Public Meeting Notice

Region 9 – Upper Colorado Regional Flood Planning Group
June 1, 2022
10:00 AM CST

Notice is hereby given of a regular meeting of the Region 9 – Upper Colorado Regional Flood Planning Group to be held June 1, 2022 at 10:00 AM at the McNease Convention Center – North Meeting Room, 501 Rio Concho Drive, San Angelo, Texas, for the purpose of considering the following agenda items. Masks and social distancing recommended for in-person meeting.

Phone participation is available for public and non-voting representatives by the conference call information below:

Call In: (325) 326–0870 *Passcode / ID: 513 154 525#*

The Meeting Agenda and the Agenda Packet are posted online at https://www.cosatx.us/departments-services/water-utilities/region-9-upper-colorado-flood-planning-region

A recording of the meeting will be available to the public in accordance with the Open Meetings Act upon written request.

Members of the public may also submit Public Comment on agenda items by sending their written comments via email to allison.strube@cosatx.us or rfpg9.lance@gmail.com by noon May 31, 2022. The subject line must be in the following format: "Public Comment, [item number] – June 1, 2022." All emails must include your name and address. Please note all Public Comment emails relevant to posted agenda items received by the deadline will be published as part of the agenda packet prior to the meeting and are therefore public record.

Agenda:

1. Call to Order
2. Welcome
3. Public comments – limit 3 minutes per person
4. Approval of minutes from the previous meeting.
5. Texas Water Development Board Update
6. Sponsoring Agency Update from City of San Angelo
7. Discussion and possible action on Consultant Team planning tasks:
    a. Presentation on Chapter 7 – Flood response information and activities
    b. Presentation on Chapter 8 – Administrative, regulatory, and legislative recommendations
    c. Stakeholder Outreach
    d. Discussion of flood management evaluations and flood management strategies and associated flood mitigation projects
    e. Presentation on Regional Flood Plan development updates, schedule, and next steps Public comments – limit 3 minutes per person
8. Consider date and agenda items for next meeting
9. Adjourn

Additional information may be obtained from:
Allison Strube
allison.strube@cosatx.us
301 W. Beauregard Ave.,
San Angelo, TX 76903

Public Meeting Notice

Region 9 – Upper Colorado Regional Flood Planning Group
May 4, 2022
10:00 AM CST

Meeting held In person at McNease Convention Center – North Meeting Room, 501 Rio Concho Drive, San Angelo, Texas. Additionally, participation was available via conference call at (325) 326-0870.

Roll Call:

Voting Member	Interest Category	Present (x) /Absent ( ) / Alternate Present (*)
Kenneth Dierschke	*Agricultural interests*	X
Rick Bacon	*Counties*	X
Henryk Alexander Olstowski	*Electric generating utilities*	X – Virtual (Not counted toward quorum)
Shannon McMillan	*Environmental interests*	X
Vacant	*Flood districts*	
Morse Haynes	*Industries*	
Lance Overstreet	*Municipalities*	
David H. Loyd Jr.	*Public*	X
Scott McWilliams	*River authorities*	X
Chuck Brown	Small business	X
Cole D. Walker	*Water districts*	X
Allison Strube	*Water utilities*	X

Non-voting Member	Agency	Present(x)/Absent( )/ Alternate Present (*)
John McEachern	Texas Parks and Wildlife Department	X-Virtual
Tim Frere	Texas Division of Emergency Management	
Larissa Place	Texas Department of Agriculture	
Ben Wilde	Texas State Soil and Water Conservation Board	X-Virtual
Jet Hays	General Land Office	
Tressa Olsen	Texas Water Development Board (TWDB)	X-Virtual
Winona Henry	Texas Commission on Environmental Quality	X-Virtual
Anna Yakimovicz	Region 10 Liaison	X-Virtual

Others Present:
Paula Jo Lemonds – HDR (Consultant): In-Person
Heather Keister – Freese & Nichols (Consultant): In-Person
Emily Daniel – HDR (Consultant): In-Person
Rodrigo Vizcaino – HDR (Consultant): Virtual
Scott Rushing – HALFF (Consultant): Virtual

Quorum:
Quorum: **Yes**
Number of voting members or alternates representing voting members present: 8
Number required for quorum per current voting positions of 12: 7

Meeting agendas, packets, information and recordings are available at the link https://www.cosatx.us/departments-services/water-utilities/region-9-upper-colorado-flood-planning-region

- **AGENDA ITEM NO. 1: Call to Order**
  Chair Strube called the meeting to order at 10:02 AM CST. A roll call of the planning group members was taken to record attendance, and a quorum was established prior to proceeding with the agenda.

- **AGENDA ITEM NO. 2: Welcome, Meeting Facilitation Information and Instructions**

- **AGENDA ITEM NO. 3: Public Comments**
  No Public Comments were made during this item.

- **AGENDA ITEM NO. 4: Approval of minutes from previous meeting.**
  Motion by Commissioner Kenneth Dierschke and seconded by Rick Bacon. Motion passed unanimously.

- **AGENDA ITEM NO. 5: TWDB Update**
  Tressa Olsen with TWDB updated the group that the formal comments had been issued for the tech memo. The contract amendment with HDR and City of San Angelo is in the process of being reviewed by TWDB. Tressa Olsen concluded that a Chairs' Conference and Technical Consultants' calls were coming up.

- **AGENDA ITEM NO. 6: Sponsor agency update from the City of San Angelo Provided by chair Allison Strube**
  Chair Strube discussed that the main update is waiting for the TWDB approval for the subcontract amendment with HDR. The City of San Angelo has been submitting for reimbursements on invoices paid to HDR with TWDB. Chair Strube stated there were no major updates at this time.

- **AGENDA ITEM NO. 7: Discussion and possible action on Consultant Team planning tasks: (a) Presentation on Chapter 2 Flood Risk Analysis; (b) Presentation on Chapter 3 Floodplain Management Practices and Flood Protection Goals; (c) Presentation on Regional Flood Plan development updates, schedule, and next steps**
  Paula Jo Lemonds provided an overview of Chapter 2. A draft of Chapter 2 was provided to the group in the background material to the agenda. Heather Keister provided an overview of Chapter 3. A draft of

Chapter 3 was provided to the group in the background material to the agenda. There was a fair amount of discussion regarding development in unincorporated and/or county areas that the group may want to make legislative recommendations. Paula Jo Lemonds completed the item with a presentation covering schedule and next steps for the process.

- **AGENDA ITEM NO. 8: Public Comments – Limit 3 minutes per person**
  No Public Comments were made during this item.
- **AGENDA ITEM NO. 9: Consider Date and Agenda Items for Next Meeting**
  Meeting was attentively set for June 1st at 10:00am.
- **AGENDA ITEM NO. 10: Adjourn**
  Motion by David Loyd and seconded by Cole Walker. Motion passed unanimously. Meeting was adjourned at 11:21 AM CST.

Approved by the Region 9 Upper Colorado RFPG at a meeting held on June 1, 2022.

_____
Lance Overstreet, SECRETARY

_____
Allison Strube, CHAIR

Upper Colorado Regional Flood Plan

Chapter 7. Flood Response Information and Activities

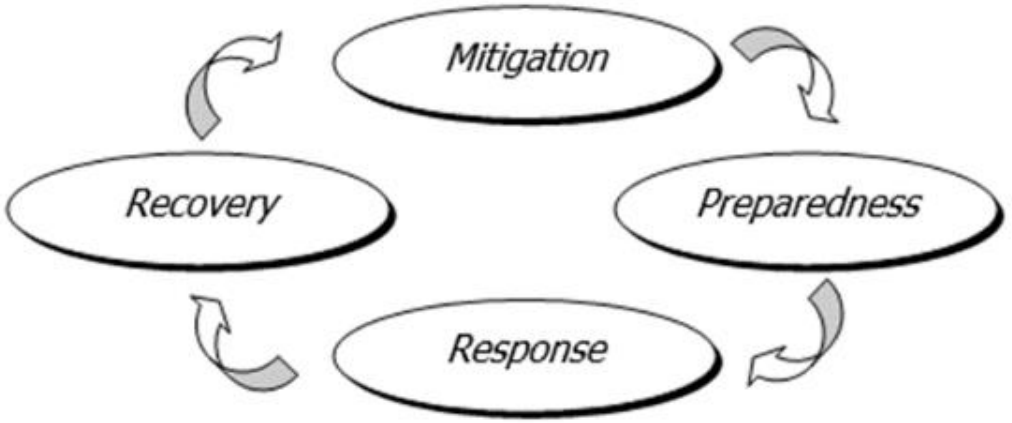
Agenda Item No. 7a

June 1, 2022

TWDB Guidelines – Administrative, regulatory, and legislative recommendations

RFPGs are to summarize the nature and types of flood response preparations within the FPR including providing where more detailed information is available regarding recovery. RFPGs must not perform analyses or other activities related to planning for disaster response or recovery activities.

Four Phases of Emergency Management (FEMA, 1998)



	General definition	Example projects (not an exhaustive list)
Flood mitigation	"The implementation of actions, including both structural and non-structural solutions, to reduce flood risk to protect against the loss of life and property." (Title 31 Texas Administrative Code §361.10(k))	See Section 3.2(2-3) examples of structural and non-structural Flood Mitigation Projects.
Flood preparedness	Actions, aside from mitigation, that are taken before flood events to prepare for flood response activities	Developing emergency management and evacuation plans, preparing staging areas, and building flood early warning systems
Flood response	Actions taken during and in the immediate aftermath of a flood event	Conducting evacuations, providing shelters, closing flooded roads, and operating flood warning systems

Hazard Mitigation Plans

6 Hazard Mitigation Plans collected from Upper Colorado region

Mitigation actions identified by communities in Upper Colorado region:

1. Buyout/Acquisition/Elevation projects
2. Drainage Control & Maintenance
3. Education & Awareness for Citizens
4. Equipment Procurement for Response
5. Flood Insurance Education
6. Flood Study/Assessment
7. Infrastructure Improvement
8. Installation/Procurement of Generators
9. Natural Planning Improvement
10. Outreach and Community Engagement

Jurisdiction	HMAP Year
West Central Texas Council of Governments	2020
Cochran County	2014
Concho Valley Council of Governments	2012
Ector County	2011
Lamb and Lynn Counties	2020
Terry County	In Progress

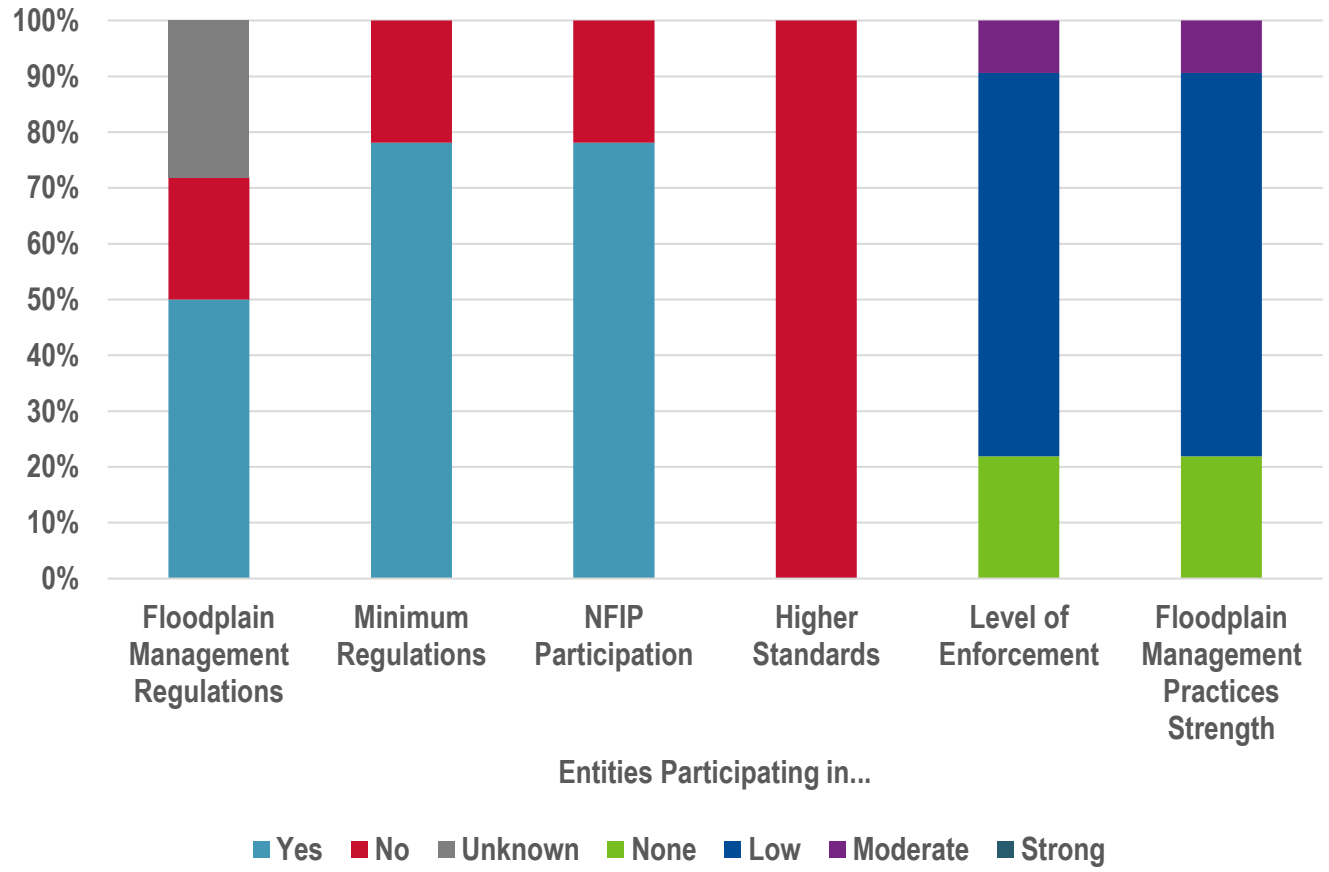
Political Subdivisions with Flood Related Authority

Counties					
Andrews	Crockett	Hockley	Menard	Runnels	Terry
Borden	Dawson	Howard	Midland	Schleicher	Tom Green
Cochran	Ector	Irion	Mitchell	Scurry	Upton
Coke	Gaines	Lynn	Nolan	Sterling	Winkler
Coleman	Garza	Martin	Reagan	Taylor	Yoakum
Concho	Glasscock				
Municipalities					
Ackerly	Bronte	Forsan	Mertzon	Plains	Stanton
Andrews	Brownfield	Goldsmith	Midland	Robert Lee	Sterling City
Ballinger	Coahoma	Lamesa	Miles	San Angelo	Sundown
Big Lake	Colorado City	Loraine	O'Donnell	Seagraves	Wellman
Big Spring	Denver City	Los Ybanez	Odessa	Seminole	Westbrook
Blackwell	Eldorado	Meadow	Paint Rock	Snyder	Winters

Political Subdivisions with Flood Related Authority *(continued)*

Other (Water Authorities, Districts, Commissions, COGs, Etc.)	
Brazos River Authority	Permian Basin Regional Planning Commission
Canadian River Municipal Water Authority	Reagan County WSD
Central Colorado River Authority	Red Creek MUD
Coke County Kickapoo WCID 1	Salt Fork Water Quality District
Colorado River MWD	South Plains Association of Governments
Concho Valley Council of Governments	Tom Green County FWSD 1
Downtown Midland Management District	Tom Green County FWSD 2
Ector County Utility District	Tom Green County FWSD 3
Gaines County SWMD	Tom Green County WCID 1
Howard County WCID 1	Upper Colorado River Authority
Lower Colorado River Authority	Upton County Water District
Martin County FWSD 1	Valley Creek Water Control District
Midland County FWSD 1	West Central Texas Council of Governments
Midland County Utility District	Willow Creek Water Control District
Nolan County FWSD 1	
WCID = Water Control and Improvement District WSD = Water Supply District MUD = Municipal Utility District	MWD = Municipal Water District FWSD = Fresh Water Supply District SWMD = Solid Waste Management District

Upper Colorado Region Floodplain Management Practices



Suggested Planning Group Action

Please review draft 2023 RFP Chapter 7. Flood Response Information and Activities text and provide comments / ideas.

Questions

Upper Colorado Regional Flood Plan

Chapter 8. Administrative, Regulatory, and Legislative Recommendations

Agenda Item No. 7b

June 1, 2022

TWDB Guidelines – Administrative, regulatory, and legislative recommendations

RFPGs must develop and include in their flood plans:

1. legislative recommendations that they consider necessary to facilitate floodplain management and flood mitigation planning and implementation;
2. other regulatory or administrative recommendations that they consider necessary to facilitate floodplain management and flood mitigation planning and implementation;
3. any other recommendations that the RFPG believes are needed and desirable to achieve its regional flood mitigation and floodplain management goals; and
4. recommendations regarding potential, new revenue-raising opportunities, including potential new municipal drainage utilities or regional flood authorities, that could fund the development, operation, and maintenance of floodplain management or flood mitigation activities in the region.

01

Legislative Recommendations

Legislative Recommendations

ID	Recommendation	Rationale for Recommendation
8.1.1	Direct State funding to counties to maintain drainage and stormwater infrastructure in unincorporated areas.	Counties have floodplain and drainage related responsibilities in the State of Texas without a consistent way to fund projects.
8.1.2	Develop State strategies to aid in acquiring federal funds.	Projects for entities in Texas do not compete well for some federal funding programs. For example, FEMA's Building Resilient Infrastructure and Communities (BRIC) Grant requires statewide building codes.
8.1.3	Provide funding and/or technical assistance to develop regulatory floodplain maps.	Several entities who have outdated maps or no mapping at all are not able to fund the projects necessary to update or create accurate depictions of flood risk.
8.1.4	Provide funding and/or technical assistance to update drainage criteria and development standards.	Up-to-date drainage criteria and development standards at the county level improve resiliency and prevent additional flood risk. However, many entities do not have the funding to update criteria and standards.
8.1.5	Provide funding and/or technical assistance to update or perform flood planning and/or master drainage planning studies.	Many communities and entities do not have up-to-date studies or plans that are reflective of growth or updated rainfall data.

Legislative Recommendations *(continued)*

ID	Recommendation	Rationale for Recommendation
8.1.7	Provide additional grant funding to enable the continued function of RFPGs during the interim timeframe between planning cycles.	In the interim of the planning cycles, not only could RFPGs continue adding FMEs, FMSs, and FMPs to the Regional Flood Plan, but they could also implement RFPG-sponsored flood management activities, outreach, and stay informed on regional flood-related occurrences.
8.1.8	Extend Local Government Code, Title 13, Subtitle A, Chapter 552 to allow counties the opportunity to establish and collect drainage utilities/fees in the unincorporated areas.	Counties have floodplain- and drainage-related responsibilities in the State of Texas. Currently, counties do not have the ability to establish and collect stormwater utility fees, thus limiting their ability to fund stormwater or drainage projects, despite having the responsibility to do so.
8.1.9	Grant counties additional authority to regulate land use in unincorporated flood prone areas.	Regulation of development in flood prone unincorporated areas by counties will aid in prevention of additional flood risk.
8.1.10	Establish and fund a state program to assist counties and cities with the assessment and prioritization of low water crossings. Funding should also be provided on a cost-sharing basis for implementation of structural and/or non-structural flood risk reduction measures at high-risk low water crossings (LWC).	Many of the LWCs experience frequent flooding but may have relatively minor flood risk, in terms of public safety and/or the integrity of the roadway. Others, however, are at high-risk and experience flood depths and velocities that do pose a significant risk. The cost to mitigate flood risk at high-risk LWC with structural solutions (e.g., bridges) is typically very high, often prohibitive. It is therefore important the flood risk at LWCs be systematically and fully evaluated to prioritize those LWCs in need of mitigation, either through structural measures or non-structural (e.g., closures, reverse 911 notifications) measures.

02

Regulatory and Administrative Recommendations

Regulatory and Administrative Recommendations

ID	Recommendation	Rationale for Recommendation
8.2.1	Simplify all funding application processes and criteria.	Current funding applications require significant time and resources to prepare a project for consideration, as well as complete the application itself, especially for jurisdictions with limited resources. Thus, jurisdictions that may need the funding the most typically do not apply for current opportunities, despite having need.
8.2.2	Review and revise as necessary all State infrastructure entities' (i.e. TxDOT) standards and practices for legislative and regulatory compliance with stormwater best practices.	State entities should be aware of the drainage and stormwater standards in the areas where they are active. State entities should be required to comply with local regulations when local regulations are higher than state minimum criteria.
8.2.3	Develop resources for and educate local and regional officials regarding the respective entities' ability/authorization to establish and enforce higher development standards.	Local and regional officials are often unaware of their authority to establish and enforce stormwater regulations. (Texas Local Government Code Title 7, Subtitle B.; Texas Water Code Chapter 16, Section 16.315) Flooding and drainage components of local and regional officials' training is often inadequate for their level of responsibility.
8.2.4	Provide measures to allow and encourage jurisdictions to work together towards regional flood mitigation solutions.	Flooding does not recognize jurisdictional boundaries. Allowing and encouraging entities to work together towards common flood mitigation goals would be beneficial to all involved. This should also include state agencies.

Regulatory and Administrative Recommendations *(continued)*

ID	Recommendation	Rationale for Recommendation
8.2.5	Develop a publicly available, statewide database and tracking system to document flood-related fatalities and injuries.	In order to more accurately address the health, safety, and welfare of the public, high flood-risk areas should be tracked and reported. Doing so would increase awareness of the area, both so the public could be aware of the risks, and elected officials and decision-makers could institute solutions to reduce the risk in those areas.
8.2.6	Revise the scoring criteria for funding associated with stormwater and flood-related projects that benefit agricultural activities.	The traditional benefit-cost analysis tools prevent agricultural projects from competing with municipal benefit-cost ratios.
8.2.7	Provide financial or technical assistance to smaller/rural jurisdictions.	The former Office of Rural Affairs/Texas Department of Rural Affairs was intended to assist and work with rural entities. However, the department was disbanded. Actions such as maintaining a department specifically for smaller/rural entities, incentivizing consultants to pursue work for smaller or rural entities or adjusting BCAs to rank small/rural entities equally are all ideas towards accomplishing this goal.
8.2.8	Address the concern of “takings” with regards to floodplain development regulations, comprehensive plans, land use regulations and zoning ordinances.	Jurisdictions should be allowed to regulate development in a responsible manner that reduces future flood risk exposure without the fear of legal action by property owners. Develop documentation that states the land owner has been made aware of current flood risk on a property.

03

Flood Planning Recommendations

Flood Planning Recommendations

ID	Recommendation	Rationale for Recommendation
8.3.1	Update the scope of work, guidance documents, rules, checklists, etc. based on the adjustments and lessons learned made to these planning documents during the first cycle of planning.	During the first cycle of the State Flood Plan, multiple amendments and additions to the TWDB documents and the TWDB's interpretation of its documents occurred. Moving forward, the TWDB documents provided at the onset of each new planning cycle should reflect what is ultimately required of the RFPGs.
8.3.2	Develop a fact sheet and/or other publicity measures to encourage entities to participate in the Regional Flood Planning effort.	Many entities were unaware of the Regional and State Flood Plan efforts despite the RFPG outreach efforts.
8.3.3	Host "lessons learned" discussions with RFPG members, sponsors and technical consultants following the submittal of the final regional plans.	Opening dialogue among these participants to discuss proposed improvements to the regional planning process will streamline and improve future regional flood planning cycles.
8.3.4	Develop an amendment process to efficiently amend approved regional flood plans to incorporate additional recommended FMEs, FMSs, and FMPs, and to allow the RFPG to advance the recommended FMEs to FMPs.	Amending the Regional Flood Plan can be an extensive process. Amendments to move FMEs to FMPs and incorporate new flood management solutions should have a quicker turn-around time in order to efficiently include them in the Regional Flood Plan.

Flood Planning Recommendations *(continued)*

ID	Recommendation	Rationale for Recommendation
8.3.5	Reduce the amount of information required to escalate potentially feasible FMEs to FMPs. Align required information to be like what is required for design/construction funding.	Some of the data currently requested for FMPs is more detailed than traditional planning level data. Therefore, certain FMPs had to be submitted as FMEs or FMSs despite having sufficient data to produce a project. The RFPs should focus on meeting the minimum requirement to produce funding, rather than spending time and money elements of a project design.
8.3.6	Revise the criteria for the “No Adverse Impact” Certification required for FMPs.	The current criteria gives thresholds for increases in flow, water surface elevation, and inundation extents. Though useful, the current criteria does not allow for consideration of projects that exceed these thresholds but account for the impact through design or downstream accommodations.
8.3.7	Streamline the data collection requirements, specifically those identified in Task 1. Focus on collecting the data that was most useful to the regional flood plan development.	This first round of planning proved that very few entities have the data requested as part of the Flood Planning process readily available in a GIS format. Of those entities who did have GIS data, most were unable to share that information. As a result, some of this data was not used or was used minimally to develop potentially feasible and recommended FMEs, FMPs and FMSs.
8.3.8	Provide statewide data and a methodology to determine infrastructure functionality and deficiencies in the next cycle of the Flood Planning Process. Consider the lack of readily available local data when developing the methodology.	Most entities do not have information regarding the functionality and deficiency of their infrastructure. Some fields required by the TWDB-required tables in the Regional Flood Plans are based on data that is not available to entities without extensive field work. A statewide database with this information would be useful to all entities.

Flood Planning Recommendations *(continued)*

ID	Recommendation	Rationale for Recommendation
8.3.9	Review and revise the geodatabase submittal attributes and elements.	Normalizing the geodatabase with relationships would allow for cross-referencing of data elements and attributes. More domains for attributes need to be developed.
8.3.10	Use FEMA's Social Vulnerability Index (SVI) when available instead of the CDC's SVI in future planning cycles.	FEMA's SVI is reasoned to be more relevant to flood resiliency and risk than the CDC's SVI. SVI should not be the primary component considered when allocating funding.
8.3.11	Use consistent HUC reporting requirements throughout the TWDB-required tables.	The RFPG Guidance requires HUC-8 in some tables, HUC-10 in other tables, HUC-12 in yet other tables. Some tables require multiple HUCs to be provided. The RFPG recommends that the TWDB require HUC-8 in all TWDB-required tables for consistency and to correspond to FEMA's base level watershed planning granularity.
8.3.12	Improve upon flood risk identification and exposure process with regards to building footprints and population at risk by including first-floor elevations of structures.	While the building footprints are helpful, without the first-floor elevations of each structure, it is difficult to determine the actual extent of flood risk per structure. If the structure is sufficiently elevated above the BFE, for example, the footprint still shows the structure in the floodplain and the corresponding population is considered "at risk" though the structure meets NFIP standards, This likely overestimates of the population at risk.

Suggested Planning Group Action

Please review draft 2023 RFP Chapter 8. Administrative, Regulatory, and Legislative Recommendations text and provide comments / ideas.

Questions

Upper Colorado Regional Flood Plan

Chapter 7. Stakeholder Outreach

Agenda Item No. 7c

June 1, 2022

Flood Management Action Outreach

In Progress by FNI, HDR, and Susan Roth

Basin Visit Prioritization:

- FMP List
- HMAP Identified Project
- FME List
- NOAA Data

Flood Management Action Outreach

Visits Completed

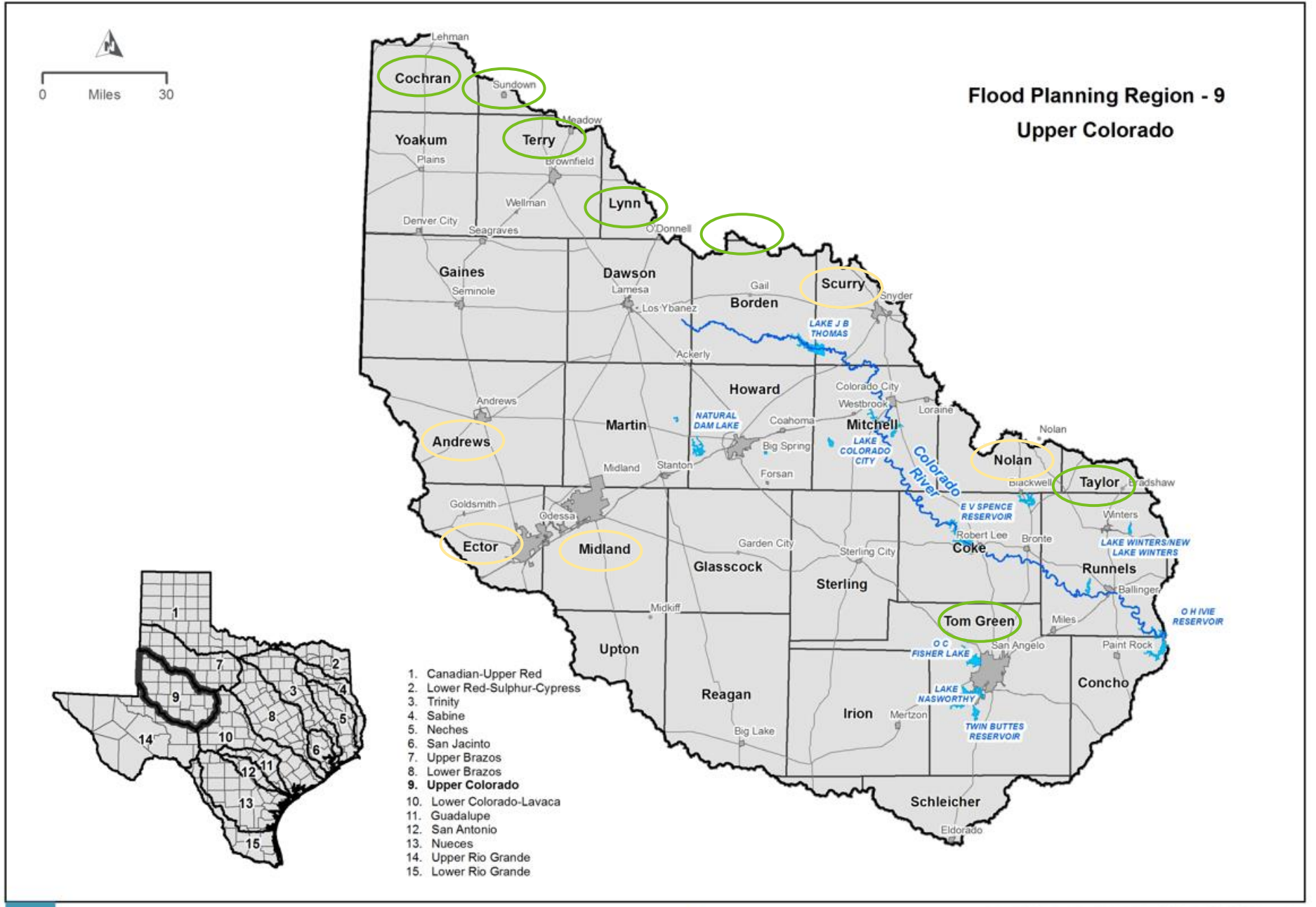
- Cochran County
- Hockley County
- Terry County
- Lynn County
- Garza County
- Taylor County

Visits Scheduled

- Nolan County
- Scurry County
- Ector County
- Midland County
- Andrews County

Visits to be Scheduled

- Dawson County (FNI)
- Borden County (FNI)
- Mitchell County (FNI)
- Gaines County (FNI)
- Howard County (FNI)
- Yoakum County (FNI)
- Martin County (FNI)
- Glasscock County (HDR)
- Sterling County (HDR)
- Coke County (HDR)
- Runnels County (HDR)
- Crockett County (HDR)
- Menard County (HDR)
- Upton County (HDR)
- Reagan County (HDR)
- Irion County (HDR)
- Tom Green County (HDR)
- Concho County (HDR)
- Schleicher County (HDR)
- Howard County (HDR)


Flood Planning Region - 9
Upper Colorado
0 Miles 30
Cochran
Yoakum
Terry
Lynn
Gaines
Dawson
Borden
Scurry
Howard
Martin
Andrews
Midland
Ector
Glasscock
Sterling
Upton
Reagan
Irion
Tom Green
Coke
Runnels
Nolan
Taylor
Mitchell
Schleicher
Concho
Lehman
Sundown
Meadow
Plains
Brownfield
Wellman
Denver City
Seagraves
O'Donnell
Seminole
Lamesa
Los Ybanez
Gail
Snyder
Ackerly
Colorado City
Westbrook
Loraine
Andrews
Coahoma
Big Spring
Stanton
Forsan
Goldsmith
Odessa
Midkiff
Garden City
Sterling City
Robert Lee
Bronte
Winters
Blackwell
Bradshaw
Ballinger
Miles
San Angelo
Paint Rock
Mertzon
Big Lake
Eldorado
LAKE J B THOMAS
NATURAL DAM LAKE
LAKE COLORADO CITY
Colorado River
E V SPENCE RESERVOIR
LAKE WINTERS/NEW LAKE WINTERS
O H IVIE RESERVOIR
O C FISHER LAKE
LAKE NASWORTHY
TWIN BUTTES RESERVOIR
1. Canadian-Upper Red
2. Lower Red-Sulphur-Cypress
3. Trinity
4. Sabine
5. Neches
6. San Jacinto
7. Upper Brazos
8. Lower Brazos
9. Upper Colorado
10. Lower Colorado-Lavaca
11. Guadalupe
12. San Antonio
13. Nueces
14. Upper Rio Grande
15. Lower Rio Grande
Major Rivers
Major Roadways
Major Reservoirs
County Boundaries
Major Cities
FLOOD PLANNING REGION - 9

Questions

Upper Colorado Regional Flood Plan

Discussion of FMEs and FMSs and Associated FMPs

Agenda Item No. 7d

June 1, 2022

Initial FEMA Mapping

Create FEMA Mapping in previously unmapped areas

1. Andrews County Initial FEMA Mapping
2. Borden County Initial FEMA Mapping
3. Cochran County Initial FEMA Mapping
4. Coke County Initial FEMA Mapping
5. Concho County Initial FEMA Mapping
6. Dawson County Initial FEMA Mapping
7. Ector County Initial FEMA Mapping
8. Gaines County Initial FEMA Mapping
9. Glasscock County Initial FEMA Mapping
10. Irion County Initial FEMA Mapping
11. Lynn County Initial FEMA Mapping
12. Martin County Initial FEMA Mapping
13. City of Big Lake Initial FEMA Mapping
14. Reagan County Initial FEMA Mapping
15. Runnels County Initial FEMA Mapping
16. Schleicher County Initial FEMA Mapping
17. Sterling County Initial FEMA Mapping
18. Upton County Initial FEMA Mapping
19. Yoakum County Initial FEMA Mapping

Update FEMA Mapping

Update existing FEMA mapping

1. Crockett County Update FEMA Mapping
2. Hockley County Update FEMA Mapping
3. Howard County Update FEMA Mapping
4. Midland County Update FEMA Mapping
5. Mitchell County Update FEMA Mapping
6. Nolan County Update FEMA Mapping
7. Scurry County Update FEMA Mapping
8. Taylor County Update FEMA Mapping
9. Terry County Update FEMA Mapping
10. Tom Green County Update FEMA Mapping

Drainage Master Plan – Counties

Evaluation to identify future projects

1. Andrews County DMP
2. Borden County DMP
3. Cochran County DMP
4. Coke County DMP
5. Concho County DMP
6. Crockett County DMP
7. Dawson County DMP
8. Ector County DMP
9. Gaines County DMP
10. Glasscock County DMP
11. Hockley County DMP
12. Howard County DMP
13. Irion County DMP
14. Lynn County DMP
15. Martin County DMP
16. Midland County DMP
17. Mitchell County DMP
18. Nolan County DMP
19. Reagan County DMP
20. Runnels County DMP
21. Schleicher County DMP
22. Scurry County DMP
23. Sterling County DMP
24. Taylor County DMP
25. Terry County DMP
26. Tom Green County DMP
27. Upton County DMP
28. Yoakum County DMP

Drainage Master Plan – Cities

Evaluation to identify future projects

1. City of Brownfield DMP
2. Colorado City DMP
3. City of Lamesa DMP
4. City of O’Donnell DMP
5. City of Snyder DMP
6. Sterling City DMP
7. Town of Ballinger DMP
8. Town of Loraine DMP
9. City of Winters DMP

Criteria Updates – Counties

Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards

1. Andrews County DCM
2. Borden County DCM
3. Cochran County DCM
4. Coke County DCM
5. Concho County DCM
6. Crockett County DCM
7. Dawson County DCM
8. Ector County DCM
9. Gaines County DCM
10. Glasscock County DCM
11. Hockley County DCM
12. Howard County DCM
13. Irion County DCM
14. Lynn County DCM
15. Martin County DCM
16. Midland County DCM
17. Mitchell County DCM
18. Nolan County DCM
19. Reagan County DCM
20. Runnels County DCM
21. Schleicher County DCM
22. Sterling County DCM
23. Taylor County DCM
24. Upton County DCM
25. Yoakum County DCM

Criteria Updates – Cities

Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards

1. City of Andrews DCM
2. City of Ballinger DCM
3. City of Blackwell DCM
4. City of Brownfield DCM
5. Colorado City DCM, Local ordinance development
6. City of Lamesa DCM
7. City of Mertzon DCM
8. City of Seminole DCM
9. City of Snyder DCM
10. West Odessa DCM

NFIP Participation

Application to join NFIP or adoption of equivalent standards

1. Andrews County NFIP Participation
2. Borden County NFIP Participation
3. Cochran County NFIP Participation
4. Coke County NFIP Participation
5. Concho County NFIP Participation
6. Town of Paint Rock NFIP Participation
7. Dawson County NFIP Participation
8. City of Ackerly NFIP Participation
9. Gaines County NFIP Participation
10. Glasscock County NFIP Participation
11. Howard County NFIP Participation
12. City of Mertzon NFIP Participation
13. Irion County NFIP Participation
14. City of O'Donnell NFIP Participation
15. Martin County NFIP Participation
16. City of Westbrook NFIP Participation
17. Town of Loraine NFIP Participation
18. City of Blackwell NFIP Participation
19. Reagan County NFIP Participation
20. Runnels County NFIP Participation
21. Schleicher County NFIP Participation
22. Scurry County NFIP Participation
23. Sterling County NFIP Participation
24. City of Wellman County NFIP Participation
25. Town of Meadow NFIP Participation
26. Upton County NFIP Participation
27. Yoakum County NFIP Participation

NFIP Coordination

Application to join NFIP or adoption of equivalent standards

Annually distribute flood protection/NFIP pamphlets to owners of flood-prone properties. Conduct workshops for lending agencies, insurance agents.

1. City of Odessa NFIP Coordination Program

Cross-train Code Officers and Building Inspectors regarding permitting, inspection, and record-keeping requirements of the NFIP Program.

1. City of Ballinger NFIP Cross Train Program

Outreach Programs

1. City of Ballinger Flood Public Awareness Program
2. City of Big Lake Flood Public Education Program
3. City of Blackwell Flood Public Education Program
4. Cochran County Flash Flood Public Education Program
5. Crockett County Flood Insurance Public Awareness Program
6. City of Odessa NFIP Public Education Program
7. Town of Bronte Flood Insurance Awareness Program
8. City of Robert Lee Flood Insurance Public Awareness Program
9. Irion County Flood Insurance Public Education Program
10. City of Colorado City Backflow Valve Public Information Program
11. City of Westbrook TADD Program
12. Mitchell County Flood Awareness Programs
13. Town of Loraine Flood Awareness and TADD Program
14. Nolan County Flood Public Awareness and TADD Program
15. Reagan County Flood Public Awareness and TADD Program
16. City of Miles Flood Public Awareness Program
17. City of Winters Flood Public Awareness and TADD Program
18. City of Eldorado Flood Public Awareness and TADD Program
19. Schleicher County Flood Insurance Education Program
20. City of Snyder Flood Public Awareness and TADD Program
21. Scurry County Flood Public Awareness and TADD Program
22. City of Sterling City Flood Insurance Public Education Program
23. Sterling County TADD Program
24. City of San Angelo Low Water Crossing Awareness and TADD Program
25. Tom Green County Flood Insurance Awareness Program
26. Upper Colorado Building Codes Outreach Program
27. Upper Colorado Stormwater Maintenance Outreach Program
28. Upper Colorado Playa Lake Preservation Outreach Program

Critical Facilities

Develop a program to relocate or flood-proof components of critical facilities

1. City of Colorado City Local Ordinance Development
2. Mitchell County Critical Facilities Program
3. Nolan County Critical Facilities Program
4. Runnels County Critical Facilities Program
5. Scurry County Critical Facilities Program
6. Taylor County Emergency Access Program

Dams

Various dam evaluations and improvements

FME

1. Taylor County Dam Inspection Program
2. Upper Colorado Dam Inventory Evaluation

Warning & Emergency Response

Various warning & emergency response programs

1. City of Blackwell Warning System
2. Taylor County Gauge/Flood Barrier Program
3. Nolan County Warning System
4. City of Odessa Rain Gauge Program
5. Cochran County Road Signs Program
6. Crockett County Flood Warning System
7. Irion County Flood Warning System
8. Lynn County Portable Pumps Program
9. Mitchell County Early Warning System
10. Upper Colorado Warning System Outreach and Study

Buyout Programs

Develop a land acquisition program in flood hazard areas

1. Nolan County Buyout Program Study
2. City of Odessa Buyout Program Study
3. Ector County Buyout Program Study
4. Taylor County Buyout Program Study
5. City of San Angelo – 400 Block of E. 14th St. Buyout

Stream Restoration and Green Infrastructure

Develop a land acquisition program in flood hazard areas

Implement stream restoration / channelization program to ensure adequate drainage / diversion of stormwater.

1. City of Colorado City Stream Restoration Program
2. City of Winters Stream Restoration Program
3. Cochran County Stream Restoration Program
4. Taylor County Stream Restoration Program

Establish, adopt, and implement a “green infrastructure” program for parks, nature preserves, greenbelts, etc. to reduce impacts of flooding

1. City of Colorado City Green Infrastructure Program
2. City of Blackwell Green Infrastructure Program
3. Taylor County Green Infrastructure Program

GIS Development

Develop a GIS inventory of stormwater infrastructure

1. Andrews County GIS Development
2. Borden County GIS Development
3. Coke County GIS Development
4. Concho County GIS Development
5. Crockett County GIS Development
6. Cochran County GIS Development
7. Dawson County GIS Development
8. Ector County GIS Development
9. Gaines County GIS Development
10. Glasscock County GIS Development
11. Howard County GIS Development
12. Hockley County GIS Development
13. Irion County GIS Development
14. Lynn County GIS Development
15. Martin County GIS Development
16. Midland County GIS Development
17. Mitchell County GIS Development
18. Nolan County GIS Development
19. Runnels County GIS Development
20. Reagan County GIS Development
21. Schleicher County GIS Development
22. Sterling County GIS Development
23. Scurry County GIS Development
24. Taylor County GIS Development
25. Tom Green County GIS Development
26. Terry County GIS Development
27. Upton County GIS Development
28. Yoakum County GIS Development

Miscellaneous

Improve the health of playa lakes via collaborative effort between communities in the Region.	Upper Colorado
CTP program: Develop a Cooperating Technical Partners program with FEMA to facilitate FEMA mapping updates.	Concho County, Irion County, City of Big Lake, Reagan County, Runnels County, Schleicher County, Sterling County
CRS participation: Adopt higher floodplain standards. Join the FEMA Community Rating System	Runnels, Taylor
Conduct a study to determine pollutant levels in County areas nearby sewer system for level of contaminants before and after a flooding event.	Ector County
Kindred Street Study – Identify scope of detention project on Kindred street	Town of Loraine
25 Project Planning Studies for various problem areas identified in MDP/CIP	City of San Angelo
USACE Flood Studies	City of Snyder, Scurry County, Taylor County, Mitchell County

Flood Management Projects

City of Andrews Northwest Andrews Playa Excavation	Proposed Playa Excavation
City of Andrews Southwest Andrews Playa Excavation	Proposed Playa Excavation
City of Andrews Northwest Andrews Culvert and Channel Improvements	Proposed 24” culvert and channel reconstruction
City of Midland Industrial Channel Improvements	Proposed Channel Improvements
City of Midland MI4F Playa Detention	Proposed Playa Improvements
City of Midland Jal Draw Channel Improvements	Proposed Channel improvements Including six proposed crossings
City of Midland Midland Draw Channel Improvements	Proposed Channel Improvements including ten proposed crossings
City of San Angelo Pecan and 3rd Street Improvements	Proposed intersection improvements, installation of two 12’x5’ culverts.
City of San Angelo Avenue P Storm Drain Project	Proposed 8’x8’ box culverts
City of San Angelo Spaulding St Storm Drain Improvements	Proposed raising of Spaulding St, installation of 4 9x8 box culverts
City of San Angelo Southwest Blvd Channel Widening	Proposed Channel improvements including 300’ flood bridge
North Fork Red Arroyo Detention	Proposed 8 ac. And 12 ac. Detention basins
City of San Angelo Butler Farms Bridge Project	Proposed additional entryway to subdivision, proposed bridge
City of San Angelo Cauley Lane Regional Detention	Proposed 21 ac. Detention pond
City of San Angelo 24th and Poe project	Intersection and Channel improvement
Tom Green County Bradford Detention	Proposed 12 ac. Detention pond.

Questions

Upper Colorado Regional Flood Plan

Regional Flood Plan Development Schedule and Next Steps

Agenda Item No. 7e

June 1, 2022

TWDB Working Schedule

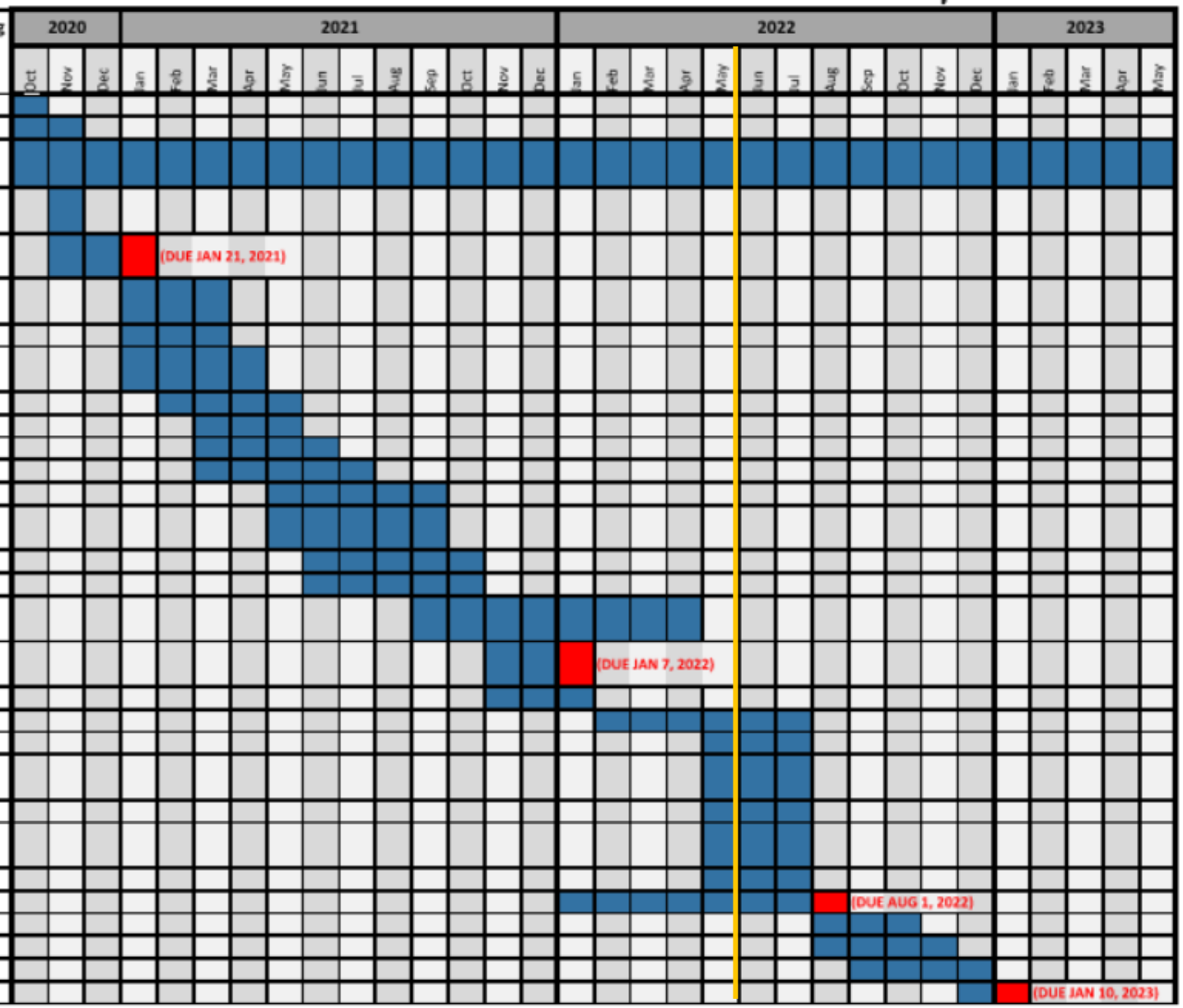
Working Conceptual Schedule**

First Cycle of Regional Flood Planning

As of December 2020

Texas Water Development Board

Item	Entity	Activity	Planning SOW Task #
1	TWDB	Designation of RFPG members	
2	RFPG	RFPG First Meetings	
3	RFPG	Public participation, stakeholder input, post notices, hold meetings, maintain email lists and website.	10
4	TWDB	Publish Request for Regional Flood Planning Grant Applications	
5	RFPG/Sponsor	Submission of Applications for Regional Flood Planning Grants to TWDB	
6	TWDB/Sponsor	Review and Execution of Regional Flood Planning Grant Contracts	
7	RFPG/Sponsor	Solicitation for Technical Consultant by RFQ process	
8	RFPG	Pre-Planning Meetings for Public Input on Development of RFP	
9	RFPG	Selection of Technical Consultant	
10	RFPG/Sponsor	Execution of Technical Consultant Subcontract	
11	RFPG	Planning Area Description	1
12	RFPG	Existing Condition Flood Risk Analyses	2A
13	RFPG	Future Condition Flood Risk Analyses	2B
14	RFPG	Evaluation and Recommendations on Floodplain Management Practices	3A
15	RFPG	Flood Mitigation and Floodplain Management Goals	3B
16	RFPG	Flood Mitigation Need Analysis	4A
17	RFPG	Identification and Evaluation of Potential FMEs and Potentially Feasible FMSs and FMPs	4B
18	RFPG	Preparation and Submission of Technical Memorandum to the TWDB	4C
18	TWDB	Issue Notice-to-Proceed on Task 5	
20	RFPG	Recommendation of FMEs, FMSs, and FMPs	5
21	RFPG	Impacts of Regional Flood Plan	6A
22	RFPG	Contributions to and Impacts on Water Supply Development and the State Water Plan	6B
23	RFPG	Flood Response Information and Activities	7
24	RFPG	Administrative, Regulatory, and Legislative Recommendations	8
25	RFPG	Flood Infrastructure Financing Analysis	9
26	RFPG	Preparation and Submission of Draft RFP to the TWDB	10
27	RFPG	Public Input on Draft RFP	10
28	TWDB	TWDB Review and Comment on the Draft RFP	
29	RFPG	Incorporate TWDB & Public Input into Final RFP	10
30	RFPG	Adopt and Submit the 2023 RFP to the TWDB	All



TWDB Working Schedule
Current UCRFPG Responsibilities

Working Conceptual Schedule**
First Cycle of Regional Flood Planning

As of December 2020

Texas Water Development Board

Item	Entity	Activity	Planning SOW Task #
18	TWDB	Issue Notice-to-Proceed on Task 5	
20	RFPG	Recommendation of FMEs, FMSs, and FMPs	5
21	RFPG	Impacts of Regional Flood Plan	6A
22	RFPG	Contributions to and Impacts on Water Supply Development and the State Water Plan	6B
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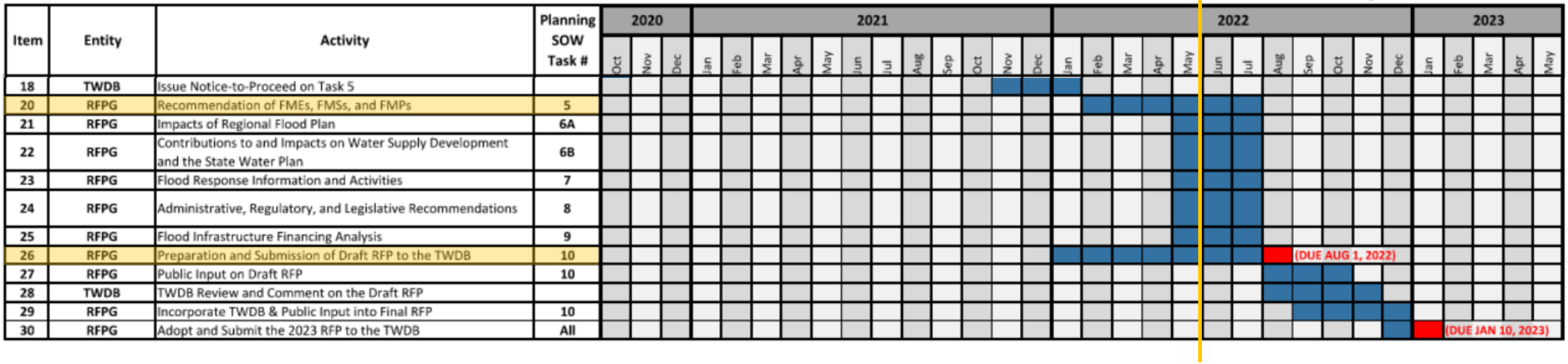
27	RFPG	Public Input on Draft RFP	10
28	TWDB	TWDB Review and Comment on the Draft RFP	
29	RFPG	Incorporate TWDB & Public Input into Final RFP	10
30	RFPG	Adopt and Submit the 2023 RFP to the TWDB	All



Planning Updates

- May 12th – TWDB communication: List of flood-related projects funded by TWDB to complete Task 1 Table 2 related to summary of proposed or ongoing FMPs.
- May 24th – TWDB communication: Q&A on Sponsors for FMx's in the RFP

1. **Question:** Who can be a sponsor of a Flood Management Evaluation (FME), Flood Mitigation Project (FMP) or Flood Management Strategy (FMS) in the regional flood plans?
   Answer: The flood planning statutes and rules do not limit who can be identified as sponsor in the regional flood plans. However, various funding programs will likely have their own eligibility requirements for applicants.

   For example, in the current TWDB Flood Infrastructure Fund (FIF) program, the following entities are eligible applicants for different funding categories:
   - Categories 1–4: Political subdivisions, including cities, counties, and any district or authority created under Article III, Section 52 or Article XVI, Section 59 of the Texas Constitution.
   - Category 1 only: Any political subdivision of the state, interstate compact commission to which the state is a party, and nonprofit water supply corporation created and operating under Chapter 67.

2. **Question:** Can RFPGs recommend FMXs without sponsorship?
   Answer: Yes, RFPGs may recommend FMXs without sponsorship.

3. **Question**: If unsponsored FMXs may be recommended in the plan, should RFPGs keep the sponsor field blank/unknown or list the RFPG as sponsor?
   Answer: Please list the RFPG as sponsor.

4. **Question:** Does not having a sponsor preclude recommendation of an otherwise well-defined FMP?
   Answer: No, not having a sponsor does not preclude recommendation of an otherwise well-defined FMP.

Planning Updates *(continued)*

- May 24th – TWDB communication: Q&A on Sponsors for FMEs, FMSs, and FMPs in the Regional Flood Plan.

5. **Question:** Can RFPGs recommend "new" FMSs/FMEs not previously identified elsewhere if the FME/FMS meets a great need and/or meets the stated goals of the RFPG?

   Answer: Yes, RFPGs may recommend "new" FMSs/FMEs not previously identified elsewhere if the FME/FMS meets a great need and/or meets the stated goals of the RFPG.

6. **Question:** Can an entity be listed as a FMX sponsor based on previously performed drainage masterplans or existing studies?

   Answer: Yes. The RFPG should notify the project sponsor about listing the project. It is not required that a response from the project sponsor is received in order to the list the project, as long as reasonable effort was made to contact the entity. It is acceptable to have instances where a named sponsor might be considered as a 'placeholder' that may change. However, if the sponsoring entity requests to not include it, it shall not be included. Each recommended FMP must be permittable, constructible and implementable (planning level information).

7. **Question:** May a previously identified FMX be removed completely (for example, if an FMP sponsor decides they do not want to include the project in the plan), or should the FMX still be listed but not recommended?

   Answer: All recommended FMPs should be permittable, constructible and implementable. Per the example in question, if the sponsor does not want a project included, it will likely not fulfill these three criteria. RFPGs may, but do not have to, include such a project in the list of identified but not recommended projects, however, they cannot recommend it.

Flood Plan Development Schedule

Timeframe	TWDB Flood Plan Scope of Work Tasks/Actions
June	Task 5 Recommendations Tasks 6a, 6b Impacts of the Regional Flood Plan & Impacts to Water Plan Task 9 Flood Infrastructure Financing Analysis Task 10 Public Participation Task 12 Identify FMEs to complete
July	Discuss Draft Flood Plan Refinements
August 1, 2022	**Draft Flood Plan Submitted to TWDB**
January 10, 2023	**Final Flood Plan Submitted to TWDB**

Next Steps

- Continue Task 5. Recommendation of Flood Management Evaluations and Flood Management Strategies and Associated Flood Mitigation Projects
- Stakeholder Outreach
- Regional Flood Plan development
  - Draft Chapters to be provided to Planning Group
  - Planning group
    - Provide comments via email
    - Discussion items to planning group meeting

Questions

DRAFT Chapter 7 – Flood Response Information and Activities

2023 Regional Flood Plan – Flood Planning Region 9 – Upper Colorado

Texas Water Development Board
June 1, 2022

Contents

Tables

Figures

Appendices

List of Abbreviations

RFPG	Regional Flood Planning Group
HUC	hydrologic unit code
LOS	level-of-service
FME	
FMS	
FMP	
TWDB	Texas Water Development Board
FPR	Flood Planning Region
LWC	low water crossing
GIS	Geographic Information Systems

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7 Flood Response Information and Activities

[31 TAC §361.42]

7.1 Flood response and recovery activities in the region.

The following chapter summarizes the flood response preparations using demographic, historical, projected, and statistical data from the previous chapters and further research. The TWDB specifically stated that the RFPG "shall not perform analyses or other activities related to planning for disaster response or recovery activities." The focus of this chapter is summarizing the information obtained and providing general recommendations regarding flood response activities.

7.1.1 Types of Flooding in the Upper Colorado Region

Across the state, there are five different types of floods: flash floods, coastal floods, urban floods, river floods, and pluvial flood. The most common types of flooding in the Upper Colorado region are river and pluvial floods. River flooding tends to be more widespread, encompassing huge swaths of land while pluvial floods tend to be more dangerous, impacting mobility and emergency access. Stormwater in the Upper Colorado region is typically conveyed through streets and the natural drainage features which makes the region susceptible to flash flooding. The **Upper Colorado** region is prone to different types of flooding depending on the part of the region.

Flash floods are floods caused by heavy rainfall over a period**.** The flood water can occur quickly and be very powerful making it extremely dangerous.

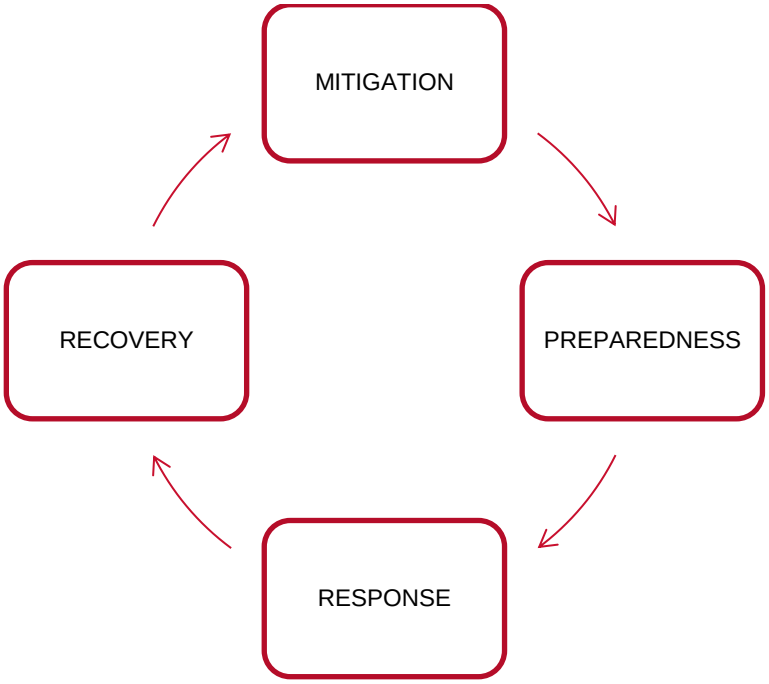
Pluvial floods happen when there is flooding independent from an overflowing body of water due to extreme rain fall. The most common example of this is when the drainage system is overwhelmed, and the excess water floods into the streets.

Riverine floods occur when excess rain fall moves downstream causing an overtopping of the riverbank. This overtopping then spills the water onto the nearby land.

Urban flooding is flooding that is caused by excess runoff water in developed areas, where the water doesn't have anywhere else to go.

When such flood events occur, it is imperative that plans are in place to combat the effects of the flooding.

7.1.2 The Nature and Types of Flood Response Preparations



There are four phases to emergency management:

Flood Mitigation: The implementation of actions, including both structural and non-structural solutions, to reduce flood risk to protect against the loss of life and property.

Flood Preparedness: Actions, aside from mitigation, that are taken before flood events to prepare for flood response activities.

Flood Response: Actions taken during and in the immediate aftermath of a flood event.

Flood Recovery: Actions taken after a flood event involving repairs or other actions necessary to return to pre-event conditions.

For example, when a severe rain event is projected to occur, steps are taken for **preparedness**: disaster preparedness plans are in place, drills and exercises are performed, an essential supply list is created, and potential vulnerabilities are assessed. During the **response** phase, disaster plans are implemented, search and rescues may occur, low water crossing signs may be erected. In the **recovery** phase, evaluation of flood damage, rebuilding damaged structures, and removing debris occurs.

Mitigation is an incredibly important step of the four phases of emergency management. Hazard mitigation is defined as any sustained action taken to reduce or eliminate the lasting risk to life and property from hazard events. It is an on-going process that seeks to break the cycle of damage and restoration in hazardous areas.

Flood mitigation is the primary focus of the regional flood planning process through identifying and recommending FMEs, FMSs and FMPs by the RFPG. The plan may also include flood preparedness FMEs, FMSs and FMPs.

Examples of mitigation actions include planning and zoning, floodplain protection, property acquisition and relocation, or public outreach projects. Examples of preparedness actions include installing disaster warning systems, purchasing radio communications equipment, or conducting emergency response training.

Actions and Preparations:

A total of six Hazard Mitigation Plans were collected from the Upper Colorado region. These plans were reviewed and the following mitigation actions were identified by communities in the Upper Colorado region:

- Buyout/Acquisition/Elevation projects
- Drainage Control & Maintenance
- Education & Awareness for Citizens
- Equipment Procurement for Response
- Flood Insurance Education
- Flood Study/Assessment
- Infrastructure Improvement
- Installation/Procurement of Generators
- Natural Planning Improvement
- Outreach and Community Engagement

7.1.3 Relevant Entities in the Region

The purpose of flood risk management is to help prevent or reduce flood risk by using either structural or non-structural means or a combination of the two. Responsibility for flood risk management is shared between federal, state, and local government agencies; private-sector stakeholders; and the general public. There is a total of 97 political subdivisions in Region 9 with flood related authority. **Table 7-1** includes a list of all the political subdivisions in Region 9 with flood related authority.

Table 7-1 Political Subdivisions with Flood Related Authority

Counties					
Andrews	Crockett	Hockley	Menard	Runnels	Terry
Borden	Dawson	Howard	Midland	Schleicher	Tom Green
Cochran	Ector	Irion	Mitchell	Scurry	Upton
Coke	Gaines	Lynn	Nolan	Sterling	Winkler
Coleman	Garza	Martin	Reagan	Taylor	Yoakum
Concho	Glasscock				
Municipalities					
Ackerly	Bronte	Forsan	Mertzon	Plains	Stanton
Andrews	Brownfield	Goldsmith	Midland	Robert Lee	Sterling City
Ballinger	Coahoma	Lamesa	Miles	San Angelo	Sundown
Big Lake	Colorado City	Loraine	O'Donnell	Seagraves	Wellman
Big Spring	Denver City	Los Ybanez	Odessa	Seminole	Westbrook
Blackwell	Eldorado	Meadow	Paint Rock	Snyder	Winters
Other (Water Authorities, Districts, Commissions, COGs, Etc.)					
Brazos River Authority			Permian Basin Regional Planning Commission		
Canadian River Municipal Water Authority			Reagan County WSD		
Central Colorado River Authority			Red Creek MUD		
Coke County Kickapoo WCID 1			Salt Fork Water Quality District		
Colorado River MWD			South Plains Association of Governments		
Concho Valley Council of Governments			Tom Green County FWSD 1		
Downtown Midland Management District			Tom Green County FWSD 2		
Ector County Utility District			Tom Green County FWSD 3		
Gaines County SWMD			Tom Green County WCID 1		
Howard County WCID 1			Upper Colorado River Authority		
Lower Colorado River Authority			Upton County Water District		
Martin County FWSD 1			Valley Creek Water Control District		
Midland County FWSD 1			West Central Texas Council of Governments		
Midland County Utility District			Willow Creek Water Control District		
Nolan County FWSD 1					
WCID = Water Control and Improvement District WSD = Water Supply District MUD = Municipal Utility District			MWD = Municipal Water District FWSD = Fresh Water Supply District SWMD = Solid Waste Management District		

Various stakeholders can play in a role in flood response. Agriculture, cities, counties, Councils of Government (COGs), districts such as MUDs, FWSDs, etc, and state and federal agencies are all entities that can impact and be involved in flood preparations. Listed below are the various contributing entities and partners with a description of their role related to flooding. These include entities previously mentioned in **Table 7-1** above, as well as other types of entities not previously mentioned.

Ag Extension Agents are employed by land-grant universities and serve the citizens of that particular state by serving as an expert or teacher on the topic of agriculture. Ag extension agents can provide valuable information on preparation and recovery from flood events specific to agricultural entities. The Upper Colorado region has a significant agricultural footprint, making working closely with Ag Extension Agents crucial to prevent losses.

Cities, or municipalities, generally take responsibility for parks and recreation services, police and fire departments, housing services, emergency medical services, municipal courts, transportation services (including public transportation), and public works (streets, sewers, snow removal, signage, and so forth). There are 36 municipalities within the Upper Colorado region.

The major responsibilities of the 32 Upper Colorado region **county** governments include providing public safety and justice, holding elections at every level of government, maintaining Texans' most important records, building and maintaining roads, bridges and in some cases, county airports, providing emergency management services, providing health and safety services, collecting property taxes for the county and sometimes for other taxing entities, issuing vehicle registration and transfers, and registering voters.

The two Upper Colorado **Councils of Governments (COGs)** are voluntary associations that represent member local governments, mainly cities and counties, that seek to provide cooperative planning, coordination, and technical assistance on issues of mutual concern that cross jurisdictional lines. COGs can serve a resource for flood data, flood planning, and flood management.

The mission of the **Texas Water Development Board (TWDB)** is **to lead the state's efforts in ensuring a secure water future for Texas and its citizens.** TWDB provides water planning, data collection and dissemination, financial assistance, and technical assistance services to the citizens of Texas.

The **Federal Emergency Management Agency (FEMA)** is an agency of the United States Department of Homeland Security (DHS), initially created under President Jimmy Carter. While on-the-ground support of disaster recovery efforts is a major part of FEMA's charter, the agency provides state and local governments with experts in specialized fields and funding for rebuilding efforts and relief funds for infrastructure by directing individuals to access low-interest loans, in conjunction with the Small Business Administration. In addition to this, FEMA provides funds for training of response personnel throughout the United States and its territories as part of the agency's preparedness effort.

A **Flood Control District** is a special purpose district created by the Texas Legislature and governed by County Commissioners Courts. It is a government agency established to reduce the effects of flooding. There are currently no flood control districts in the Upper Colorado region.

Dams and Levees are owned and operated by individuals, private and public organizations, and the government. The responsibility for maintaining a safe dam rests with the owner. A dam failure resulting in an uncontrolled release of the reservoir can have a devastating effect on persons and property downstream. It is critical that the owners are part of the flood planning process to ensure collaborative and cohesive flood planning.

The **National Weather Service (NWS)** mission is to provide weather, water and climate data, forecasts, warnings, and impact-based decision support services for the protection of life and property and enhancement of the national economy. NWS provides flash flood indicators through watches, warnings, and emergency notices.

- Flash Flood WATCH is issued when conditions look favorable for flash flooding. A watch usually encompasses several counties. This is the time the public should start thinking about their plan of action and where they would go if water begins to rise.
- Flash Flood WARNING is issued when dangerous flash flooding is happening or will happen soon. A warning is usually a smaller, more specific area. This can be issued due to excessive heavy rain or a dam/levee failure. This is when the public must act quickly as flash floods are an imminent threat to them and their family. They may only have seconds to move to higher ground.
- Flash Flood EMERGENCY is issued for the exceedingly rare situations when extremely heavy rain is leading to a severe threat to human life and catastrophic damage from a flash flood is happening or will happen soon. Typically, emergency officials are reporting life threatening water rises resulting in water rescues/evacuations.

The **National Oceanic and Atmospheric Administration (NOAA)** is an American scientific and regulatory agency within the United States Department of Commerce that forecasts weather, monitors oceanic and atmospheric conditions, charts the seas, conducts deep sea exploration, and manages fishing and protection of marine mammals and endangered species in the U.S. exclusive economic zone. NOAA provides historical data that can help communities determine their future probability of flood events and is key in the planning and mitigation process.

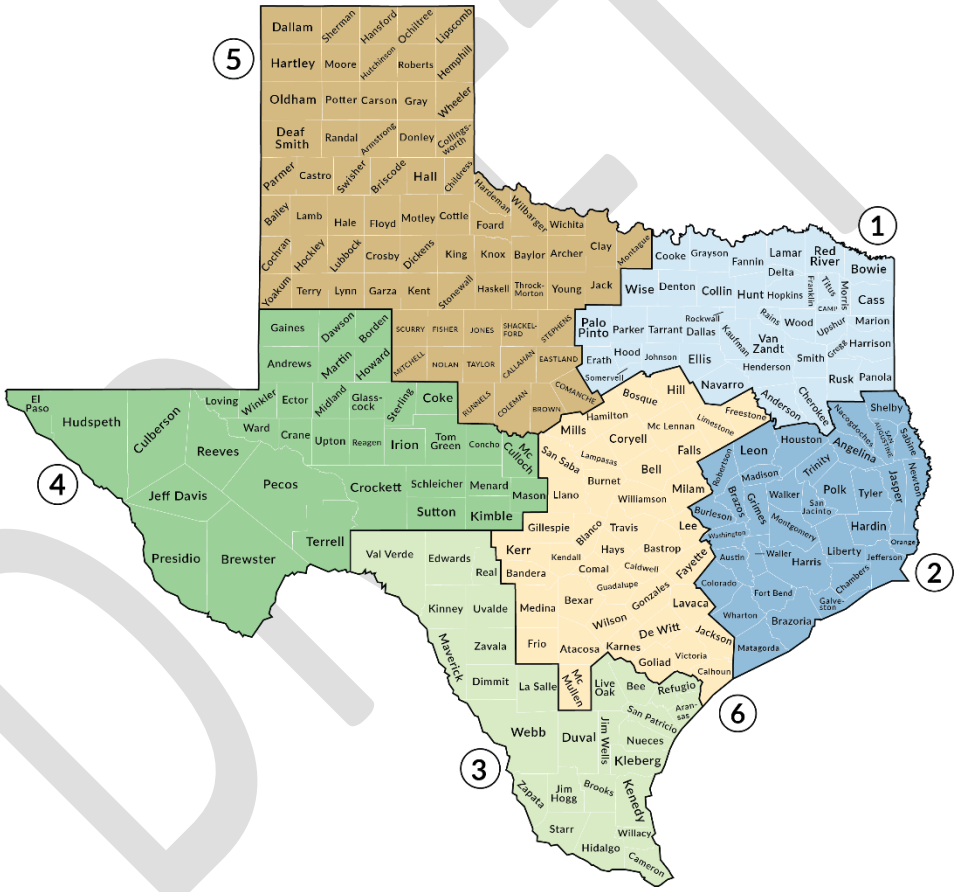
River Authorities or Districts in the state of Texas are public agencies established by the state legislature and given authority to develop and manage the waters of the state. Upper Colorado has six river authorities within its region that each have the power to conserve, store, control, preserve, utilize, and distribute the waters of a designated geographic region for the benefit of the public.

Daily river forecasts are issued by **River Forecast Centers (RFCs)** using hydrologic models based on rainfall, soil characteristics, precipitation forecasts, and several other variables. Some RFCs, especially those in mountainous regions, also provide seasonal snow pack and peak flow forecasts. These forecasts are used by a wide range of users, including those in agriculture, hydroelectric dam operation, and water supply resources. The forecasts can provide essential information on the river levels and conditions.

The **Texas Division of Emergency Management (TDEM)**, a division of the Texas Department of Public Safety (DPS), is charged with coordinating state and local responses to natural disasters and other emergencies in Texas. TDEM is intended to ensure the state and its local governments respond to and recover from emergencies and disasters and implement plans and programs to

help prevent or lessen the impact of emergencies and disasters. There are six TDEM regions within Texas, and in those regions are Assistant Chiefs and District Coordinators. They serve as the Division's field response personnel stationed throughout the State. They have a dual role as they carry out emergency preparedness activities and coordinate emergency response operations. In their preparedness role, they assist local officials in carrying out emergency planning, training, and exercises, and developing emergency teams and facilities. They also teach a wide variety of emergency management training courses. In their response role, they deploy to incident sites to assess damages, identify urgent needs, advise local officials regarding state assistance, and coordinate deployment of state emergency resources to assist local emergency responders. The Upper Colorado region is mostly in region 4 with some counties extending in to region 5.

Figure 7-1 TDEM Regions



Source: Texas Department of Emergency Management

The **Texas Department of Transportation** (**TxDOT**) is a government agency in the state of Texas. Though the public face of the agency is generally associated with the construction and maintenance of the state's immense state highway system, the agency is also responsible for overseeing aviation, rail, and public transportation systems in the state. TxDOT can provide real time road closure and low water crossing information during and after a flood event. Users can access this data through TxDOT's Drive Texas website: https://drivetexas.org.

The **U.S. Corps of Engineers (USACE)** is an important part of the nation's military. The agency is responsible for a wide range of efforts in the United States including addressing safety issues related to waterways, dams, and canals but also environmental protection, emergency relief, hydroelectric power, and much more. USACE composed of several districts in which Upper Colorado is in both the Southwestern Division (as a part of the Fort Worth District) and the South Pacific Division (as a part of the Albuquerque District). The USACE Flood Risk Management Program (FRMP) works across the agency to focus the policies, programs and expertise of USACE toward reducing overall flood risk. This includes the appropriate use and resiliency of structures such as levees and floodwalls, as well as promoting alternatives when other approaches (e.g., land acquisition, flood proofing, etc.) reduce the risk of loss of life, reduce long-term economic damages to the public and private sector, and improve the natural environment.

Emergency Information

There are various means by which data can be collected and disseminated in a flood event. These include gauges to measure the current flood risk and communication systems to alert the public.

Two types of gauges used are rain gauges and stream gauges. A rain gauge is a meteorological instrument to measure the precipitating rain in a given amount of time per unit area. It collects water falling on it and records the change over time in the rainfall depth. Stream gauging is a technique used to measure the discharge, or the volume of water moving through a channel per unit time, of a stream. The height of water in the stream channel, known as a stage or gauge height, can be used to determine the discharge in a stream. Within Region 9, thre are 51 USGS stream gages.

In addition to the National Weather Service, local news stations or radio stations are vital components in relaying real time information to local residents of inclement weather and flooding. They can also alert residents to low water crossing closings, dam or levee breaches, and other potential dangers. They can also issue flood watches, warnings, and emergency notifications.

An Emergency Alert System (EAS) is software that provides alert messages during an emergency Messages can interrupt radio and television to broadcast emergency alert information. Messages cover a large geographic footprint. Emergency message audio/text may be repeated twice, but EAS activation interrupts programming only once, then regular programming continues.

A reverse 911 system allows an agency to pull up a map on a computer, define an area and send off a recorded phone message to each business or residence in that area. It can provide data to residents of flood dangers in their area.

School emergency alert systems are a tools that allows schools to communicate quickly to staff, students, first responders and others so that they can take appropriate action in the event of an emergency situation. Various versions this tool are used in schools through the region from daycares to K-12 grade, as well as universities.

7.1.4 Plans to be Considered

State and Regional plans

The State Hazard Mitigation Plan is an effective instrument to reduce losses by reducing the impact of disasters upon people and property. Although mitigation efforts cannot completely eliminate impacts of disastrous events, the plan endeavors to reduce the impacts of hazardous events to the greatest extent

possible. The plan evaluates, profiles and ranks natural and human-caused hazards effecting the Texas as determined by frequency of event, economic impact, deaths and injuries. The plan:

- Assesses hazard risk,
- Reviews current state and local hazard mitigation and climate adaption capabilities, and
- Develops strategies and identifies state agency (and other entities) potential actions to address needs.

The Regional Emergency Preparedness Program is one of the largest and most effective programs of its kind nationwide. Bringing together urban, suburban, and rural jurisdictions, the program facilitates information sharing, collaboration, and cooperation between jurisdictions in a politically neutral and supportive environment. The Regional Preparedness Program accomplishes this through networking, standardization of policy and procedures, and coordination efforts with stakeholders. Increased participation in the Regional Emergency Preparedness Program is beneficial for the safety of the region.

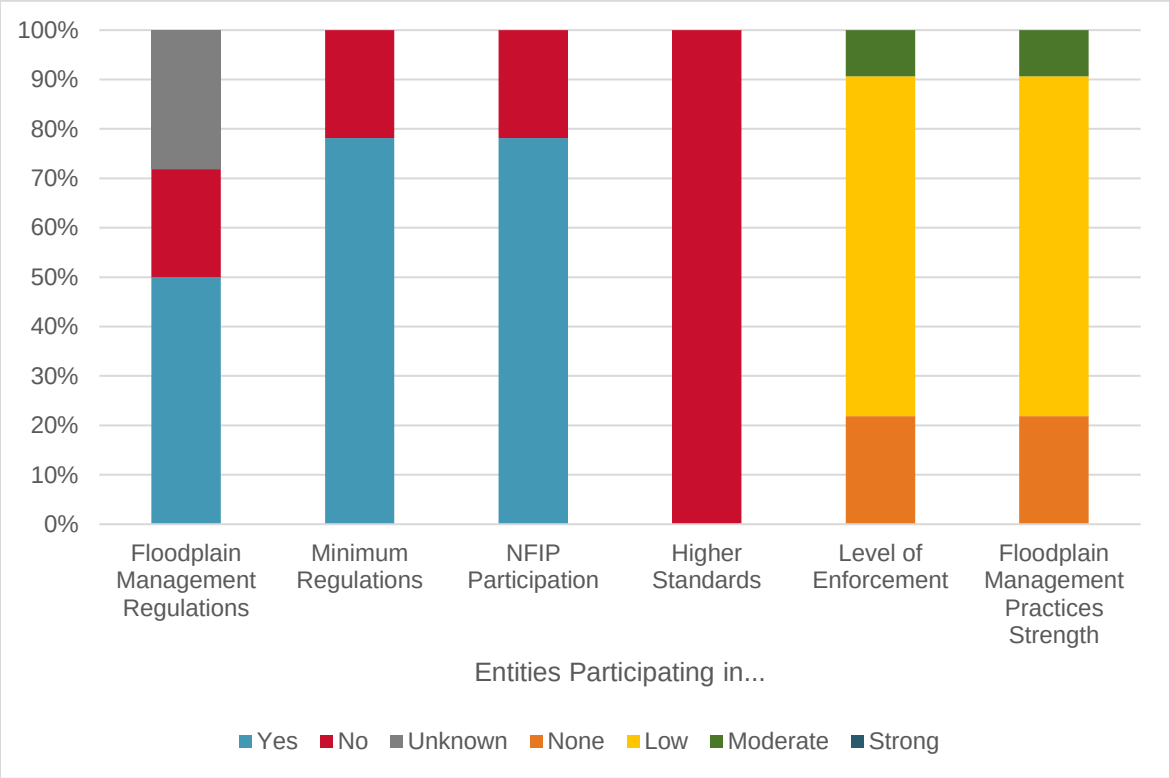
Local Plans

To examine the state of flood preparedness in the Upper Colorado region, the region obtained Emergency Management plans, Hazard Mitigation Plans and other regional and local flood planning studies from County and local jurisdictions.

An emergency management plan is a course of action developed to mitigate the damage of potential events that could endanger an organization's ability to function. Such a plan should include measures that provide for the safety of personnel and, if possible, property and facilities.

The Upper Colorado Region has several plans and regulations in place region wide that provide the framework that dictates a community’s capabilities in implementing mitigation and preparedness actions. The following are the existing floodplain management practices indicated to be in place currently.

Figure 7-2 Upper Colorado Region Floodplain Management Practices



Other plans to consider include Hazard Mitigation Plans, Emergency Action Plans, as well as Watershed Master Plans. An Emergency Action Plan provides the basis for the coordinated planning and management of types of emergencies and disaster events. Watershed Master Plans promote that all sectors of the community work together to create a flood hazard resilient community.

Hazard mitigation planning reduces loss of life and property by minimizing the impact of disasters. It begins with state, tribal, and local governments identifying natural disaster risks and vulnerabilities that are common in their area. After identifying these risks, they develop long-term strategies for protecting people and property from similar events. Mitigation plans are key to breaking the cycle of disaster damage and reconstruction. Having an up-to-date HMAP is key in assessing risk and in developing mitigation actions.

Table 7-2 Upper Colorado Hazard Mitigation Plans

Jurisdiction	HMAP Year
West Central Texas Council of Governments	2020
Cochran County	2014
Concho Valley Council of Governments	2012
Ector County	2011
Lamb and Lynn Counties	2020
Terry County	In Progress

In the private sector, an emergency action plan (EAP) is a document required by particular OSHA standards. The purpose of an EAP is to facilitate and organize employer and employee actions during workplace emergencies. They are an essential element in emergency management for critical facilities.

As part of the Dam Safety Program, owners of significant and high hazard dams are required to submit an EAP to TCEQ. Dam EAPs document responsibilities during flood response and identifies the flood inundation area. Table 7-3 below summarizes the state regulated dams in the Upper Colorado region. A high hazard classification indicates that if the dam were to fail, there would be large consequences (such as loss of life), not that the dam is an a condition that is more likely to fail.

Table 7-3 Upper Colorado State Regulated Dams - 2021

State Regulated Dams: 139
High Hazard Potential: 21
Significant Hazard Potential: 20
Low Hazard Potential: 98

A watershed master plan helps in the understanding and address existing flooding, erosion, and water quality problems. It can be useful in preparing for future challenges. Watershed Master Plans inform recommendations, help educate the public and influence decision makers regarding land use changes, investment in capital projects and modifications to development regulations within the basin.

The Upper Colorado region's ability to prepare, respond, recover, and mitigate disaster events is determined by several factors. With a clear understanding of the plans that determine a community's capabilities, a recognition of the entities with whom coordination is key, and knowledge of the actions sustained to promote resiliency, the region can be better equipped to implement sound measures for flood mitigation and preparedness.

Appendix A. Tables

Exhibit C	Table 6	Existing Floodplain Management Practices
Exhibit C	Table 11	Regional Flood Plan Flood Mitigation Management Goals

Appendix B. Digital Data

File Name	Description
Ch3.gdb	GIS geodatabase of …

8

DRAFT: Administrative, Regulatory and Legislative Recommendations

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8 Administrative, Regulatory and Legislative Recommendations

[31 TAC §361.43]

As set forth in TWDB rules and guidelines for regional flood planning, the Regional Flood Planning Groups may adopt recommendations on policy issues related to floodplain management and flood mitigation planning and implementation. Specifically, the RFPGs may adopt:

1. Legislative recommendations considered necessary to facilitate floodplain management and flood mitigation planning and implementation.
2. Other regulatory or administrative recommendations considered necessary to facilitate floodplain management and flood mitigation planning and implementation.
3. Any other recommendations that the RFPG believes are needed and desirable to achieve its regional flood mitigation and floodplain management goals.
4. Recommendations regarding potential, new revenue-raising opportunities, including potential new municipal drainage utilities or regional flood authorities, that could fund the development, operation, and maintenance of floodplain management or flood mitigation activities in the region.

Legislative, regulatory and administrative recommendations adopted by the Upper Colorado Regional Flood Planning Group follow.

8.1 Legislative Recommendations

Being a part of the State Flood Planning effort has allowed the RFPGs, Sponsors, and Technical Consultants to interact with a wide variety of entities. There are trends and occurrences throughout a large portion of the state. Some of these trends and occurrences are positive and should be encouraged while others may be detrimental to the floodplain and stormwater management of the entities within the region, and/or state. Some flood-related policy issues require approaches and solutions that require action by the Texas Legislature, either establishing new or amending authorities or programs through statute, or through new or increased appropriations through the state budget process. Table 8-1 below presents recommendations related to flood planning, flood risk mitigation, and funding adopted by the Upper Colorado RFPG that will require legislative action.

Table 8-1. Legislative Recommendations

ID	Recommendation	Rationale for Recommendation
8.1.1	Direct State funding to counties to maintain drainage and stormwater infrastructure in unincorporated areas.	Counties have floodplain and drainage related responsibilities in the State of Texas without a consistent way to fund projects.
8.1.2	Develop State strategies to aid in acquiring federal funds.	Projects for entities in Texas do not compete well for some federal funding programs. For example, FEMA's Building Resilient Infrastructure and Communities (BRIC) Grant requires statewide building codes.
8.1.3	Provide funding and/or technical assistance to develop regulatory floodplain maps.	Several entities who have outdated maps or no mapping at all are not able to fund the projects necessary to update or create accurate depictions of flood risk.
8.1.4	Provide funding and/or technical assistance to update drainage criteria and development standards.	Up-to-date drainage criteria and development standards at the county level improve resiliency and prevent additional flood risk. However, many entities do not have the funding to update criteria and standards.
8.1.5	Provide funding and/or technical assistance to update or perform flood planning and/or master drainage planning studies.	Many communities and entities do not have up-to-date studies or plans that are reflective of growth or updated rainfall data.
8.1.6	Expand eligibility for and use of funding for stormwater and flood mitigation solutions (Local, State, Federal, Public/Private Partnerships, etc.)	Flood mitigation studies/projects do not generate revenue, which makes them more challenging to fund at the local level. Funding sources could utilize different financial/economic benefit metrics for projects that do not generate revenue.
8.1.7	Provide additional grant funding to enable the continued function of RFPGs during the interim timeframe between planning cycles.	In the interim of the planning cycles, not only could RFPGs continue adding FMEs, FMSs, and FMPs to the Regional Flood Plan, but they could also implement RFPG-sponsored flood management activities, outreach, and stay informed on regional flood-related occurrences.
8.1.8	Extend Local Government Code, Title 13, Subtitle A, Chapter 552 to allow counties the opportunity to establish and collect drainage utilities/fees in the unincorporated areas.	Counties have floodplain- and drainage-related responsibilities in the State of Texas. Currently, counties do not have the ability to establish and collect stormwater utility fees, thus limiting their ability to fund stormwater or drainage projects, despite having the responsibility to do so.
8.1.9	Grant counties additional authority to regulate land use in unincorporated flood prone areas.	Regulation of development in flood prone unincorporated areas by counties will aid in prevention of additional flood risk.

ID	Recommendation	Rationale for Recommendation
8.1.10	Establish and fund a state program to assist counties and cities with the assessment and prioritization of low water crossings. Funding should also be provided on a cost-sharing basis for implementation of structural and/or non-structural flood risk reduction measures at high-risk low water crossings (LWC).	Many of the LWCs experience frequent flooding but may have relatively minor flood risk, in terms of public safety and/or the integrity of the roadway. Others, however, are at high-risk and experience flood depths and velocities that do pose a significant risk. The cost to mitigate flood risk at high-risk LWC with structural solutions (e.g., bridges) is typically very high, often prohibitive. It is therefore important the flood risk at LWCs be systematically and fully evaluated to prioritize those LWCs in need of mitigation, either through structural measures or non-structural (e.g., closures, reverse 911 notifications) measures.

8.2 Regulatory and Administrative Recommendations

The Upper Colorado RFPG has also developed recommendations of a regulatory or administrative nature, concerning existing procedures, state entities, or state/regional regulations. Alterations to these procedures could also be proposed to the Texas Water Development Board for consideration.

These recommendations are suggested changes to existing standards, state-controlled entities, or procedures.

Table 8-2. Regulatory and Administrative Recommendations

ID	Recommendation	Rationale for Recommendation
8.2.1	Simplify all funding application processes and criteria.	Current funding applications require significant time and resources to prepare a project for consideration, as well as complete the application itself, especially for jurisdictions with limited resources. Thus, jurisdictions that may need the funding the most typically do not apply for current opportunities, despite having need.
8.2.2	Review and revise as necessary all State infrastructure entities' (i.e. TxDOT) standards and practices for legislative and regulatory compliance with stormwater best practices.	State entities should be aware of the drainage and stormwater standards in the areas where they are active. State entities should be required to comply with local regulations when local regulations are higher than state minimum criteria.
8.2.3	Develop resources for and educate local and regional officials regarding the respective entities' ability/authorization to establish and enforce higher development standards.	Local and regional officials are often unaware of their authority to establish and enforce stormwater regulations. (Texas Local Government Code Title 7, Subtitle B.; Texas Water Code Chapter 16, Section 16.315) Flooding and drainage components of local and regional officials' training is often inadequate for their level of responsibility.

ID	Recommendation	Rationale for Recommendation
8.2.4	Provide measures to allow and encourage jurisdictions to work together towards regional flood mitigation solutions.	Flooding does not recognize jurisdictional boundaries. Allowing and encouraging entities to work together towards common flood mitigation goals would be beneficial to all involved. This should also include state agencies.
8.2.5	Develop a publicly available, statewide database and tracking system to document flood-related fatalities and injuries.	In order to more accurately address the health, safety, and welfare of the public, high flood-risk areas should be tracked and reported. Doing so would increase awareness of the area, both so the public could be aware of the risks, and elected officials and decision-makers could institute solutions to reduce the risk in those areas.
8.2.6	Revise the scoring criteria for funding associated with stormwater and flood-related projects that benefit agricultural activities.	The traditional benefit-cost analysis tools prevent agricultural projects from competing with municipal benefit-cost ratios.
8.2.7	Provide financial or technical assistance to smaller/rural jurisdictions.	The former Office of Rural Affairs/Texas Department of Rural Affairs was intended to assist and work with rural entities. However, the department was disbanded. Actions such as maintaining a department specifically for smaller/rural entities, incentivizing consultants to pursue work for smaller or rural entities or adjusting BCAs to rank small/rural entities equally are all ideas towards accomplishing this goal.
8.2.8	Address the concern of “takings” with regards to floodplain development regulations, comprehensive plans, land use regulations and zoning ordinances.	Jurisdictions should be allowed to regulate development in a responsible manner that reduces future flood risk exposure without the fear of legal action by property owners. Develop documentation that states the land owner has been made aware of current flood risk on a property.

8.3 Flood Planning Recommendations

As the Region has learned from the first planning cycle, there are several issues that can be implemented to make the planning process more streamlined and effective for each individual region. The following recommendations should be considered to improve the regional flood planning process in future planning cycles.

Table 8-3. Flood Planning Recommendations

ID	Recommendation	Rationale for Recommendation
8.3.1	Update the scope of work, guidance documents, rules, checklists, etc. based on the adjustments and lessons learned made to these planning documents during the first cycle of planning.	During the first cycle of the State Flood Plan, multiple amendments and additions to the TWDB documents and the TWDB's interpretation of its documents occurred. Moving forward, the TWDB documents provided at the onset of each new planning cycle should reflect what is ultimately required of the RFPGs.
8.3.2	Develop a fact sheet and/or other publicity measures to encourage entities to participate in the Regional Flood Planning effort.	Many entities were unaware of the Regional and State Flood Plan efforts despite the RFPG outreach efforts.
8.3.3	Host "lessons learned" discussions with RFPG members, sponsors and technical consultants following the submittal of the final regional plans.	Opening dialogue among these participants to discuss proposed improvements to the regional planning process will streamline and improve future regional flood planning cycles.
8.3.4	Develop an amendment process to efficiently amend approved regional flood plans to incorporate additional recommended FMEs, FMSs, and FMPs, and to allow the RFPG to advance the recommended FMEs to FMPs.	Amending the Regional Flood Plan can be an extensive process. Amendments to move FMEs to FMPs and incorporate new flood management solutions should have a quicker turn-around time in order to efficiently include them in the Regional Flood Plan.
8.3.5	Reduce the amount of information required to escalate potentially feasible FMEs to FMPs. Align required information to be similar to what is required for design/construction funding.	Some of the data currently requested for FMPs is more detailed than traditional planning level data. Therefore, certain FMPs had to be submitted as FMEs or FMSs despite having sufficient data to produce a project. The RFPs should focus on meeting the minimum requirement to produce funding, rather than spending time and money elements of a project design.
8.3.6	Revise the criteria for the "No Adverse Impact" Certification required for FMPs.	The current criteria gives thresholds for increases in flow, water surface elevation, and inundation extents. Though useful, the current criteria does not allow for consideration of projects that exceed these thresholds but account for the impact through design or downstream accommodations.
8.3.7	Streamline the data collection requirements, specifically those identified in Task 1. Focus on collecting the data that was most useful to the regional flood plan development.	This first round of planning proved that very few entities have the data requested as part of the Flood Planning process readily available in a GIS format. Of those entities who did have GIS data, most were unable to share that information. As a result, some of this data was not used or was used minimally to develop potentially feasible and recommended FMEs, FMPs and FMSs.

ID	Recommendation	Rationale for Recommendation
8.3.8	Provide statewide data and a methodology to determine infrastructure functionality and deficiencies in the next cycle of the Flood Planning Process. Consider the lack of readily available local data when developing the methodology.	Most entities do not have information regarding the functionality and deficiency of their infrastructure. Some fields required by the TWDB-required tables in the Regional Flood Plans are based on data that is not available to entities without extensive field work. A statewide database with this information would be useful to all entities.
8.3.9	Review and revise the geodatabase submittal attributes and elements.	Normalizing the geodatabase with relationships would allow for cross-referencing of data elements and attributes. More domains for attributes need to be developed.
8.3.10	Use FEMA's Social Vulnerability Index (SVI) when available instead of the CDC's SVI in future planning cycles.	FEMA's SVI is reasoned to be more relevant to flood resiliency and risk than the CDC's SVI. SVI should not be the primary component considered when allocating funding.
8.3.11	Use consistent HUC reporting requirements throughout the TWDB-required tables.	The RFPG Guidance requires HUC-8 in some tables, HUC-10 in other tables, HUC-12 in yet other tables. Some tables require multiple HUCs to be provided. The RFPG recommends that the TWDB require HUC-8 in all TWDB-required tables for consistency and to correspond to FEMA's base level watershed planning granularity.
8.3.12	Improve upon flood risk identification and exposure process with regards to building footprints and population at risk by including first-floor elevations of structures.	While the building footprints are helpful, without the first-floor elevations of each structure, it is difficult to determine the actual extent of flood risk per structure. If the structure is sufficiently elevated above the BFE, for example, the footprint still shows the structure in the floodplain and the corresponding population is considered "at risk" though the structure meets NFIP standards, This likely overestimates of the population at risk.