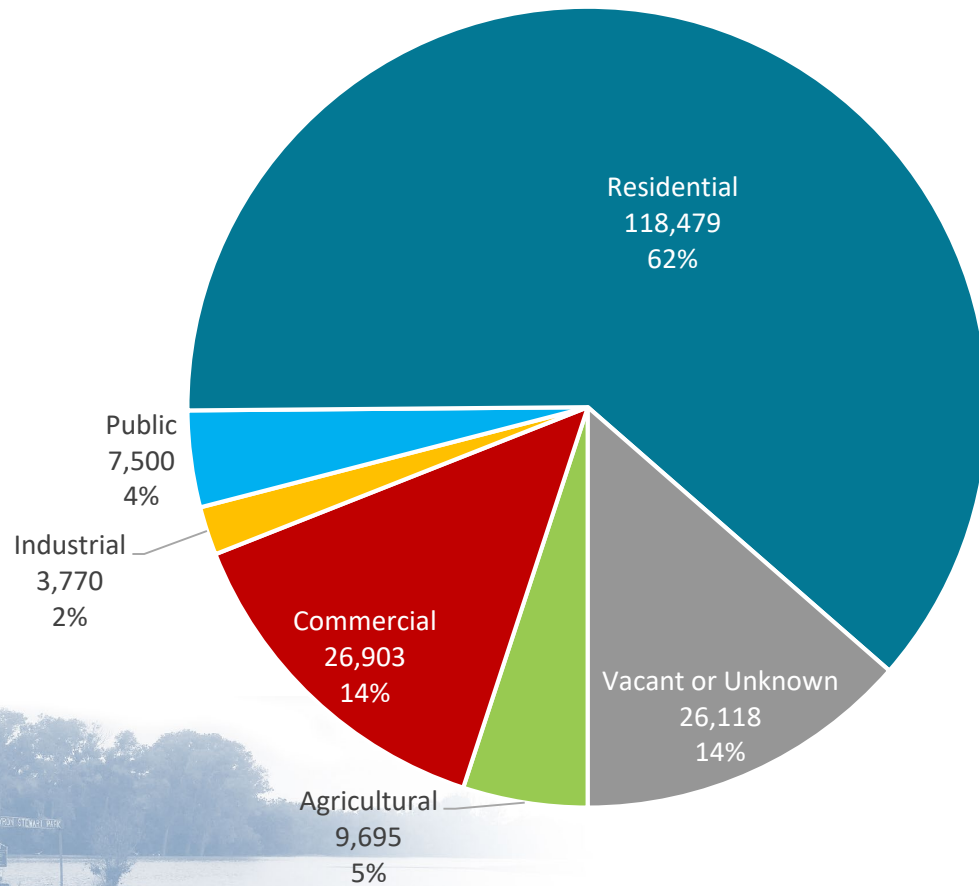


Current Vs. Future Condition



Future Condition - Risk

*Building Type Distribution in the Future Condition
Floodplain Quilt*



Future Flood Risk Analysis

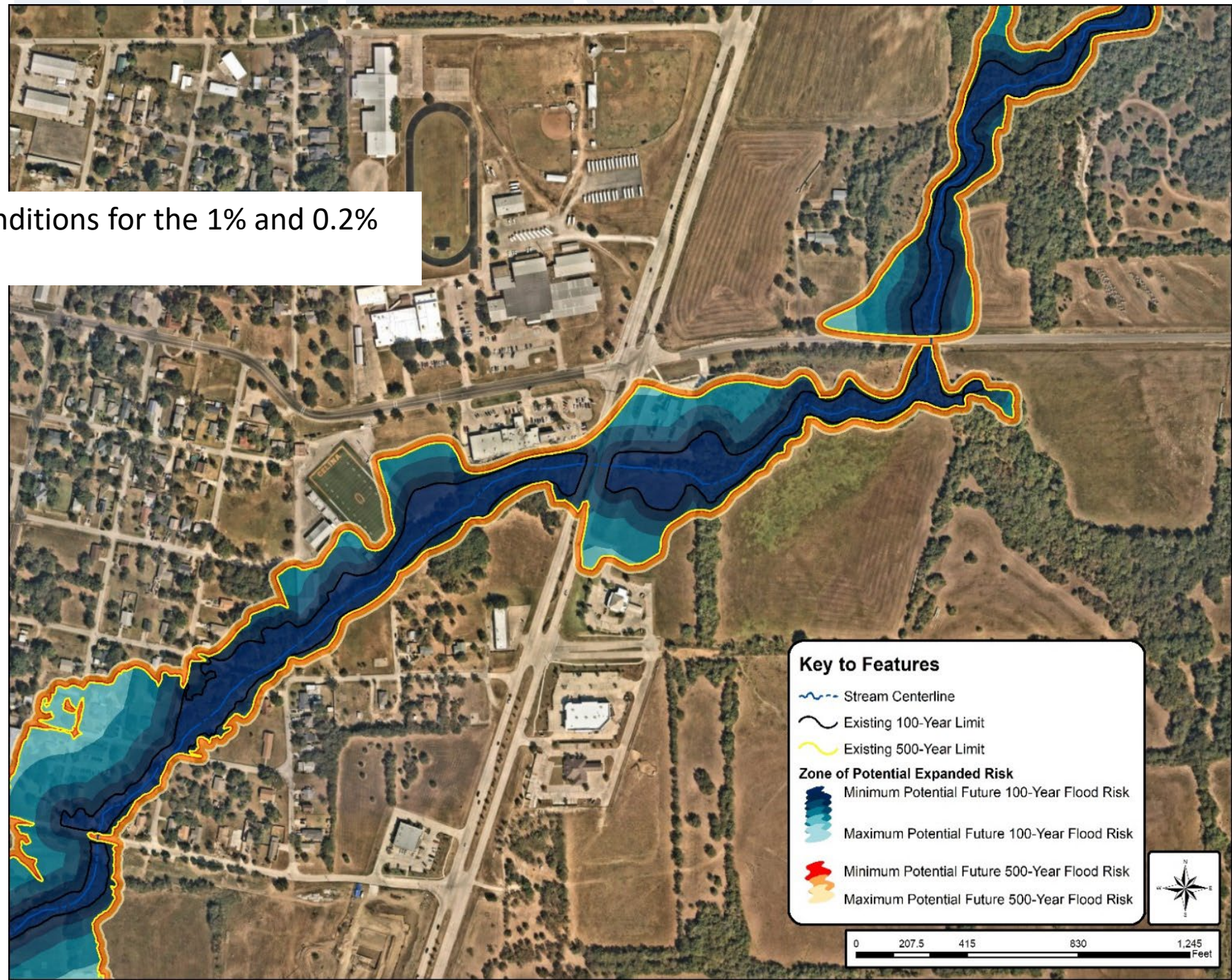
Used a range of possible future conditions for the 1% and 0.2% annual flooding.

1%

Minimum: Current 1%
Maximum: Current 0.2%

0.2%

Minimum: Current 0.2%
Maximum: Current plus
40 ft.



Task 3 - Evaluation and Recommendation – Floodplain Management Practices and Flood Reduction Goals

Recommended:

7 overarching goals. Each Goal has short term (2033) and long term (2053) aspect.

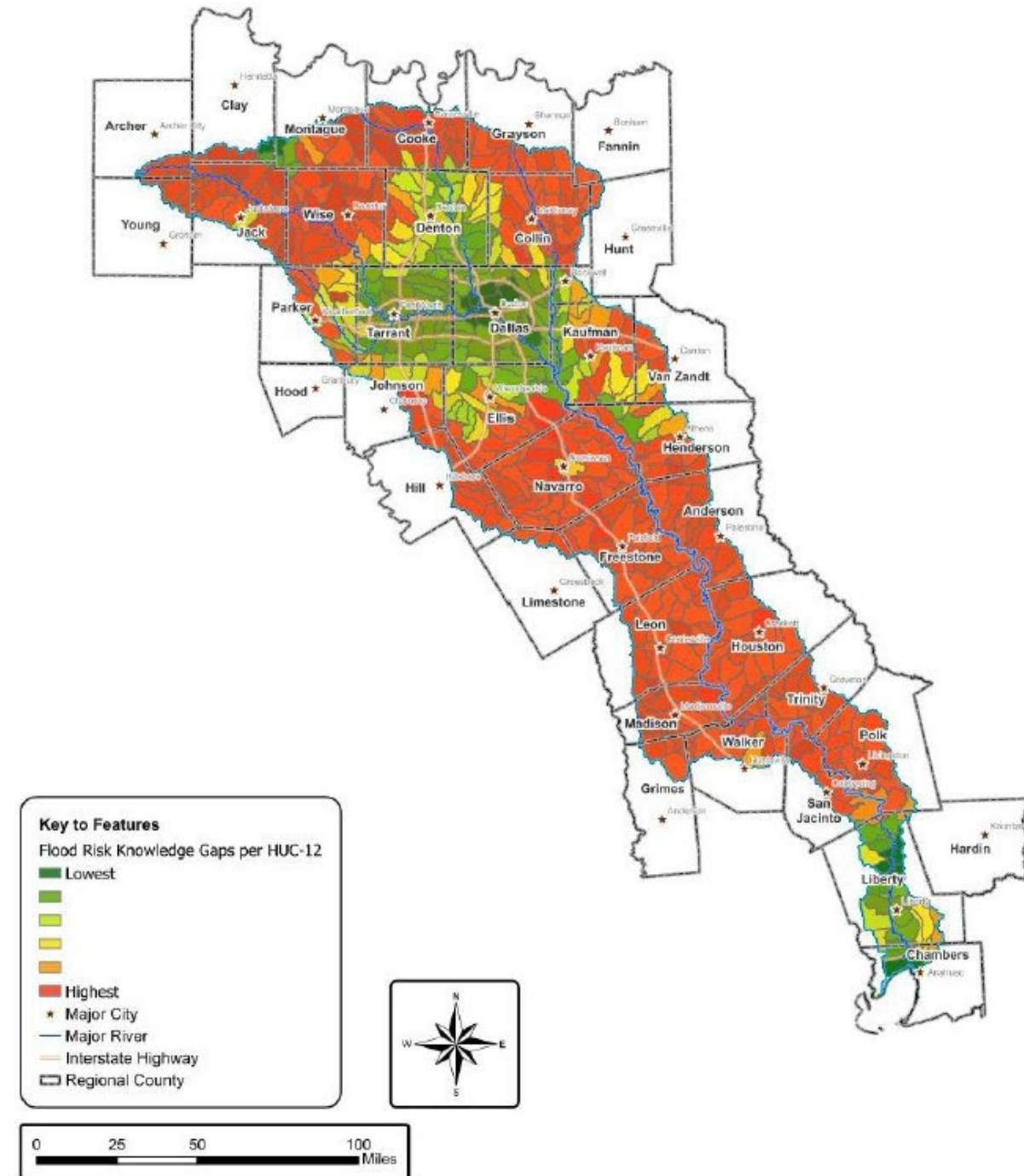
- They must be “***specific and achievable.***”
- Flood Risk Reduction activities must support one of the approved goals

Goal Category	Goal Statement
1	Improved Flood Warning and Public Safety
2	Improved Flood Analyses
3	Reduce Property Damage and Loss
4	Floodplain Preservation
5	Flood Infrastructure Improvement
6	Expanding Flood Education and Outreach
7	Expand Funding

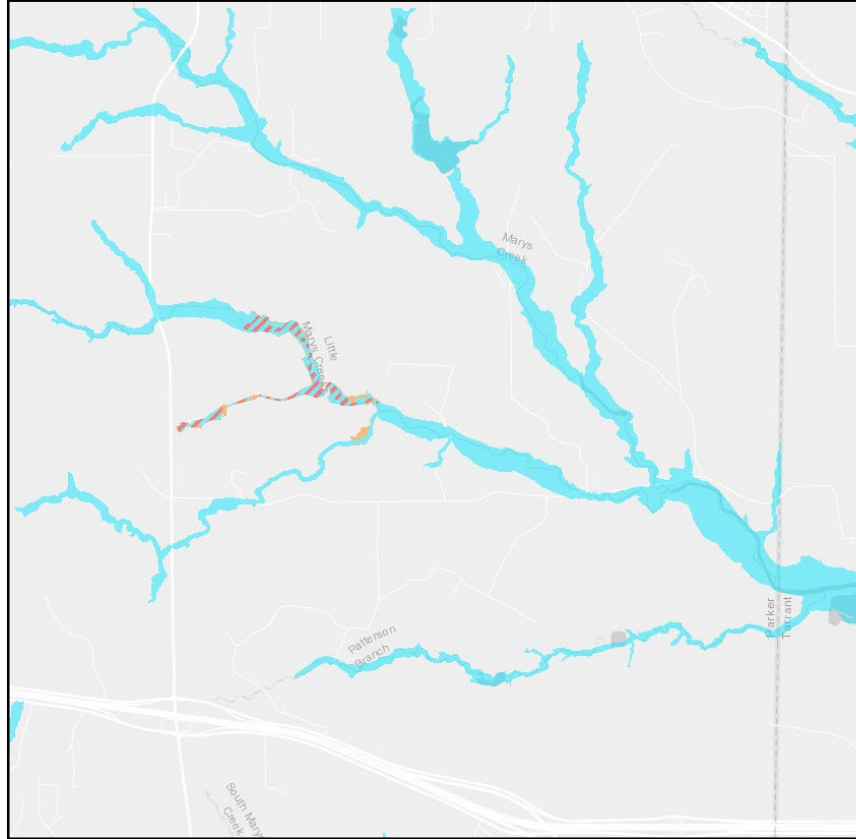
Task 4 - Flood Mitigation Needs Analysis

Used 13 different categories in a geospatial assessment to determine mitigation needs:

1. No. Buildings Subject to Flooding
2. No. Crossings
3. Agricultural Area Impacted
4. No. Critical Facilities
5. Roadways subject to flooding
6. NFIP Community
7. Inadequate Inundation Mapping
8. No. Flood Concerns
9. No. FEMA Claims
10. No. Historical Storm Events
11. Cost of Previous Damages
12. No. of Areas with History of Flooding
13. SVI Rating



Task 5 - Recommendation of Flood Management Evaluations, Strategies and Projects



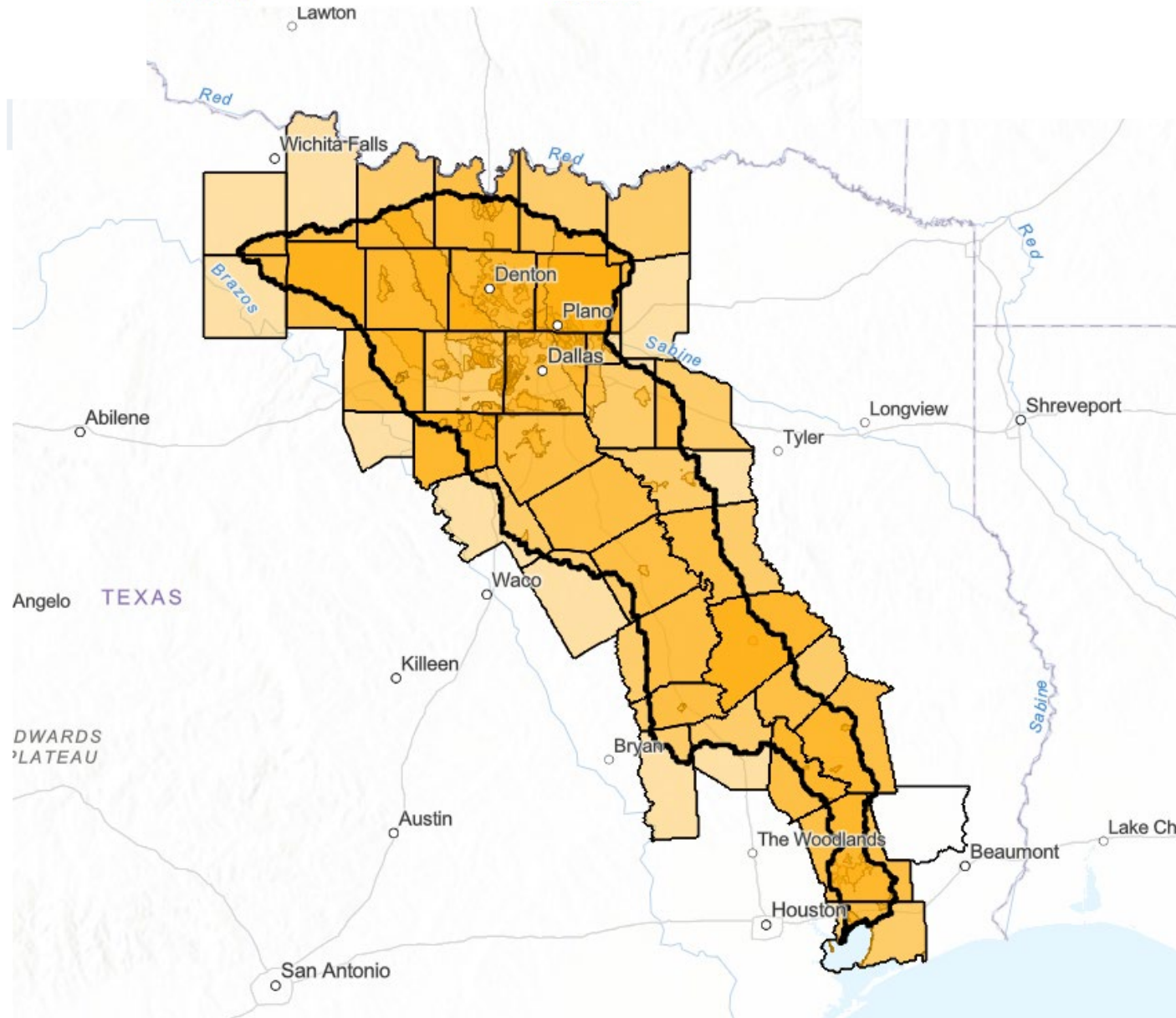
Recommended Plan Includes :

- 371 Flood Management Evaluations
 - 342 Included in Plan
- 33 Flood Management Projects
 - Projects are required to demonstrate “no negative impacts” as established by TWDB
 - 7 Included in the Plan
- 136 Flood Management Strategies
 - 136 Included in the Plan

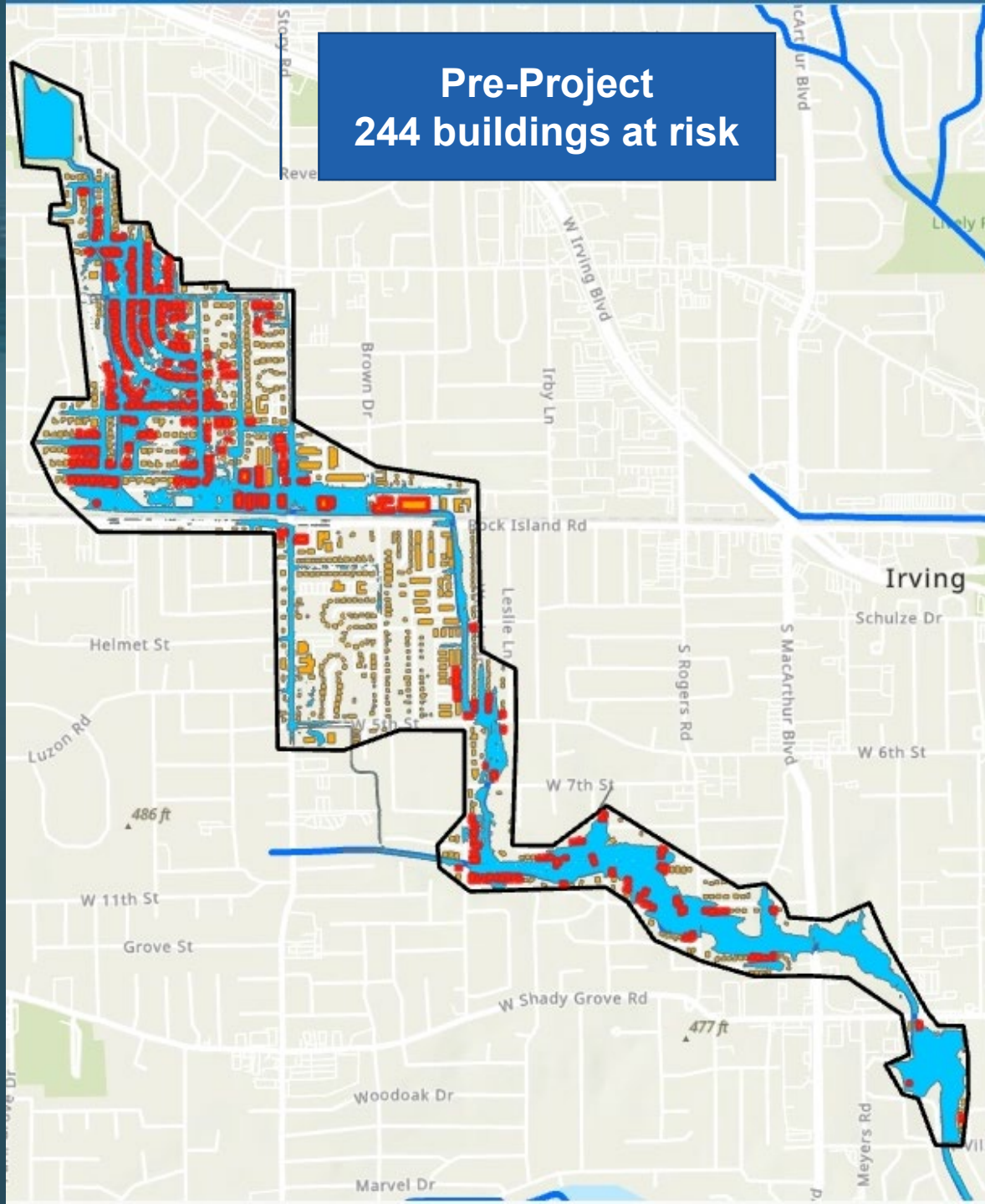
Note: Additional projects may be submitted through January 23, 2022 for an Amended Plan Submittal in 2023

Flood Management Evaluations

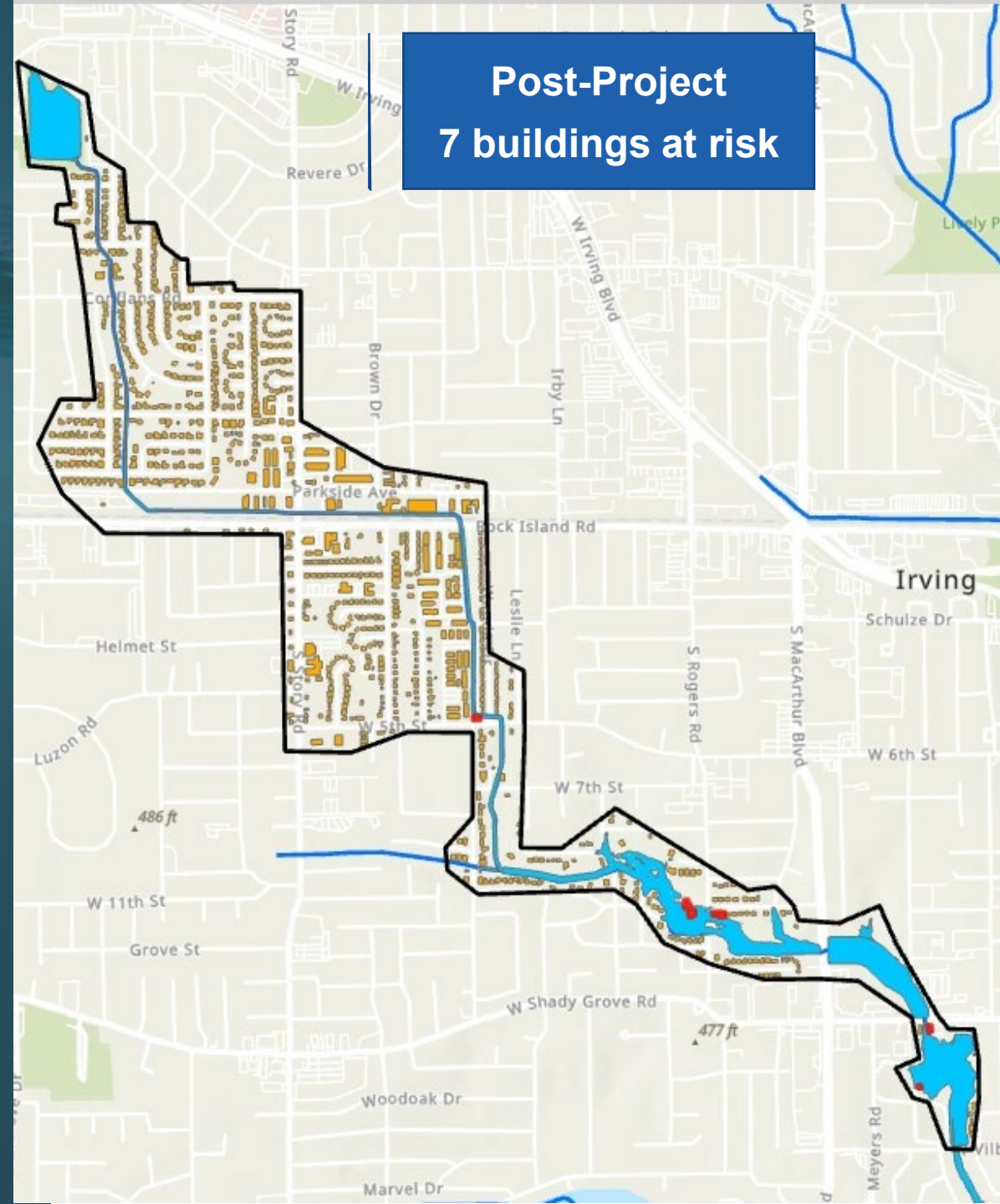
 **342**
Count



**Pre-Project
244 buildings at risk**



**Post-Project
7 buildings at risk**



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Task 6 - Impact of Regional Flood Plan

Specifically, must evaluate proposed projects “Contributions to and impacts on water supply development and the State Water Plan.”

Examples of projects that can increase water supply:

- Aquifer recharge
- Nature based solutions that retain water and allow infiltration
- Detention ponds paired with irrigation

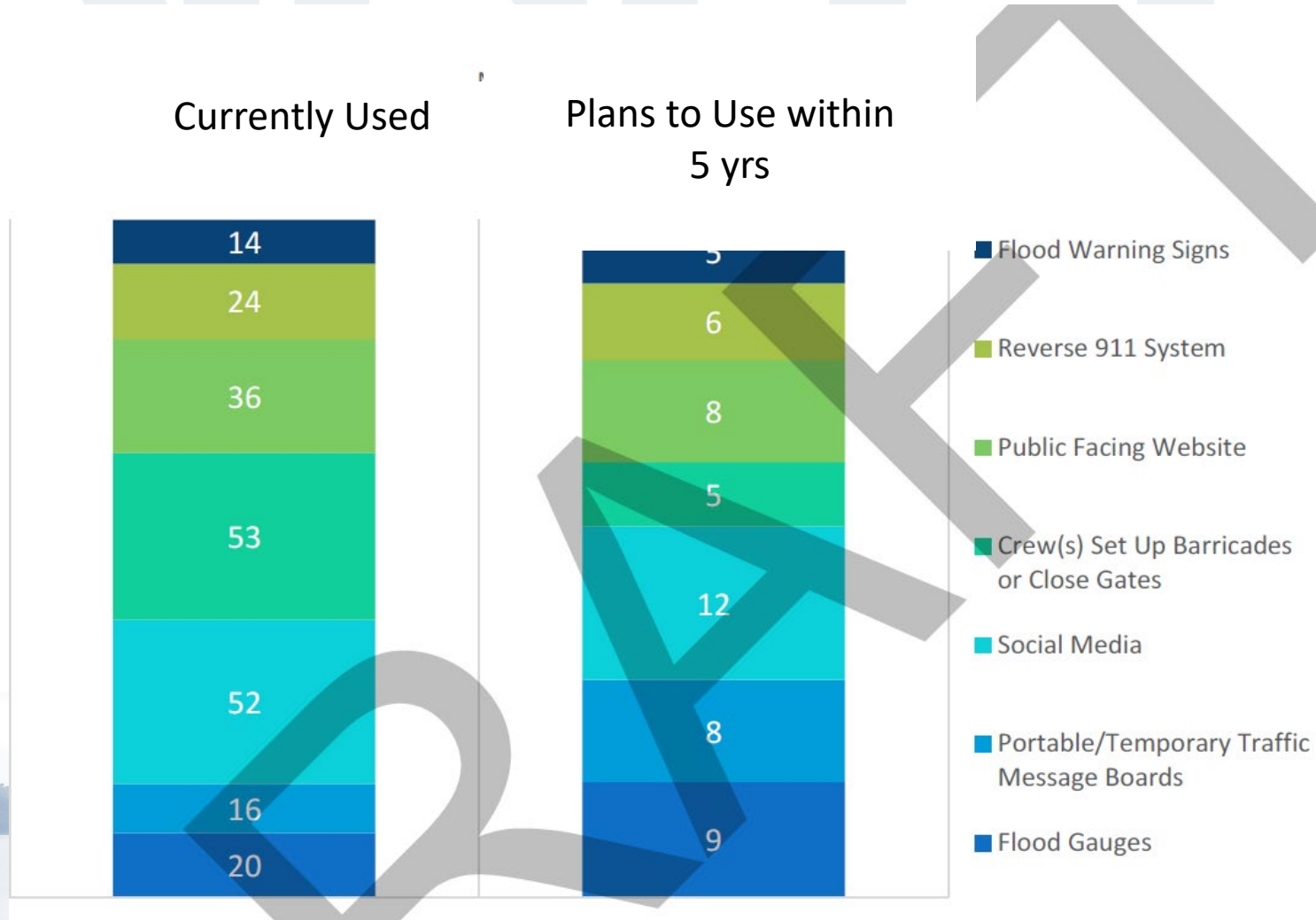
Examples of projects that can decrease water supply:

- Conversion of conservation storage to flood control



Task 7 - Flood Response Information and Activities

Chapter 7 summarizes Flood Response preparations in the Trinity Basin. Clear separation between flood risk reduction and flood response. The RFPGs do not engage in flood response or recovery.



Tasks 8, 9 and 10

- Each Regional Flood Board was asked to be forward thinking in their approach to current and future planning, and engage the communities :
 - Task 8 involved improvement opportunities for administrative and potential legislative needs such as funding, regulatory requirements, interim work, etc.
 - Task 9 addressed future financing of the plan and strategies that may be an opportunity such as taxes, fees, and bonds
 - Task 10 included public participation opportunities and formal adoption of the plan
 - Late Summer through Fall of 2022 included open house meetings and formal public comment
 - Region 3 Plan Adopted on November 17, 2022

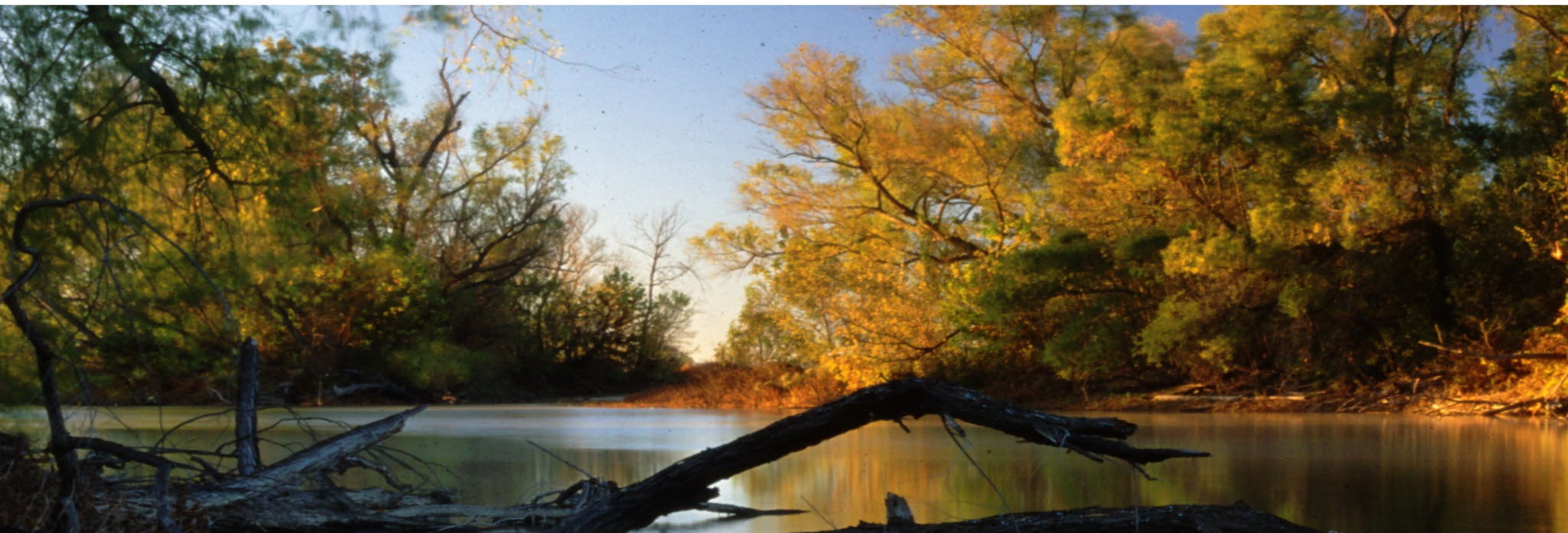
“There is no one-size-fits-all solution to Texas flooding. Just as each part of Texas is unique, so is the way flood impacts our communities. These members will work together to share ideas and lay the groundwork for proactive flood planning for generations to come.”

- TWDB Board Member Brooke Paup

Next Steps

- TWDB receives all regional flood plans between now and January 2023
- Region 3 continues planning and implementation work for the Amended Regional Flood Plan Due July 14, 2023
 - Addresses additional submittals from communities
 - Additional outreach and data collection
 - Perform additional flood management evaluations for consideration
- Deliver the State of Texas First Flood Plan to the State Legislature on September 1, 2024

Questions?



Voting Members

Name	Interest Category	Organization/Entity
Melissa Bookhout	Agricultural interests	North Texas Education Coordinator, Dixon Water Foundation
Lissa Shepard	Counties	Dallas County
Sano Blocker	Electric generating utilities	Vistra Energy Corp
Jordan Macha	Environmental interests	Bayou City Waterkeeper
Rachel Ickert	Flood districts	Tarrant Regional Water District
Matt Robinson	Industries	BGE, Inc.
Sarah Standifer	Municipalities	City of Dallas - Dallas Water Utilities
Andrew Isbel	Public	Walker County
Glenn Clingenpeel	River authorities	Trinity River Authority
Chad Ballard	Small business	Plummer Associates
Galen Roberts	Water districts	North Texas MWD
Scott Harris	Water utilities	Gulf Coast Authority

Non-voting Members

First Name	Last Name	Organization/Entity
Adam	Whisenant	Texas Parks and Wildlife Department
Andrea	Sanders	Texas Division of Emergency Management
Rob	Barthen	Texas Department of Agriculture
Steve	Bednarz	Texas State Soil and Water Conservation Board
Brittany	Frazier	General Land Office
Richard	Bagans	Texas Water Development Board
Humberto	Galvan	Texas Commission on Environmental Quality
Ellen	Buchanan	Region 5 (Neches) Liaison
Todd	Burrer	Region 6 (San Jacinto) Liaison
Jerry	Cotter	USACE
Lisa	McCracken	USACE
Edith	Marvin	NCTCOG
Justin	Bower	HGAC
Lonnie	Hunt	DETCOG
Greg	Waller	USNWS
Diane	Howe	FEMA