NOTICE OF OPEN MEETING OF THE SAN ANTONIO REGIONAL FLOOD PLANNING GROUP

Region 12
06/27/2023
2:00 PM

TAKE NOTICE that a meeting of the San Antonio Regional Flood Planning Group as established by the Texas Water Development Board will be held on Tuesday, June 27, 2023, at 2:00 PM, in-person at the San Antonio River Authority, located at 100 E. Guenther St and virtually at https://meet.goto.com/323018821.

Agenda:

1. (2:00 PM) Roll Call
2. Public Comments – limit 3 minutes per person
3. Approval of the Minutes from the Previous San Antonio Regional Flood Planning Group Meeting
4. Communications from the Texas Water Development Board (TWDB)
5. Chair Report
6. Statements of Compliance
7. Discussion and Appropriate Action to Adopt the Amended San Antonio Regional Flood Plan
8. Appropriate Action to Authorize the SARFPG Sponsor to Solicit for Voting Membership Vacancies
9. Designation of Additional Term Length for Initially Appointed Planning Group Voting Members
10. Discussion and Appropriate Action to Select the SARFPG Sponsor for Cycle II
11. Regional Liaison Update
12. Presentation of Cycle II Conceptual Schedule
13. Public Comments - limit 3 minutes per person
14. Adjourn

If you wish to provide written comments prior to or after the meeting, please email your comments to khayes@sariverauthority.org or physically mail them to the attention of Kendall Hayes at San Antonio River Authority, 100 E. Guenther, San Antonio, TX, 78204 and include "Region 12 San Antonio Flood Planning Group Meeting" in the subject line of the email.

Additional information may be obtained from: Kendall Hayes, (210) 302-3641, khayes@sariverauthority.org, San Antonio River Authority, 100 E. Guenther, San Antonio, TX 78204.

AGENDA ITEM NO.3 – APPROVAL OF THE MINUTES FROM THE PREVIOUS SARFPG MEETING

Meeting Minutes
San Antonio Regional Flood Planning Group Meeting
Tuesday, May 23, 2023
3:00 PM
San Antonio River Authority

Roll Call:

Voting Member	Interest Category	Present (x) /Absent ( ) / Alternate Present (*)
Brian Yanta	*Agricultural interests*	
David Wegmann	*Counties*	X
Doris Cooksey	*Electric generating utilities*	
Deborah (Debbie) Reid	*Environmental interests*	X
Nefi M. Garza	*Flood districts*	X
Cara C. Tackett	*Industries*	X
Jeffrey Carroll	*Municipalities*	X
Robert Reyna	*Municipalities*	X
Suzanne B. Scott	*Nonprofit*	X
John Paul Beasley	*Public*	
Derek Boese	*River authorities*	X
Jose Reyes	*Small Business*	
David Mauk	*Water districts*	X
Donovan Burton	*Water Utilities*	X

Non-voting Member	Agency	Present(x)/Absent( )/ Alternate Present (*)
Marty Kelly	Texas Parks and Wildlife Department	X
James Blount	Texas Division of Emergency Management	X
Jami McCool	Texas Department of Agriculture	X
Jarod Bowen	Texas State Soil and Water Conservation Board	
Kris Robles	General Land Office	X
Anita Machiavello	Texas Water Development Board (TWDB)	X
Susan Roberts	Texas Commission on Environmental Quality	

Quorum:
Quorum: **Yes**
Number of voting members or alternates representing voting members present: **10**
Number required for quorum per current voting positions of 14: 8

All meeting materials are available for the public at: http://www.region12texas.org.

AGENDA ITEM NO.1: ROLL CALL

Ms. Kendall Hayes, San Antonio River Authority, called the role and confirmed a quorum.

AGENDA ITEM NO.2: PUBLIC COMMENT – LIMIT 3 MINUTES PER PERSON

No public comments.

AGENDA ITEM NO.3: APPROVAL OF THE MINUTES FROM THE PREVIOUS SAN ANTONIO REGIONAL FLOOD PLANNING GROUP MEETING (REGION 12)

Mr. Wegmann motioned to approve the minutes. Mr. Garza seconded the motion, motion passed.

AGENDA ITEM NO.4: COMMUNICATIONS FROM THE TEXAS WATER DEVELOPMENT BOARD (TWDB)

Ms. Anita Machiavello provided an update from TWDB. TWDB will soon release information about the schedule for Cycle II and possibly a future conference call to educate the RFPG members.

AGENDA ITEM NO.5: CHAIR REPORT

Chair Boese notified the RFPG that TWDB has approved Region 12's Final Plan.

AGENDA ITEM NO.6: SUBCOMITTEE UPDATES

Chair Boese notified the RFPG that the Technical Committee met earlier this month to review the progress on Task 12 that will be presented today for approval.

AGENDA ITEM NO.7: DISCUSSION AND APPROPRIATE ACTION REGARDING AN AMENDMENT TO REGION 12 BYLAWS ARTICLE V SECTION 2 DETAILING TERMS OF MEMBERSHIP FOR VOTING MEMBERS

Ms. Hayes read the portion of the Bylaws as pertains to the terms for RFPG voting members. Discussion ensued regarding the process of drawing lots for appointed members with terms expiring in July.

No action was taken.

AGENDA ITEM NO.8: DISCUSSION AND APPROPRIATE ACTION REGARDING AN AMENDMENT TO REGION 12 BYLAWS ARTICLE VIII, SECTION 1, SECTION 2(b), AND SECTION 6 DETAILING TERMS OF OFFICE FOR ELECTED OFFICERS AND MEMBERS-AT-LARGE OF THE EXECUTIVE COMMITTEE

Ms. Hayes reviewed the regulations for the terms of voting membership and officers. She read portions of the Bylaws as pertains to the sections posed for amendment as well as a recommendation for consideration.

Discussion ensued regarding the frequency of elections, when elections should take place, and terms for Officers and Members-At-Large of the Executive Committee. The RFPG approved the recommendation to hold elections at the beginning of each cycle and every two years after. Therefore, the terms of office for Officers and Members-At-Large would be two years. However, the term at the end of the cycle will be cut short with the completion of the plan and the initial election to start the next cycle.

Mr. Garza motioned to authorize the Planning Group Sponsor to amend the Bylaws in accordance with the direction provided today by the RFPG. Ms. Reid seconded the motion, motion passed.

AGENDA ITEM NO. 9: PRESENTATION AND APPROPRIATE ACTION TO APPROVE CHAPTER 12

Mr. Branyon, Technical Consultant, presented the Task 12 deliverable. His presentation is available on the Region 12 website at region12texas.org. The RFPG discussed the presented tables and the sponsor commitment to FMPs.

Ms. Scott motioned to approve Chapter 12 and allow the technical consultants to make any non-substantive changes and appropriate edits as directed by the RFPG today. Ms. Reid seconded the motion, motion passed.

AGENDA ITEM NO.9: REGIONAL LIAISON UPDATE

Mr. Mauk provided an update on Region 13. They plan to adopt their amended plan in June.

AGENDA ITEM NO.10: PUBLIC COMMENTS – LIMIT 3 MINUTES PER PERSON

No public comments.

AGENDA ITEM NO.11: DATE AND POTENTIAL AGENDA ITEMS FOR NEXT MEETING

The RFPG will meet June 27, 2023, at 2:00 PM to adopt the Amended Plan.

AGENDA ITEM NO.12: ADJOURN

Ms. Tackett motioned to adjourn. Mr. Mauk seconded the motion, motion passed.

AGENDA ITEM NO.7 – DISCUSSION AND APPROPRIATE ACTION TO ADOPT THE AMENDED SAN ANTONIO REGIONAL FLOOD PLAN

Includes:

- Amended Chapters of the San Antonio Regional Flood Plan

Amended 2023 San Antonio Regional Flood Plan

Flood Planning Region 12

~~January 10, 2023~~July 14, 2023

This report is released for review purposes only on ~~January 10, 2023~~July 14, 2023, by HDR Engineering, Inc., Texas Board of Professional Engineers and Land Surveyors Registered Firm F-754, Texas Board of Professional Geoscientists Firm No. 50226.

It is not to be used for any other purpose.

Amended 2023 San Antonio Regional Flood Plan

July 14~~January 10~~, 2023

Prepared for San Antonio Regional Flood Planning Group

Administered by San Antonio Regional Flood Planning Group Sponsor:

Prepared By:

2023 San Antonio Regional Flood Plan

Amendment Updates Tracked by Section

Section	Name	Changes
Title Pages		Replaced Final with Amended.
ES.1	General Description of the Region	Adjusted to include RFPG members that approved the Amended Plan.
ES.5.2.1	Additional Evaluations Performed for the Amended 2023 SARFP	New section added to Executive Summary for Task 12 work.
ES.5.2.2	Recommended Flood Management Projects, Evaluations and Strategies	FMX numbers updated to account for Task 12 work.
ES.6.1	Impacts of Regional Flood Plan	Impacted numbers updated to account for Task 12 work.
ES.9.4	Overall Need for Funding	Funding needs updated to account for Task 12 work.
ES.10.2	Adoption of Plan	Added information about amended plan submittal to the Executive Summary.
1.1	Background	Adjusted to include RFPG members that approved the Amended Plan.
5	Identification and Evaluation of Potential Flood Management Evaluations and Potentially Feasible Flood Management Strategies and Flood Mitigation Projects	Incorporated Task 12 scope language into Chapter 5 Introduction.
5.1.1	Process to Identify FMEs, FMPs, and FMSs	Updated table to include FIF study. Removed statement that we were going to collect more from FIF.
5.1.2	Screening of FMPs, FMEs, and FMSs	Slight corrections to the phrasing tense. Updated sponsors responses based on Task 12 outreach.
5.1.3	Initial Screening Results	FMX numbers updated to account for Task 12 work.
5.1.4	Additional Evaluations Performed for the Amended 2023 SARFP	New section added to Chapter 5 to describe Task 12.
5.2	Task 5 – Recommendation of FMEs and FMSs and Associated FMPs	Added bullet point for Task 12 work.
5.2.1	Detailed Evaluation Requirements per Rules and Guidelines	Updated Table 5-3 with revised drainage master plan costs.
5.2.2	Recommendations Evaluation Summary of Screening Results	Updated to account for Task 12 meetings/results. Update Table 5-5 to include Cost and No Negative Impact Determination.
6.1	Impacts of San Antonio Regional Flood Plan	FMX numbers updated to account for Task 12 work.
6.1.1	Floodplain Management and Modeling	Impact numbers updated to account for Task 12 work.
6.1.2	Reduction in Flood Impacted Areas	Reduction in floodplain change updated to account for Task 12 work.
6.2	Benefits to Population and Structures at Risk	Population/structures/critical facilities impacted updated to account for Task 12 work.
6.3	Low Water Crossings and Impacted Roadways	LWC/Roads impacted updated to account for Task 12 work.
9.4	Summary of Survey Results and Funding Needs	Funding needs updated to account for Task 12 work.
10	Public Participation and Adoption of Plan	Added wording to account for the amendment submittal.
10.3.1	Regional Website and Email Address	Added a bullet point about amendment plan submittal.
10.3.2	ArcGIS StoryMap	Removed StoryMap - no longer in use.

2023 San Antonio Regional Flood Plan

Amendment Updates Tracked by Section

Section	Name	Changes
10.5	San Antonio Regional Flood Planning Group Meetings	Added the additional RFPG amendment meeting dates.
10.6	Public Hearing and Responses to Public Comments on the Draft Plan	Updated to include TWDB Final Plan comments from March.
10.7	Plan Adoption	Added information about amendment approval and submittal.
Appendix A	Table 12. Potential Flood Management Evaluations Identified by RFPG	Updated to account for Task 12 work.
Appendix A	Table 13. Potentially Feasible Flood Mitigation Projects Identified by RFPG	Updated to account for Task 12 work.
Appendix A	Table 14. Potentially Feasible Flood Management Strategies Identified by RFPG	Updated to account for NRNC.
Appendix A	Table 15. Flood Management Evaluations Recommended by RFPG	Updated to account for Task 12 work.
Appendix A	Table 16. Potentially Feasible Flood Mitigation Projects Recommended by RFPG	Updated to account for Task 12 work.
Appendix A	Table 19. FMS, FMP, FME Funding Survey	Updated to account for Task 12 work.
Appendix A	Project Details Table	Added, per Level 2 comment from TWDB guidance on March 13th.
Appendix A	No Negative Impact Determination Table	Added, per TWDB Amended Plan submittal guidance requirements.
Appendix B	Map 16. Extent of Potential Flood Management Evaluations and Existing Mapping Needs (2.4.B Task 4B– Identification and Evaluation of Potential Flood Management Evaluations and Potentially Feasible Flood Management Strategies and Flood Mitigation Projects)	Updated to account for Task 12 work.
Appendix B	Map 17. Extent of Potential Flood Mitigation Projects (2.4.B Task 4B)	Updated to account for Task 12 work.
Appendix B	Map 19. Recommended Flood Management Evaluations (2.5.A Flood Management Evaluations)	Updated to account for Task 12 work.
Appendix B	Map 20. Recommended Flood Mitigation Projects (2.5.B Flood Mitigation Projects)	Updated to account for Task 12 work.
Appendix B	Map 22. Model Coverage (2.4.C Task 4C – Prepare and Submit Technical Memorandum)	Updated to account for Task 12 work.
Appendix D	TWDB Final Plan Comments	Added based on TWDB comments given in March.
Appendix D	TWDB Final Plan Comments Response Log	Added based on RFPG Reponses to the TWDB March comments.
Appendix E	Methodologies and Procedures Memorandum	Added, Task 12 work

2023 San Antonio Regional Flood Plan

Amendment Updates Tracked by Section

Section	Name	Changes
Appendix E	FMPs Summary Reports	Added, Task 12 work
Appendix E	FMEs Summary Reports	Added, Task 12 work

~~Final~~ Amended 2023 San Antonio Regional Flood Plan

~~January~~ July 2023

San Antonio Regional Flood Planning Group

Voting Members	Non-Voting Members
Brian Yanta Goliad County *Agricultural*	Marty Kelly Texas Parks and Wildlife Department
David Wegmann Bexar County *Counties*	Natalie Johnson Texas Division of Emergency Management
Doris Cooksey CPS Energy *Electric-generating Utilities*	James Blount Texas Division of Emergency Management
Debbie Reid Greater Edwards Aquifer Alliance *Environmental*	Jami McCool Texas Department of Agriculture
Nefi Garza City of San Antonio/Tetra Tech *Flood Districts*	Jarod Bowen Texas State Soil and Water Conservation Board
Cara Tackett Pape-Dawson Engineers *Industries*	Kris Robles General Land Office
Jeffrey Carrol City of Boerne *Municipalities*	Anita Machiavello Texas Water Development Board
Robert Reyna City of San Antonio *Municipalities*	Joel Anderson Texas Commission on Environmental Quality
Suzanne Scott Nature Conservancy *Nonprofit*	
John Beasley United States Army Environmental Command *Public*	
Derek Boese San Antonio River Authority *River Authorities*	

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Voting Members	Non-Voting Members
Jose Reyes Maestas & Associates, LLC *Small Business*	
~~Steve Gonzales~~ ~~Neel-Schaffer, Inc.~~ ~~*Small Business*~~	
David Mauk Bandera Co. River Authority & Groundwater District *Water Districts*	
~~Steven Clouse~~ ~~San Antonio Water System~~ ~~*Water Utilities*~~	
Donovan Burton San Antonio Water System *Water Utilities*	

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SAN ANTONIO
RIVER AUTHORITY

January 6, 2023

Reem J. Zoun, PE, CFM, ENV SP
Director of Flood Planning
Flood Planning
Texas Water Development Board

RE: Final Regional Flood Plan Submittal for the San Antonio Regional Flood Planning Group

Director Zoun,

Included in this transmittal are two hard copies and two electronic copies of the Final San Antonio Regional Flood Plan (Flood Plan), including one in searchable portable document format (PDF) and one in Microsoft Word format. Also included are an executive summary, a copy of the TWDB Comment Letter, and the requested geodatabases with spatial data associated with the Flood Plan.

On December 19, 2022, the San Antonio Regional Flood Planning Group (Region 12) approved and authorized the San Antonio River Authority to submit the Final Regional Flood Plan and associated data to the Texas Water Development Board. The Flood Plan was developed in accordance with Texas Water Code and 31 TAC Chapters 361 and 362. Region 12 met all requirements under the Texas Open Meetings Act and Public Information Act during the development of the Flood Plan.

We look forward to enhancing the information presented in the Flood Plan during the amendment process. If you have any questions, please don't hesitate to contact Kendall Hayes at (210) 302-3641 or via email at khayes@sariverauthority.org.

Thank you,

Derek Boese, JD, PMP

100 EAST GUENTHER ST. · SAN ANTONIO, TEXAS 78204 · WWW.SARIVERAUTHORITY.ORG
(210) 227-1373 · (866) 345-7272 · FAX (210) 227-4323

Commented [VL1]: After approval of Amended Plan, Sponsor to add new letter after this page.

Appendices

ES

Executive Summary

ES.1 General Description of the Region

In 2019, the 86th Texas Legislature adopted changes to the Texas Water Code Section (§)16.061 that established the regional and state flood planning process. Regional Flood Plans (RFPs) for 15 flood planning regions across the state will be compiled in the 2024 State Flood Plan (SFP). The Texas Water Development Board (TWDB) is charged with overseeing the development of RFPs and SFPs. TWDB appointed a Regional Flood Planning Group (RFPG) for each region, and the San Antonio River Authority (SARA) is the sponsor for the San Antonio Flood Planning Region (SAFPR). Table ES-1 lists the members of the San Antonio RFPG for the first flood planning cycle.

Table ES-1. SAFPR Membership

Member Name	Interest Category	Organization
Voting Members		
Brian Yanta	Agricultural	Goliad County
David Wegmann	Counties	Bexar County
Doris Cooksey	Electric-generating Utilities	CPS Energy
Debbie Reid	Environmental	Greater Edwards Aquifer Alliance
Nefi Garza	Flood Districts	City of San Antonio/Tetra Tech
Cara Tackett	Industries	Pape-Dawson Engineers
Jeffrey Carrol	Municipalities	City of Boerne
Robert Reyna	Municipalities	City of San Antonio
Suzanne Scott	Nonprofit	Nature Conservancy
John Beasley	Public	United States Army Environmental Command
Derek Boese	River Authorities	SARA
~~Steve Gonzales~~	~~Small Business~~	~~Neel-Schaffer, Inc.~~
Jose Reyes	Small Business	Maestas & Associates, LLC
David Mauk	Water Districts	Bandera County River Authority and Groundwater District

Member Name	Interest Category	Organization
~~Steven Clouse~~Donovan Burton	Water Utilities	San Antonio Water System
Non-Voting Members		
Marty Kelly	—	Texas Parks and Wildlife Department
Natalie Johnson	—	Texas Division of Emergency Management
James Blount	—	Texas Division of Emergency Management
Jami McCool	—	Texas Department of Agriculture
Jarod Bowen	—	Texas State Soil and Water Conservation Board
Kris Robles	—	General Land Office
Anita Machiavello	—	TWDB
Joel Anderson	—	Texas Commission on Environmental Quality

ES.1.1 General Description

The SAFPR, Flood Planning Region (FPR) 12, consists of parts of Aransas, Atascosa, Bandera, Bexar, Calhoun, Comal, DeWitt, Goliad, Guadalupe, Karnes, Kendall, Kerr, Medina, Refugio, Victoria, and Wilson Counties. The SAFPR encompasses approximately 4,410 square miles (Figure ES-1), and is bounded on the west and south by TWDB FPR 13 (Nueces), on the north by TWDB FPR 11 (Guadalupe), and on the east by the Gulf of Mexico.

The planning area contains 110 entities, including 49 cities, 16 counties, 4 river authorities, and 41 additional entities with flood-related authority. The total population within the SAFPR is approximately 2,212,988, who live primarily within the San Antonio metropolitan area. Outside of the San Antonio area, the SAFPR is largely rural in nature, although significant growth is occurring in the portions of Comal, Guadalupe, Kendall, and Wilson Counties that lie within the planning region. The population of those four counties and Bexar County contain almost 97 percent of the total population of the region. Overall, the region is expected to grow by 40 percent between 2020 and 2050 to a population of approximately 3,095,520.

ES.5 Identification, Evaluation, and Recommendation of Flood Mitigation Actions

The regional flood planning efforts identified, evaluated, and recommended flood management actions, which include flood mitigation projects (FMPs), flood management evaluations (FMEs), and flood management strategies (FMSs). Flood management actions were identified to reduce the risk identified in the existing and future condition flood risk analyses, to address flood mitigation and floodplain management goals as well as the greatest flood risk and flood mitigation needs.

An FMP is a proposed project, either structural or nonstructural, that has non-zero capital costs or other non-recurring costs and, when implemented, will reduce flood risk and mitigate flood hazards to life or property. An FME is a proposed flood study of a specific, flood-prone area that is needed to assess flood risk and/or determine whether potentially feasible FMSs or FMPs occur. An FMS is a proposed plan to reduce flood risk or mitigate flood hazards to life or property, and typically includes flood mitigation education and outreach, buyout programs, and flood management regulations.

ES.5.1 Identification of Flood Mitigation Actions

The San Antonio RFPG developed a proposed process to identify and select flood mitigation actions. To identify flood mitigation actions, a review of previous relevant flood studies was conducted, stakeholder outreach was conducted, and an evaluation was performed to determine additional studies needed to address the greatest known flood risk, flood mitigation needs, and unmet floodplain mitigation and floodplain management goals. A list of 16 prior relevant studies were reviewed, which included many regional hazard mitigation action plans and other flood-related master plans.

ES.5.2 Evaluation and Recommendation of Flood Mitigation Actions

The San Antonio RFPG created a Technical Subcommittee tasked with establishing a selection methodology, implementing the evaluation and selection process, and reporting their findings and recommendations back to the San Antonio RFPG for formal approval. The methodology included screening all potential flood mitigation actions based on the general process and any other additional considerations established by the Technical

Subcommittee. On June 27, 2022, the San Antonio RFPG voted to recommend FMEs, FMPs, and FMSs as presented.

ES.5.2.1 Additional Flood Mitigation Actions for the Amended 2023 ~~SA~~San Antonio RFP

After the *Final San Antonio Regional Flood Plan* was submitted in January 2023, additional flood mitigation actions were ~~developed~~evaluated during Task 12. The scope of Task 12 was to perform identified FMEs, as well as identify, evaluate, and recommend additional FMPs. No additional FMSs were identified or evaluated. Projects from Task 12 follow the same screening and recommendation process as from Task 4B/5.

In Task 12, a total of 26 FMEs were identified and developed into FMPs. In addition to those FMPs, 12 additional FMEs were created. These FMEs were added to address issues that were not able to be studied during Task 12. Also, in Task 12 additional flood mitigation actions were collected from various stakeholders, a total of 18 FMPs and 10 FMEs were collected.

This resulted in 43 additional FMPs, a modified set of FMEs, and~~but~~ no additional ~~FMEs and~~ FMSs. On May 23, 2023, the San Antonio RFPG voted to recommend the amended FMEs and FMPs as presented.

~~ES.5.2.1~~ES.5.2.2 Recommended Flood Management Projects, Evaluations and Strategies

A total of 71~~28~~ potential FMPs were identified and evaluated by the San Antonio RFPG. Of these, all were recommended, representing a combined total of $~~464,800~~738,955,000 of flood mitigation infrastructure projects need across the region.

A total of 163 potential FMEs were identified and evaluated by the San Antonio RFPG. Of these, all were recommended, representing a combined total of $712,076,000 ~~$794,400,000~~ of FME needs across the region. The recommended FMEs include 14~~0~~1 project planning/evaluation projects and~~,~~ 20 watershed planning projects, and 3~~2~~ flood resiliency projects.

Commented [VL2]: With the addition and removal of FMEs in Task 12, no change incurred in the total potential/recommended FME count from the Final Plan

A total of 19 potential FMSs were identified and evaluated by the San Antonio RFPG. Of these, all were recommended, representing a combined total of $999,000 of FMS needs across the SAFPR. The recommended FMSs include 11 education and outreach projects, 7 regulatory and guidance projects, and 1 flood measurement and warning projects.

ES.6 Impact and Contribution of the Regional Flood Plan

RFPs must include a regionwide assessment of the potential contributions and impacts that implementation of the RFP can be expected to have on water supplies and the State Water Plan. As part of this analysis, each FMS and FMP was reviewed to determine whether potential impacts could occur to existing water supplies or the availability of water supplies. Impacts include potential contributions to, as well as reductions in, water supply and availability.

ES.6.1 Impacts of Regional Flood Plan

Impacts are determined before and after RFP implementation of recommended flood mitigation actions relative to existing and future flood risk. The comparison of before and after RFP implementation estimates both how much the region's existing flood risk will be reduced through implementation of the plan as well as how much additional, future flood risk (that might otherwise arise if no changes were made to floodplain policies) will be avoided through RFP implementation, including recommended changes/improvements to the region's floodplain management policies.

The evaluation estimated the implementation of recommended FMPs could benefit ~~3,582~~1,474 exposed structures, ~~912 square miles~~5,011 population in the floodplain, 43~~22~~ LWCs, and 59~~13~~ miles of road at risk in the future 100-year flood hazard.

ES.6.2 Contributions to and Impacts on Water Supply Development and the State Water Plan

A coordinated effort with representatives from multiple regional water planning groups occurred to identify water management strategies that could be impacted. Those regional water planning groups include Region J (Plateau), Region L (South Central Texas), and Region N (Coastal Bend). The San Antonio RFPG has not identified any negative impacts to the State Water Plan. However, it was determined that three FMPs were located over the Trinity Aquifer and have the potential to add to water supply availability.

taxpayers. These recommendations will aid in fulfilling the SAFPR goals discussed in Chapter 3~~3~~ Floodplain Management Practices and Flood Protection Goals.

ES.9 Flood Infrastructure Financing Analysis

Chapter 10~~9~~ Flood Infrastructure Financing Analysis is an analysis of the funding for flood-related issues within the SAFPR. Communities within the region were surveyed to determine the needs, costs, and proposed methods of funding to address current flood-related issues. This chapter also presents an overview of common sources of funding for flood mitigation, planning, projects, and other flood management efforts. The methodology, results of the financing survey, and comments regarding the state's role in financing are also included.

ES.9.1 Local Funding

The communities within the SAFPR are affected by flooding issues and have been proactively addressing many of these issues to the best of their funding ability. Flood studies and projects have been typically funded by individual communities as they apply for available funding through the various state and federal programs and through their own financial resources via fees, taxes, and bonds. These efforts are intended to address local flooding issues typically on a smaller scale for smaller communities and a larger scale for larger communities.

For example, smaller communities such as Castroville, La Vernia, and Floresville have been diligently funding projects with their own funds and with as much state and federal funding that can be obtained. The CoSA's Proposition B in May 2022 was passed to apply $169,873,000 in bonds toward flood control and drainage projects. This was preceded in the city's 2017–2022 Bond Program by an investment that was approximately equal to that amount for flood control and drainage projects. In 2007, Bexar County embarked on a 10-year, $500 million Flood Control Program that constructed more than 50 flood mitigation projects to alleviate some of the area's most pressing flood concerns. Wilson and Karnes Counties received a FEMA Hazard Mitigation Multi-Jurisdictional Assistance grant for planning to reduce long-term risk from natural hazards and disasters. SARA has provided funding for studies through grants and its own general fund investments for flood issues throughout the San Antonio River Basin, such as the 2019 United States Department of Homeland Security's FEMA Cooperative Technical Partnership Program Cooperative Agreement grant for $1,365,400 for flood

prevention, mitigation, and protection through mapping updates throughout the basin.

ES.9.2 State Funding

Today, communities have a broader range of state funding sources and programs available due to new grant and loan programs that did not exist as recently as 5 years ago. It is important to note that state financial assistance programs discussed herein are not directly available to homeowners and the general public. Local governments apply on behalf of their communities to receive and implement funding for flood projects within their jurisdiction.

The TWDB's Flood Infrastructure Fund (FIF) is a new funding program passed by the Texas Legislature and approved by Texas voters through a constitutional amendment in 2019. The program provides financial assistance in the form of low- or no-interest loans and grants (cost match varies) to eligible political subdivisions for flood control, flood mitigation, and drainage projects. FIF rules allow for a wide range of flood projects, including structural and nonstructural projects, planning studies, and preparedness efforts such as flood early warning systems. After the first SFP is adopted, only projects included in the most recently adopted state plan will be eligible for funding from the FIF. FMEs, FMSs, and FMPs recommended in this RFP will be included in the overall SFP and will therefore be eligible for this funding source.

ES.9.3 Federal Funding

Multiple avenues are available to receive federal funding through the various federal agencies, including FEMA, United States Department of Housing and Urban Development, United States Army Corps of Engineers, United States Environmental Protection Agency, United States Department of Agriculture, and special appropriations. Recent special appropriations of note include the 2021 American Rescue Plan Act (ARPA) and the 2021 Infrastructure Investment and Jobs Act, also called the Bipartisan Infrastructure Law (BIL). ARPA delivered $350 billion directly to local, state, and tribal governments through the Coronavirus State and Local Fiscal Recovery Funds. The BIL authorized more than $1 trillion for infrastructure spending across the United States and will provide a significant infusion of resources over the next several years into existing federal financial assistance programs, including several of the flood funding programs discussed above.

ES.9.4 Overall Need for Funding

A total of 3328 entities within the SAFPR sponsored the FMEs, FMSs, and FMPs that are recommended by the RFPG. These 3328 sponsors were contacted about funding needs to implement these projects; to date, 1815 sponsors have responded, which represents a response rate of 5554 percent.

The total cost for all the FMP, FME, and FMS projects recommended in the RFP is $1,452,030,000$1,260,123,000. Based on the funding split specified by each sponsor for each project, of this $1,452,030,0001,260,123,000, it is projected that $1,199,759,000 $1,061,702,322 in state and federal grant funding is needed for implementation of these projects, with the remainder provided by local entities.

ES.10 Adoption of the Plan and Public Participation

ES.10.1 Public Participation

Public participation has aided every aspect of the San Antonio RFP development, from the identification of flood risks and management and mitigation project needs to the formation of legislative and policy recommendations specific to the SAFPR. The San Antonio RFPG provided opportunity for the public to participate in the regional flood planning process at RFPG meetings and public outreach events. San Antonio RFPG meeting agendas and other meeting materials were posted on the SAFPR website[7] prior to each meeting. The public was invited to speak during public comment periods during each meeting.

The San Antonio RFPG conducted six public meetings throughout the watershed in accordance with TWDB requirements and the approved bylaws. Public meeting summary reports can be found in Appendix C.

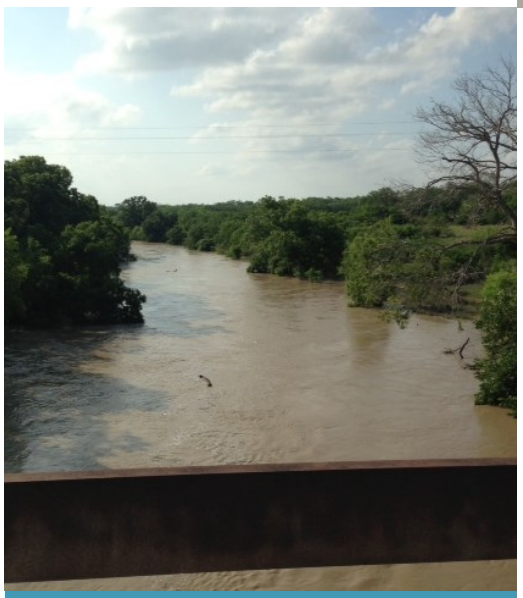
The public hearing to receive comments on the *Draft 2023 San Antonio Regional Flood Plan* was held on September 15, 2022, providing sufficient time to accept public comments according to statute to meet the January 10, 2023, deadline for submission of the adopted Final RFP. Hard copies of the Draft RFP were provided as required, and the Draft RFP was posted on the SAFPR website[8] for public review and comment.

[7] https://www.region12texas.org/

[8] https://www.region12texas.org/

ES.10.2 Adoption of Plan

The *Draft, Final, and Amended 2023 San Antonio Regional Flood Plan* were developed and adopted in accordance with 31 TAC §361.50 and §361.60–361.61 and meeting requirements under the Texas Open Meetings Act and Public Information Act. On July 25, 2022, the San Antonio RFPG approved and authorized the submittal of the *Final 2023 San Antonio Regional Flood Plan* and associated data to the TWDB. On June 27, 2023, the San Antonio RFPG approved and authorized the submittal of the *Amended 2023 San Antonio Regional Flood Plan* and associated data to the TWDB. ~~The Final RFP was developed in accordance with Texas Water Code and 31 Texas Administrative Code Chapters 361 and 362 and conforms with the 39 guiding principles. The San Antonio RFP also met all requirements under the Texas Open Meetings Act and Public Information Act during the development of the Plan.~~



1

Planning Area Description

competitive process to assist the San Antonio RFPG in developing the 2023 San Antonio RFP.

Stakeholders residing in and representing various interest categories were appointed for each region to provide representation and lead a bottom-up approach to developing the 2023 San Antonio RFP. The San Antonio RFPG's responsibilities include directing the work of the technical consultant, soliciting and considering public input, identifying specific flood risks, and identifying and recommending flood management evaluations, strategies, and projects to reduce risk in their regions. To ensure a diversity of perspectives are included, members represent a wide variety of stakeholders potentially affected by flooding. Interest categories include:

1. Public
2. Nonprofit (category added by the San Antonio RFPG)
3. Counties
4. Municipalities
5. Industries
6. Agriculture
7. Environmental
8. Small Business
9. Electric-generating Utilities
10. River Authorities
11. Water Districts
12. Water Utilities
13. Flood Districts

Table 1-1~~Table 1-1~~ lists the members of the San Antonio RFPG for the first flood planning cycle.

Table 1-1. San Antonio RFPG Members

Member Name	Interest Category	Organization
Voting Members		
Brian Yanta	Agricultural	Goliad County
David Wegmann	Counties	Bexar County
Doris Cooksey	Electric-generating Utilities	CPS Energy

Member Name	Interest Category	Organization
Debbie Reid	Environmental	Greater Edwards Aquifer Alliance
Nefi Garza	Flood Districts	City of San Antonio/Tetra Tech
Cara Tackett	Industries	Pape-Dawson Engineers
Jeffrey Carrol	Municipalities	City of Boerne
Robert Reyna	Municipalities	City of San Antonio
Suzanne Scott	Nonprofit	Nature Conservancy
John Beasley	Public	United States Army Environmental Command
Derek Boese	River Authorities	SARA
~~Steve Gonzales~~	~~Small Business~~	~~Neel-Schaffer, Inc.~~
Jose Reyes	Small Business	Maestas & Associates, LLC
David Mauk	Water Districts	Bandera County River Authority and Groundwater District
~~Steven Clouse~~Donovan Burton	Water Utilities	San Antonio Water System
Non-Voting Members		
Marty Kelly	—	Texas Parks and Wildlife Department
Natalie Johnson	—	Texas Division of Emergency Management
James Blount	—	Texas Division of Emergency Management
Jami McCool	—	Texas Department of Agriculture
Jarod Bowen	—	Texas State Soil and Water Conservation Board
Kris Robles	—	General Land Office
Anita Machiavello	—	TWDB
Joel Anderson	—	Texas Commission on Environmental Quality

5

Identification and Evaluation of Potential Flood Management Evaluations and Potentially Feasible Flood Management Strategies and Flood Mitigation Projects

~~6~~5 Identification and Evaluation of Potential Flood Management Evaluations and Potentially Feasible Flood Management Strategies and Flood Mitigation Projects

This chapter's objective is to focus on Tasks 4B and 5 as prescribed in the SFP rules and guidelines, along with the implementation of the Task 12 work. The scope of Task 4B involves the identification and assessment of potential FMEs as well as potentially feasible FMSs and FMPs. The scope of Task 5 involves further evaluation of identified FMEs, FMSs, and FMPs through a final recommended list of such actions to be incorporated into the San Antonio RFP. The scope of Task 12 is to perform identified FMEs, as well as identify, evaluate, and recommend additional FMPs, to the extent the allocated budget allowed. Projects from Task 12 follow the same screening and recommendation process as from Task 4B/5. Chapter 5 includes the amended projects from Task 12.

Tasks 4B and 5 build on subsequent Tasks 1 through 4A, with the ultimate objective of recommending FMEs, FMSs, and FMPs that:

- Reduce flood risk identified in Task 2 – Existing and Future Conditions Flood Risk Analyses
- Address flood mitigation and floodplain management goals established in Task 3 – Evaluation and Recommendation of Flood Mitigation and Floodplain Management Practices and Goals
- Address flood mitigation needs identified in Task 4A – Flood Mitigation Needs Analysis

The San Antonio RFPG adopted a process for screening and evaluating FMEs, FMSs, and FMPs (or flood mitigation actions), as summarized in Figure 5-1, based on requirements and guidance within the SFP rules and guidelines, including region-specific interpretations and preferences. The San Antonio RFPG formed a "Task 5" Technical Committee in accordance with SFP rules to oversee the process and eventual recommendations from the technical consultant.

The SFP rules and guidelines allow for some region-specific flexibility and interpretation when recommending FMPs, FMEs, and FMSs for the RFP. The San Antonio RFPG's general approach to this flexibility was to be more inclusive as opposed to being more restrictive for this first cycle of the RFP.

Table 5-2. List of Studies Relevant to the RFP

Source	Jurisdiction	Counties	Source Year
Barbara Drive Drainage Study	CoSA	Bexar	2021
Boerne Master Drainage Plan	City of Boerne	Kendall	2021
Castroville Drainage Master Plan	City of Castroville	Medina	2022
Cibolo Creek Watershed Holistic Master Plan	City of Bulverde, CoSA, Wilson County	Bexar, Comal, Wilson, Wilson/ Guadalupe	2018
City of Bulverde Mapping Improvements Cibolo Creek Tributary 19 Drainage Report	City of Bulverde	Comal	2016
City of Bulverde Mapping Improvements Indian Creek Drainage Report	City of Bulverde	Comal	2016
City of Bulverde Mapping Improvements Lewis Creek Watershed Phase 2 Alternative Analysis Drainage Report	City of Bulverde	Comal	2016
City of Fair Oaks Ranch Master Drainage Plan	City of Fair Oaks Ranch	Bexar	2018
Holbrook Road Preliminary Engineering Report	CoSA	Bexar	2021
Holistic Watershed Master Plan Wilson, Karnes, and Goliad Counties	City of Falls City, City of Kenedy	Karnes	2015

Source	Jurisdiction	Counties	Source Year
Holistic Watershed Master Plan Wilson, Karnes, and Goliad Counties, Flood Issues Volume	Goliad County, Karnes County	Karnes, Goliad	2015
Huebner Creek Continuing Authorities Program 205	City of Leon Valley	Bexar	2021
Judson and Lookout Project Narrative	CoSA	Bexar	2016
TWDB FIF Karnes County Flood Protection Planning Study	Karnes County	Karnes	2023
Karnes and Wilson Counties Hazard Mitigation Plan	City of Falls City, City of Floresville, City of Karnes, City of Kenedy, City of La Vernia, City of Poth, City of Runge, City of Stockdale, Karnes County, La Vernia Independent School District, Wilson County	Karnes, Wilson	2020
Leon Creek Watershed Master Plan Phase 3	CoSA	Bexar	2011
Medina County Hazard Mitigation Action Plan Adopted	City of La Coste	Medina	2020
Medina River Holistic Watershed Master Plan	CoSA, Medina County	Bexar, Medina	2015
Overall Preliminary Drainage Report	La Vernia	Wilson	2022

Source	Jurisdiction	Counties	Source Year
CoSA Stormwater Planning Studies (Bond Project Summary Sheet)	CoSA	Bexar	2010–2022
Projects for Flood Risk in Helotes	City of Leon Valley	Bexar	2016
Salado Creek Watershed Master Plan Report Phase 1	CoSA	Bexar	2011
SARA: Projects for Flood Risk Reduction Helotes	City of Helotes	Bexar	2016
Thames Drainage Channel Improvements	CoSA	Bexar	2016
Upper San Antonio River Master Plan	CoSA	Bexar	2013–2021
Upper Woodlawn Lake Drainage Study	City of Balcones Heights	Bexar	2014
Wilson County Watershed Master Plan	City of Floresville, City of La Vernia, City of Poth, City of Stockdale, Wilson County, Wilson County/ TxDOT	Wilson	2012

~~The San Antonio RFPG is aware of the TWDB's Flood Infrastructure Fund (FIF) Category 1 studies within the SAFPR. At the time of this report, no FMEs have been identified by those studies; however, the San Antonio RFPG will be coordinating with the FIF project teams during future amendments of the San Antonio RFP.~~

~~6.1.1.1~~5.1.1.1 Flood Mitigation Projects

One of the primary objectives of the SFP is to identify and fund flood mitigation projects for implementation; therefore, identifying FMPs that meet SFP criteria and requirements for inclusion into the SFP is a top priority. Per the TWDB rules, of the four common phases of emergency management, the regional flood planning process focuses primarily on mitigation projects but may also include preparedness projects.

Preliminary Engineering Studies: Once a flood-prone area has been studied and a preferred flood mitigation alternative or set of alternatives have been identified from a feasibility study, a preliminary engineering study of these alternatives would develop at least a 30 percent level design, including initial plans, permitting assessments, and refined capital cost estimates. Potential FMPs that have previously been studied within the region but do not meet the standards set by the TWDB for FMPs will fall into this category of FME.

~~6.1.1.3~~5.1.1.3 Flood Management Strategies

Proposed actions that did not qualify as an FMP or FME were considered as "strategies." The term FMS is not a typical term used in the flood mitigation industry; however, in a few cases, community sponsor-specific strategies were provided to the San Antonio RFPG that met the TWDB definition. An FMS, by TWDB definition, is "a proposed plan to reduce flood risk or mitigate flood hazards to life or property. A flood management strategy may or may not require associated Flood Mitigation Projects to be implemented." Regional or subregional FMSs generally fell into the following five categories:

1. Flood Mitigation Education and Outreach
2. Area-wide LWC Flood Mitigation Studies and Projects
3. Buyout Program Identification and Funding
4. Regional Flood Warning Measure Development
5. Flood Management Regulation Strengthening

~~6.1.2~~5.1.2 Screening of FMPs, FMEs, and FMSs

TWDB requirements for Task 4B state that each RFPG is to develop and receive public comment on a "…proposed process to be used by the RFPG to identify and select flood management evaluations, flood mitigation strategies, and flood mitigation projects."

The following describes the proposed process that was adopted~~being considered~~ by the San Antonio RFPG and on which public comment ~~will be taken~~was taken, both during the December 2021 San Antonio RFPG meeting and via written comments submitted through the San Antonio RFPG's website. The process, as described below, was designed to conform with TWDB requirements as expressed in the rules, the scope-of-work for the regional flood planning process, and technical guidelines.

Step 1. ~~Conduct an i~~Initial screening of FMPs, FMEs, and FMSs that were received by or developed in conjunction with floodplain management communities/project sponsors:

In this first step, screening is conducted based on minimum TWDB requirements. The screening criteria applied in this step are:

- The FMP/FME/FMS is related to a flood mitigation or floodplain management goal.
- The FMP/FME/FMS meets an emergency need.
- The FMP/FME/FMS addresses a flood problem with a drainage area of 1 square mile or greater.
- The FMP/FME/FMS reduces the flood risk for the 100-year (1 percent annual chance) flood.
- Exceptions for level of flood risk reduction or problem area size include instances of flooding of critical facilities, transportation routes, or other factors as determined by the RFPG.

Step 2-1. Screening of Projects (FMPs):

In the second step, potential FMPs are subjected to a screening-level evaluation based on the TWDB's *Technical Guidelines for Regional Flood Planning* (April 2021) and specifically Figure 5-2. If a potential FMP does not satisfy the screening criteria in this step, it will then become a potential FME. Three criteria applied in this step are: "sufficient data," "no negative effect," and "project details." These criteria are described as follows:

- **Sufficient data:** The data upon which an assessment of no negative effect has been made must be reliable and have minimal uncertainty. H&H modeling, mapping, and basis for mitigation analysis must generally meet Section 3.5 of TWDB's technical guidelines.
- **No negative effect:** The potential project must not have negative impact on the 100-year (1 percent annual chance) flood event. It must not raise the flood elevation or increase discharge of the 100-year flood event. Any of the following will disqualify the potential project in this screening step:
    - Potential project increases inundation of homes, commercial buildings, critical facilities, and other structures
    - Potential project increases inundation beyond existing or proposed ROW or easements
    - Potential project increases inundation beyond existing drainage infrastructure capacity

The RFPG conducted a targeted outreach effort to each potential sponsoring community to discuss the initial list of potential actions for potential additions, deletions, or edits to the actions and their attributes, and to verify that they are a willing sponsor. A total of 110 potential sponsors were contacted; approximately 384 responded and met via online video conferences for discussion.

~~6.1.3~~5.1.3 Initial Screening Results

~~6.1.3.1~~5.1.3.1 Potentially Feasible FMPs

Potentially feasible FMPs were identified based on responses to the survey, reviews of previous studies, and direct coordination with stakeholders. FMPs are required to be developed in a sufficient level of detail to be included in the San Antonio RFP and recommended for state funding. In most cases, this includes having recent H&H modeling data to assess project impacts and an associated project cost to develop the project's BCR. The development and use of the technical information to evaluate potentially feasible projects is described in the following subsections.~~.~~

~~Due to multiple completed drainage master plans, t~~The San Antonio RFPG was able to identify 71~~28~~ potentially feasible FMPs.~~, mostly within the CoSA and City of Boerne. Additional potentially feasible FMPs may be identified through continued outreach with regional stakeholders under Task 11 and through the execution of identified FMEs, either as FMEs are approved by the San Antonio RFPG to be performed under Task 12, or as other funding sources are acquired by individual stakeholders.~~ These results ~~can be~~are summarized in the TWDB-required Table 13 Potentially Feasible Flood Mitigation Projects Identified by RFPG in Appendix A. These results include the amended projects developed in Task 12. The Task 12 efforts are detailed in Section 5.1.4 and changes tracked in the Amended Changes section.

~~6.1.3.2~~5.1.3.2 Potentially Feasible FMEs

All potential FMEs that were identified are listed with their supporting technical information in TWDB-required Table 12 Potential Flood Management Evaluations Identified by RFPG in Appendix A. In total, ~~163~~ 163 potential FMEs were identified and evaluated. The evaluation of FMEs relied on the compilation of planning level data to gage alignment with regional strategies and flood planning guidance, potential flood risk within the SAFPR, and funding need and availability. These results include the amended projects developed in Task 12. Task 12 is detailed in Section 5.1.4 and changes tracked in Amended Changes section.

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~~6.1.3.3~~5.1.3.3 Potentially Feasible FMSs

The San Antonio RFPG identified 19 potentially feasible FMSs for the SAFPR; these are listed in TWDB-required Table 14 Potentially Feasible Flood Management Strategies Identified by RFPG in Appendix A. A variety of FMS types were identified. Some strategies encourage and support communities and municipalities to actively participate within the NFIP. Other FMSs recommend the establishment and implementation of public awareness and educational programs to better inform communities of the risks associated with flood waters. Additional FMSs promote preventive maintenance programs to optimize the efficiency of existing stormwater management infrastructure, recommend the development of a stormwater management manual to encourage best management practices, or recommend the establishment of conservation easement programs. Because many projects are constrained physically and financially, the San Antonio RFPG decided it did not want to exclude flood reduction projects based on the LOS or BCR. Similarly, because many of the known flood mitigation projects were identified by local jurisdictions, the drainage areas are sometimes under 1 square mile, and the San Antonio RFPG did not want to exclude those from the RFP for this first planning cycle.

The San Antonio RFPG expressed a desire to identify and group small individual projects to create larger flood mitigation actions within single jurisdictions where allowable as well as to encourage communities to work together on regional projects. Those efforts are somewhat limited in this first cycle but are likely to be an important aspect in future planning cycles~~but will be an important aspect of the amended RFP anticipated to be submitted in July 2023~~.

5.1.4 Additional Flood Mitigation Actions for the Amended 2023 ~~SA~~San Antonio RFP

After the *Final San Antonio Regional Flood Plan* was submitted in January 2023, additional flood mitigation actions were evaluated during Task 12. The objective of Task 12 was to perform identified potential FMEs and identify additional FMPs, as allowed by the allocated budget:

- Evaluate flood risks in areas with currently limited flood risk data
- Evaluate flood risk reduction solutions, including feasibility studies and preliminary engineering
- Identify, evaluate, and recommend additional FMPs

The Task 12 applied the same screening and recommendation process as Task 4B/5 and outlined throughout Chapter 5.

5.1.4.1 Additional Flood Mitigation Actions Developed

Task 12 performed FMEs for several communities within the ~~San Antonio~~ SAFPR. This analysis was done to provide data for potential FMPs to be recommended in the San Antonio RFP.

The San Antonio RFPG identified FMEs to be further developed based on the following items that were missing but required for an action to be considered an FMP:

- Identified FMEs missing a benefit cost analysis
- Identified FMEs missing an impact analysis
- Identified FMEs missing ~~a~~ hydrologic and/or hydraulic models
- Identified FMEs missing a detailed cost estimate

A total of 26 FMEs were identified and developed into FMPs in Task 12. In addition to those FMPs, 12 additional FMEs were created. These FMEs were added to address issues that were not able to be studied during Task 12. The Methodologies and Procedures Memorandum documenting the work that was done in Task 12 is in Appendix E, as well as individual summary reports for each of the developed flood mitigation actions. ~~These projects are included in Chapter 5 reported findings.~~

5.1.4.2 Additional Flood Mitigation Actions Collected

During the Task 12 analysis additional actions were collected. These actions were only collected if they meet all the TWDB requirements outlined in Section 5.1.2 Initial Screening Results. These actions were collected from different sources:

- FMP and FMEs in areas where there are on-going flood studies as identified in Map 2. Proposed or Ongoing Flood Mitigation Projects
- Stakeholders developing further their own actions to meet the requirements

A total of 18 FMPs and 10 FMEs were collected. Previously identified actions were reviewed to ensure no duplication with these collected actions. Adjustments were made and noted in Amended Changes. ~~These projects are included in Chapter 5 reported findings.~~

~~6.2~~5.2 Task 5 – Recommendation of FMEs and FMSs and Associated FMPs

The objective of Task 5 is for RFPGs to use the information developed under Task 4 to recommend flood mitigation actions for inclusion in the San Antonio RFP. Task 5 was essentially a continuation of Task 4B. As described above, Task 4B was an initial technical evaluation and screening of potential FMEs and potentially feasible FMSs and FMPs. Task 5 and the remainder of this chapter focus on how the San Antonio RFPG used this information to further evaluate and develop its recommendations for the inclusion of flood mitigation actions in the San Antonio RFP. This chapter summarizes and documents:

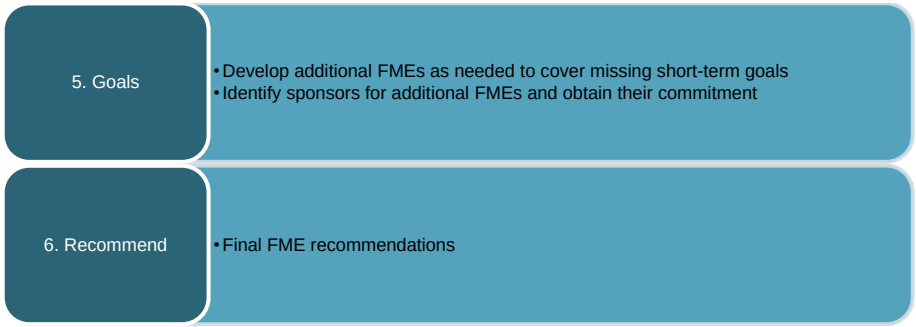
- The process undertaken to make final recommendations on flood mitigation actions
- The potential FMEs and potentially feasible FMSs and FMPs identified and evaluated under Task 4B, and whether these actions are recommended by the San Antonio RFPG
- The entities that will benefit from the recommended flood mitigation actions
- Additional ~~evaluation and~~ recommendations of FMEs and FMPs ~~as required~~evaluated during ~~in~~ Task 12

Significant need exists across the SAFPR to improve flood risk awareness and to develop and implement actions to reduce existing and future flood risk. The San Antonio RFPG opted to take an inclusive approach to the evaluation and recommendation process. If an FMP, FME, or FMS met the TWDB requirements and was aligned with the SAFPR flood mitigation and floodplain management goals, the RFPG chose to show deference to the local communities/sponsors and leaned towards including it in the RFP.

~~6.2.1~~5.2.1 Detailed Evaluation Requirements per Rules and Guidelines

Due to the overlap of Tasks 4B and 5, the recommendation process was, in many ways, an extension of the initial screening process, with a more detailed evaluation of each action, geospatial location, determination of flood risk indicators and risk reduction potential, and reassignment of actions as needed (e.g., FMP to FME).

Figure 5-4 and Figure 5-5 expand upon the initial screening process previously described for FMPs/FMSs and FMEs, respectively. These processes were developed following the TWDB's rules and requirements that left some evaluation criteria to the RFPG's discretion. The discretionary evaluation criteria are the following:



~~6.2.1.1~~5.2.1.1 Costs and Benefit-Cost Ratio for Flood Mitigation Actions

FME Planning Level Cost Estimates

Planning level cost estimates are based on sponsor-provided information and verification/validation of those costs in accordance with the TWDB's *Technical Guidelines*. The process to produce cost estimates where none exist for each FME type is summarized below. Cost estimates presented are for planning purposes only and are not supported by detailed scopes of work or workhour estimates. Sponsors were provided the opportunity to confirm or alter the costs through the Flood Infrastructure Financing survey discussed in Chapter 9 Flood Infrastructure Financing Analysis.

Watershed Planning – Floodplain Modeling and Mapping: A unit cost per square mile was developed to generate estimates based on the size of the study area. Based on previous FEMA FIF projects, Regional or Watershed Planning Studies costs are estimated to be $2,500/square mile.

Watershed Planning – Drainage Master Plans: Depending on the size of the desired drainage master plan, a unit cost per square mile was used for the estimates. After a comparative analysis of previously completed city- and county-wide studies, unit costs were separated into three categories to capture the appropriate funds necessary to accomplish each. Table 5-3 shows the estimated ranges.

Table 5-3. Drainage Master Plan Cost Estimate Ranges

Area (square miles)	Cost Estimate* (per square mile)
0–10	$40,000
10–25	$30,000
>25	$20,000

*Regardless of area, the m~~M~~inimum cost for a drainage master plan is assumed to be $250,000

Engineering Project Planning – These studies consider two components: the evaluation of a proposed project to determine whether implementation would be feasible (conceptual design); and an initial engineering assessment, including alternative analysis. Based on an analysis of pasts projects, a range of estimated costs were estimated based on size. Table 5-4 is the criteria set for FMEs in this category.

Table 5-4. Preliminary Engineering/Site Cost Estimate Ranges

Site Size	Cost Estimate (per site)
Small	$50,000
Medium	$100,000
Large/Bridge	$150,000

Estimated Capital Cost of FMPs and FMSs

Cost estimates for each FMP and FMS were taken from associated engineering reports and were adjusted as needed. These costs were escalated using construction cost indices to account for inflation and other changes to the construction market, and to include applicable non-recurring and recurring project costs as listed on Table 22 of the TWDB's *Technical Guidance*. The cost estimates listed in the TWDB-required Table 13 Potentially Feasible Flood Mitigation Projects Identified by RFPG and Table 14 Potentially Feasible Flood Management Strategies Identified by RFPG, in Appendix A, are expressed in September 2020 dollars.

BCRs for FMPs

BCA is the method by which the future benefits of a hazard mitigation project are determined and compared to its costs. The result is a BCR, which is calculated by dividing the project's total benefits, quantified as a dollar amount, by its total costs. The BCR is a numerical expression of the relative "cost-effectiveness" of a project. A project is generally considered to be cost effective when the BCR is 1.0 or greater, indicating the benefits of a prospective hazard mitigation project are sufficient to justify the costs[42]. However, a BCR greater than 1.0 is not a requirement for inclusion in the

[42] https://www.fema.gov/grants/tools/benefit-cost-analysis

in perpetuity. Voluntary property acquisition is not a simple process and requires agreement by the property owner and local jurisdiction. If state or federal funding is involved, the process could also include other governmental agencies and program requirements. The process can also be financially burdensome and lengthy.

Utility relocations may include water and wastewater lines, existing storm drain systems, telecommunication infrastructure, power lines, and similar infrastructure. The local government and franchise utility owners are usually responsible for utility relocations; however, developers may also assume responsibility for utility relocations, depending on the project. Utility relocation includes removing and reinstalling the utility, including necessary temporary utilities; acquiring necessary ROW; and taking any necessary safety and protective measures. Utility relocations can take significant lead time to accomplish and can be a significant portion of the total project implementation cost.

~~6.2.2~~5.2.2 Recommendations Evaluation Summary of Screening Results

~~6.2.2.1~~5.2.2.1 Overview Process

Technical Committee Formation

The San Antonio RFPG created a Technical Committee tasked with establishing a selection methodology, implementing the evaluation and selection process, and reporting its findings and recommendations back to the San Antonio RFPG for formal approval. The methodology included a screening of all potential flood mitigation actions based on the general process described in Section 5.1.1 Process to Identify FMEs, FMPs, and FMSs and any other additional considerations established by the Technical Committee.

On January 13, 2022, the Technical Committee reviewed, discussed, and approved the process and timeline for reviewing FMEs, FMSs, and FMPs as well as making recommendations to the San Antonio RFPG. The Technical Committee met over a series of meetings in 2022 to further discuss recommendations. Meetings occurred on:

- January 13, 2022
- February 10, 2022
- March 24, 2022
- April 21, 2022
- May 16, 2022

- June 23, 2022
- July 19, 2022

Additionally, for the Amended 2023 San Antonio RFP, the technical committee met on:

- September 20, 2022
- December 7, 2022
- February 9, 2023
- March 9, 2023
- April 11, 2023
- May 11, 2023

Technical Committee Review and Approval of Recommendations

Initial meetings of the Technical Committee focused on completion of the initial screening process to identify potentially feasible FMPs, FMEs, and FMSs. This included the discussion of how the actions were being categorized, limitations of the available data, and confirmation of how the discretionary evaluation criteria was applied to each applicable action.

On March 24, 2022, the Technical Committee established a process for reviewing, discussing, and making their recommendations. In short, the committee agreed that future batches would be reviewed prior to the meeting at which they were to be considered, and the actions would be brought forward in groups, or batches, for consideration in a manner similar to a consent agenda. This format allowed each committee member to provide comments on or to discuss any of the individual actions, and allowed the committee to make recommendations to the San Antonio RFPG for each batch. At the June 23, 2022, Technical Committee meeting, the committee reviewed and forwarded recommendations for 163 FMEs, 28 FMPs, and 19 FMSs to the full San Antonio RFPG for approval.

~~Additionally, at~~During the May 11, 2023, Technical Committee meeting, the committee reviewed and forwarded recommendations for the additional amended 22 FMEs and 44 FMPs, to the full San Antonio RFPG for approval.

RFPG Review and Approval of Recommendations

On June 27, 2022, the San Antonio RFPG voted to recommend FMEs, FMPs, and FMSs as presented.

~~Additionally, o~~On May 23, 2023, the San Antonio RFPG voted to recommend the amended FMEs and FMPs as presented.

~~6.2.2.2~~5.2.2.2 Flood Mitigation Projects

Initial Evaluation: The scope of work for each FMP was evaluated to ensure that it would support at least one of the regional floodplain management and flood mitigation goals established in Chapter 3 Floodplain Management Practices and Flood Protection Goals. The goals associated with each FMP are included in TWDB-required Table 11 Regional Flood Plan Flood Mitigation and Floodplain Management Goals in Appendix A. Based on a review of supporting information, it was determined that the primary purpose for each FMP is mitigation (rather than a response or recovery project), and FMPs do not have any anticipated impacts to water supply or water availability allocations as established in the most recent adopted State Water Plan.

No Negative Impacts Determination: Each identified FMP must demonstrate that no negative impacts would occur on a neighboring area due to its implementation. No negative impact means that a project will not increase flood risk of surrounding properties. Using best available data, the increase in flood risk must be measured by the 1 percent annual chance event water surface elevation and peak discharge. It is recommended that no rise in water surface elevation or discharge should be permissible (without acquiring the effected land or obtaining permission from the affected parties), and that the analysis extent must be sufficient to prove proposed project conditions are equal to or less than the existing conditions.

For the purposes of flood planning effort, a determination of no negative impact can be established if a project does not increase inundation of infrastructure, such as residential and commercial buildings and structures. Additionally, the following requirements, per TWDB's *Technical Guidelines*, should be met to establish no negative impact, as applicable:

- Does not increase inundation in areas beyond the public ROW, project property, or easement
- Does not increase inundation of storm drainage networks, channels, and roadways beyond design capacity
- A maximum increase of one-dimensional Water Surface Elevation must round to 0.0 feet (less than 0.05 feet) measured along the hydraulic cross section
- A maximum increase of two-dimensional Water Surface Elevation must round to 0.3 feet (less than 0.35 feet) measured at each computation cell
- Maximum increase in hydrologic peak discharge must be less than 0.5 percent measured at computation nodes (sub-basins, junctions,

reaches, reservoirs, etc.); this discharge restriction does not apply to a two-dimensional overland analysis

If negative impacts are identified, mitigation measures may be used to alleviate such impacts. Projects with design level mitigation measures already identified may be included in the RFP and could be finalized at a later stage to conform to the "No Negative Impact" requirements prior to funding or execution of a project.

Furthermore, the RFPG has flexibility to consider and accept additional "negative impact" for the above requirements based on engineer's professional judgment and analysis provided any affected stakeholders are informed and accept the impacts. This should be well documented and consistent across the entire region. However, flexibility regarding negative impact remains subject to TWDB review.

A comparative assessment of pre- and post-project conditions for the 1 percent annual chance event (100-year flood) was performed for each potentially feasible FMP based on their reported H&H model results. Study results for floodplain boundary extents, resulting water surface elevations, and peak discharge values were reviewed to verify potential FMPs conform to the no negative impact requirements. The same studies were used to identify reported flood risk reduction.

A general project description, BCR, and no negative impact determination for ~~of the scope of work and a summary of the expected impacts of the proposed improvements for~~ each potentially feasible FMP is provided in Table 5-5, at the end of this section. Included in Appendix A – No Negative Impact Determination Table provides a complete list of recommended FMPs and how no negative impact was determined, either via a model, a study or engineering judgement, listing of the model's name and unique model ID, study name, or engineering judgement description. Figure 5-6 shows the geographic distribution of the recommended FMPs.

LOS Evaluation and BCA: All the recommended FMPs provide some level of flood reduction benefits, which are included based on available information. When a BCR had been previously calculated in an engineering report or study that was used to create an FMP, the previously calculated BCR value was used for the FMP analysis. For any FMP that did not already have a calculated BCR value, the TWDB BCA Input Spreadsheet was used in conjunction with the FEMA BCA Toolkit 6.0 to generate BCR values. Assumptions on the generated BCRs can be found in Appendix E - Methodologies and Procedures Memorandum.

~~Most LWC improvements did not include improvements that removed structures from the 1 percent annual chance (100-year) floodplain. For these types of projects, the TWDB BCR spreadsheet does not require structure data to complete a BCR. To calculate a BCR for LWCs, traffic counts, depth of flooding over the roadway, duration of flooding, and the length of detour were needed. This data was obtained from the entities or extracted from the H&H models to incorporate into the TWDB BCA Input spreadsheet.~~

As stated previously, a BCR greater than 1.0 is not a requirement for inclusion in the San Antonio RFP. The RFPG can recommend a project with a lower BCR with appropriate justification. The RFPG considered the following projects in

Table 5-5 (shown in Figure 5-6) and determined that recommending these FMPs is consistent with the overarching goal of the San Antonio RFP "to protect against the loss of life and property."

A total of 71 potential FMEs were identified and evaluated by the San Antonio RFPG. Of these, all were recommended, representing a combined total of $738,955,000 of FMP need across the SAFPR. The recommended projects costs, descriptions, BCAs and No Negative Impact determination is included in Table 5-5. The full list of FMPs and supporting technical data is included in the TWDB-required Table 13 Potential Flood Management Projects Identified by RFPG in Appendix A, and Map 17 Extent of Potential Flood Mitigation Projects in Appendix B. Recommended FMPs are presented in the TWDB-required Table 16 Flood Management Projects Recommended by RFPG in Appendix A, and Map 20 Recommended Flood Mitigation Projects in Appendix B. Overall, the recommended FMPs are expected to remove from the floodplain 1,474 structures, 5,011 people, 2 critical facilities, 43 LWCs, and 59 miles of flooded road. The impacts of these FMPs on the SAFPR are discussed in greater detail in Chapter 6 Impact and Contribution of the San Antonio Regional Flood Plan.

Figure 5-6. Geographical Distribution of Recommended FMPs

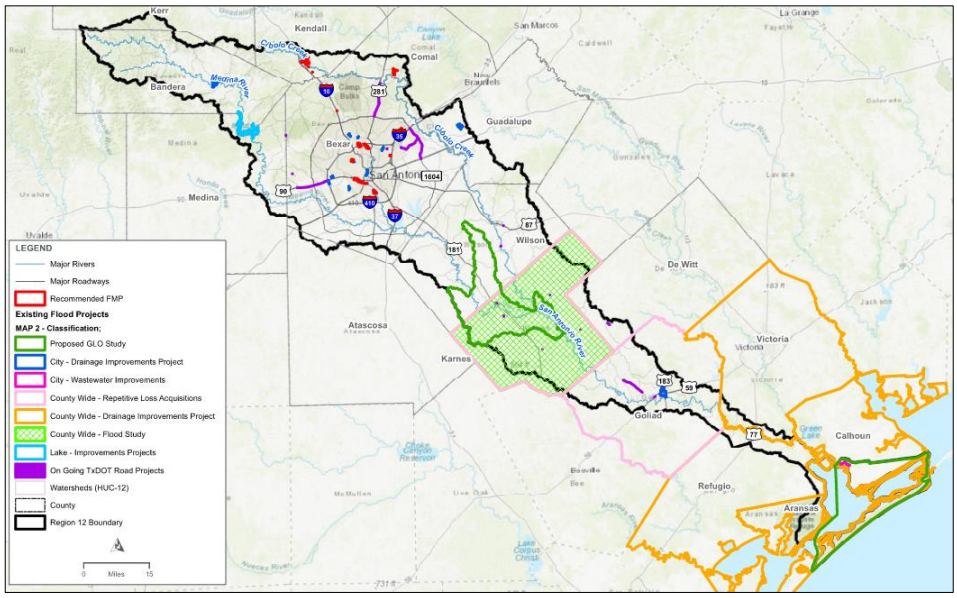


Table 5-5. Summary of FMPs Recommended by the RFPG

Project Title	Project Description	Cost	Community	BCA	No Negative Impact Determination / Name
Abbott Road at Tributary A to Salitrillo Creek and at Salitrillo Creek Bridge	This project will provide 50-year conveyance design, removing structures from the existing floodplain. Proposed improvements consist of channel regrading, increasing the road elevation, upgrading culverts, and adding a bridge.		Bexar County	0.05	Model / ID 120000000038
Freudenburg Road at Salitrillo Creek Barrier Arms	The proposed improvements consist of adding flashing lights and an automatic barrier arm on each side of the LWC that will be lowered when the road is overtopped.		Bexar County	0.3	Model / ID 120000000042

Project Title	Project Description	Cost	Community	BCA	No Negative Impact Determination / Name
Nichols Creek Tributary 4 Drainage Improvements	Channel improvements upstream (east) of Escondido Street; lower existing pond bottom at Kenedy Retreat Apartments to increase capacity		Karnes County	1.8	Model / ID 120000000061
CR 325 Drainage Improvements at Ojo De Agua Creek	Upgrade CR 325 crossing with roadway elevation, bridge structure upgrades, and channel improvements		Karnes County	0	Model / ID 120000000062
Wilson 10 - Acquisitions of Flooded Structures	This project proposes to acquire the three frequently flooded properties and remove the structures from the existing conditions floodplain extents through demolition or relocation.		Wilson County	1.4	Engineering Judgement / Acquisitions

[a] There is not a process to quantify the benefits for a high-water detection system. Flood warning systems are one of the listed types of potential FMPs described in Section 3.2 of TWDB's *Technical Guidelines*.

~~6.2.2.3~~5.2.2.3 Flood Management Evaluation

In considering potential FMEs for recommendation, the San Antonio RFPG sought to determine which FMEs would be most likely to result in identification of potentially feasible FMSs and FMPs in future planning cycles. Recommended FMEs were also required to demonstrate alignment with at least one regional floodplain management and flood mitigation goal developed under Task 3. Finally, each recommended FME should identify and investigate at least one solution to mitigate the 1 percent annual chance flood. It is the intent that all FMEs with an H&H modeling component will evaluate multiple storm events, including the 1 percent annual chance flood. The potential solutions and LOS that will be identified are unknown; however, it is expected that analyses will evaluate potential negative impacts and potential flood risk reduction for the 1 percent annual chance flood to help inform recommended alternatives and to define potentially feasible FMPs under this planning framework. Based on these TWDB requirements, the San Antonio RFPG identified two main reasons for recommending FMEs.

The first subset of recommended FMEs would result in increased flood risk modeling and mapping coverage across the SAFPR as they are implemented. These types of FMEs have two major implications for the identification of potentially feasible FMSs and FMPs. First, a current and comprehensive understanding of flood risk across the basin is necessary to identify high-risk areas for evaluation and development of flood risk reduction alternatives. Secondly, FMPs, and in some cases FMSs, require a demonstrated potential reduction in flood risk to be recommended in the San Antonio RFP. For this metric to be assessed, H&H modeling must be available to compare existing and post-project flood risk.

The second subset of recommended FMEs were project planning type FMEs. These FMEs are generally studies or preliminary designs to address a specific, known flood need. These actions include LWC improvements, storm drain or channel projects, city- or county-wide studies, and evaluations of possible buyouts or elevation. While in many cases a specific location is known, the actions currently lack some or all the detailed technical data necessary for evaluation and recommendation as an FMP. An example would be an existing study that identifies potential drainage construction projects but does not provide a full negative impacts analysis. Completing these components as part of an FME will result in a potentially feasible FMP for consideration during future flood planning efforts.

Sponsor input was a major driver for choosing not to recommend FMEs. FMEs that were indicated by the sponsor as being in progress, completed, or lacking interest to pursue were not recommended. ~~Additionally, some FMEs~~

~~located near one another were combined into a single FME for recommendation, a process the San Antonio RFPG plans to continue as it develops the amended plan (anticipated to be completed July 2023).~~

Description and Summary of Recommended FMEs

A total of 163 potential FMEs were identified and evaluated by the San Antonio RFPG. Of these, all were recommended, representing a combined total of $7~~94,400~~12,076,000 of FME need across the SAFPR. The number and types of studies recommended by the San Antonio RFPG are summarized in Table 5-6 and shown in Figure 5-7. The full list of FMEs and supporting technical data is included in the TWDB-required Table 12 Potential Flood Management Evaluations Identified by RFPG in Appendix A, and Map 16 Extent of Potential Flood Management Evaluations and Existing Mapping Needs in Appendix B. Recommended FMEs are presented in the TWDB-required Table 15 Flood Management Evaluations Recommended by RFPG in Appendix A, and Map 19 Recommended Flood Management Evaluations in Appendix B. Overall, the recommended FMEs represent more than 2~~8,65~~5,300 square miles of contributing drainage area and provide comprehensive coverage of the SAFPR.

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Figure 5-7. Geographical Distribution of Recommended FMEs

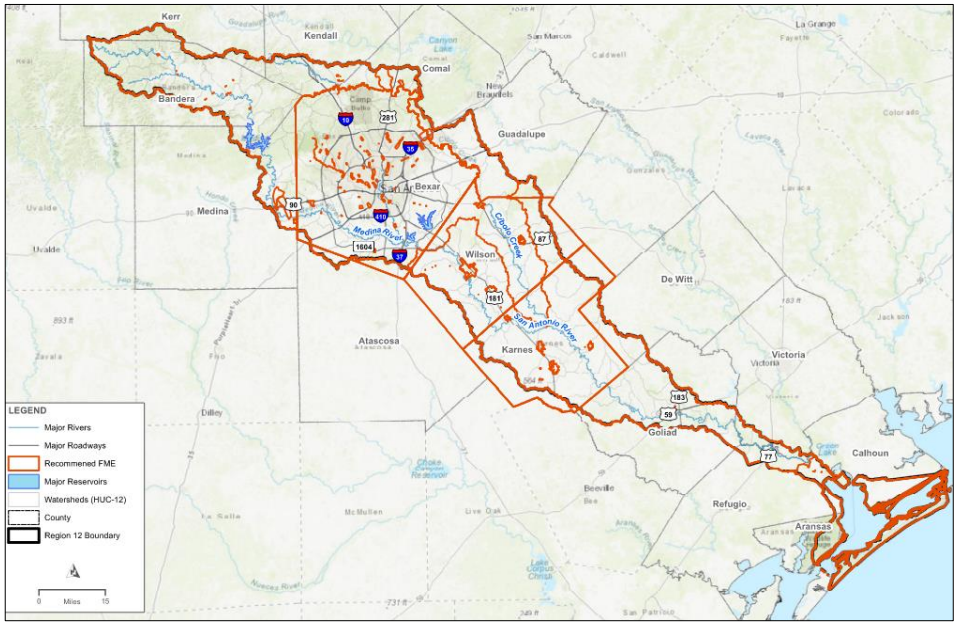


Table 5-6. Summary of FMEs Recommended by the RFPG

Type	Total
Project Planning	14~~01~~
Watershed Planning	20
Flood Readiness and Resilience	~~3~~2

~~6.2.2.4~~5.2.2.4 Flood Management Strategy

The approach for recommending FMSs adheres to similar requirements as the FMP process; however, due to the flexibility and varying nature of RFPG's potential us of FMSs, some of these requirements may not be applicable to certain types of FMSs. In general, the RFPG must be able to demonstrate that each recommended FMS meets the following TWDB requirements as applicable:

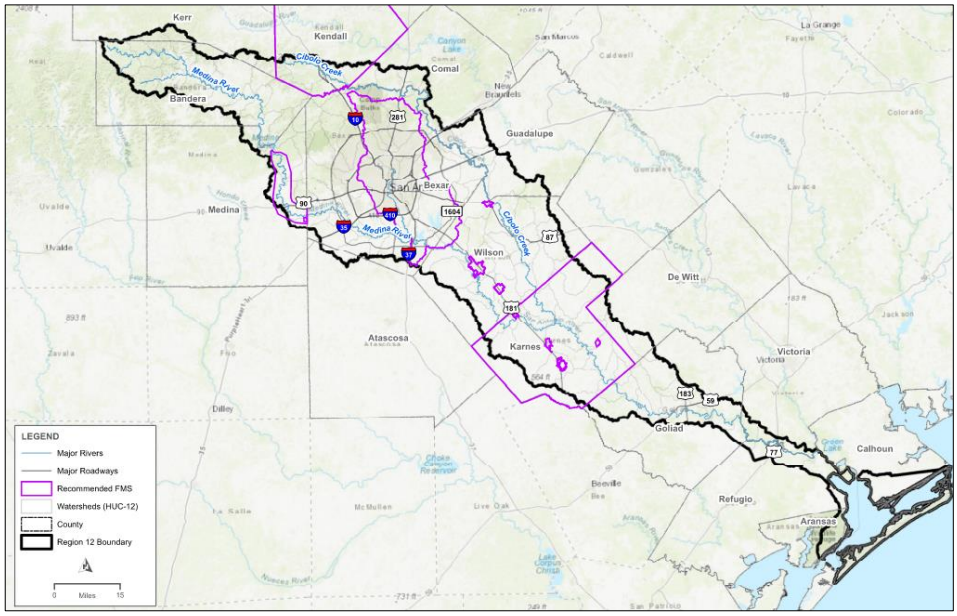
- The primary purpose of the FMS is mitigation (response and recovery projects are not eligible for inclusion in the RFP).
- The FMS supports at least one regional floodplain management and flood mitigation goal.
- Implementation of the FMS results in:
  - Quantifiable flood risk reduction benefits
  - No negative impacts to adjacent or downstream properties (a No Negative Impact certification is required)
  - No negative impacts to an entity's water supply
  - No overallocation of a water source based on the water availability allocations in the most recently adopted State Water Plan

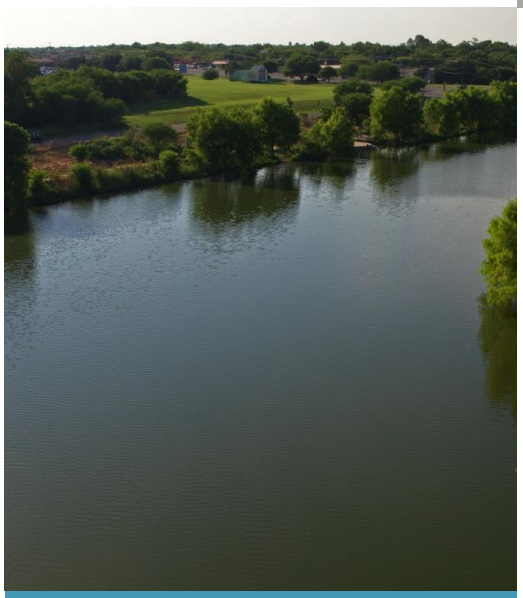
Additionally, the TWDB recommends that, at a minimum, FMSs should mitigate flood events associated with the 1 percent annual chance flood (100-year flood) and must demonstrate no negative flood impacts would occur to a neighboring area due to its implementation. No structural FMSs were identified for this region; therefore, flood mitigation and no adverse impacts from flooding or to the water supply are anticipated. A total of 19 potential FMSs were identified and evaluated by the San Antonio RFPG. Of these, all were recommended, representing a combined total of $999,000 of FMS needs across the SAFPR. ~~-~~ The number, types, and distribution of studies recommended by the San Antonio RFPG are summarized in Table 5-7 and shown in Figure 5-8.

Table 5-7. Summary of FMSs Recommended by the RFPG

Type	Total
Education and Outreach	11
Regulatory and Guidance	7
Flood Measurement and Warning	1

Figure 5-8. Geographical Distribution of Recommended FMSs





6

Impact and Contribution of the Regional Flood Plan

~~7~~6 Impact and Contribution of the San Antonio Regional Flood Plan

The objective of this task is to assess and summarize the impacts and contributions, in the aggregate, associated with implementation of this San Antonio RFP. In previous chapters, existing flood hazard and exposure conditions were assessed based on the 1 and 0.2 percent annual chance flood events. Additionally, an inventory of existing infrastructure and natural features was compiled for use as a baseline. Flood risk reduction or mitigation needs were identified, leading to adoption by the San Antonio RFPG of recommendations, presented in Chapter 0

Identification and Evaluation of Potential Flood Management Evaluations and Potentially Feasible Flood Management Strategies and Flood Mitigation Projects, of FMPs, FMEs, and FMSs. This chapter aims to compare those identified risks with the potential estimated positive and negative benefits of implementing the San Antonio RFP. Additionally, in the second part of this chapter, potential contributions to and impacts on water supply development and the State Water Plan are assessed.

~~7.1~~6.1 Impacts of San Antonio Regional Flood Plan

Implementation of the San Antonio RFP can be expected to provide numerous benefits to the areas served by local sponsors and will not negatively affect neighboring areas within or outside the SAFPR. More specifically, the implementation of recommended flood mitigation actions are expected to reduce the number and/or spatial extent of areas with high flood hazard and exposure. For example, implementation of recommended FMPs are expected to remove an estimated ~~3,582~~1,474 at-risk structures from flood-prone areas. Note, however, that the benefits will vary greatly across the SAFPR due to the highly variable and local nature of most flood hazard areas as well as with the types of studies, strategies, and projects that are implemented. Further discussion of the potential benefits of implementing this San Antonio RFP is provided below.

~~7.1.1~~6.1.1 Floodplain Management and Modeling

Information was compiled during the baseline development of the San Antonio RFP. As part of the compilation, data gaps were identified within the SAFPR. The information and data gaps were found in areas of low to high flood risks that lack floodplain management practices, adequate enforcement of floodplain standards and regulations, detailed H&H models, and flood inundation mapping. Combined, these areas cover approximately 1,083 square miles, or 25 percent of the SAFPR, and include an estimated population of 121,672. The lack of information hinders the ability of local entities to effectively manage activities in floodplains, adequately assess flood risks and exposure, evaluate potentially feasible flood risk reduction strategies and solutions, and select a preferred option(s) for implementation. Overall, this likely results in population and property exposed unnecessarily to flood risk. As reported in Chapter 0

Identification and Evaluation of Potential Flood Management Evaluations and Potentially Feasible Flood Management Strategies and Flood Mitigation Projects, 163 FMEs are recommended. When implemented, these FMEs will close data and information gaps and set in motion the process of developing and implementing flood risk reduction solutions to ultimately reduce exposure to flood hazards. ~~Twenty~~ A total of 20 recommended FMEs are specifically focused on watershed modeling and mapping. A total of 140~~1~~ FMEs include modeling and mapping to identify flood risk, flood mitigation alternatives analysis and feasibility studies, and preliminary engineering studies, among others. The FMEs that are being proposed will cover the whole basin. One FME, in particular, will target the lower basin that has the majority of the data gap previously described. The SARA is proposing a lower basin predictive flood model that will reduce the data gap by 100 percent.

Commented [VL6]: Number not changing

~~7.1.2~~6.1.2 Reduction in Flood Impacted Areas

Existing flood hazard areas were identified and quantified for the 1 percent annual chance flood events. Table 6-1 shows the existing versus proposed flood impacted area in square miles for the recommended FMPs. By implementing the recommended FMPs, these flooded project areas will be reduced by approximately 65~~94~~ percent, or a reduction in approximately 3.6 square mile, removing many structures, population, LWC, and roads.

Table 6-1. Reduction in Existing Flood-Impacted Areas

Annual Chance Event	Project Area in Floodplain (square miles)	Reduction Due to the FMP (square miles)	Change in Area (square miles)	Change in Area
1.0%	9.0~~3.8~~	5.8~~0.2~~	3.2~~6~~	65~~0.5~~%

~~7.2~~6.2 Benefits to Population and Structures at Risk

With the number of square miles affected by flooding being reduced with the implementation of the FMPs in this RFP, the ultimate beneficiaries are populations residing in those areas as well as public and private assets (e.g., structures, roads, utilities). Since the land area being affected will be reduced, the subsequent population benefitting from the San Antonio RFP within the SAFPR is estimated to be 5,011~~18,957~~. The socioeconomic benefits to the population will vary based on location. Additional descriptions of those benefits will be provided in Tables 23 through 40 Project Details Scoring Summary Table in Appendix A~~the digital submittal~~. The estimated

population to be removed from the floodplain if these FMPs are implemented is shown in Table 6-2. While the number of potentially avoidable injuries and deaths associated with implementation of these FMPs is not quantifiable, the expected benefits can be substantial. The benefits will be generated by changing flood characteristics to reduce flood risk to structures, roads, and property (structural flood mitigation projects) and changing the way people interact with flood risk (nonstructural flood mitigation projects and strategies) through regulatory improvements, educating people about flood risks, and implementing flood early warning and evacuation measures.

Table 6-2. Population Removed from the Floodplain

Annual Chance Risk Flood	Existing Population Impacted	Estimated Population Removed after Implementation	Decrease in Population Impacted
1.0%	67,738~~18,957~~	~~7,494~~5,011	7~~60~~%

Implementing the San Antonio RFP provides additional benefit to the removal of existing structures located within flood hazard areas. Removing structures from flood danger benefits communities who rely on those structures for residences, work, industry, and critical facilities. These include structures that are inundated for short periods and those inundated for extended periods along the flatter topographical areas within the SAFPR. Table 6-3 shows the estimated reduction in the number of structures that will be removed by implementing the RFP.

Table 6-3. Structures Removed from the Floodplain

Annual Chance Risk Flood	Existing Structures Impacted	Estimated Structures Removed after Implementation	Decrease in Structures Impacted
1.0%	~~6,319~~19,120	~~3,582~~1,474	8~~43~~%

Critical facilities identified generally as municipal utilities and buildings, hospitals and care facilities, and schools are of special importance and will benefit from the San Antonio RFP. ~~The following Table 6-4 shows t~~The estimated number of critical facilities that are currently impacted and those which will be removed from the floodplain with RFP implementation are shown in Table 6-4. ~~No critical facilities are being removed with the implementation of the San Antonio RFP. However, multiple studies are being~~

~~recommended for the San Antonio RFP that will assess floodproofing or removing critical infrastructure from the floodplain.~~

Table 6-4. Critical Facilities Removed from the Floodplain

Annual Chance Risk Flood	Existing Critical Facilities	Critical Facilities Removed After Implementation	Decrease in Critical Facilities
1.0%	4,077	2~~0~~	0.05%~~0~~

~~7.3~~6.3 Low Water Crossings and Impacted Roadways

Implementing the recommended FMPs across the SAFPR will have a considerable impact on the number of existing LWCs. As projects are implemented over time, the number of LWCs will be reduced, saving life and property. The estimated number of LWCs being removed due to implementing the San Antonio RFP is shown in Table 6-5.

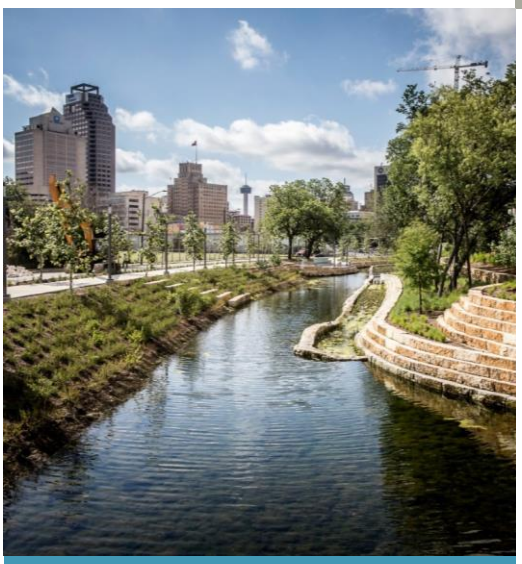
Table 6-5. LWCs Removed from the Floodplain

Annual Chance Risk Flood	Existing LWCs	LWCs Removed After Implementation	Decrease in LWCs
1.0%	1,570~~498~~	~~22~~43	3~~4~~%

In addition to the number of LWCs being removed, flooded roadways also benefit from the San Antonio RFP being implemented. Roadways are often closed due to flooding, posing risks to life, property, and transportation in general. Table 6-6 shows the benefit to transportation infrastructure by reducing the amount of time a roadway is closed or removing it from flooding altogether.

Table 6-6. Roads Removed from Flood Risks

Annual Chance Risk Flood	Existing Roads in Floodplain (Miles)	Roadways Removed from Floodplain After Implementation	Decrease in Roads in Floodplain
1.0%	753	59~~13~~	8~~2~~%



9

Flood Infrastructure Financing Analysis

FMPs, FMEs, and FMSs**.** For the SAFPR, a first round of targeted outreach via in-person meetings, telephone calls, and emails to sponsors was used to gather preliminary information regarding funding needs for recommended FMPs, FMEs, and FMSs. If the entity did not meet to discuss the project, further contact was made via meetings, telephone calls, and emails to gather information.

To gather specific results related to financing, follow-up telephone calls were made to sponsors to clarify questions such as:

- How much funding is needed for the listed FMPs, FMEs, and FMSs?
- How much of this funding by percentage will be sought as a grant and how much will be sought as a loan?
- Have you ever received a designation from a state or local funding program that recognized some or all of your community as having fewer financial resources (such as “low to mod” from the TxCDBG program or “Disadvantaged” from the TWDB)?
- How will the loan portion of any proposed funding package be supported (fees and/or taxes)?

In general, sponsors that were smaller and/or considered to have fewer financial resources were noted as needing a 75 percent or greater grant. Conversely, sponsors that were larger and/or considered to have more financial resources were noted as needing a 50 percent or smaller grant.

~~10.4~~9.4 Summary of Survey Results and Funding Needs

A total of 33~~28~~ entities within the SAFPR sponsored the FMPs, FMEs, and FMSs that are recommended by the San Antonio RFPG. These 33~~28~~ sponsors were contacted about funding needs to implement these projects, and to date, 18~~15~~ have responded, which represents a response rate of ~~54~~55 percent. TWDB-required Table 19 FMS, FMP, FME Funding Survey in Appendix A presents the results of the survey for each FMP, FME, and FMS. A 25/75 percent split was entered for those entities that did not respond.

The total cost for all the FMP, FME, and FMS projects recommended in the RFP is $1,~~260,123~~452,030,000. Based on the funding split specified by each sponsor for each project, ~~of this $1,452,030,000~~1,260,123,000, it is projected that $1,~~061,702,322~~199,759,000 in state and federal grant funding is needed for implementation of these projects, with the remainder provided by local entities**.**

The basic three sources of funding included federal and state grants, federal and state loans with favorable loan terms, and local financing through private

10

Public Participation and Adoption of Plan

~~11~~10 Public Participation and Adoption of Plan

[31 TAC §361.30–32]

~~11.1~~10.1 Introduction

The objective of this chapter is to address how the San Antonio RFPG encouraged public participation through public meetings and online tools throughout the flood planning process, completed all activities necessary to complete and submit the Draft, ~~and~~ Final, and Amended 2023 San Antonio RFP, and obtained TWDB approval of the RFP. The San Antonio RFP satisfies the requirements of each of the 39 guidance principles identified in 31 TAC §362.3, as shown in Table 10-1.The San Antonio RFPG also certifies that the RFP will not negatively affect a neighboring area. Furthermore, the San Antonio RFP was developed based on TWDB guidance. Appendix A includes full data tables requested by TWDB, which are included in Exhibit C in the digital submission.

Table 10-1. Title 31 TAC §362.3 Guidance Principles and the Means by which Each Requirement is Met in the ~~SA~~San Antonio RFP

Guidance Principle	Means by which Requirement is Met in RFP
(1) shall be a guide to state, regional, and local flood risk management policy;	The RFP is a guide with management goals in Chapter 3, management strategies in Chapter 5, and management and policy recommendations in Chapter 8.
(2) shall be based on the best available science, data, models, and flood risk mapping;	Best available information from a quality, coverage, and contemporary perspective were used in this RFP, for example in the Chapter 2 analyses.
(3) shall focus on identifying both current and future flood risks, including hazard, exposure, vulnerability, and residual risks; selecting achievable flood mitigation goals, as determined by each RFPG for their region; and incorporating strategies and projects to reduce the identified risks accordingly;	The RFP examines current and future flood risk in Chapter 2, mitigation goals in Chapter 3, and strategies in Chapter 5. Maps in Appendix B show the areas of flood risks.

meeting summary reports, included in Appendix C. The dates and locations of the first group of meetings are:

- June 6, 2022 – San Antonio, Texas
- June 7, 2022 – Schertz, Texas
- June 16, 2022 – Floresville, Texas

Entities with floodplain management responsibilities within the SAFPR provided information throughout development of the San Antonio RFP. Three surveys were sent out to stakeholders during a period from November 2021 through April 2022 to gather input on local flood plans, ongoing flood projects, flood mitigation needs, and other information. An online interactive map was made available from November 2021 through July 2022 on the FPR 12 website to gather public and stakeholder input regarding flood-prone areas. Individual interviews were set up with entities that were able to be successfully contacted to discuss specific flooding concerns. Representatives of flood planning entities within the SAFPR were also regularly notified of San Antonio RFPG meetings and subregional public informational meetings.

~~11.3~~10.3 San Antonio RFPG Communications

~~11.3.1~~10.3.1 Regional Website and Email Address

To communicate the activities of the San Antonio RFPG and receive input from the public and stakeholders, the San Antonio RFPG created a website[88] for the public to access. The website has been used to convey the following information.

- General SAFPR information;
- Contact information for members of the San Antonio RFPG;
- Notifications of upcoming San Antonio RFPG meetings, including a virtual meeting option using GoToMeeting software;
- Meeting archives containing past meeting agendas, supporting documentation, and meeting minutes;
- A link to a community survey to poll the level of community support for the goal statements of the San Antonio RFPG;
- Links to additional flood planning resources, including the TNRIS Flood Planning Regions Map Collection;

[88] https://www.region12texas.org

- The phone number and address to submit public comments for a particular agenda item and/or submit questions to the San Antonio RFPG;
- A link to an interactive map, which citizens used to confirm the benefitted area of proposed projects as well as indicate areas with flooding issues;
- The *Draft 2023 San Antonio Regional Flood Plan* for the public to review and provide comments; ~~and~~
- The *Final 2023 San Antonio Regional Flood Plan* for the public to review; and~~.~~
- The *Amended 2023 San Antonio Regional Flood Plan* for the public to review.

~~11.3.2 ArcGIS StoryMap~~

~~An ArcGIS StoryMap[89] was created to help the citizens of the SAFPR visually understand the purpose of the San Antonio RFP and the work being completed by the technical consultants.~~

~~11.4~~10.4 Coordination with Other Planning Regions

Coordination with other planning regions was accomplished primarily through the technical consultants, who coordinated data and shared information that were then reported to the RFPGs. Coordination was accomplished with adjacent RFPGs, including FPRs 10, 11, and 13. Other coordination was accomplished through the participation of San Antonio RFPG members and liaisons with adjacent RFPGs.

~~11.5~~10.5 San Antonio Regional Flood Planning Group Meetings

The San Antonio RFPG and Outreach Committee met regularly in accordance with TWDB requirements and the approved bylaws. The purpose of the Outreach Committee was to facilitate public involvement in the planning process. The San Antonio RFPG and Outreach Committee met on a more frequent basis as needed in order to facilitate and direct the flood planning of the SAFPR. The following summarizes meeting dates for each entity:

- San Antonio RFPG meetings:
  - June 27, 2023
  - May 23, 2023

~~[89] As of March 2022, the StoryMap was located at: https://hdr.maps.arcgis.com/apps/MapSeries/index.html?appid=4bf56a7abed44fe9b07a450d1f95404b~~

  - April 20, 2023
  - February 21, 2023
  - December 19, 2022
  - November 17, 2022
  - October 13, 2022
  - September 15, 2022
  - July 25, 2022
  - June 27, 2022
  - May 26, 2022
  - April 7, 2022
  - March 3, 2022
  - January 4, 2022
  - December 16, 2021
  - November 16, 2021
  - October 26, 2021
  - September 21, 2021
  - August 17, 2021
  - June 15, 2021
  - May 14, 2021
  - April 20, 2021
  - February 9, 2021
  - December 1, 2020
  - November 2, 2020
- Outreach Committee meetings:
  - July 14, 2022
  - June 22, 2022
  - May 19, 2022
  - April 22, 2022
  - March 25, 2022
  - January 14, 2022

- November 3, 2021
- October 13, 2021

~~11.6~~10.6 Public Hearing and ~~Responses to Public~~ Comments Received on the Draft ~~Plan~~and Final Plan

The San Antonio RFPG approved the *Draft 2023 San Antonio Regional Flood Plan* for submittal to the TWDB on July 25, 2022. The *Draft 2023 San Antonio Regional Flood Plan* was submitted to the TWDB on August 1, 2022. Following the draft submittal, two meetings were held at the request of individual stakeholders to inform the public of the RFP and notify them of the comment period:

- August 17, 2022 – Leon Valley, Texas
- August 23, 2022 – Goliad, Texas

Abiding by the TWDB's rules, the Draft RFP comment period opened 30 days after the Draft RFP submittal, providing sufficient time to accept public comments according to statute to meet the January 10, 2023, deadline for submission of the adopted *Final 2023 San Antonio Regional Flood Plan.* A public hearing was held on September 15, 2022, to receive comments on the *Draft 2023 San Antonio Regional Flood Plan.* Hard copies of the *Draft 2023 San Antonio Regional Flood Plan* were provided as required and the RFP was posted on the SAFPR website for public review and comment.

During the comment period, a total of 13 comments were received, 5 from organizations within the SAFPR, including Texas Parks and Wildlife Department, Camp Bullis Sentinel Landscape Partnership, Greater Edwards Aquifer Alliance, National Wildlife Federation, and Great Springs Project. These organizations submitted letters as their public comments. The letters contain recommendations for the TWDB regarding the flood planning process, SFP, and other considerations. Additionally, on October 21, 2022, the TWDB provided their own comments on the Draft RFP. All comments received on the *Draft 2023 San Antonio Regional Flood Plan* and associated responses are included in Appendix DDraft 2023 San Antonio Regional Flood Plan Comments and were incorporated into the *Final 2023 San Antonio Regional Flood Plan*.

The TWDB provided comments on the *Final RFP* on March 13, 2023. All comments received on the *Final RFP* and associated responses are included in Appendix DDraft 2023 San Antonio Regional Flood Plan Comments and were incorporated into the *Amended 2023 San Antonio Regional Flood Plan*.

~~11.7~~10.7 Plan Adoption

The *Draft*, *Final and Amended 2023 San Antonio Regional Flood Plan* ~~was~~ were developed and adopted in accordance with 31 TAC §361.50 and §361.60–361.61. The San Antonio RFPG approved and adopted the *Final 2023 San Antonio Regional Flood Plan* on December 19, 2022, and directed the SARA and technical consultant to submit the *Final 2023 San Antonio Regional Flood Plan* to the TWDB on January 10, 2023. The San Antonio RFPG approved and adopted the *Amended 2023 San Antonio Regional Flood Plan* on June 27, 2023, and directed the SARA and technical consultant to submit the *Amended 2023 San Antonio Regional Flood Plan* to the TWDB on or before July 14, 2023.

AGENDA ITEM NO.12 – PRESENTATION OF CYCLE II CONCEPTUAL SCHEDULE

Includes:

- TWDB Working Conceptual Schedule** for First/Second Cycle of Regional Flood Planning

Working Conceptual Schedule**

First/Second Cycle of Regional Flood Planning

As of December 2022

Texas Water Development Board

Item	Entity	Activity	Planning SOW Task #	2022		2023												2024											
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
32	RFPG	Adopt and Submit the 2023 RFP to the TWDB	All				(DUE JAN 10, 2023)																						
Amended 2023 Region Flood Plan																													
33	RFPG	Outreach and Data Collection to Support Tasks 1 – 9	11																										
34	RFPG	Perform Identified FMEs, Identify, Evaluate, and Recommend Additional FMPs	12																										
35	RFPG	Preparation and Adoption of the Amended RFP	13										(DUE JULY 14, 2023)																
36	TWDB/Sponsor	Last day that work performed is eligible for reimbursement	Contract															(DEC 29, 2023)											
37	TWDB/Sponsor	Last day that the final payment request may be submitted for reimbursement	Contract																	(FEB 29, 2024)									
38	TWDB/Sponsor	Contract expiration	Contract																										
2028 Regional Flood Plan (2nd Cycle)																													
39	TWDB	Anticipated public comment period on proposed changes to administrative rules for Regional and State Flood Planning (31 TAC 361 & 362)																											
40	TWDB	Anticipated TWDB Board Meeting to consider authorizing rule changes and final publication to Texas Register.																											
41	RFPG	Public participation, stakeholder input, post notices, hold meetings, maintain email lists and website	10																										
42	TWDB	Publish Request for Regional Flood Planning Grant Applications																											
43	RFPG/Sponsor	Submission of Applications for Regional Flood Planning Grants to TWDB																											
44	TWDB/Sponsor	Review and Execution of Regional Flood Planning Grant Contracts	Contract																										
45	RFPG/Sponsor	Solicitation for Technical Consultant																											
46	RFPG	Pre-Planning Meetings for Public Input on Development of RFP																											
47	RFPG	Selection of Technical Consultant																											
48	RFPG/Sponsor	Execution of Technical Consultant Subcontract																											
49	RFPG	Development of 2028 RFP																											
50	RFPG	Adopt and Submit the 2028 RFP to the TWDB																									(DUE JAN 10, 2028) ---->		
2024 State Flood Plan																													
51	TWDB	Preparation, Public Input, and Adoption of the State Flood Plan																										(BY SEPT 1, 2024)	

Acronyms:

RFP - Regional Flood Plan
RFPG - Regional Flood Planning Group
FME - Flood Management Evaluation
FMS - Flood Management Strategy
FMP - Flood Mitigation Project

**This conceptual schedule contains approximate timeframes for high-level planning activities for the purpose of illustrating the anticipated order of and interrelationship/overlap between key activities. Each RFPG & Sponsor will develop their own working schedule and will direct its own planning effort which will vary by region. Milestone dates shown red are required deadlines contained in the Regional Flood Planning Grant Contracts.
Detail work associated with each task can be found in the Scope of Work:
https://www.twdb.texas.gov/flood/planning/planningdocu/2023/index.asp