

**AGENDA ITEM MEMO**

**BOARD MEETING DATE:** March 5, 2024

**TO:** Board Members

**THROUGH:** Jeff Walker, Executive Administrator  
Ashley Harden, General Counsel  
Matt Nelson, Deputy Executive Administrator, Planning

**FROM:** Michael Kelly, P.E., Manager, Regional Flood Planning  
Reem Zoun, P.E., CFM, Director, Flood Planning

**SUBJECT:** 2023 Amended Regional Flood Plan Approvals

**ACTION REQUESTED**

Consider approving the 2023 Amended Regional Flood Plans for Regions 1 through 15.

**BACKGROUND**

In accordance with §16.061 of the Texas Water Code (TWC), the Texas Water Development Board (TWDB) must develop and adopt a comprehensive state flood plan every five years that incorporates the 15 regional flood plans developed and approved by each regional flood planning group (RFPG).

RFPGs are required to submit their adopted regional flood plans for approval every five years and any subsequent amendments to approved RFPs pursuant to TWC §16.062 and 31 Texas Administrative Code (TAC) §361.50.

In accordance with TWC §16.062, the TWDB must consider approval of submitted regional flood plans and may approve only after it has determined that the plan:

1. satisfies the requirements for regional flood plans adopted in the guidance principles;
2. adequately provides for the preservation of life and property and the development of water supply sources, where applicable;
3. and does not negatively affect a neighboring area.

**Our Mission**

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**Board Members**

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Jeff Walker, Executive Administrator

Due to the highly compressed timeframe in which these first-ever regional flood plans were required to be produced, it became apparent early in the planning cycle that there was a desire from RFPGs to have more time and resources in order to allow them to recommend as many flood risk mitigation solutions as practical for inclusion in Texas' first state flood plan. To facilitate this, on September 23, 2021, the Board approved the Executive Administrator to negotiate and execute flood planning grant contract amendments with the 15 planning group sponsors to increase the overall grant funding by an amount not to exceed \$10 million and to extend the first cycle (2020-2023) of regional plans by an additional six months.

The additional funds were used by the RFPGs to perform additional data collection; to identify flood mitigation projects; to perform public outreach and allow for public participation; and to amend their plans with additional flood mitigation projects that could be included in the state flood plan. Their initial regional plans were required by statute to be submitted by January 10, 2023; under the extended grant contracts, their amended regional plans were required to be submitted to TWDB in July 2023.

The first set of final, adopted 2023 regional flood plans was successfully completed and submitted by the RFPGs to TWDB by the statutory deadline. After review by the EA, all 15 plans were approved by the board on July 25, 2023.

In providing the RFPGs with a six-month extension, it enabled the groups to recommend over 750 additional Flood Management Evaluations (FMEs) and over 400 additional Flood Mitigation Projects (FMPs) in their amended regional flood plans.

The amended plans contained over three times as many recommended projects as could be included in the initial plans. All the recommended flood risk reduction solutions recommended in these amended regional flood plans are anticipated to be included in the 2024 State Flood Plan, making them eligible for flood infrastructure fund (FIF) funding under the State Fiscal Year 2024-2025 Flood Infrastructure Fund Intended Use Plan.

All 15 RFPGs adopted and submitted their amended regional flood plans by the grant contract deadline of July 14, 2023.

### **KEY ISSUES**

A review has been conducted of all 15 of the 2023 amended regional flood plans and it has been determined that all 15 plans:

1. Have been adopted by the RFPGs in accordance with 31 TAC §361.21 related to notice requirements.
2. Satisfy the requirements for regional flood plans adopted in the guidance principles pursuant to TWC §16.062(h)(1).
3. Adequately provide for the preservation of life and property and the development of water supply sources, where applicable pursuant to TWC §16.062(h)(2).
4. Do not negatively affect a neighboring area, pursuant to TWC §16.062(h)(3).

All 15 amended regional flood plans have reported a variety of metrics associated with the flood risks faced by each region. The amended regional flood plans also include a number of recommendations to reduce flood risks to people and property including recommendations of 3,097 FMEs, 615 FMPs, and 771 Flood Management Strategies (FMSs) with non-recurring non-capital costs. The total estimated cost of recommended solutions is over \$51 billion. Summaries of flood risk and recommended solutions for each region are included in the attachments for each region.

It is noteworthy that none of the initially adopted regional food plans included recommended FMPs that were considered to contribute to water supply development whereas the amended regional flood plans reported over 30 FMPs that may provide water supply benefits.

**RECOMMENDATION**

The Executive Administrator recommends approval of all 15 of the 2023 amended regional flood plans based on the determination that the plans comply with all applicable state statutes and rules.

Attachments:

1. Region 1 Canadian Upper Red Amended RFP Summary
2. Region 2 Lower Red Amended RFP Summary
3. Region 3 Trinity Amended RFP Summary
4. Region 4 Sabine Amended RFP Summary
5. Region 5 Neches Amended RFP Summary
6. Region 6 San Jacinto Amended RFP Summary
7. Region 7 Upper Brazos Amended RFP Summary
8. Region 8 Lower Brazos Amended RFP Summary
9. Region 9 Upper Colorado Amended RFP Summary
10. Region 10 Lower Colorado Amended RFP Summary
11. Region 11 Guadalupe Amended RFP Summary
12. Region 12 San Antonio Amended RFP Summary
13. Region 13 Nueces Amended RFP Summary
14. Region 14 Upper Rio Grande Amended RFP Summary
15. Region 15 Lower Rio Grande Amended RFP Summary

## **ATTACHMENT 1**

### **Summary of 2023 Region 1 Canadian Upper Red Amended Regional Flood Plan**

The Region 1 Canadian Upper Red RFPG initially convened on October 26, 2020, and subsequently held 18 RFPG meetings and 19 public meetings mostly in Childress prior to their plan submission. The RFPG selected the Panhandle Regional Planning Commission as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Canadian Upper Red Flood Planning Region (Region 1) encompasses an area of over 34,600 square miles and includes a population of approximately 625,000. Approximately 12 percent of the region (4,310 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 3 percent (930 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 1,250 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 1\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	11,500	12,200	23,700
Number of residential buildings	6,900	8,600	15,500
Population	30,000	38,800	68,800
Number of police stations, fire stations, emergency medical services, hospitals, and schools	96	90	186
Roadway miles	2,300	1,040	3,340
Agricultural area (sq mi)	3,790	860	4,650

*\*Statistics may be rounded*

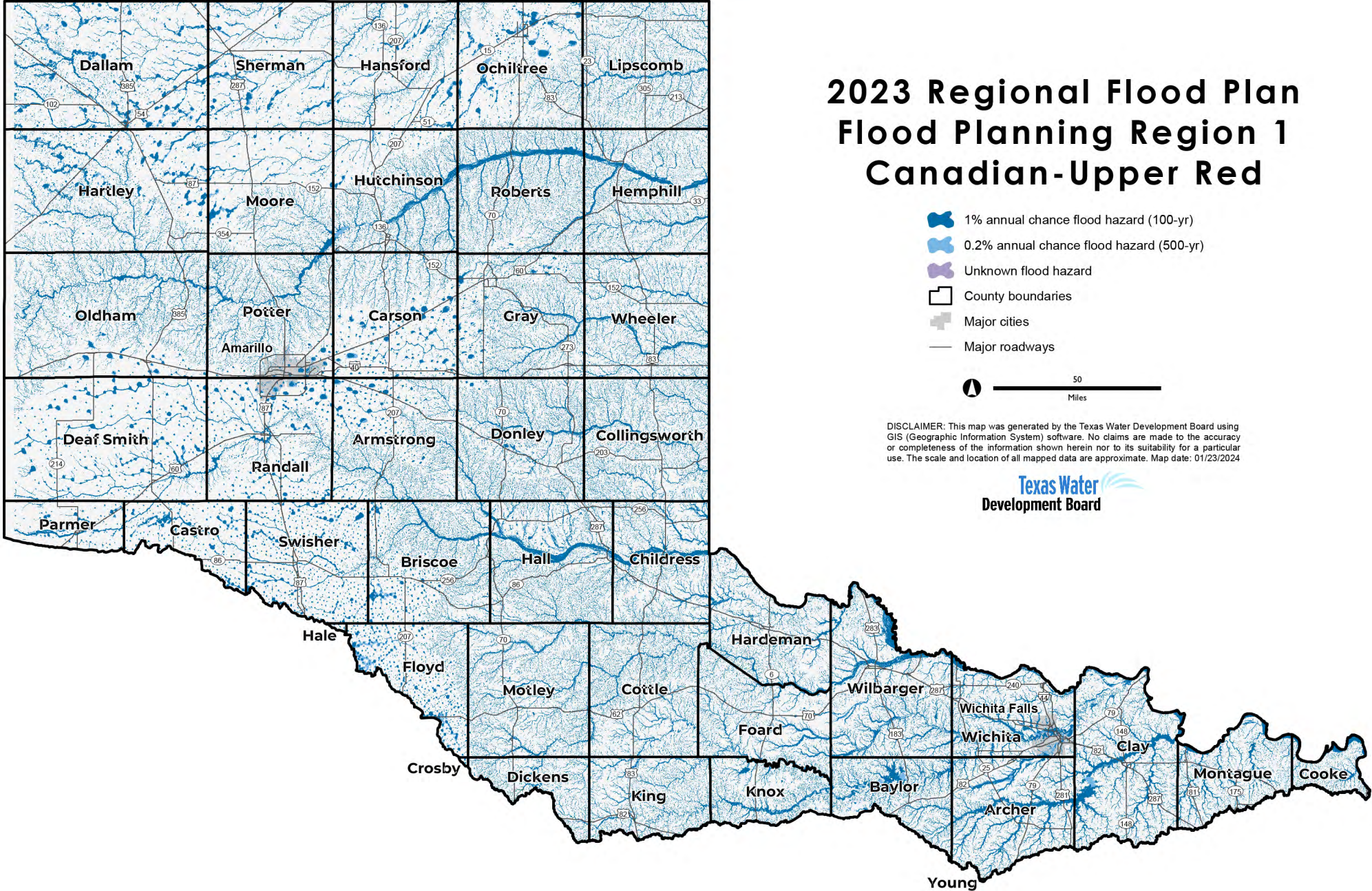
The Region 1 Canadian Upper Red RFP includes a variety of recommendations to mitigate flood risks to people and property, including:







- 207 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$89,000,000
- 21 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$121,000,000

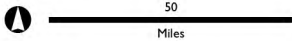
- 60 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$13,350,000
- 60 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$6,500,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 1 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

# 2023 Regional Flood Plan Flood Planning Region 1 Canadian-Upper Red



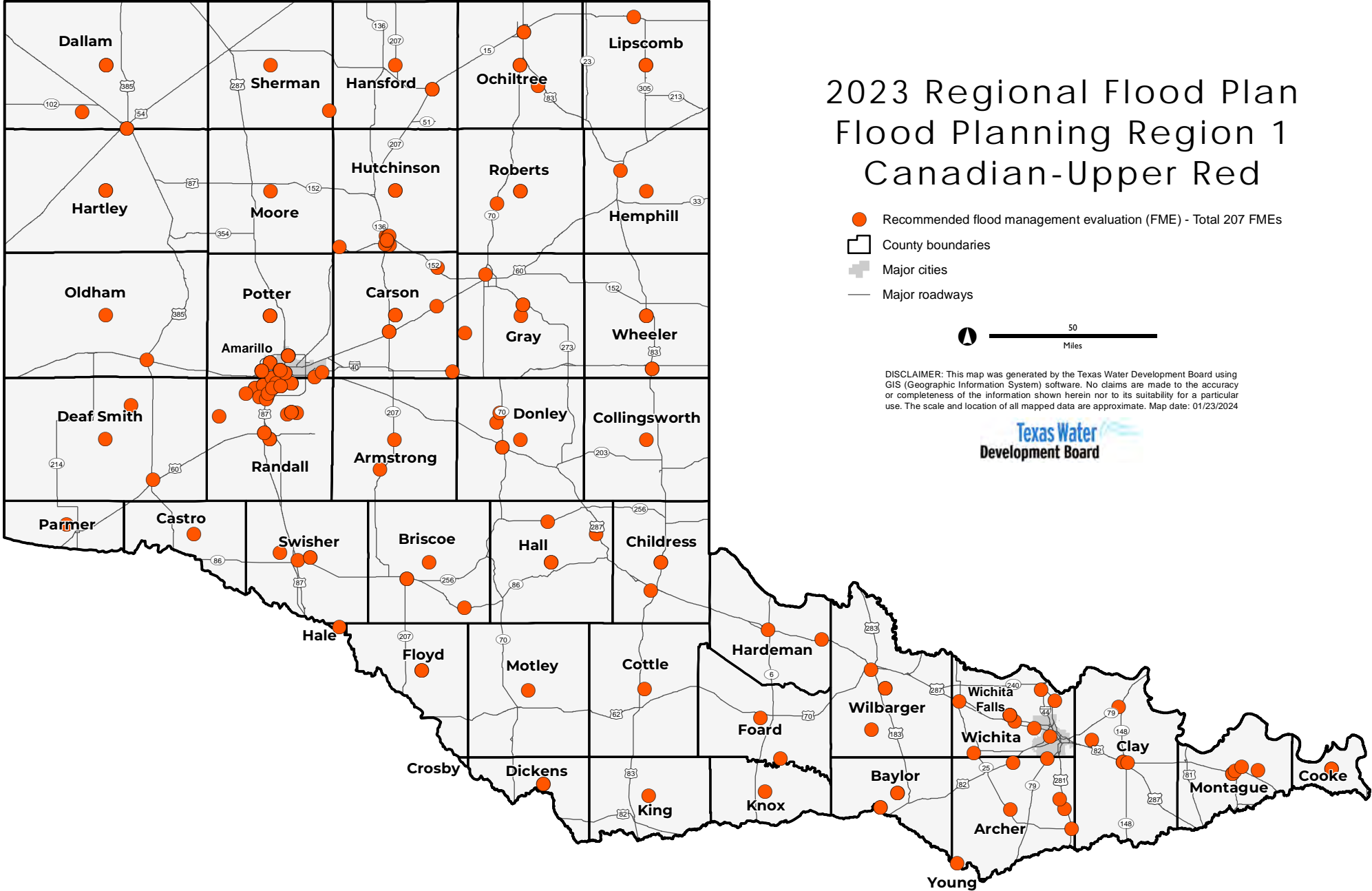
-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  Unknown flood hazard
-  County boundaries
-  Major cities
-  Major roadways



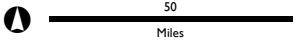
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# 2023 Regional Flood Plan Flood Planning Region 1 Canadian-Upper Red



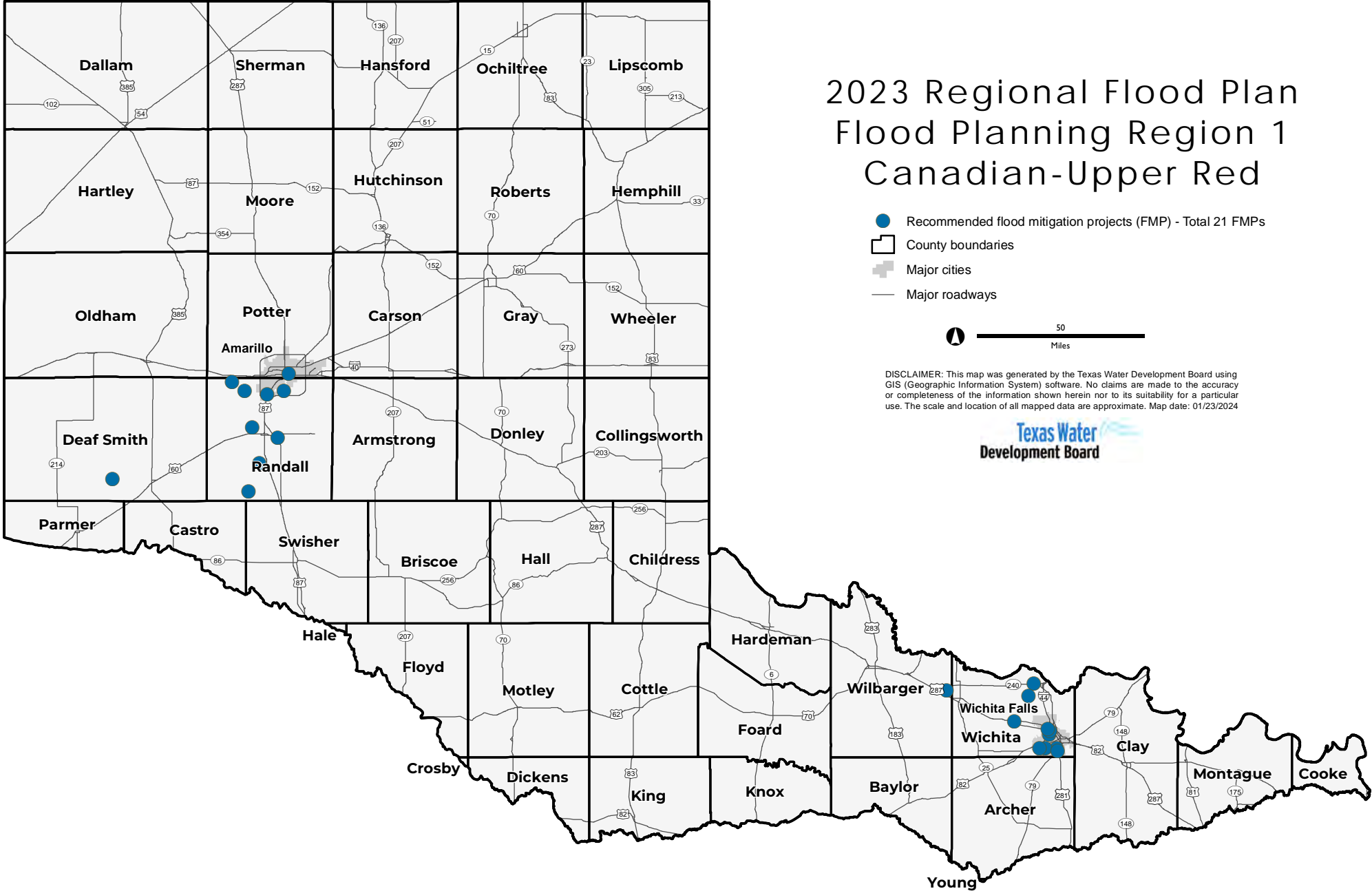
- Recommended flood management evaluation (FME) - Total 207 FMEs
- County boundaries
- Major cities
- Major roadways



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# 2023 Regional Flood Plan Flood Planning Region 1 Canadian-Upper Red



- Recommended flood mitigation projects (FMP) - Total 21 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 2**

### **Summary of 2023 Region 2 Lower Red Sulphur Cypress Amended Regional Flood Plan**

The Region 2 Lower Red Sulphur Cypress RFPG initially convened on October 30, 2020, and subsequently held 27 RFPG meetings and 33 public meetings mostly in Mount Pleasant prior to their plan submission. The RFPG selected the Ark-Tex Council of Governments as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Lower Red Sulphur Cypress Flood Planning Region (Region 2) encompasses an area of over 9,200 square miles and includes a population of approximately 531,100. Approximately 31 percent of the region (2,820 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 1 percent (120 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 130 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 2\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	13,400	1,600	15,000
Number of residential buildings	8,100	1,000	9,100
Population	38,000	4,600	42,600
Number of police stations, fire stations, emergency medical services, hospitals, and schools	20	2	22
Roadway miles	1,920	140	2,060
Agricultural area (sq mi)	290	20	310

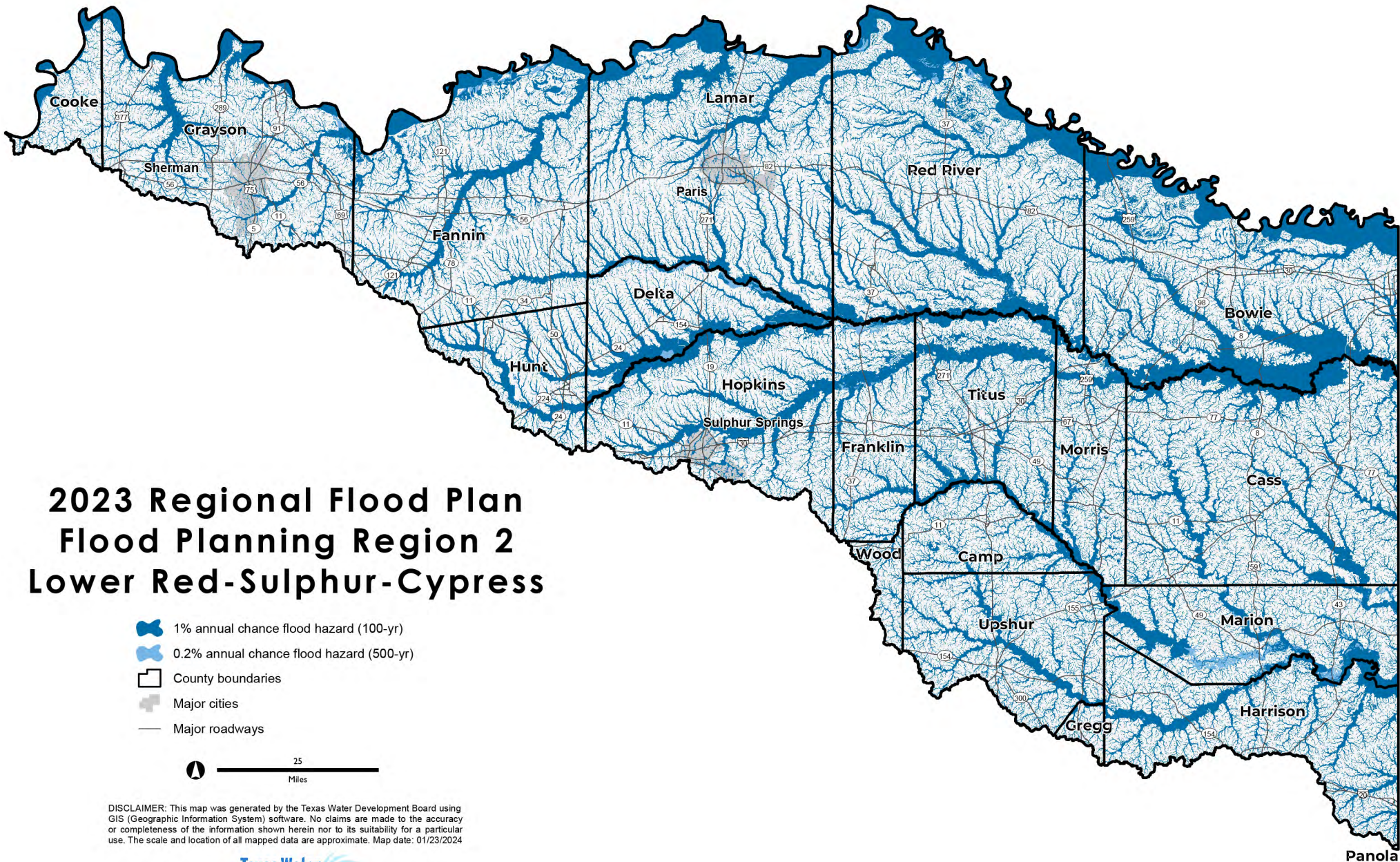
*\*Statistics may be rounded*

The Region 2 Lower Red Sulphur Cypress RFP includes a variety of recommendations to mitigate flood risks to people and property, including:






- 45 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$37,900,000
- 7 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$52,200,000

- 38 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$4,500,000
- 38 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$4,500,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 2 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

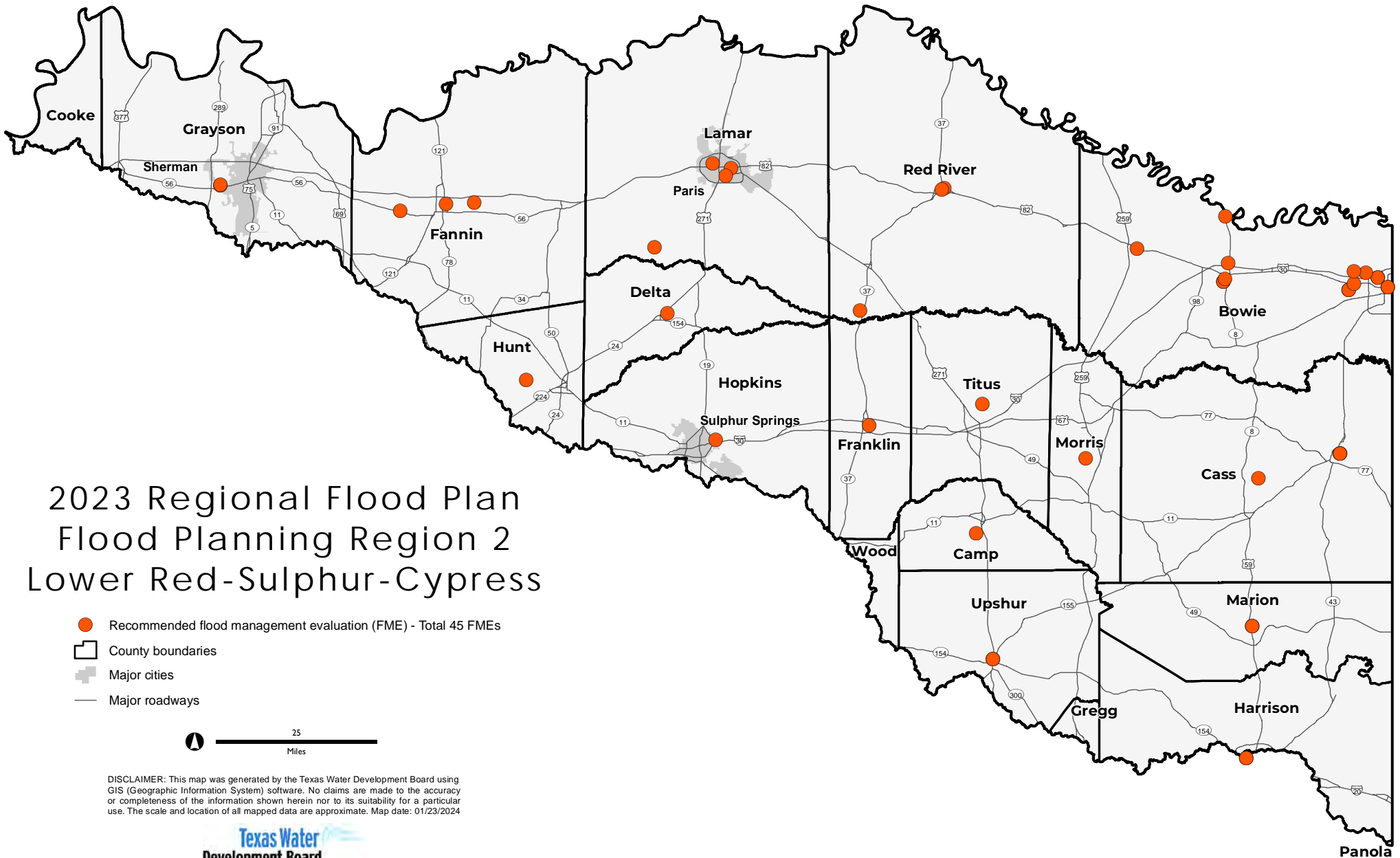


# 2023 Regional Flood Plan Flood Planning Region 2 Lower Red-Sulphur-Cypress

-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  County boundaries
-  Major cities
-  Major roadways



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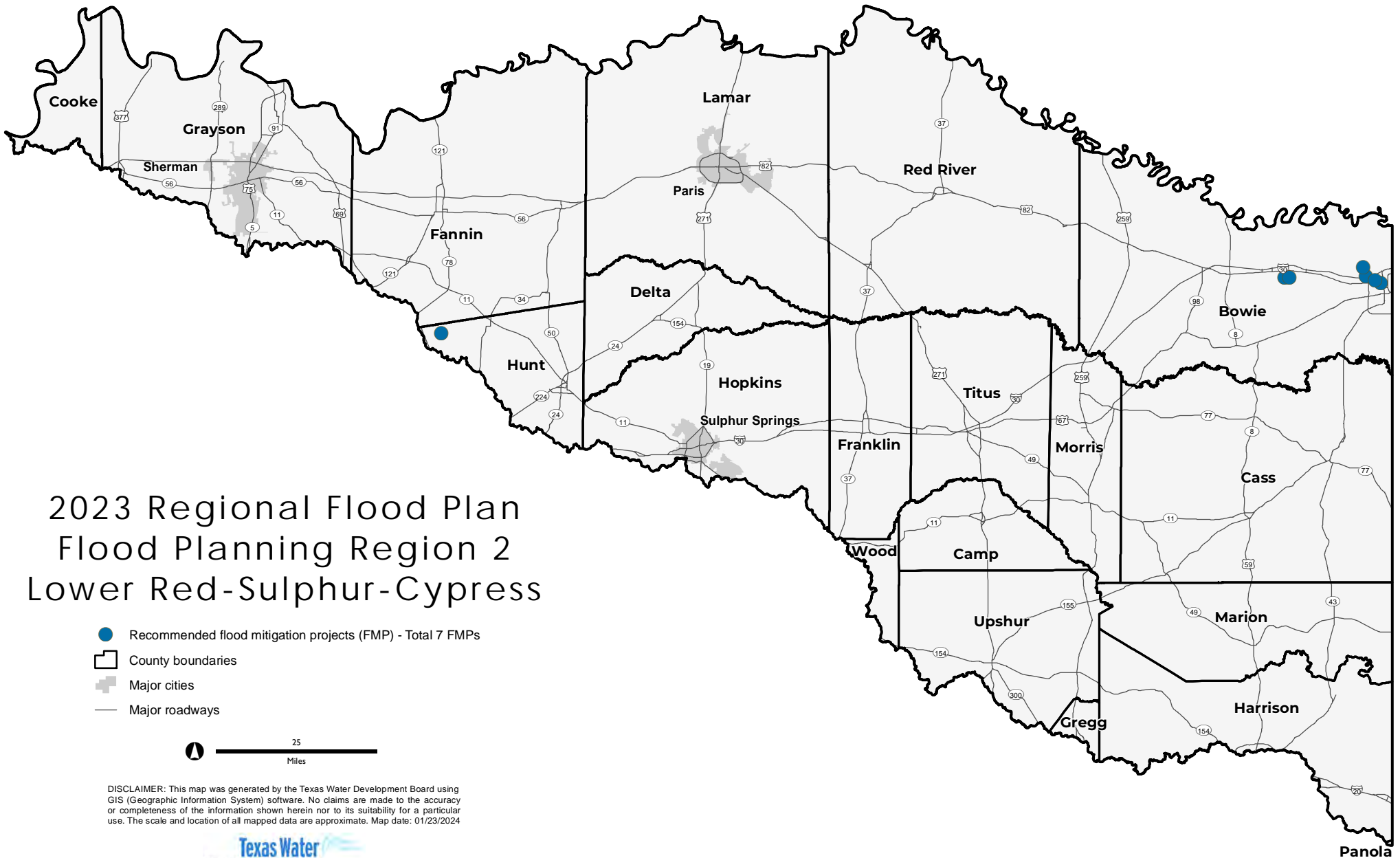


# 2023 Regional Flood Plan Flood Planning Region 2 Lower Red-Sulphur-Cypress

- Recommended flood management evaluation (FME) - Total 45 FMEs
- County boundaries
- Major cities
- Major roadways

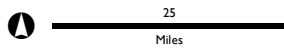


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# 2023 Regional Flood Plan Flood Planning Region 2 Lower Red-Sulphur-Cypress

- Recommended flood mitigation projects (FMP) - Total 7 FMPs
- County boundaries
- Major cities
- Major roadways



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### **ATTACHMENT 3**

#### **Summary of 2023 Region 3 Trinity Amended Regional Flood Plan**

The Region 3 Trinity RFPG initially convened on October 27, 2020, and subsequently held 21 RFPG meetings and 30 public meetings mostly in Arlington and Huntsville, and Dallas prior to their plan submission. The RFPG selected the Trinity River Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Trinity Flood Planning Region (Region 3) encompasses an area of over 17,800 square miles and includes a population of approximately 7,854,000. Approximately 27 percent of the region (4,880 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 3 percent (450 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 2,300 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 3\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	85,900	55,600	141,500
Number of residential buildings	72,900	36,500	109,400
Population	241,500	444,800	686,300
Number of police stations, fire stations, emergency medical services, hospitals, and schools	105	74	179
Roadway miles	3,950	1,940	5,890
Agricultural area (sq mi)	1,890	230	2,120

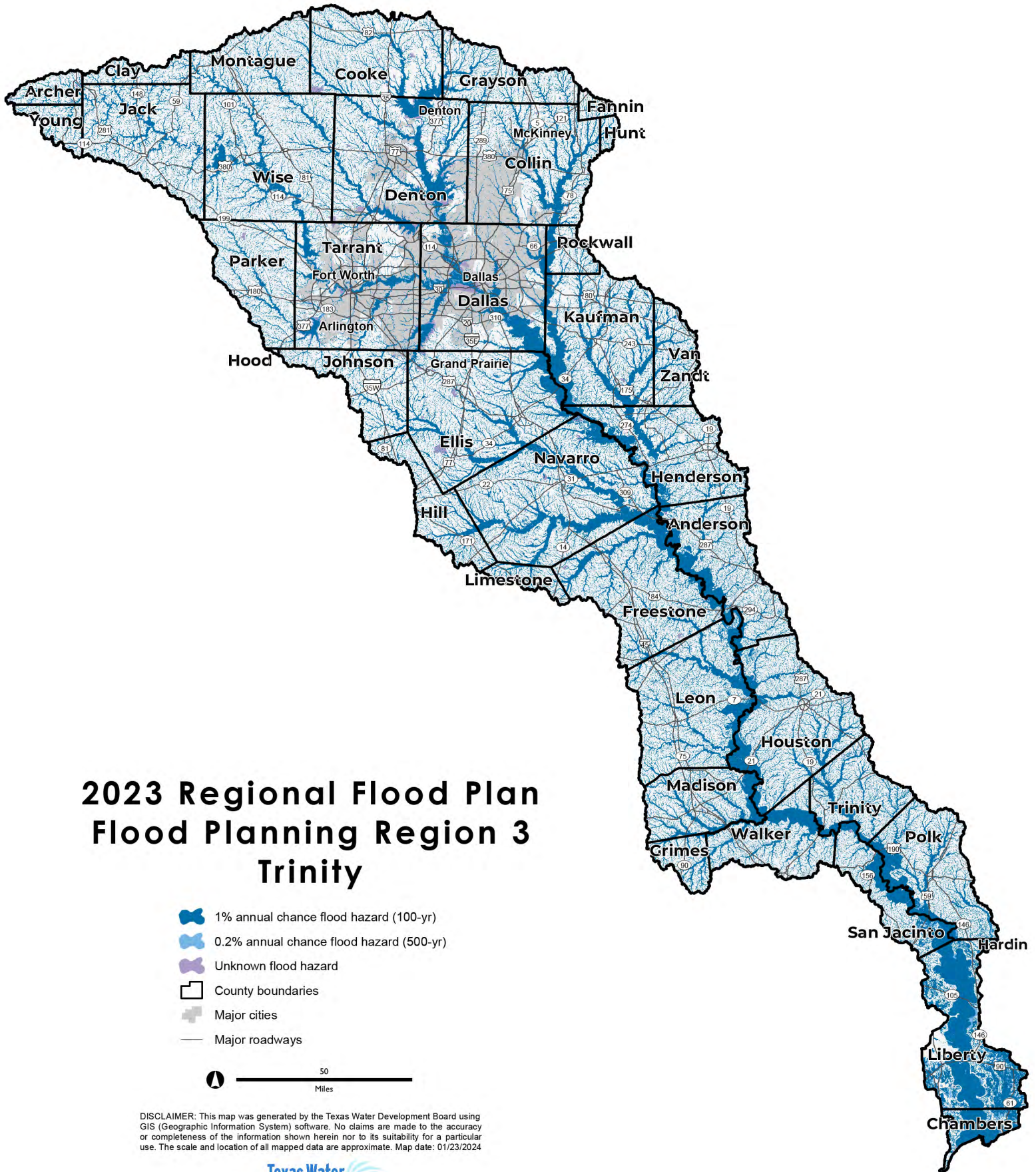
*\*Statistics may be rounded*

The Region 3 Trinity RFP includes a variety of recommendations to mitigate flood risks to people and property, including:







- 507 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$220,600,000
- 56 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$703,500,000
- 138 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$745,409,000

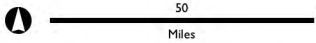
- 138 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$125,400,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 3 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.



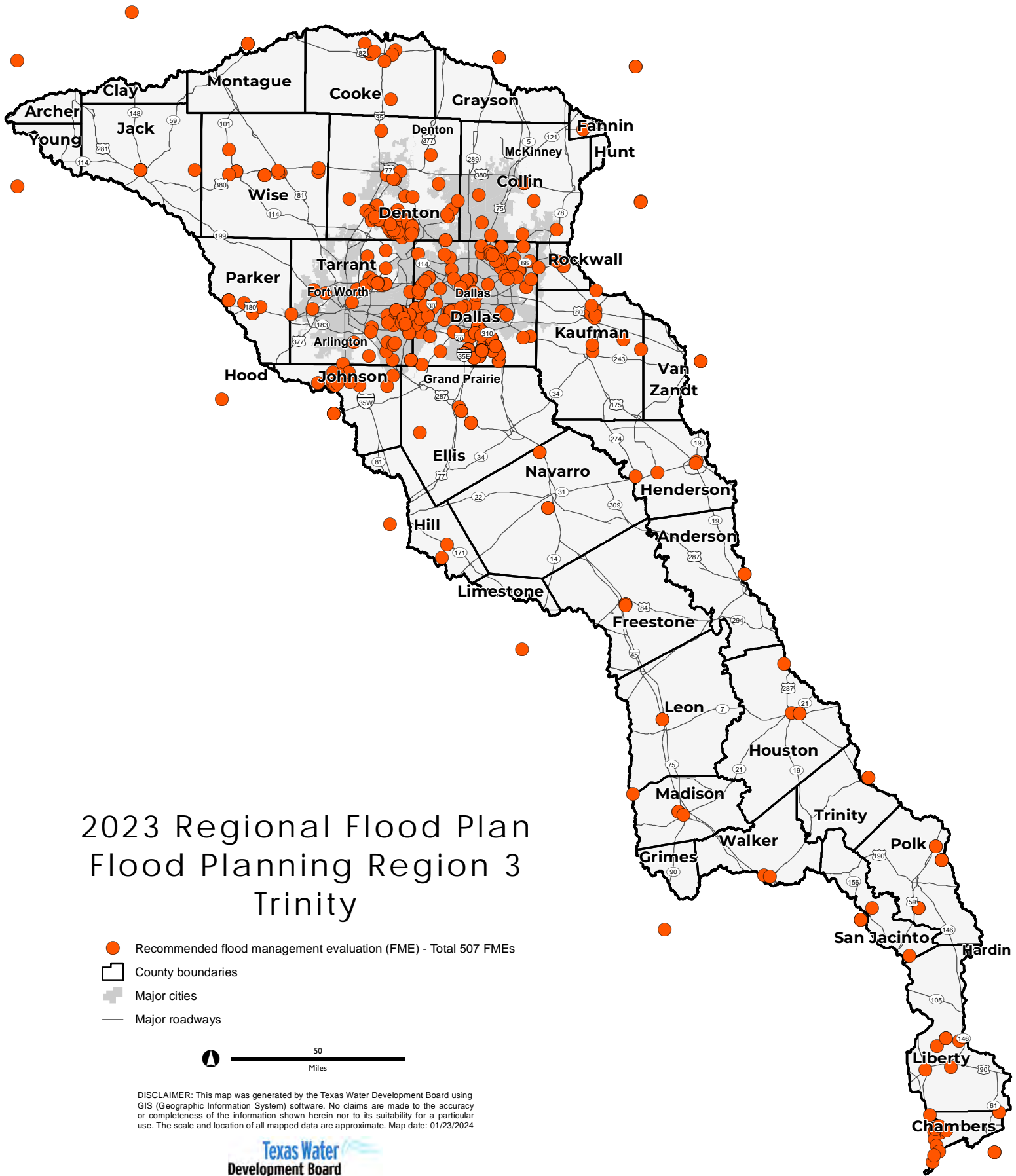
# 2023 Regional Flood Plan Flood Planning Region 3 Trinity

-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  Unknown flood hazard
-  County boundaries
-  Major cities
-  Major roadways



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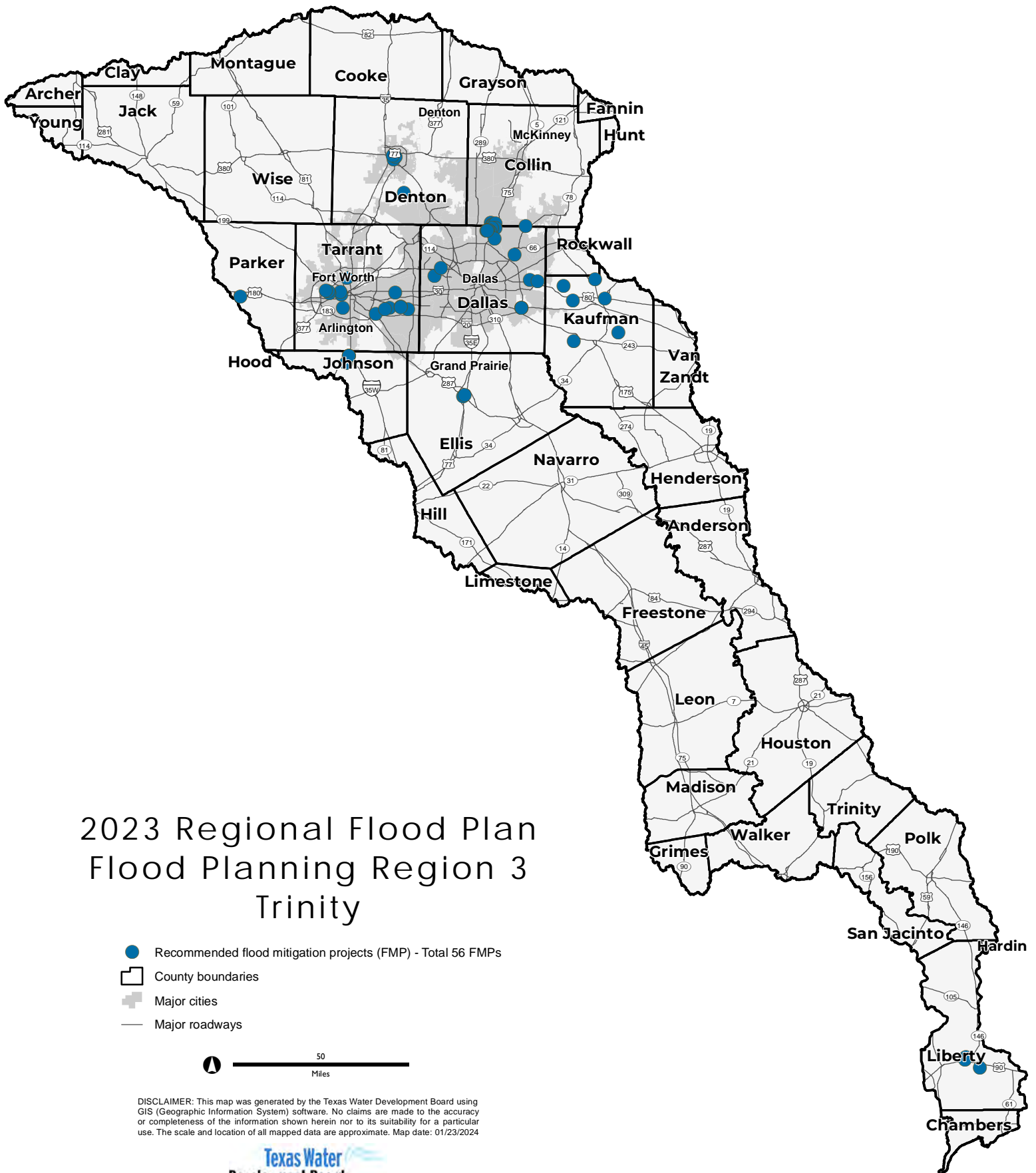


# 2023 Regional Flood Plan Flood Planning Region 3 Trinity

- Recommended flood management evaluation (FME) - Total 507 FMEs
- County boundaries
- Major cities
- Major roadways

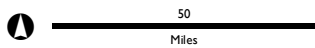


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# 2023 Regional Flood Plan Flood Planning Region 3 Trinity

- Recommended flood mitigation projects (FMP) - Total 56 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 4**

### **Summary of 2023 Region 4 Sabine Amended Regional Flood Plan**

The Region 4 Sabine RFPG initially convened on October 27, 2020, and subsequently held 35 RFPG meetings and 39 public meetings mostly in Orange prior to their plan submission. The RFPG selected the Sabine River Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Sabine Flood Planning Region (Region 4) encompasses an area of over 7,600 square miles and includes a population of approximately 616,200. Approximately 31 percent of the region (2,310 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 2 percent (180 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 130 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 4\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	34,600	14,100	48,700
Number of residential buildings	24,100	10,800	34,900
Population	65,000	25,600	90,600
Number of police stations, fire stations, emergency medical services, hospitals, and schools	85	27	112
Roadway miles	1,520	380	1,900
Agricultural area (sq mi)	320	30	350

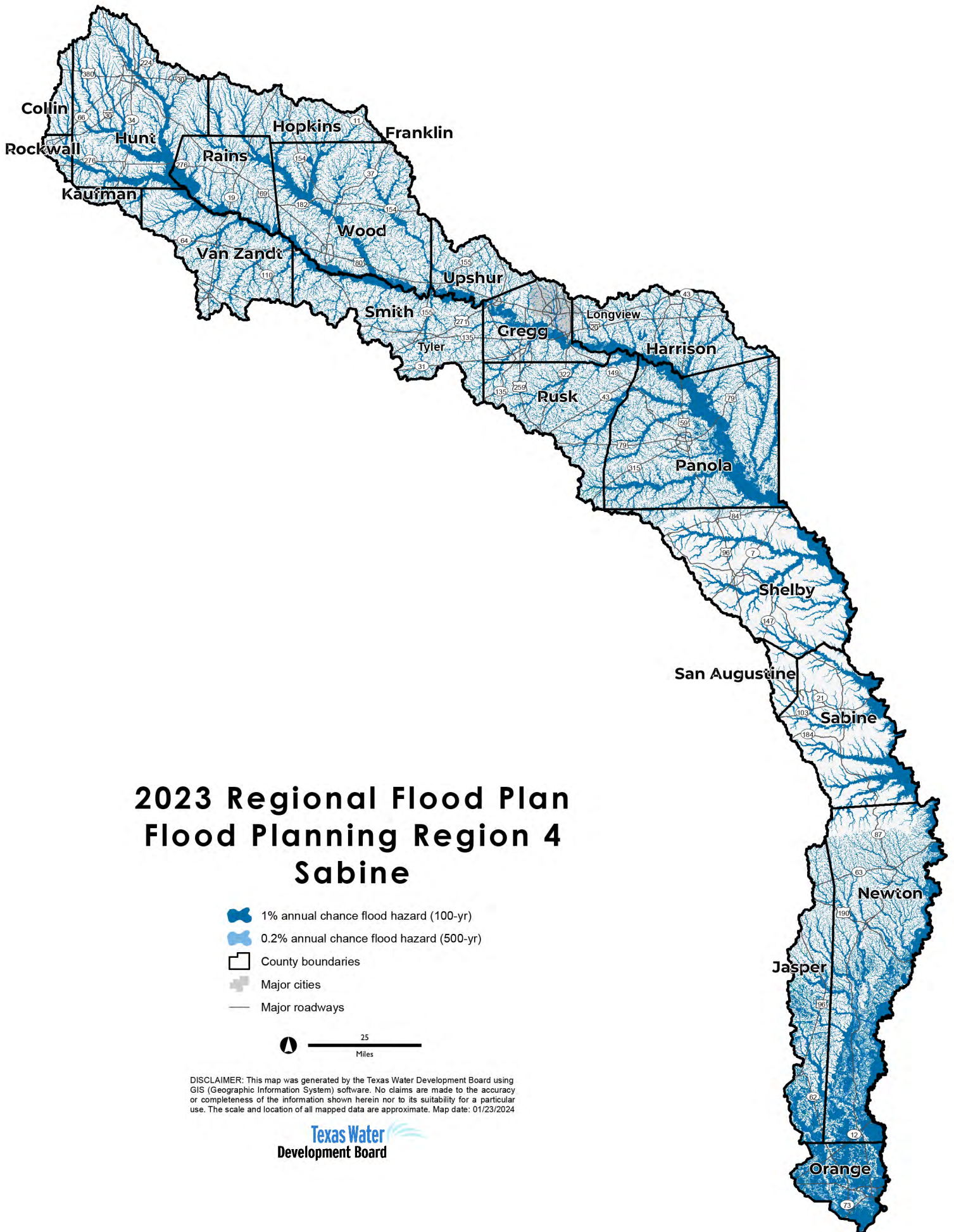
*\*Statistics may be rounded*

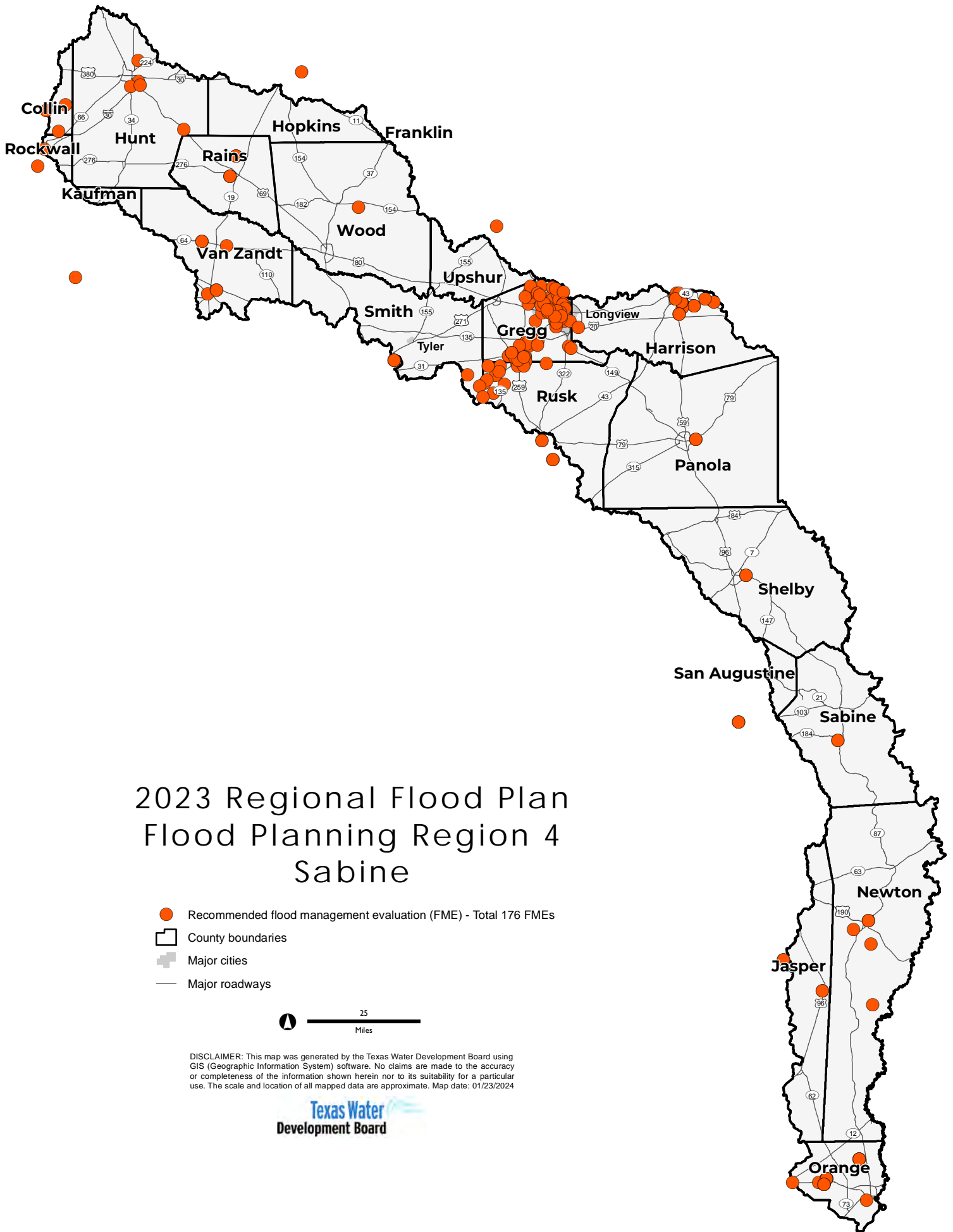
The Region 4 Sabine RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

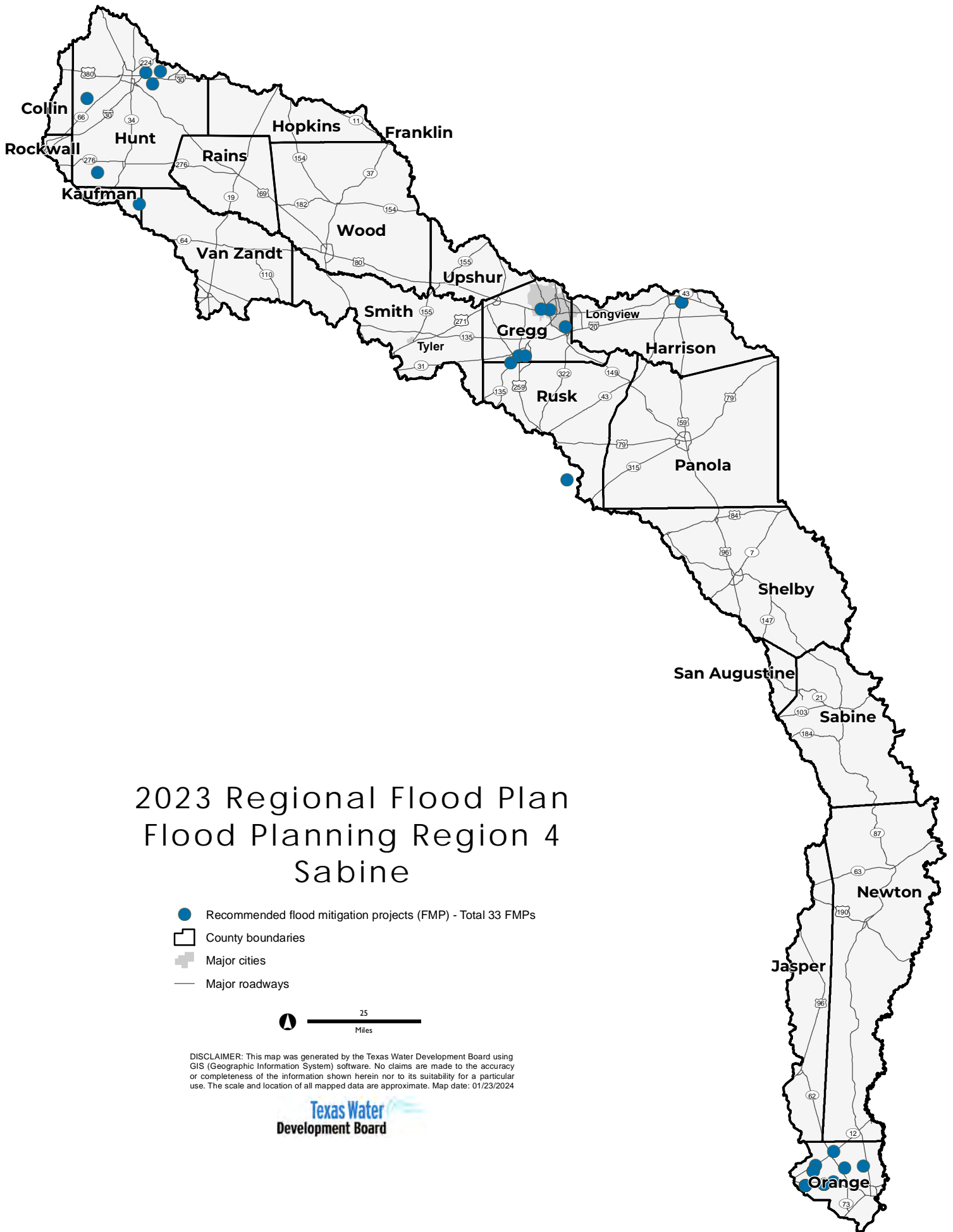
- 176 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$81,300,000
- 33 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$3,272,700,000
- 59 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$112,379,000

- 53 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$3,200,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 4 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

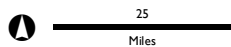






# 2023 Regional Flood Plan Flood Planning Region 4 Sabine

- Recommended flood mitigation projects (FMP) - Total 33 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 5**

### **Summary of 2023 Region 5 Neches Amended Regional Flood Plan**

The Region 5 Neches RFPG initially convened on October 28, 2020, and subsequently held 31 RFPG meetings and 36 public meetings mostly in Beaumont prior to their plan submission. The RFPG selected the Lower Neches Valley Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Neches Flood Planning Region (Region 5) encompasses an area of over 11,500 square miles and includes a population of approximately 1,020,000. Approximately 27 percent of the region (3,080 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 3 percent (370 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 190 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 5\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	34,600	42,900	77,500
Number of residential buildings	25,100	35,200	60,300
Population	65,700	92,600	158,300
Number of police stations, fire stations, emergency medical services, hospitals, and schools	76	147	223
Roadway miles	1,510	950	2,460
Agricultural area (sq mi)	120	50	170

*\*Statistics may be rounded*

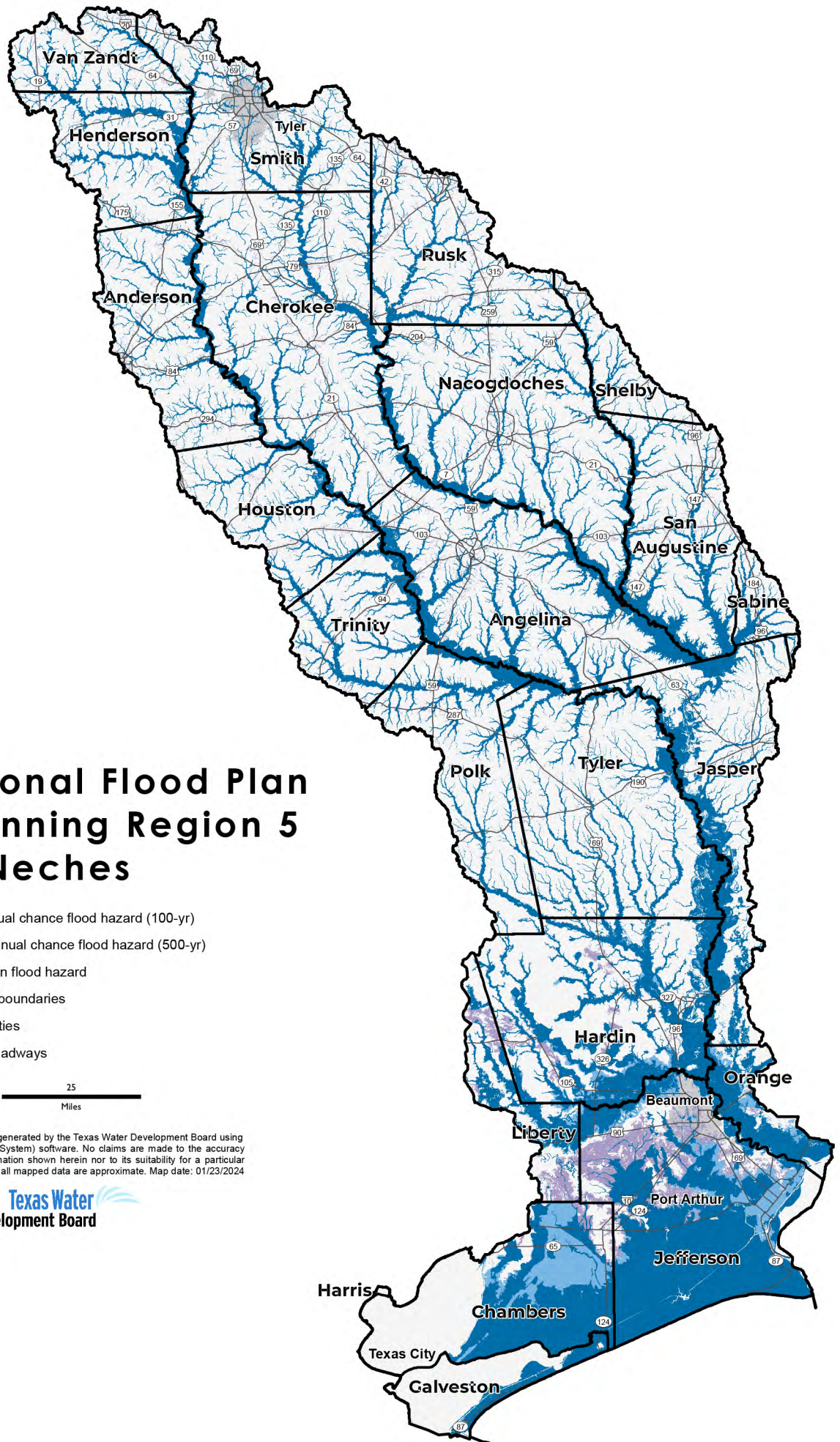
The Region 5 Neches RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

- 157 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$88,900,000
- 26 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$4,326,800,000
- 147 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$175,037,000









- 72 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$9,300,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 5 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.



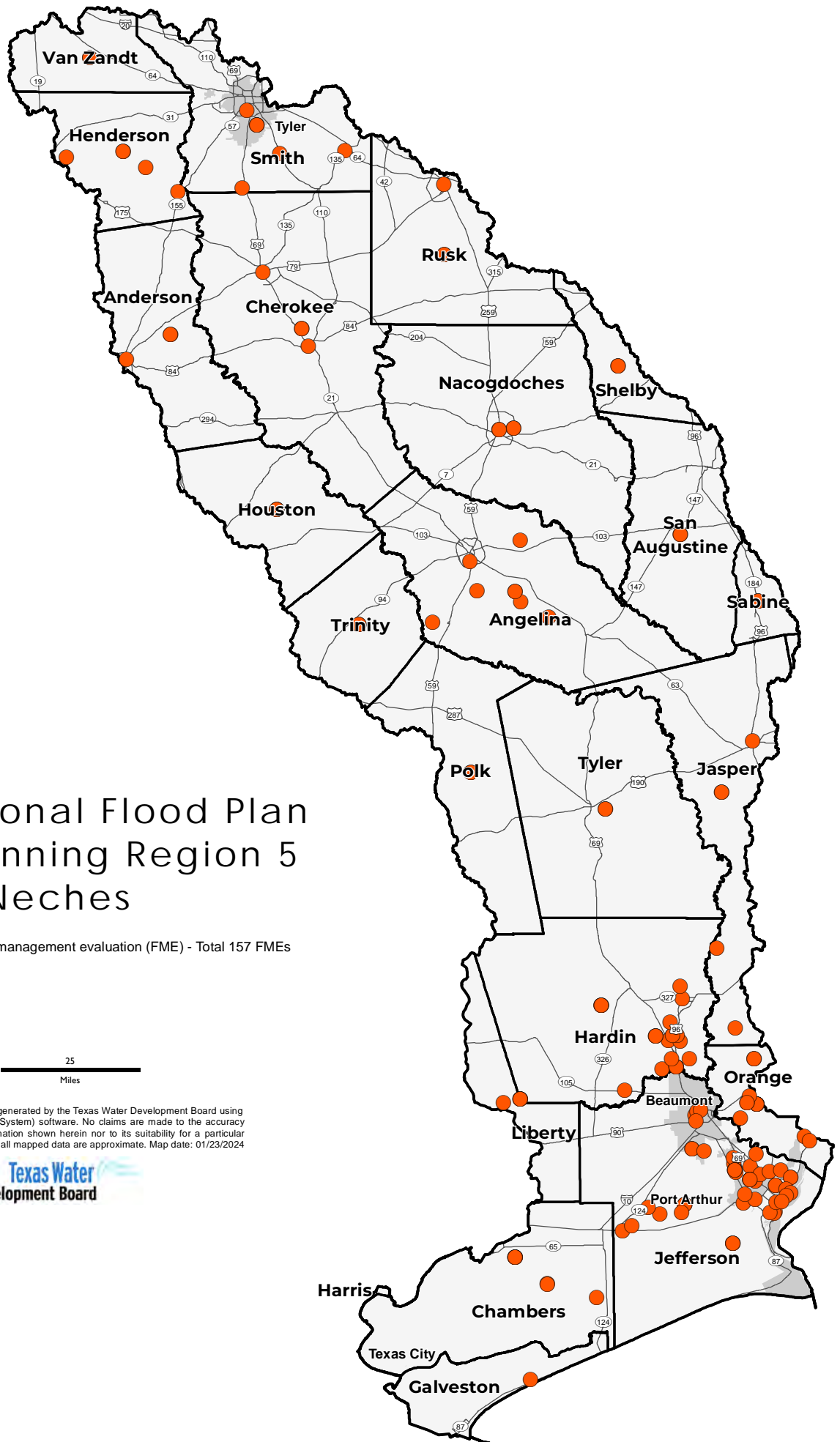
# 2023 Regional Flood Plan Flood Planning Region 5 Neches

-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  Unknown flood hazard
-  County boundaries
-  Major cities
-  Major roadways



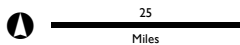
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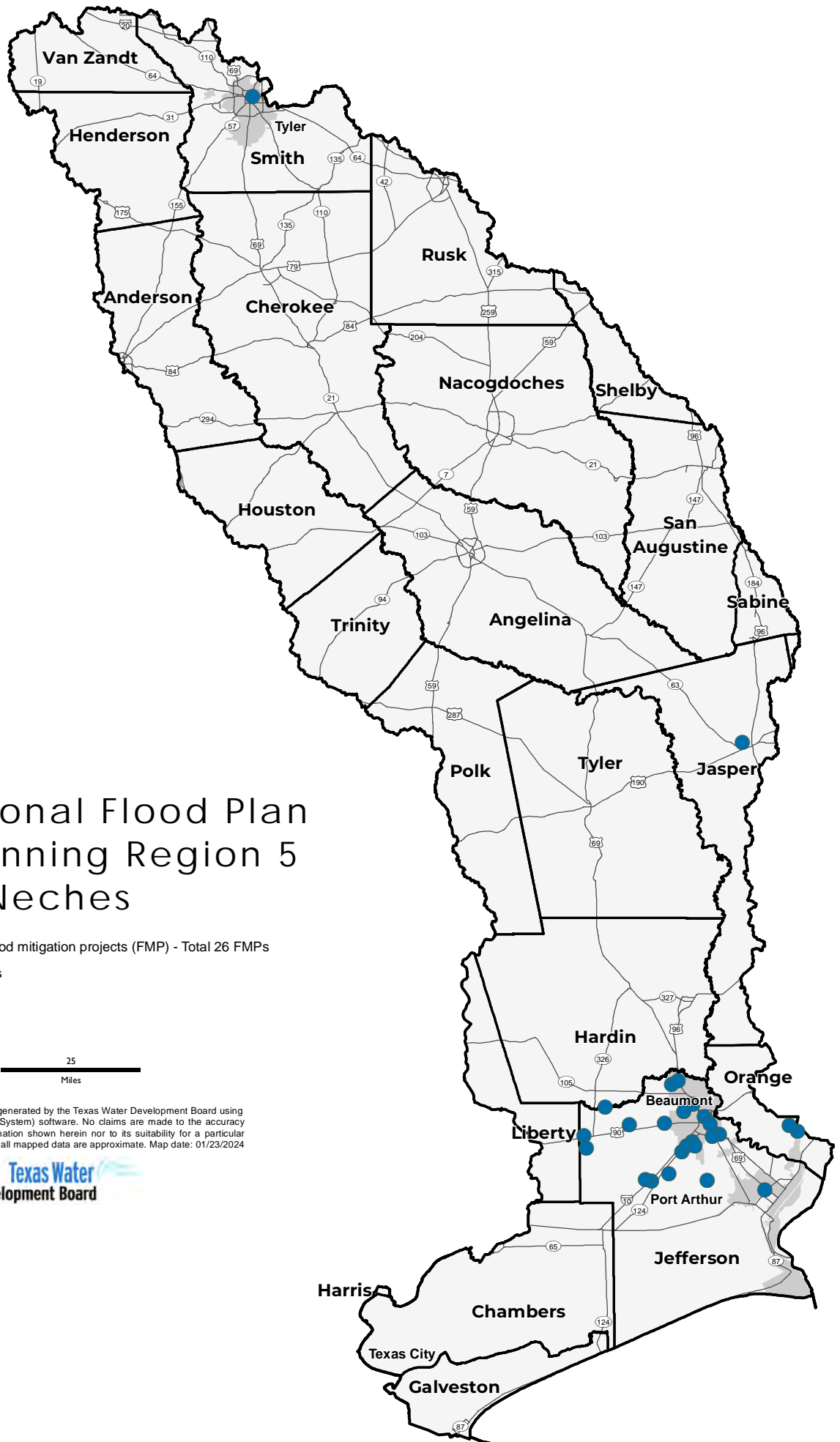
# 2023 Regional Flood Plan Flood Planning Region 5 Neches

- Recommended flood management evaluation (FME) - Total 157 FMEs
- County boundaries
- + Major cities
- Major roadways



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# 2023 Regional Flood Plan Flood Planning Region 5 Neches

- Recommended flood mitigation projects (FMP) - Total 26 FMPs
- County boundaries
- ⊕ Major cities
- Major roadways



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## **ATTACHMENT 6**

### **Summary of 2023 Region 6 San Jacinto Amended Regional Flood Plan**

The Region 6 San Jacinto RFPG initially convened on October 28, 2020, and subsequently held 31 RFPG meetings and 73 public meetings mostly in The Woodlands prior to their plan submission. The RFPG selected the Harris County as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The San Jacinto Flood Planning Region (Region 6) encompasses an area of over 5,100 square miles and includes a population of approximately 6,400,000. Approximately 29 percent of the region (1,490 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 9 percent (470 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 240 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 6\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	239,500	275,300	514,800
Number of residential buildings	199,800	242,700	442,500
Population	785,900	1,691,200	2,477,100
Number of police stations, fire stations, emergency medical services, hospitals, and schools	1,702	2,064	3,766
Roadway miles	4,350	3,640	7,990
Agricultural area (sq mi)	40	20	60

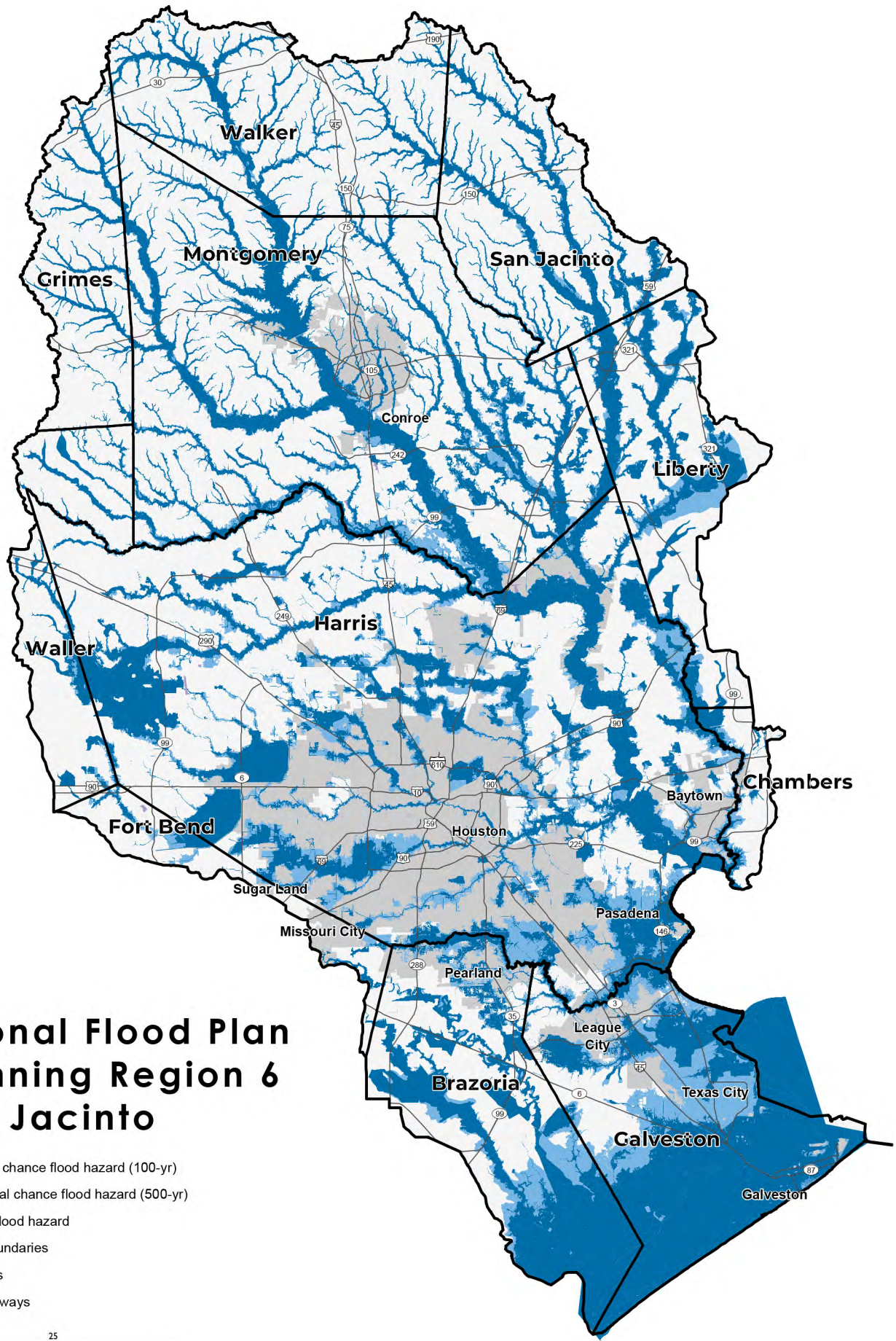
*\*Statistics may be rounded*

The Region 6 San Jacinto RFP includes a variety of recommendations to mitigate flood risks to people and property, including:







- 405 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$905,400,000
- 70 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$31,685,200,000
- 65 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$1,199,623,000

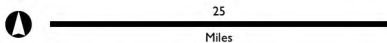
- 65 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$107,300,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 6 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

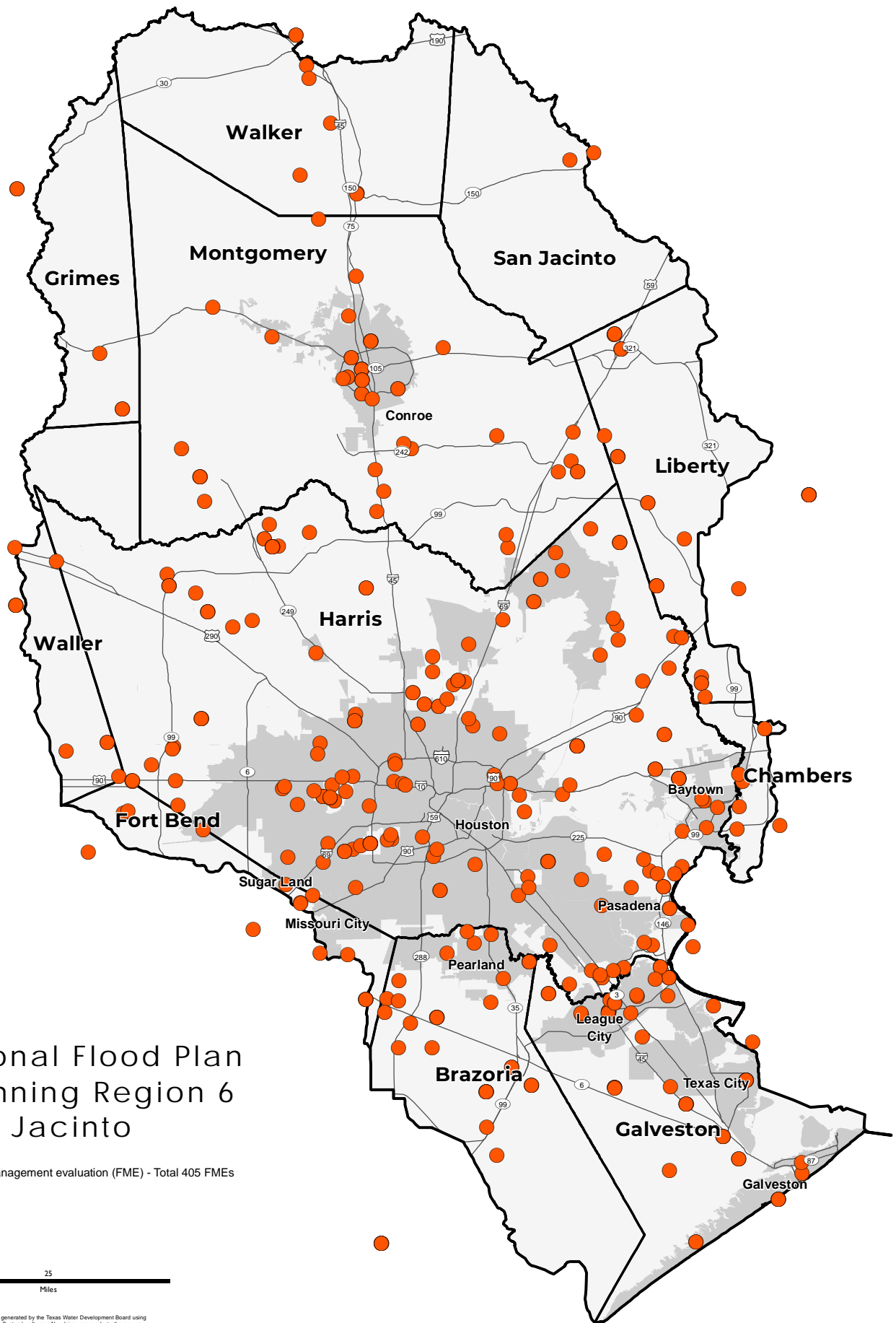


# 2023 Regional Flood Plan Flood Planning Region 6 San Jacinto

-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  Unknown flood hazard
-  County boundaries
-  Major cities
-  Major roadways



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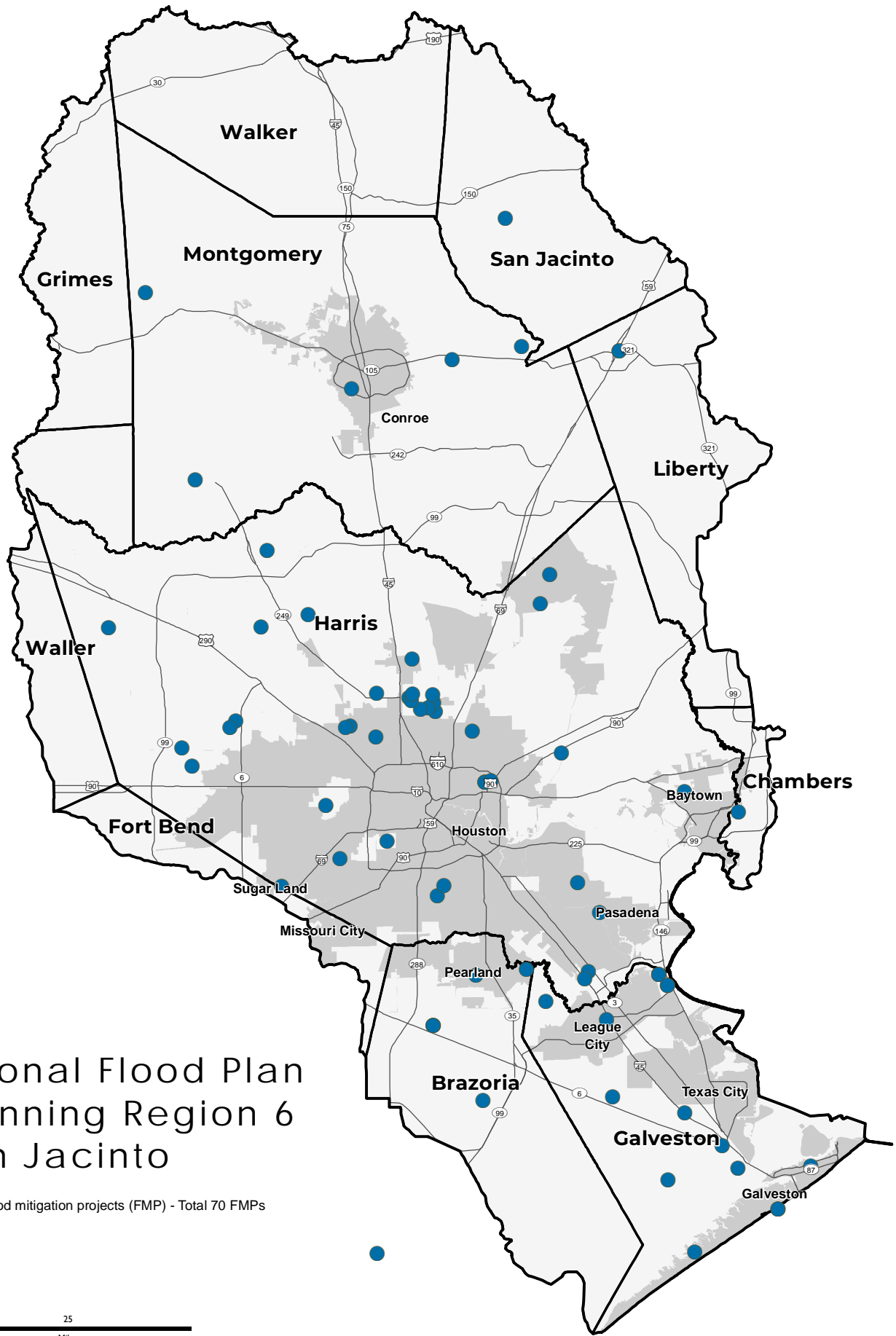
# 2023 Regional Flood Plan Flood Planning Region 6 San Jacinto

- Recommended flood management evaluation (FME) - Total 405 FMEs
- County boundaries
- Major cities
- Major roadways



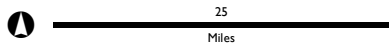
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# 2023 Regional Flood Plan Flood Planning Region 6 San Jacinto

- Recommended flood mitigation projects (FMP) - Total 70 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 7**

### **Summary of 2023 Region 7 Upper Brazos Amended Regional Flood Plan**

The Region 7 Upper Brazos RFPG initially convened on October 29, 2020, and subsequently held 27 RFPG meetings and 27 public meetings mostly in Lubbock and Abilene prior to their plan submission. The RFPG selected the South Plains Association of Governments as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Upper Brazos Flood Planning Region (Region 7) encompasses an area of over 20,000 square miles and includes a population of approximately 633,600. Approximately 18 percent of the region (3,630 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 7 percent (1,390 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 300 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 7\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	28,500	25,600	54,100
Number of residential buildings	19,800	17,200	37,000
Population	63,400	53,300	116,700
Number of police stations, fire stations, emergency medical services, hospitals, and schools	37	53	90
Roadway miles	5,940	3,680	9,620
Agricultural area (sq mi)	1,360	870	2,230

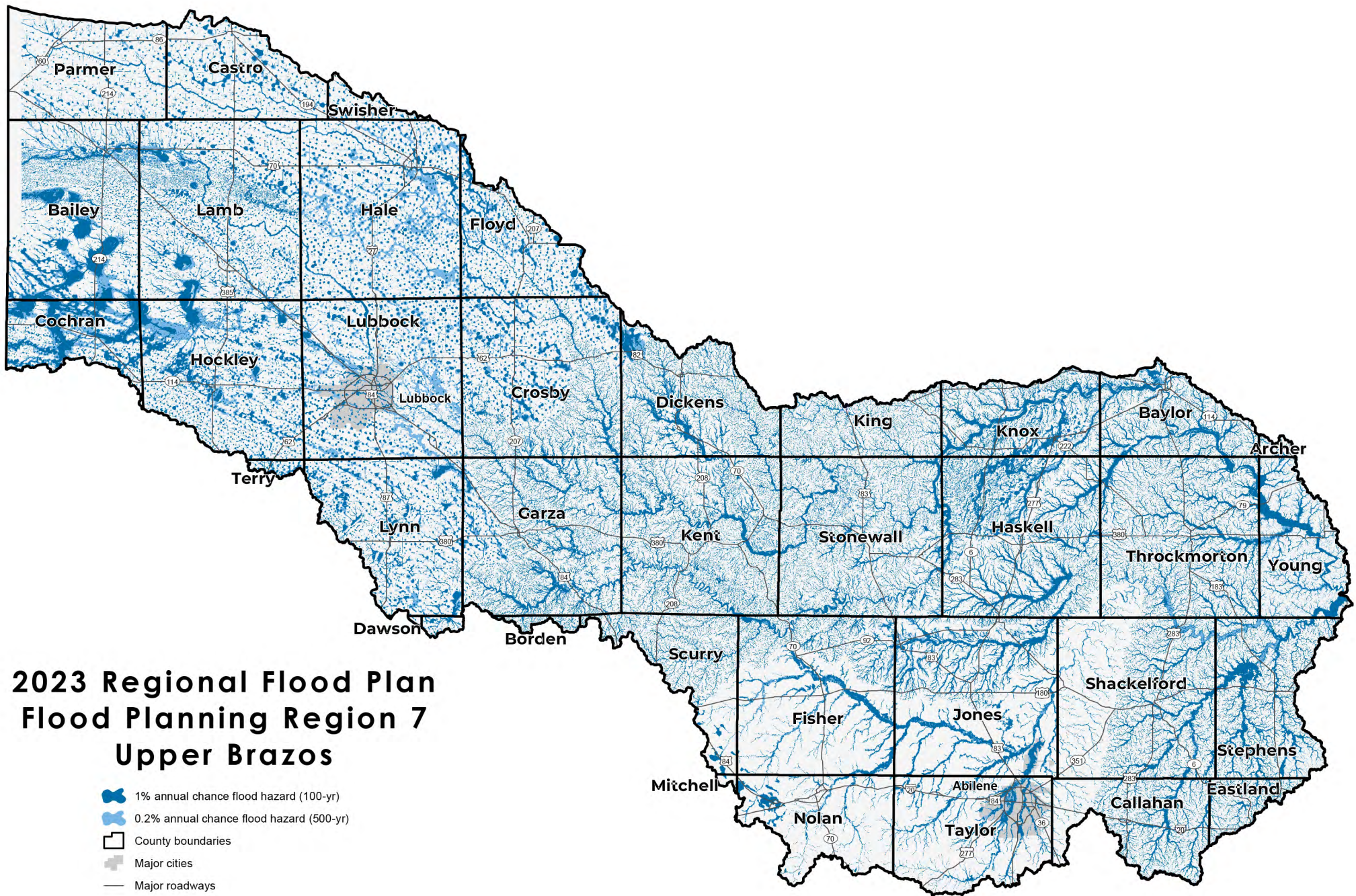
*\*Statistics may be rounded*

The Region 7 Upper Brazos RFP includes a variety of recommendations to mitigate flood risks to people and property, including:






- 229 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$84,300,000
- 13 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$48,800,000

- 64 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$13,233,000
- 64 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$10,300,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 7 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

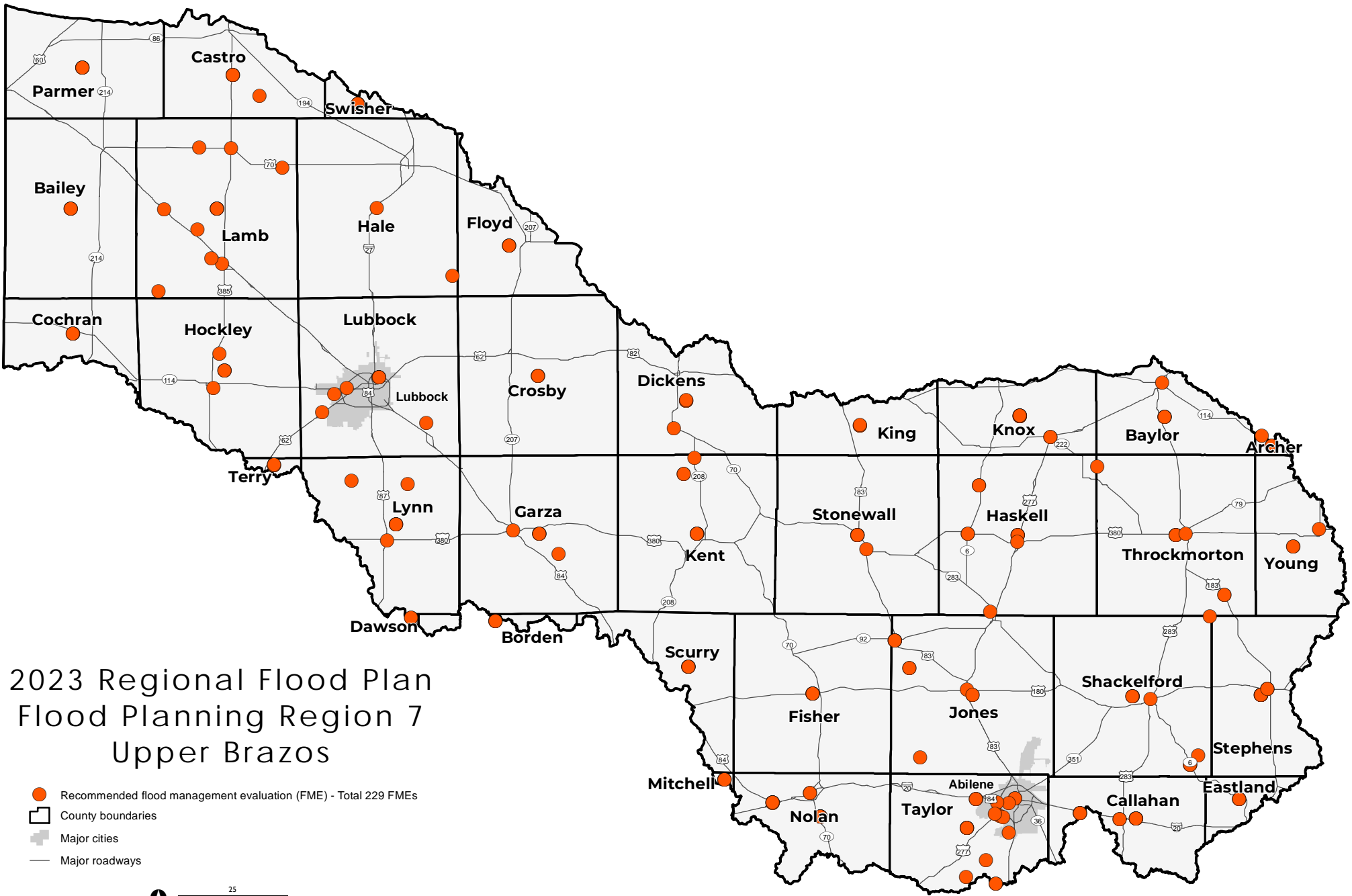


# 2023 Regional Flood Plan Flood Planning Region 7 Upper Brazos

-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  County boundaries
-  Major cities
-  Major roadways

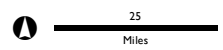


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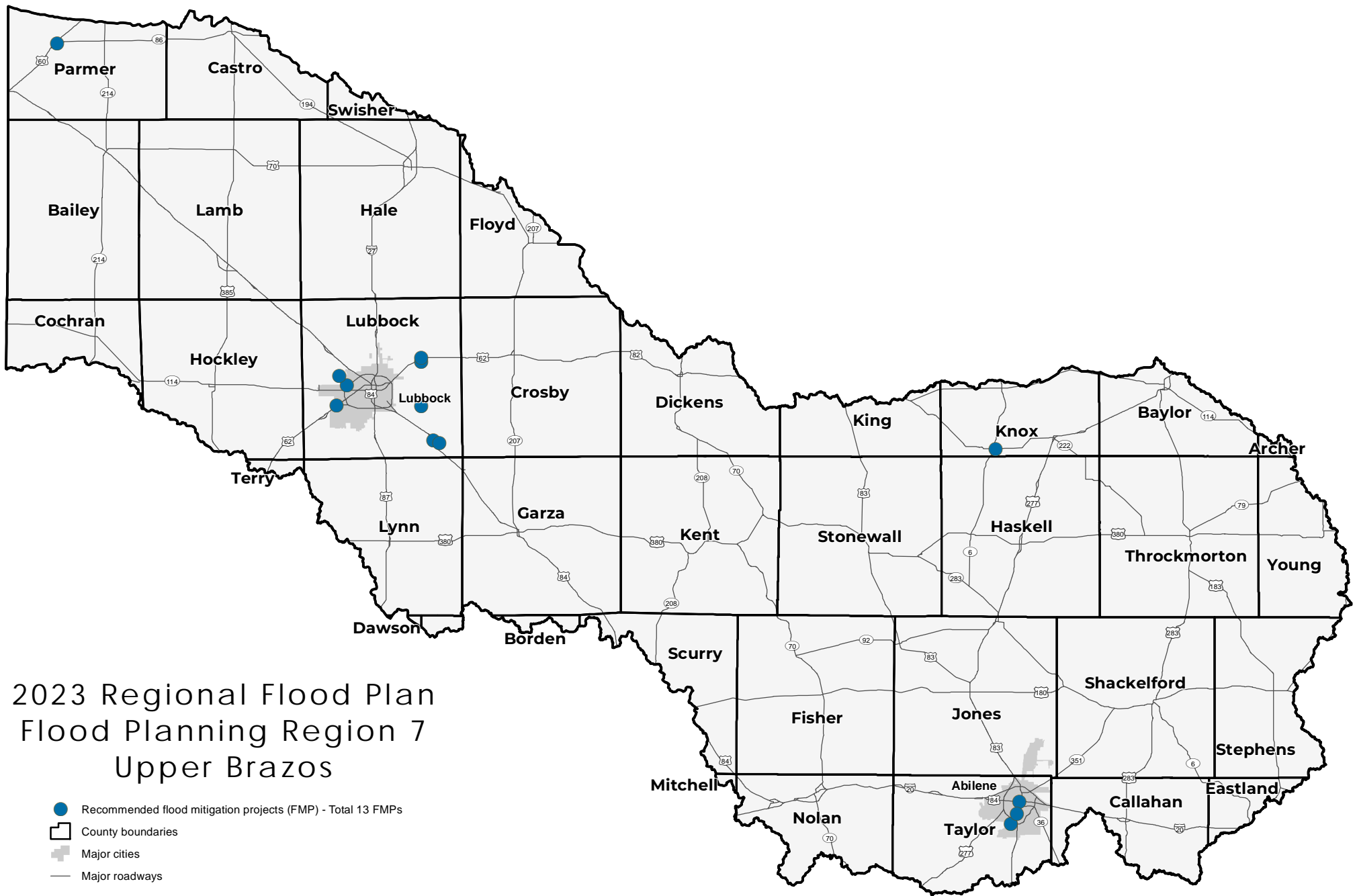


# 2023 Regional Flood Plan Flood Planning Region 7 Upper Brazos

- Recommended flood management evaluation (FME) - Total 229 FMEs
- County boundaries
- Major cities
- Major roadways

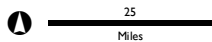


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# 2023 Regional Flood Plan Flood Planning Region 7 Upper Brazos

- Recommended flood mitigation projects (FMP) - Total 13 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 8**

### **Summary of 2023 Region 8 Lower Brazos Amended Regional Flood Plan**

The Region 8 Lower Brazos RFPG initially convened on October 30, 2020, and subsequently held 31 RFPG meetings and 41 public meetings mostly in Waco prior to their plan submission. The RFPG selected the Brazos River Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Lower Brazos Flood Planning Region (Region 8) encompasses an area of over 23,000 square miles and includes a population of approximately 3,035,000. Approximately 20 percent of the region (4,690 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 2 percent (490 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 1,170 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 8\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	63,100	44,700	107,800
Number of residential buildings	42,600	36,500	79,100
Population	129,900	132,000	261,900
Number of police stations, fire stations, emergency medical services, hospitals, and schools	74	57	131
Roadway miles	3,300	1,130	4,430
Agricultural area (sq mi)	840	110	950

*\*Statistics may be rounded*

The Region 8 Lower Brazos RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

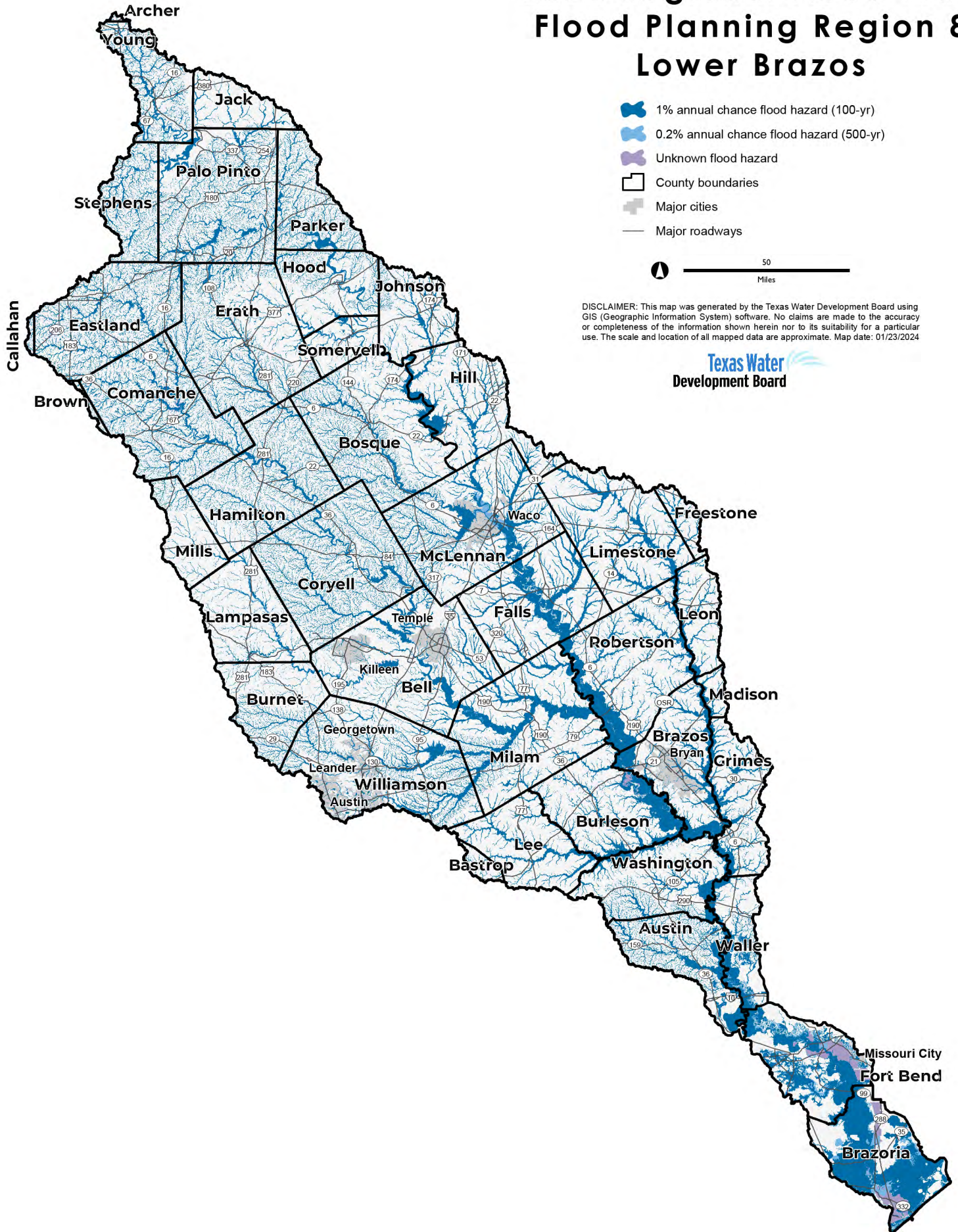
- 97 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$29,600,000
- 49 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$4,293,300,000
- 10 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$366,400,000

- 10 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$6,500,000.

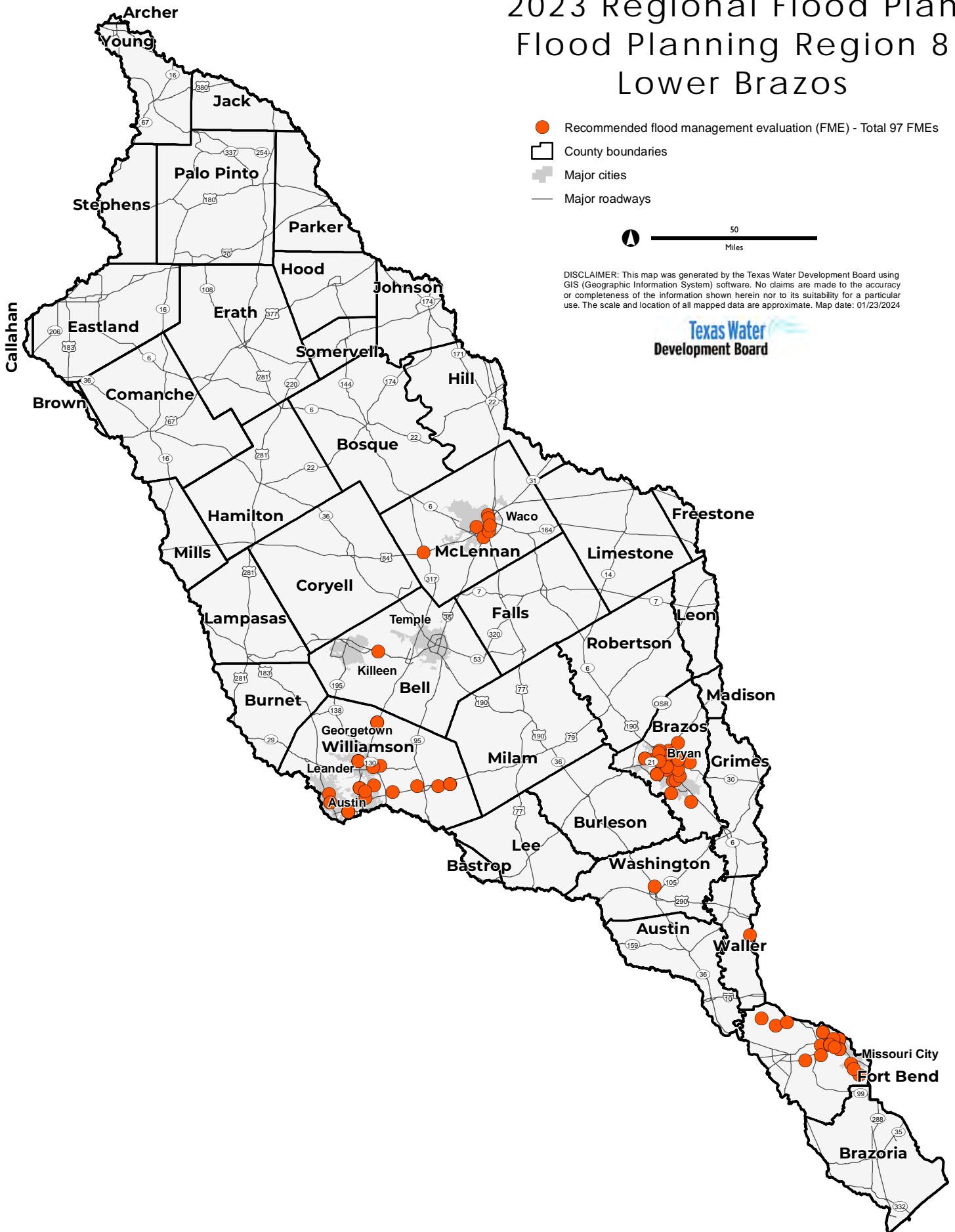
All recommended FMPs were reviewed for potential development of water supply sources and the Region 8 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.



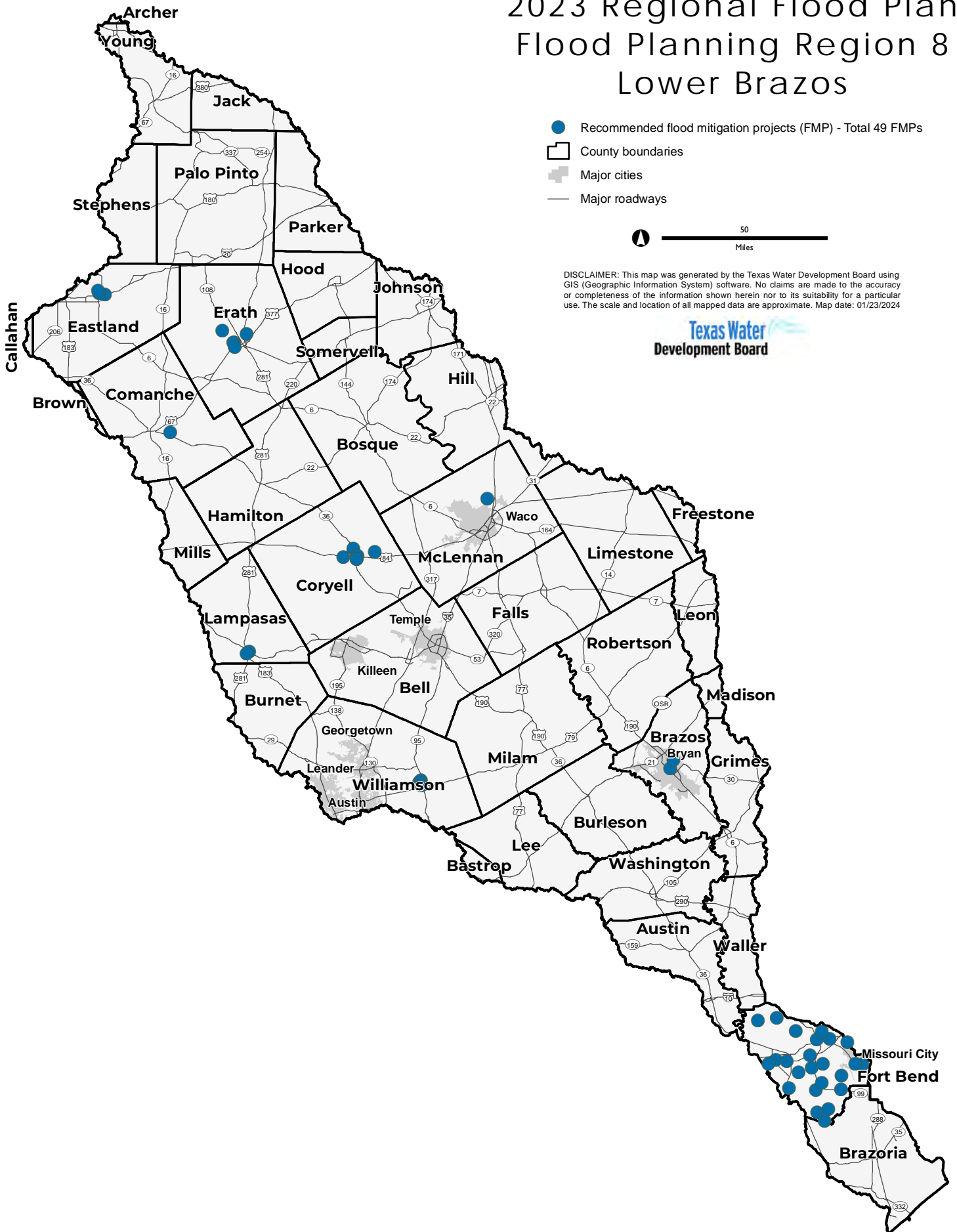
# 2023 Regional Flood Plan Flood Planning Region 8 Lower Brazos



# 2023 Regional Flood Plan Flood Planning Region 8 Lower Brazos



# 2023 Regional Flood Plan Flood Planning Region 8 Lower Brazos



## **ATTACHMENT 9**

### **Summary of 2023 Region 9 Upper Colorado Amended Regional Flood Plan**

The Region 9 Upper Colorado RFPG initially convened on October 29, 2020, and subsequently held 20 RFPG meetings and 20 public meetings mostly in San Angelo prior to their plan submission. The RFPG selected the City of San Angelo as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Upper Colorado Flood Planning Region (Region 9) encompasses an area of over 21,300 square miles and includes a population of approximately 637,000. Approximately 21 percent of the region (4,520 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 5 percent (1,130 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 540 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 9\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	36,300	17,300	53,600
Number of residential buildings	23,600	11,800	35,400
Population	83,100	40,200	123,300
Number of police stations, fire stations, emergency medical services, hospitals, and schools	29	10	39
Roadway miles	4,330	1,180	5,510
Agricultural area (sq mi)	1,010	330	1,340

*\*Statistics may be rounded*






The Region 9 Upper Colorado RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

- 137 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$73,000,000
- 20 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$184,700,000
- 139 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$7,554,000

- 121 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$4,100,000.

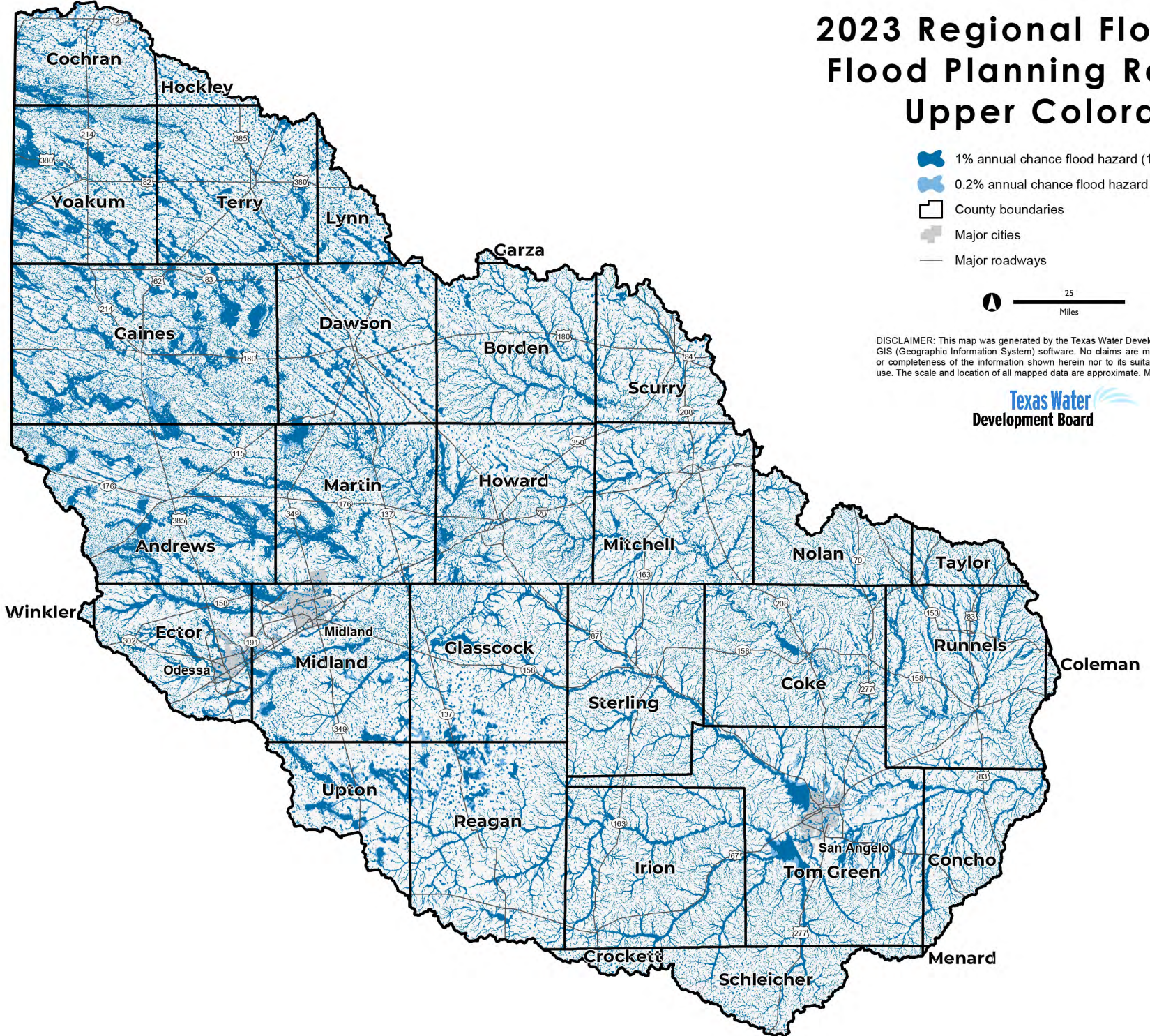
All recommended FMPs were reviewed for potential development of water supply sources and the Region 9 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

# 2023 Regional Flood Plan Flood Planning Region 9 Upper Colorado

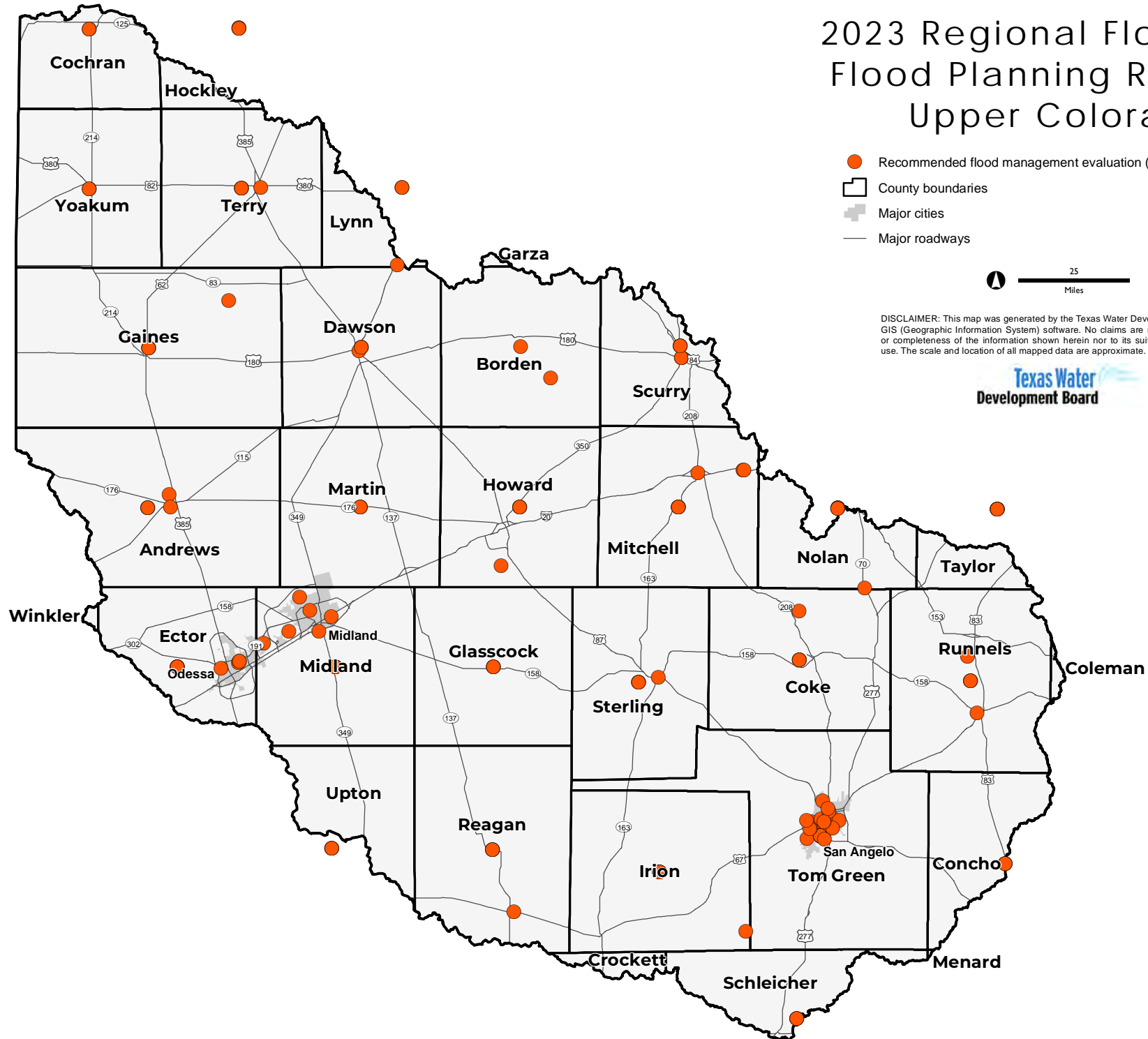
-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  County boundaries
-  Major cities
-  Major roadways



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# 2023 Regional Flood Plan Flood Planning Region 9 Upper Colorado



- Recommended flood management evaluation (FME) - Total 137 FMEs
- County boundaries
- Major cities
- Major roadways



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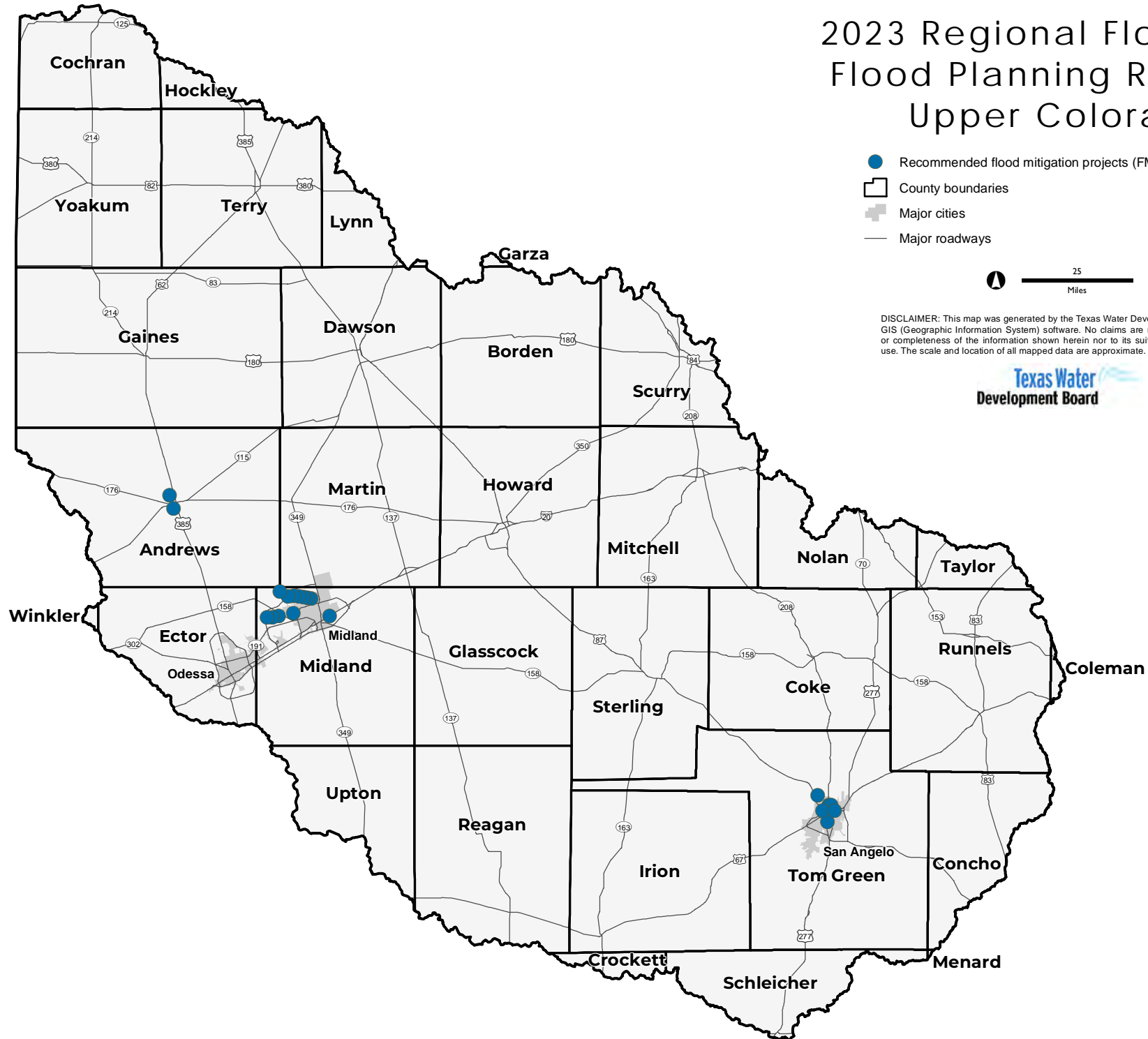


# 2023 Regional Flood Plan Flood Planning Region 9 Upper Colorado

- Recommended flood mitigation projects (FMP) - Total 20 FMPs
- County boundaries
- ⊕ Major cities
- Major roadways



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## **ATTACHMENT 10**

### **Summary of 2023 Region 10 Lower Colorado Lavaca Amended Regional Flood Plan**

The Region 10 Lower Colorado Lavaca RFPG initially convened on November 2, 2020, and subsequently held 25 RFPG meetings and 40 public meetings mostly in Austin prior to their plan submission. The RFPG selected the Lower Colorado River Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Lower Colorado Lavaca Flood Planning Region (Region 10) encompasses an area of over 24,400 square miles and includes a population of approximately 1,877,800. Approximately 19 percent of the region (4,510 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 3 percent (720 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 1,350 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 10\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	67,800	34,500	102,300
Number of residential buildings	45,800	25,400	71,200
Population	149,800	94,800	244,600
Number of police stations, fire stations, emergency medical services, hospitals, and schools	65	38	103
Roadway miles	2,370	910	3,280
Agricultural area (sq mi)	3,540	610	4,150

*\*Statistics may be rounded*

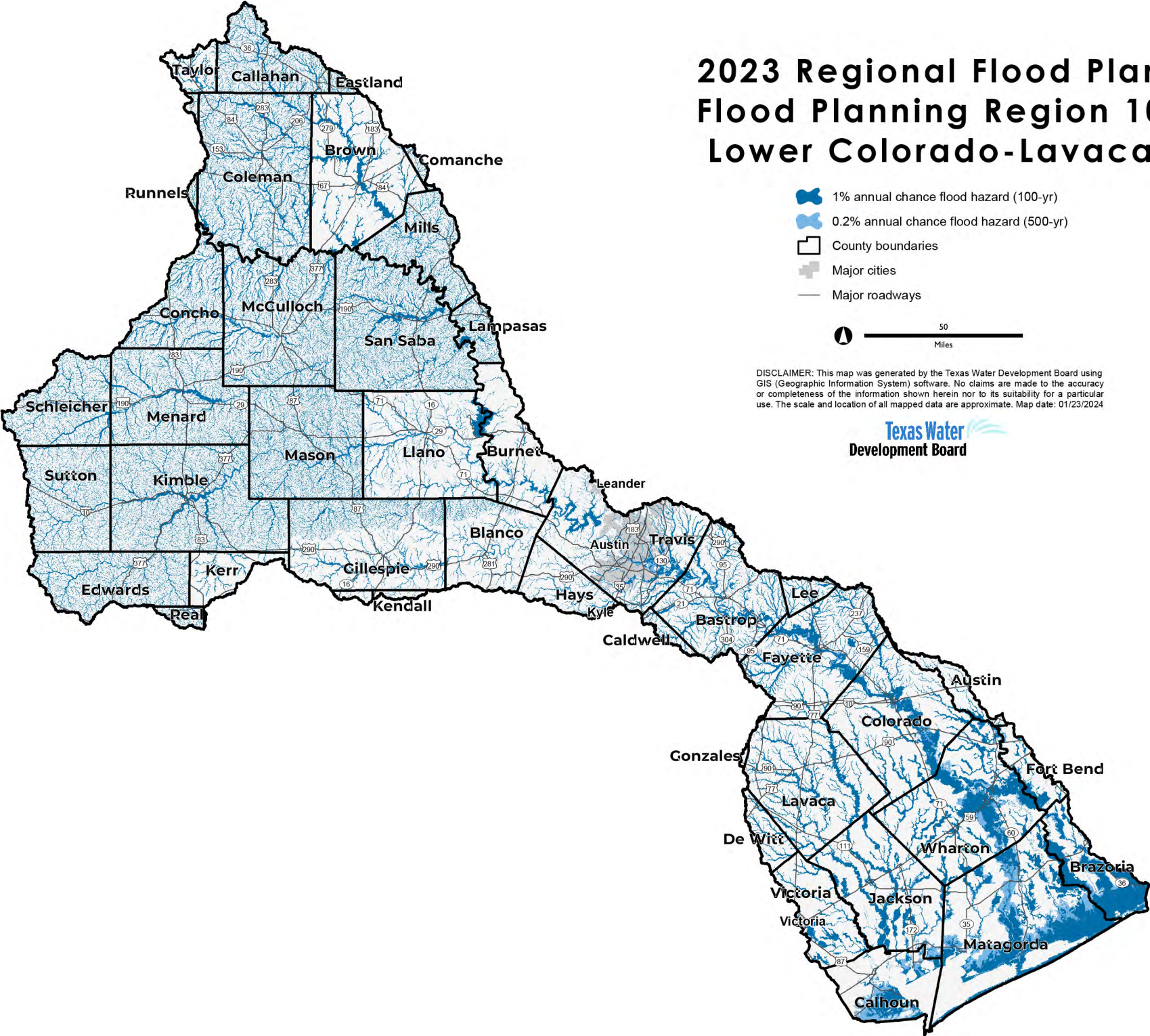
The Region 10 Lower Colorado Lavaca RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

- 184 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$62,200,000
- 49 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$379,200,000

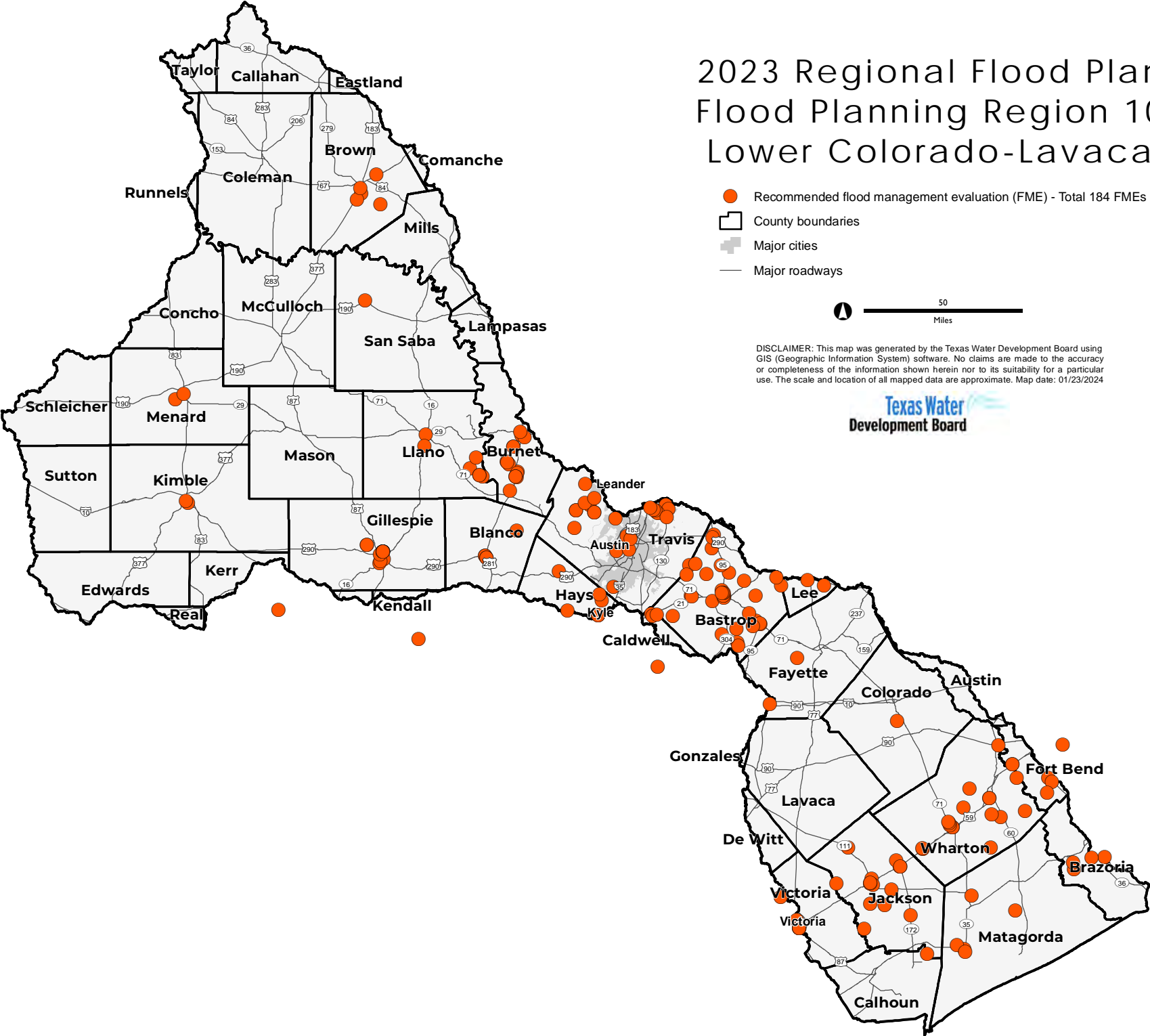
- 5 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$0
- 0 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$0.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 10 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

# 2023 Regional Flood Plan Flood Planning Region 10 Lower Colorado-Lavaca



# 2023 Regional Flood Plan Flood Planning Region 10 Lower Colorado-Lavaca



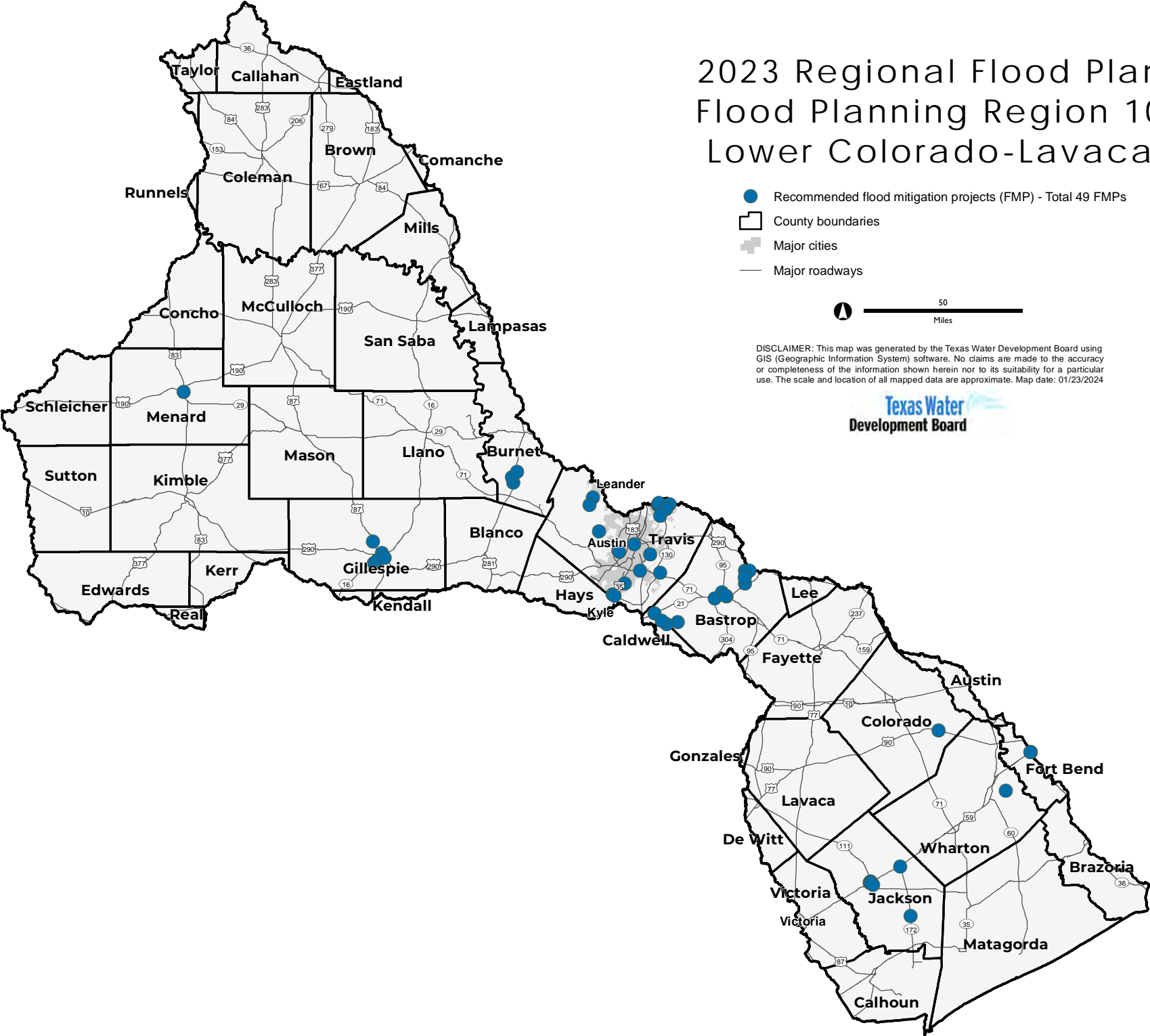
- Recommended flood management evaluation (FME) - Total 184 FMEs
- County boundaries
- Major cities
- Major roadways



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# 2023 Regional Flood Plan Flood Planning Region 10 Lower Colorado-Lavaca



## **ATTACHMENT 11**

### **Summary of 2023 Region 11 Guadalupe Amended Regional Flood Plan**

The Region 11 Guadalupe RFPG initially convened on November 4, 2020, and subsequently held 29 RFPG meetings and 34 public meetings mostly in Seguin prior to their plan submission. The RFPG selected the Guadalupe Blanco River Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Guadalupe Flood Planning Region (Region 11) encompasses an area of over 6,000 square miles and includes a population of approximately 618,900. Approximately 16 percent of the region (990 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 3 percent (180 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 820 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 11\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	27,100	18,400	45,500
Number of residential buildings	18,900	13,000	31,900
Population	63,900	52,600	116,500
Number of police stations, fire stations, emergency medical services, hospitals, and schools	54	73	127
Roadway miles	940	440	1,380
Agricultural area (sq mi)	560	130	690

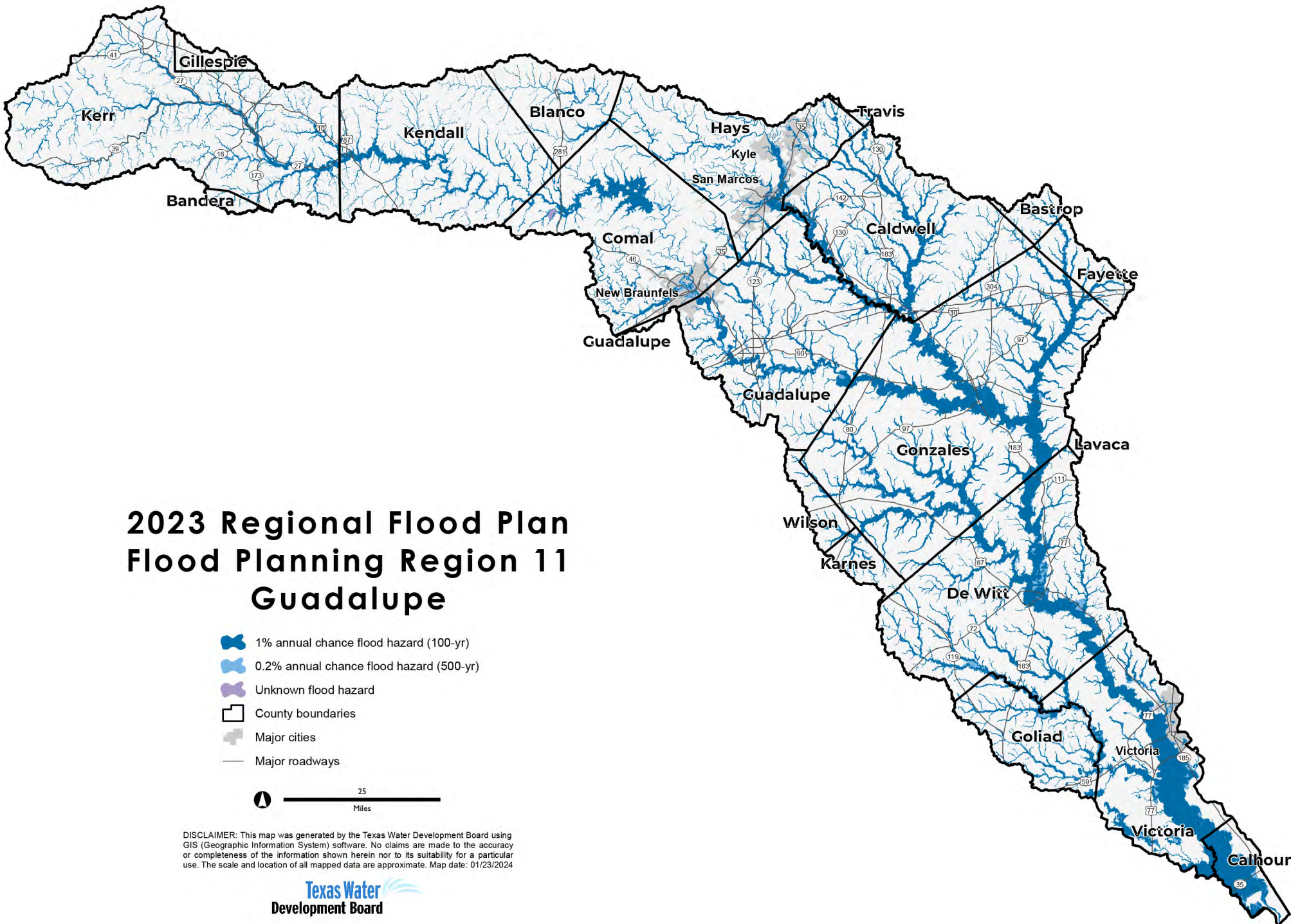
*\*Statistics may be rounded*

The Region 11 Guadalupe RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

- 163 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$85,700,000
- 54 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$394,200,000
- 5 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$33,473,000

- 5 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$5,300,000.







All recommended FMPs were reviewed for potential development of water supply sources and the Region 11 RFP includes 10 recommended FMPs that would measurably contribute to water supply sources.



# 2023 Regional Flood Plan

## Flood Planning Region 11

### Guadalupe

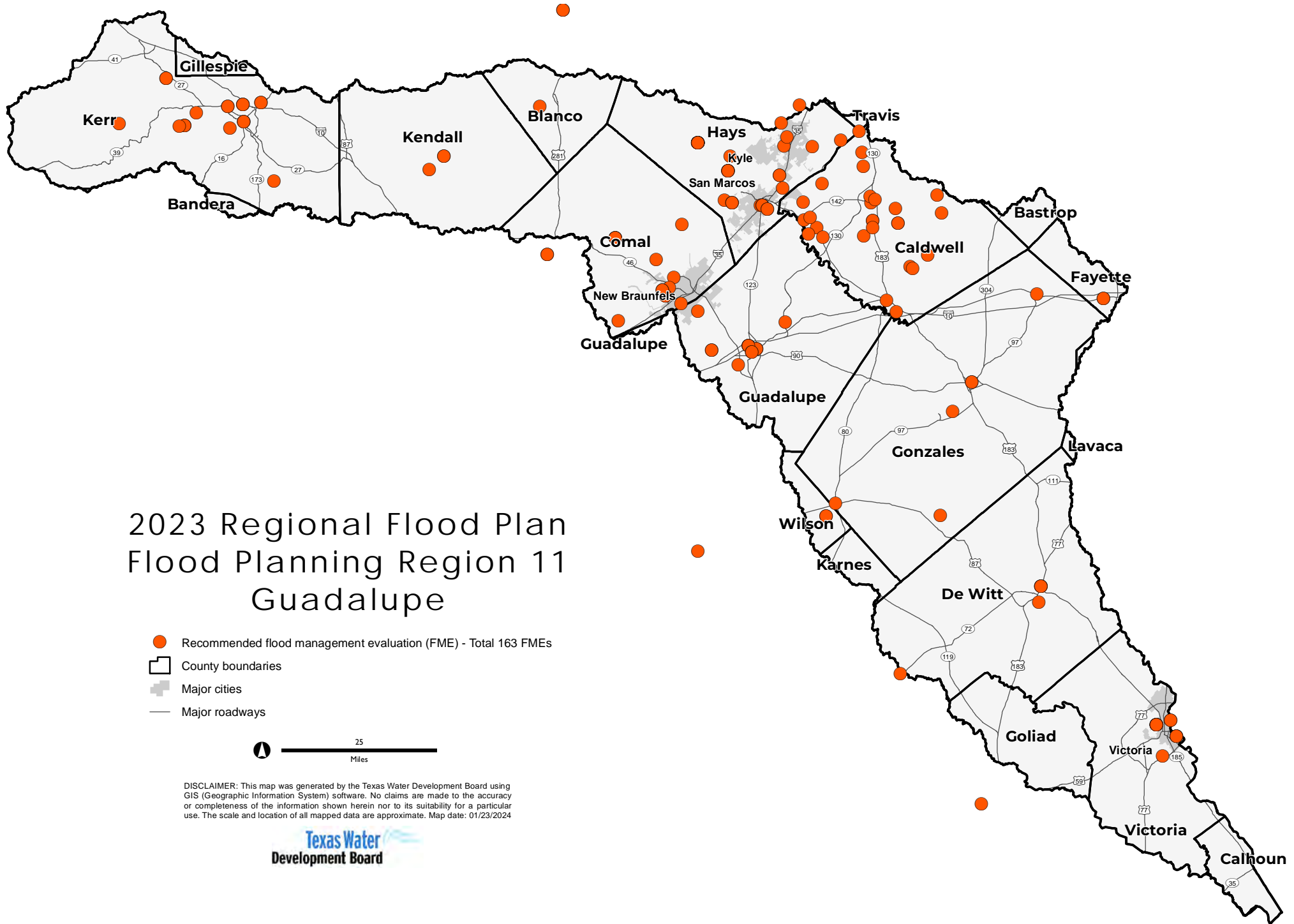
-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  Unknown flood hazard
-  County boundaries
-  Major cities
-  Major roadways

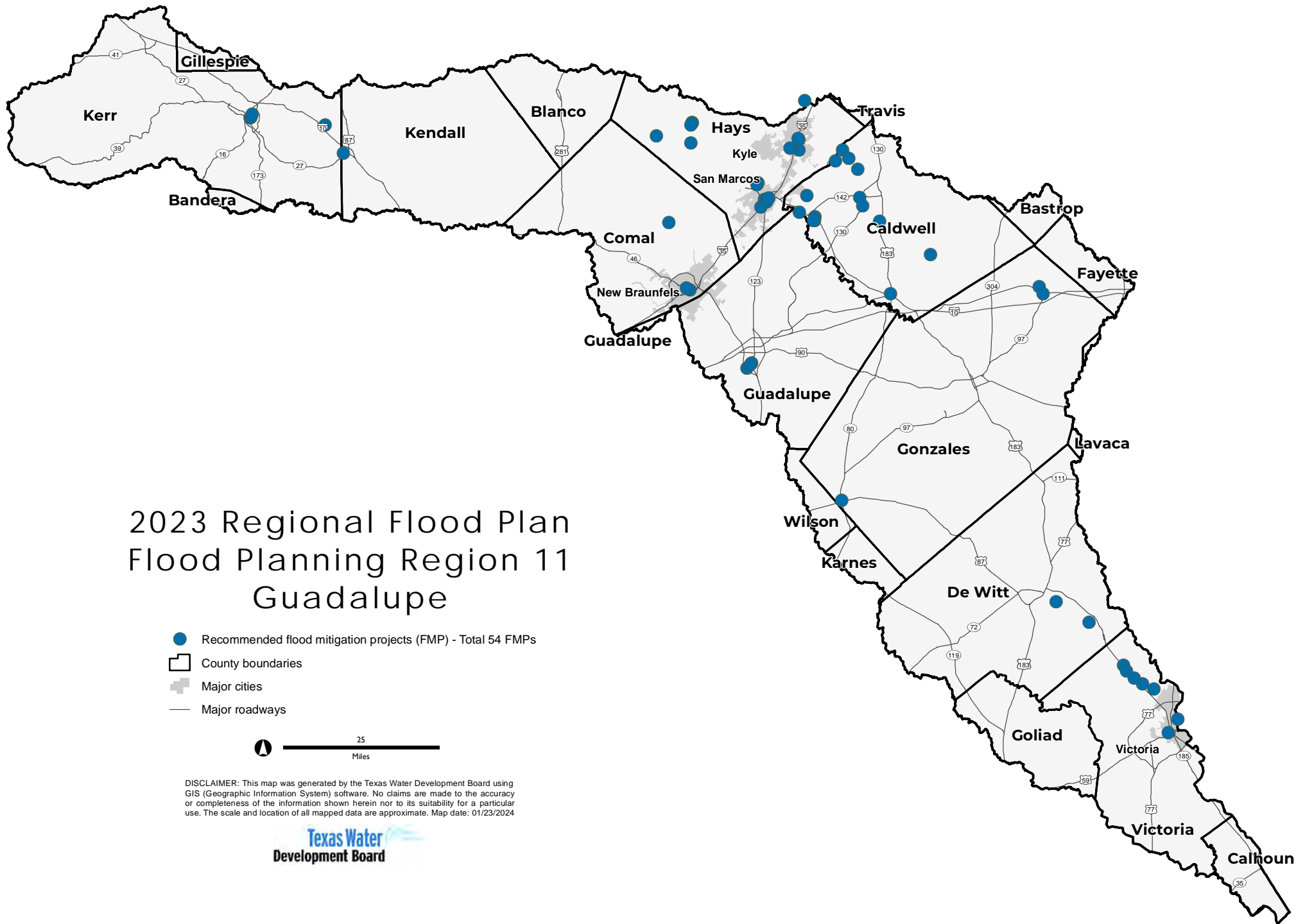


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# 2023 Regional Flood Plan Flood Planning Region 11 Guadalupe

- Recommended flood mitigation projects (FMP) - Total 54 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 12**

### **Summary of 2023 Region 12 San Antonio Amended Regional Flood Plan**

The Region 12 San Antonio RFPG initially convened on November 2, 2020, and subsequently held 27 RFPG meetings and 50 public meetings mostly in San Antonio prior to their plan submission. The RFPG selected the San Antonio River Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The San Antonio Flood Planning Region (Region 12) encompasses an area of over 4,400 square miles and includes a population of approximately 2,213,000. Approximately 18 percent of the region (800 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 3 percent (120 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 500 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 12\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	19,100	7,500	26,600
Number of residential buildings	13,700	5,500	19,200
Population	67,700	22,800	90,500
Number of police stations, fire stations, emergency medical services, hospitals, and schools	99	24	123
Roadway miles	750	210	960
Agricultural area (sq mi)	80	20	100

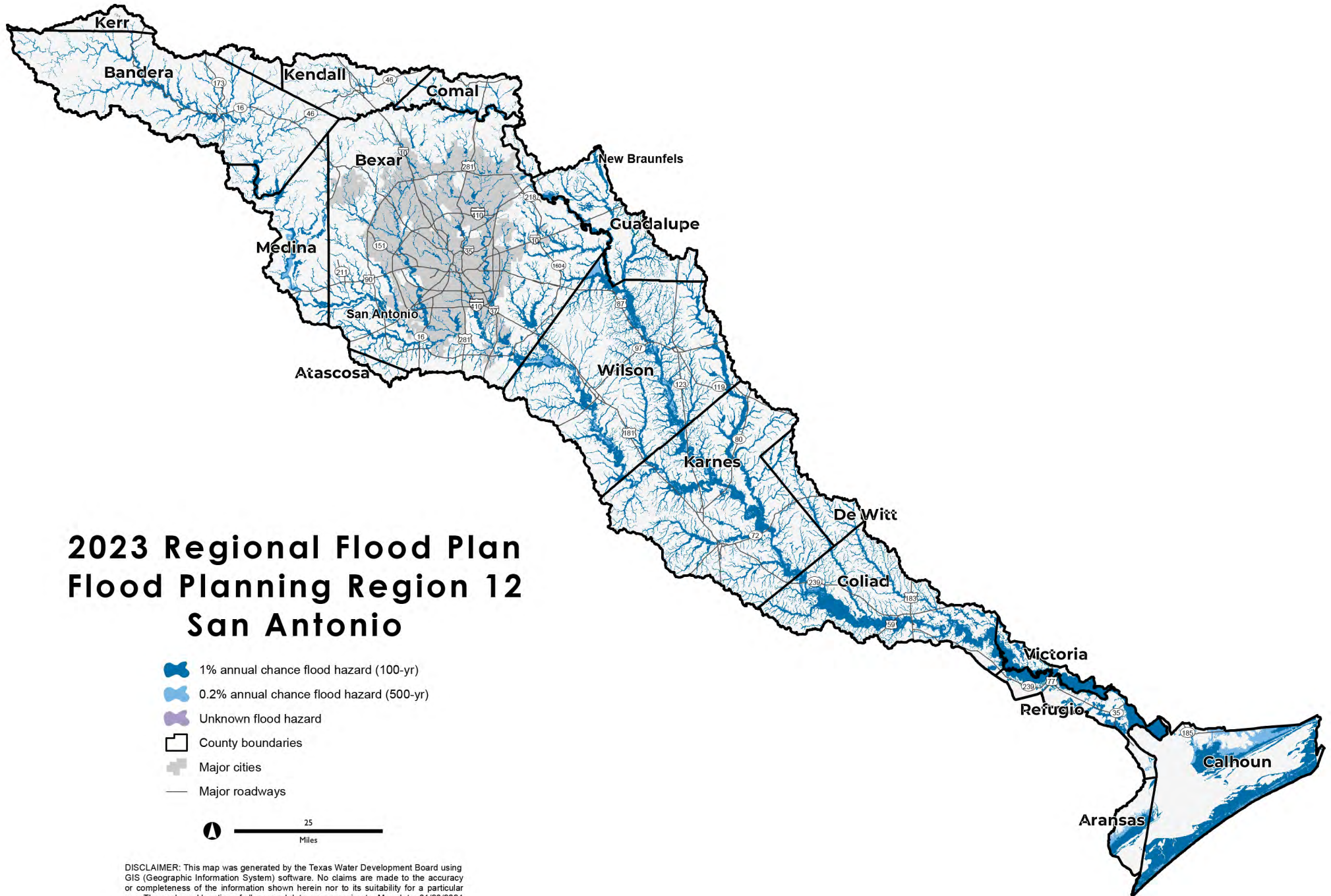
*\*Statistics may be rounded*

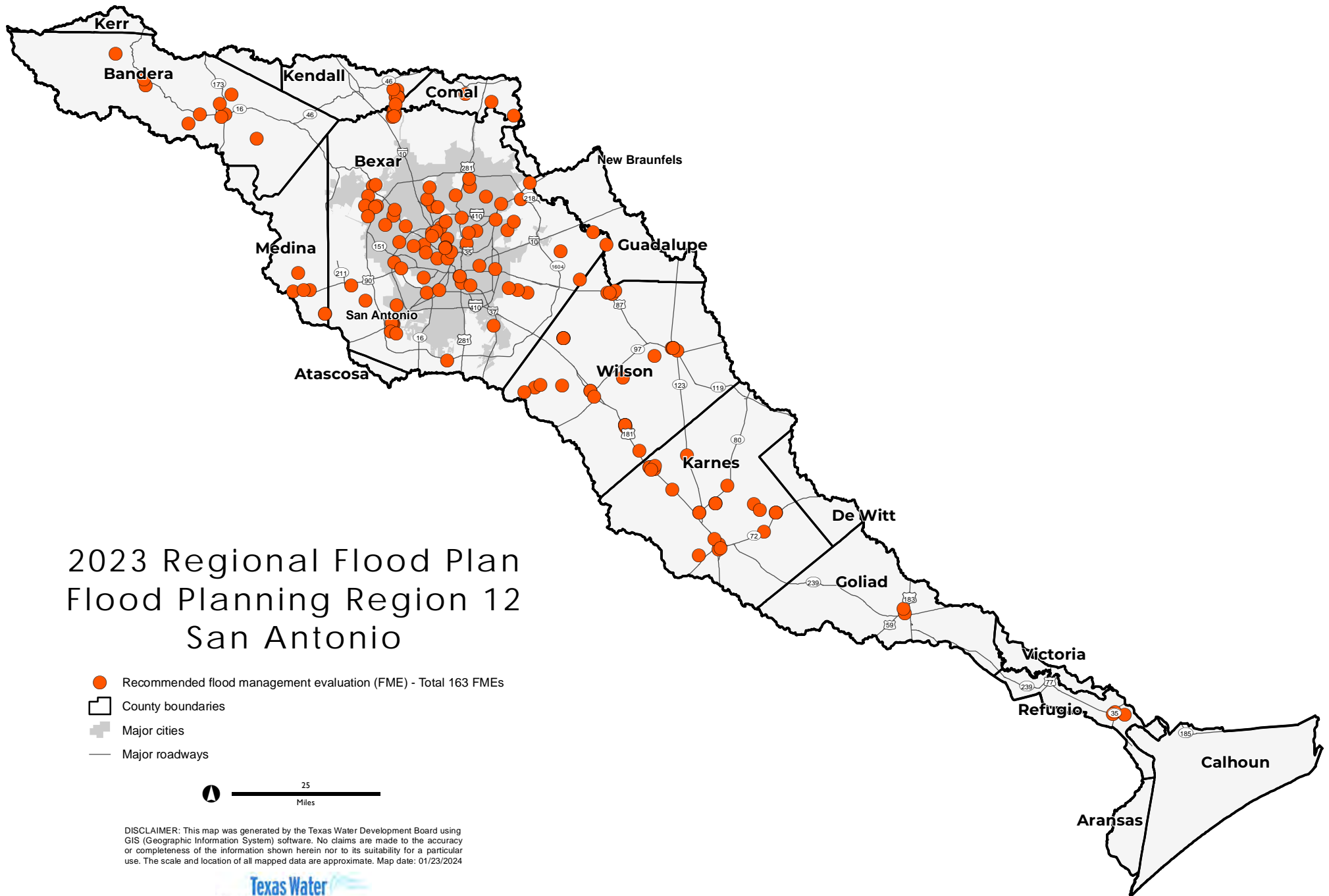
The Region 12 San Antonio RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

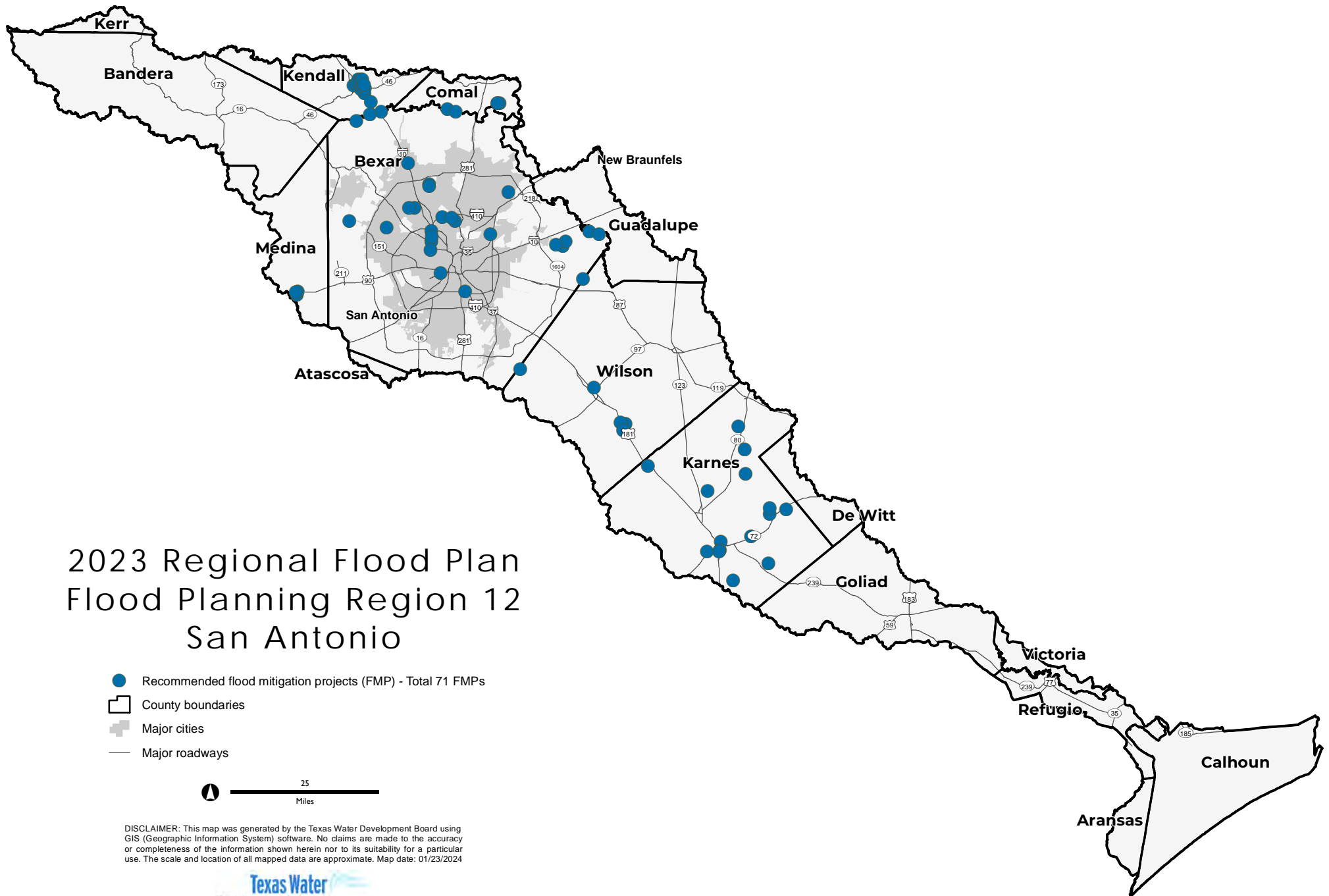
- 163 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$349,400,000
- 71 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$739,000,000

- 19 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$999,000
- 19 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$1,000,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 12 RFP includes 2 recommended FMPs that would measurably contribute to water supply sources.

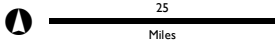






# 2023 Regional Flood Plan Flood Planning Region 12 San Antonio

- Recommended flood mitigation projects (FMP) - Total 71 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 13**

### **Summary of 2023 Region 13 Nueces Amended Regional Flood Plan**

The Region 13 Nueces RFPG initially convened on November 4, 2020, and subsequently held 21 RFPG meetings and 26 public meetings mostly in Tilden prior to their plan submission. The RFPG selected the Nueces River Authority as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Nueces Flood Planning Region (Region 13) encompasses an area of over 24,100 square miles and includes a population of approximately 1,140,000. Approximately 19 percent of the region (4,580 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 5 percent (1,290 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 580 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 13\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	60,900	37,100	98,000
Number of residential buildings	43,000	27,700	70,700
Population	144,100	100,400	244,500
Number of police stations, fire stations, emergency medical services, hospitals, and schools	318	248	566
Roadway miles	3,210	1,580	4,790
Agricultural area (sq mi)	390	110	500

*\*Statistics may be rounded*

The Region 13 Nueces RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

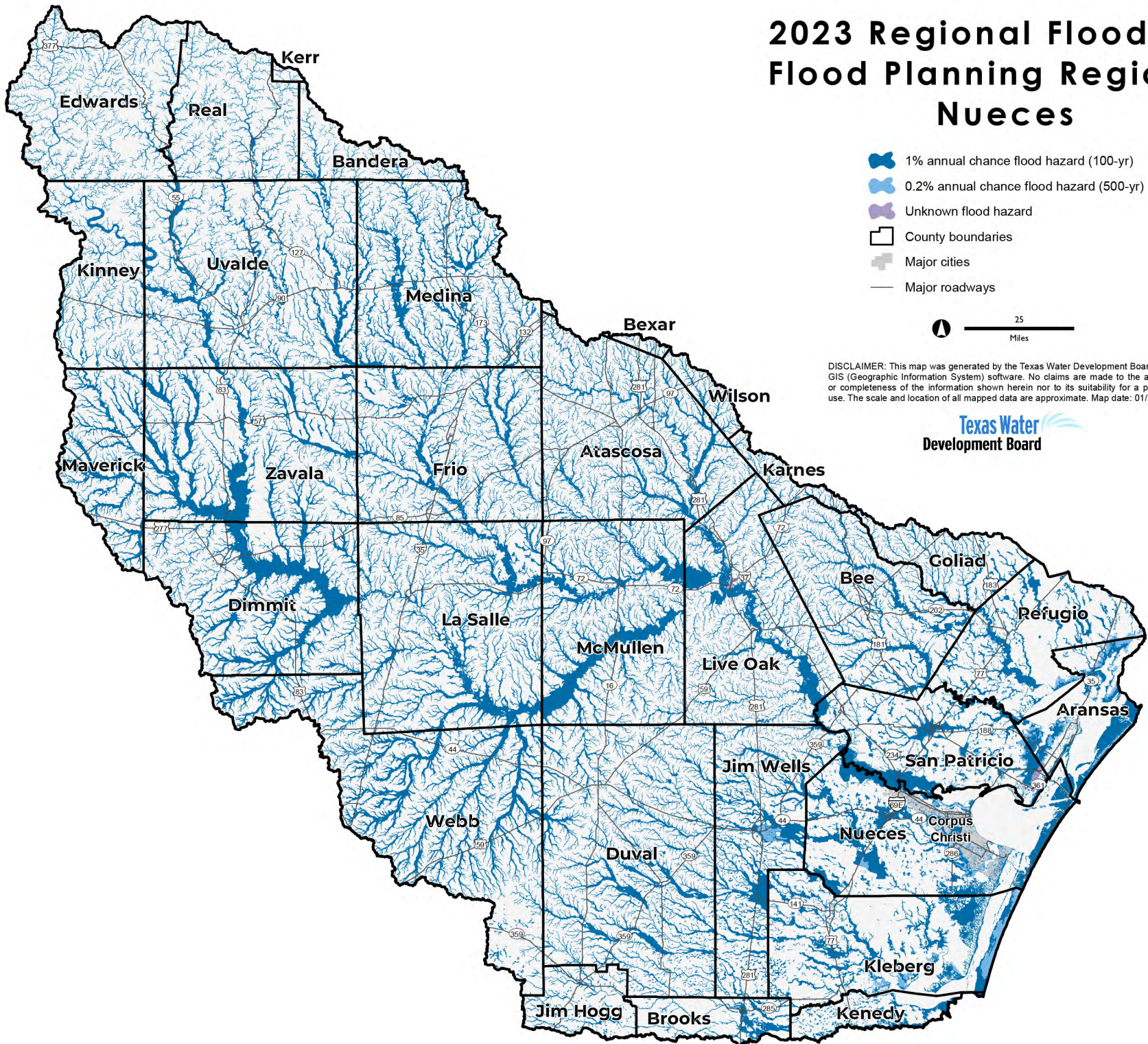
- 198 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$284,500,000
- 31 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$1,212,700,000
- 40 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$20,286,000



- 40 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$15,300,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 13 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

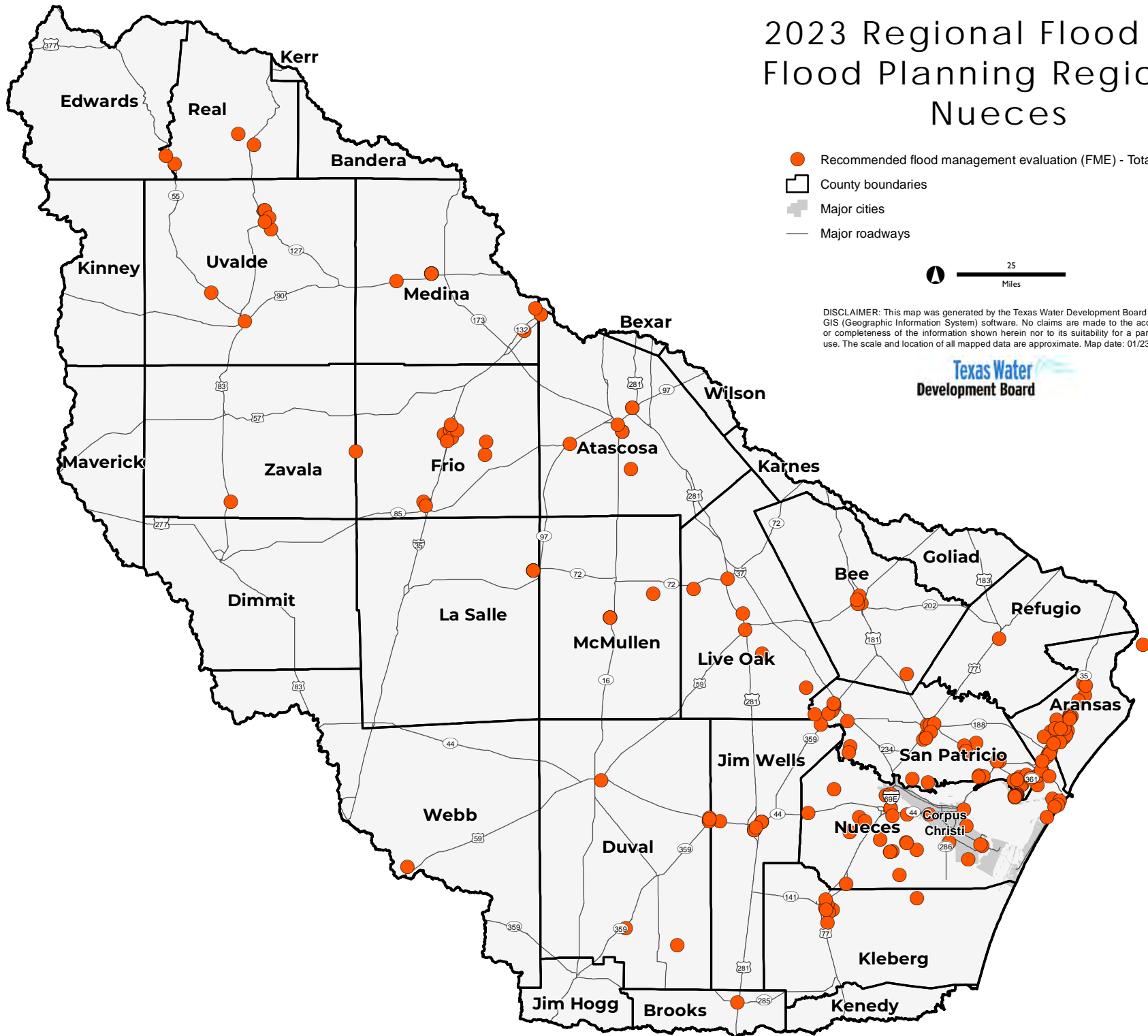
# 2023 Regional Flood Plan Flood Planning Region 13 Nueces



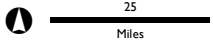
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# 2023 Regional Flood Plan Flood Planning Region 13 Nueces



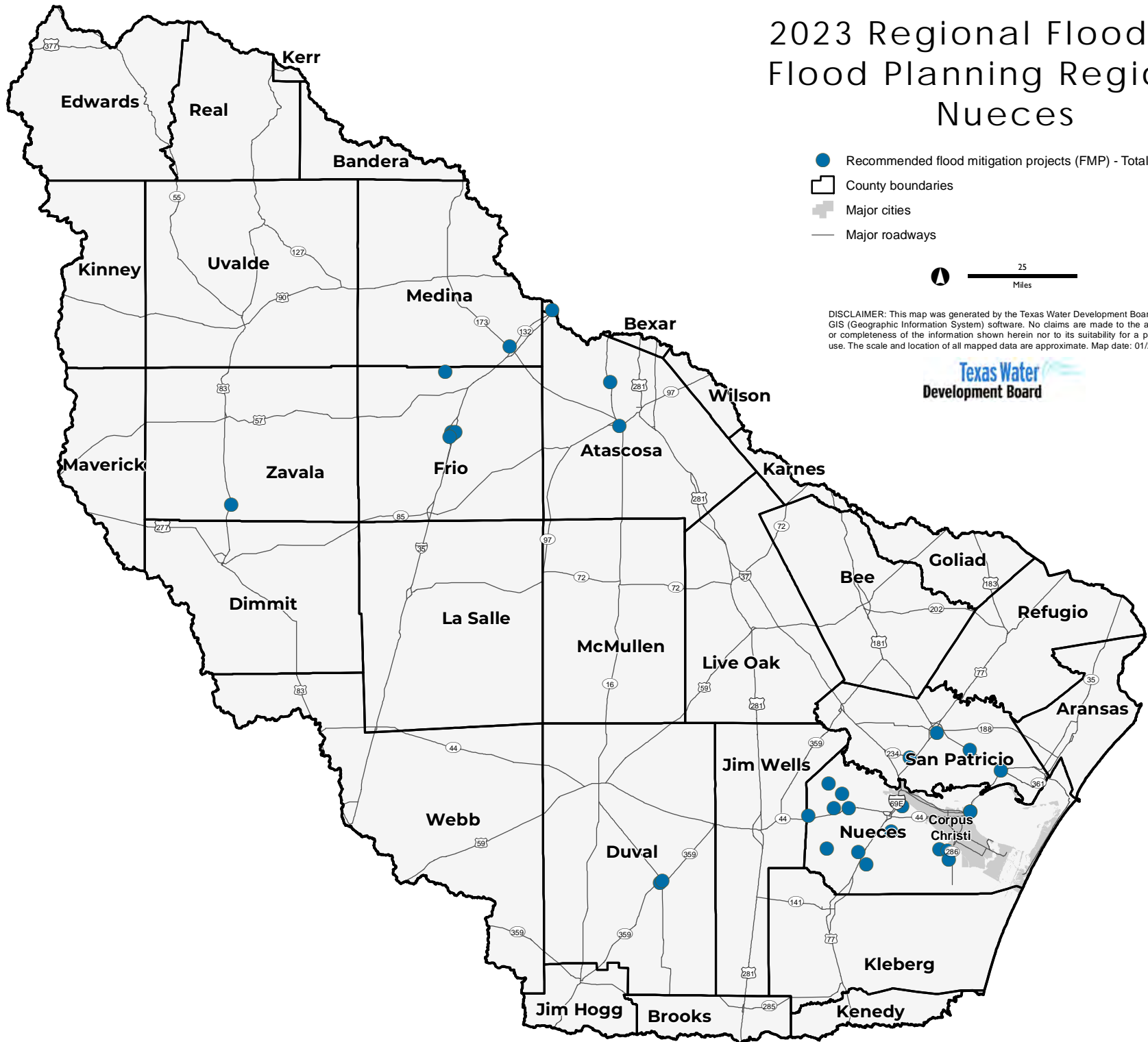
- Recommended flood management evaluation (FME) - Total 198 FMEs
- County boundaries
- Major cities
- Major roadways



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# 2023 Regional Flood Plan Flood Planning Region 13 Nueces



- Recommended flood mitigation projects (FMP) - Total 31 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 14**

### **Summary of 2023 Region 14 Upper Rio Grande Amended Regional Flood Plan**

The Region 14 Upper Rio Grande RFPG initially convened on November 5, 2020, and subsequently held 32 RFPG meetings and 54 public meetings mostly in El Paso prior to their plan submission. The RFPG selected the Rio Grande Council of Governments as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Upper Rio Grande Flood Planning Region (Region 14) encompasses an area of over 28,489,100 square miles and includes a population of approximately 1,039,800. Approximately 0 percent of the region (9,280 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 0 percent (1,760 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 1,780 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 14\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	40,100	14,300	54,400
Number of residential buildings	24,900	9,100	34,000
Population	115,500	48,000	163,500
Number of police stations, fire stations, emergency medical services, hospitals, and schools	57	34	91
Roadway miles	3,050	750	3,800
Agricultural area (sq mi)	620	140	760

*\*Statistics may be rounded*

The Region 14 Upper Rio Grande RFP includes a variety of recommendations to mitigate flood risks to people and property, including:

- 23 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$7,600,000
- 21 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$507,800,000

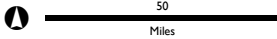
- 22 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$3,578,000
- 0 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$0.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 14 RFP does not include any recommended FMPs that would measurably contribute to water supply sources.

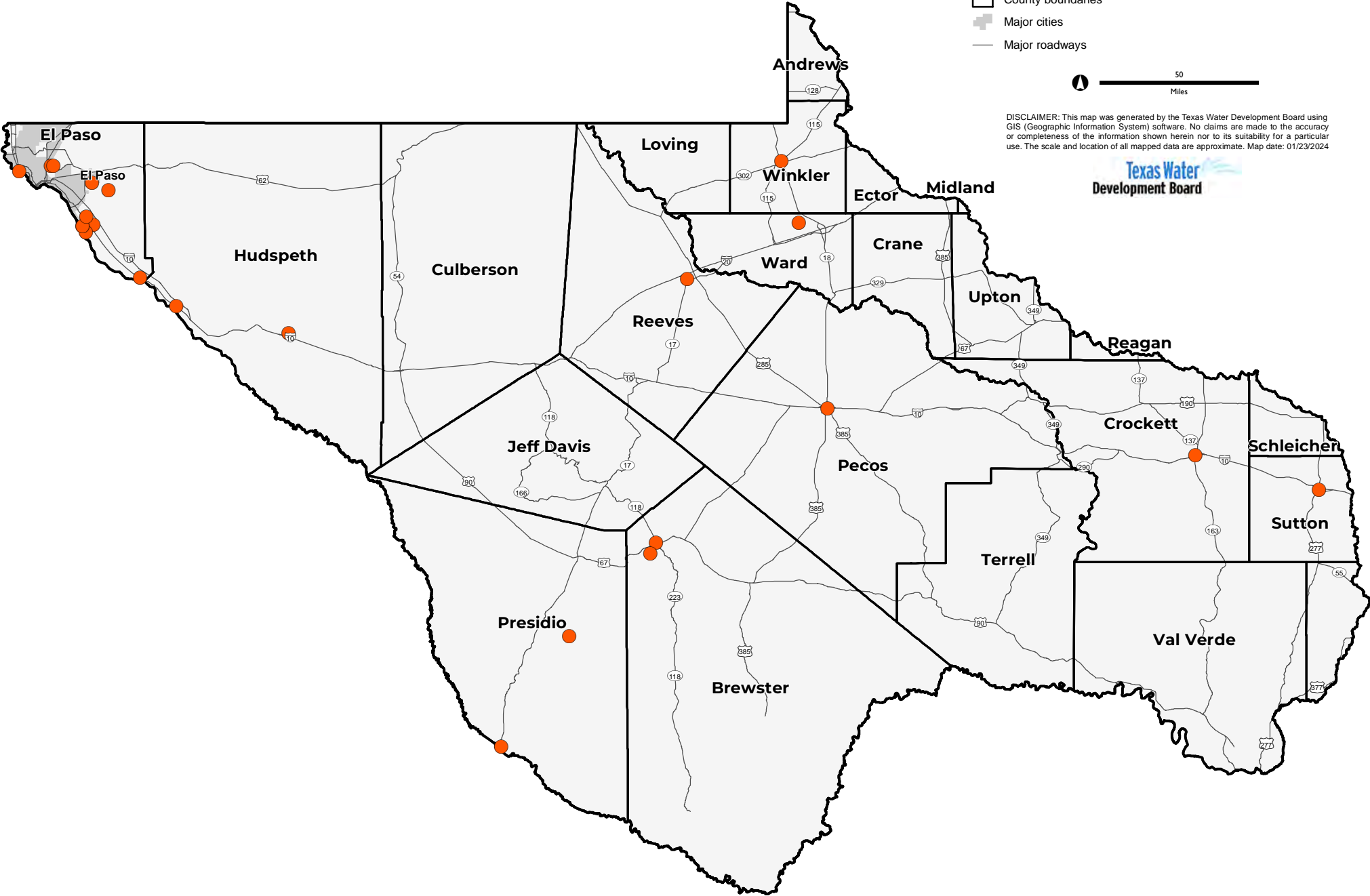


# 2023 Regional Flood Plan Flood Planning Region 14 Upper Rio Grande

- Recommended flood management evaluation (FME) - Total 23 FMEs
- County boundaries
- ⊕ Major cities
- Major roadways



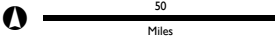
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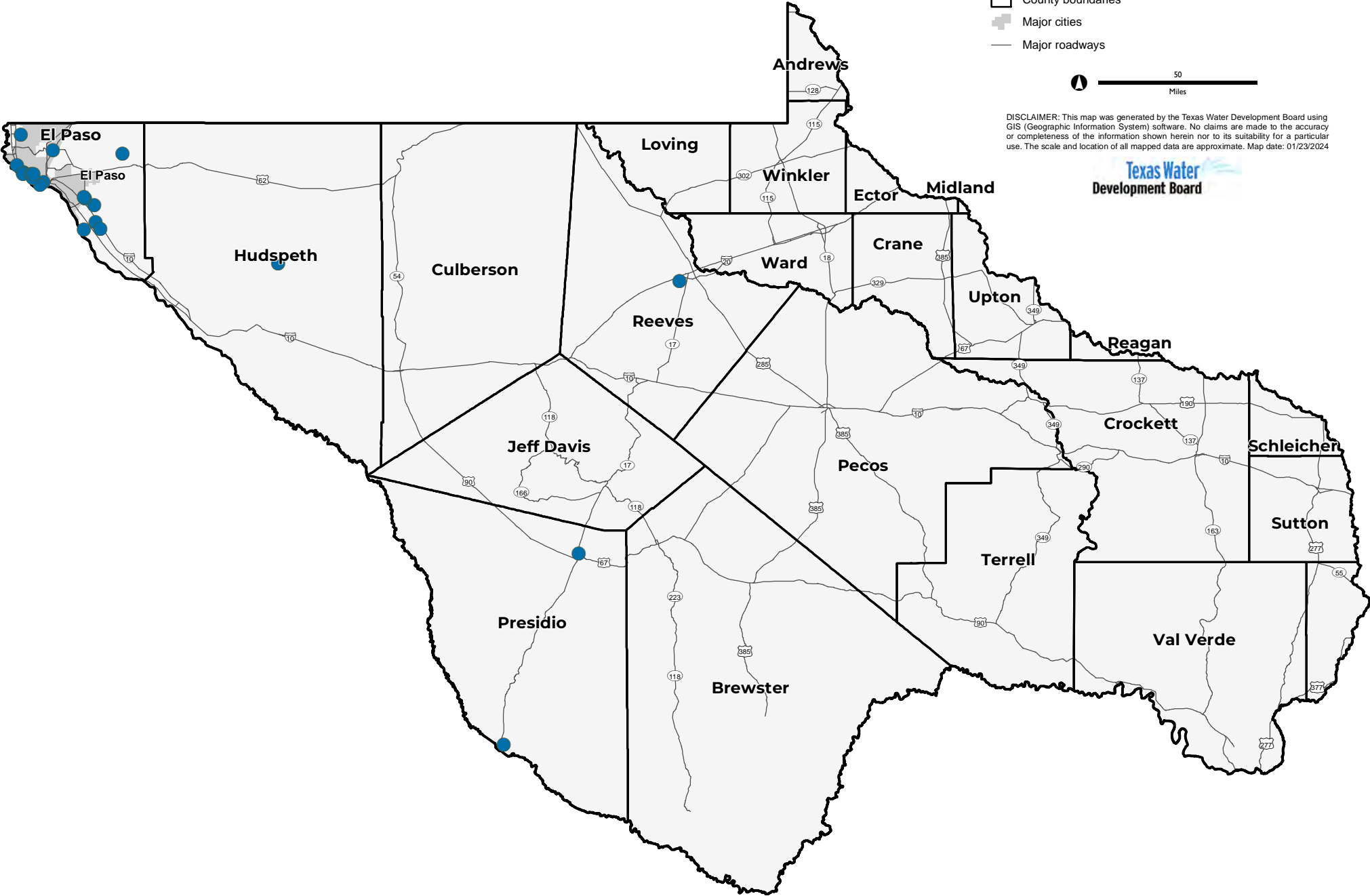


# 2023 Regional Flood Plan Flood Planning Region 14 Upper Rio Grande

- Recommended flood mitigation projects (FMP) - Total 21 FMPs
- County boundaries
- Major cities
- Major roadways



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## **ATTACHMENT 15**

### **Summary of 2023 Region 15 Lower Rio Grande Amended Regional Flood Plan**

The Region 15 Lower Rio Grande RFPG initially convened on November 5, 2020, and subsequently held 24 RFPG meetings and 26 public meetings mostly in San Benito prior to their plan submission. The RFPG selected the Hidalgo County Drainage District No. 1 as its sponsor, which is responsible for managing the regional flood planning grant agreement with TWDB. The RFPG adopted and submitted their final RFP by the statutory deadline of January 10, 2023.

The Lower Rio Grande Flood Planning Region (Region 15) encompasses an area of over 43,200 square miles and includes a population of approximately 2,040,400. Approximately 10 percent of the region (4,160 square miles) falls within the extent of the 1-percent annual chance floodplain and approximately an additional 3 percent (1,180 square miles) falls within the in the 0.2-percent annual chance floodplain extent. The RFPG identified approximately 130 low water crossings located within the flood planning region. There are a variety of associated flood risks faced by the region including those summarized as follows in Table 1.

**Table 1: Existing Flood Risks Identified within Region 15\***

<b>Flood risk components</b>	<b>1-percent annual chance (100yr) floodplain</b>	<b>0.2-percent annual chance (500yr) floodplain</b>	<b>Total</b>
Number of buildings	115,600	185,100	300,700
Number of residential buildings	92,800	152,500	245,300
Population	359,900	674,700	1,034,600
Number of police stations, fire stations, emergency medical services, hospitals, and schools	107	393	500
Roadway miles	4,000	2,610	6,610
Agricultural area (sq mi)	1,280	570	1,850

*\*Statistics may be rounded*

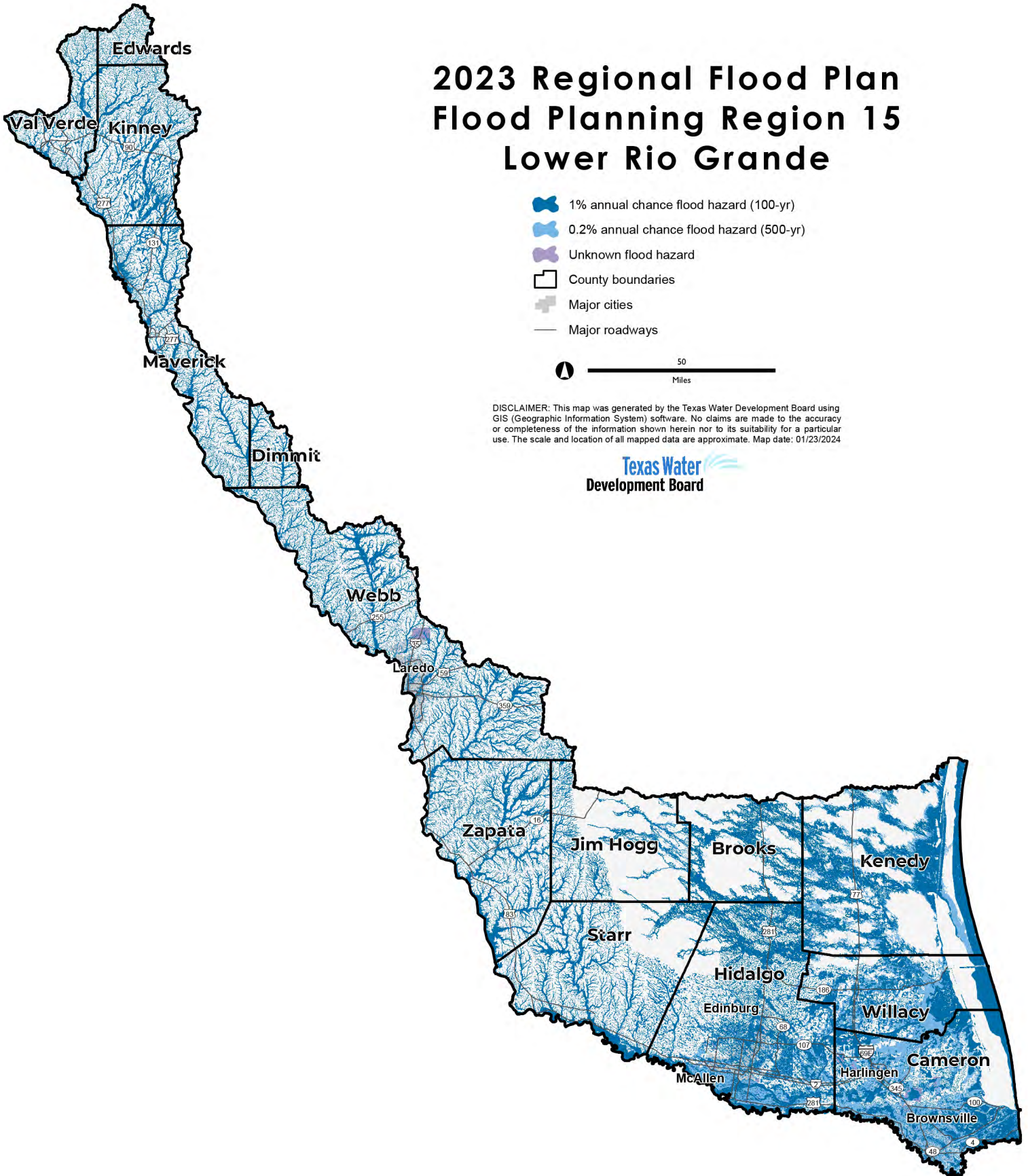
The Region 15 Lower Rio Grande RFP includes a variety of recommendations to mitigate flood risks to people and property, including:







- 406 Flood Management Evaluations (FMEs) with a total estimated study cost of approximately \$227,200,000
- 94 Flood Mitigation Projects (FMPs) with a total estimated project cost of approximately \$1,134,300,000

- 86 Flood Management Strategies (FMSs) with a total estimated implementation cost of approximately \$145,025,000
- 86 Flood Management Strategies (FMSs) with non-recurring non-capital estimated costs that total approximately \$14,700,000.

All recommended FMPs were reviewed for potential development of water supply sources and the Region 15 RFP includes 25 recommended FMPs that would measurably contribute to water supply sources.

# 2023 Regional Flood Plan Flood Planning Region 15 Lower Rio Grande



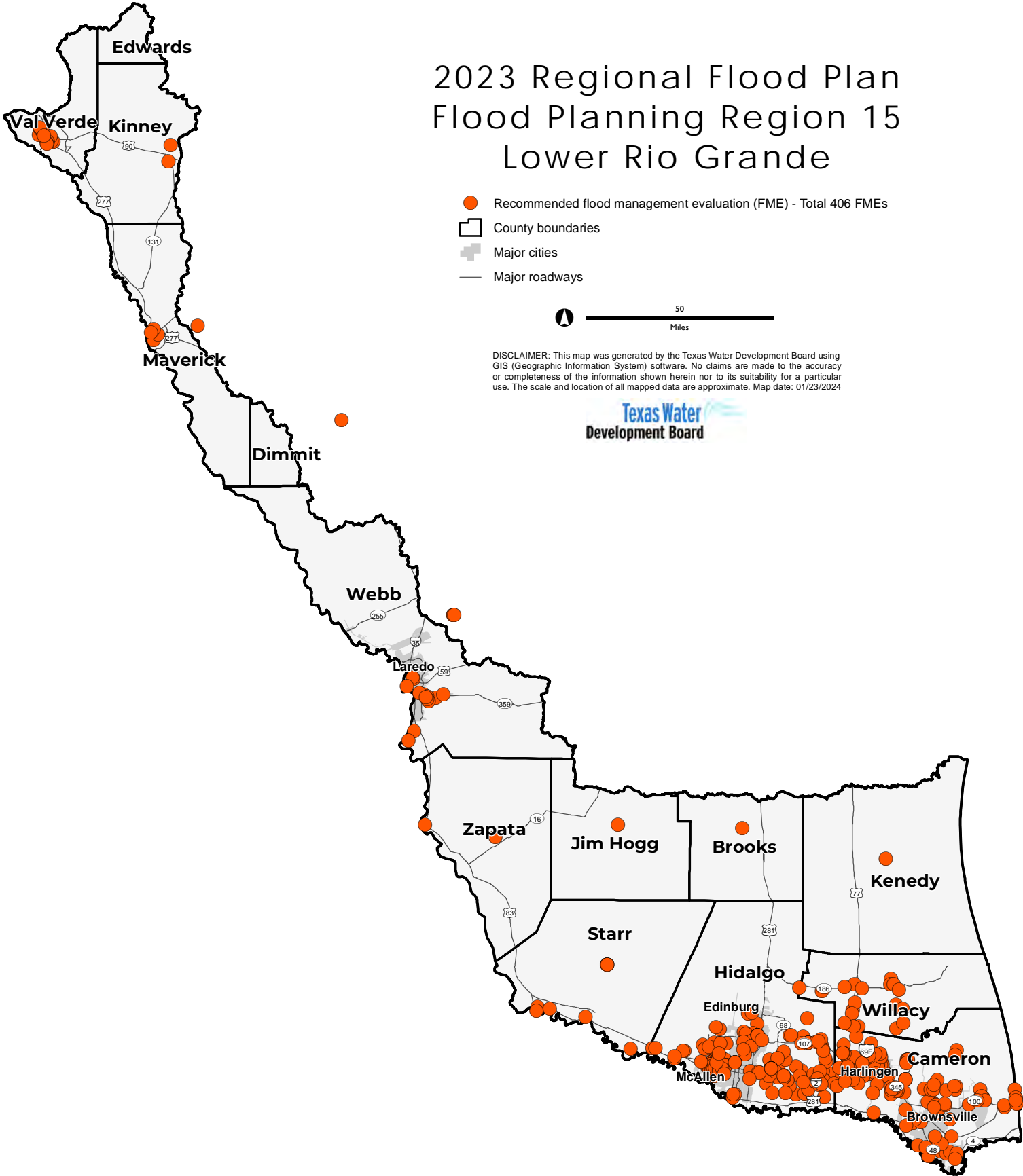
-  1% annual chance flood hazard (100-yr)
-  0.2% annual chance flood hazard (500-yr)
-  Unknown flood hazard
-  County boundaries
-  Major cities
-  Major roadways



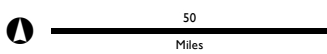
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# 2023 Regional Flood Plan Flood Planning Region 15 Lower Rio Grande



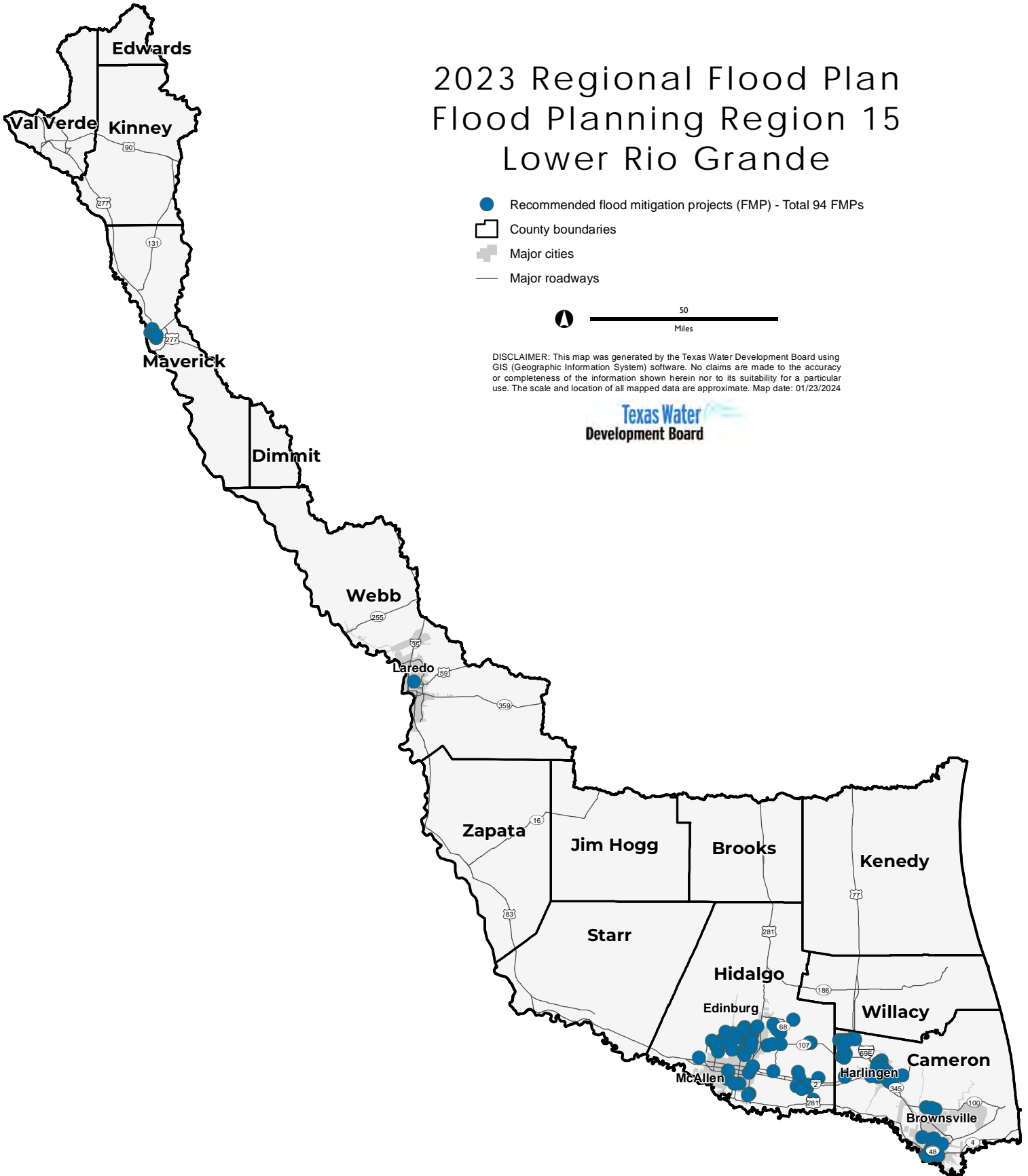
- Recommended flood management evaluation (FME) - Total 406 FMEs
- County boundaries
- Major cities
- Major roadways



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# 2023 Regional Flood Plan Flood Planning Region 15 Lower Rio Grande



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