LOWER RIO GRANDE REGIONAL FLOOD PLANNING GROUP

Public Meeting – Review of Draft Region 15 Regional Flood Plan

October 19, 2022





AGENDA

□ Define Region 15 **Regional Flood Planning Group Members** and Planning Team Overview of Regional Flood Planning Process **Overview of Draft Regional Flood Plan for the** Lower Rio Grande, Region 15 **Comments**

REGION 15 – LOWER RIO GRANDE FLOOD PLANNING REGION





Counties Represented:

Brooks*	Kinney*
Cameron	Maverick*
Dimmit*	Starr
Edwards*	Val Verde
Hidalgo	Webb*
Jim Hogg*	Willacy
Kenedy*	Zapata







 Population Estimate (2020):

 2,040,371

 Approx. Area:

 43,204 Sq. Miles

 Approx. Stream Miles:

 29,878,170





REGIONAL FLOOD PLANNING GROUP (RFPG) MEMBERS & PLANNING TEAM





REGIONAL FLOOD PLANNING GROUP MEMBERS (Voting)

Name	Interest Category	Entity
Jose Hinojosa	Agricultural	Santa Cruz Irrigation District No. 15
David A. Garza	Counties	Cameron County
Raul Pena Jr.	Counties	Starr County
Eduardo Gonzalez	Counties	Willacy County
Daniel Lucio	Electric Generating Utilities	AEP Texas
Hudson DeYoe	Environmental	University of Texas Rio Grande Valley
Alan Moore	Flood Districts	Cameron County Drainage District No. 5
David L. Fuentes	Flood Districts	Hidalgo County Drainage District No. 1
Joey Trevino	Industries	Rio Grande Valley Chapter of Associated General Contractors of America
Rene Estrada	Municipalities	City of Combes
Joe Califa	Public	Self
Jose Caso	Small Business	Caso Law Firm, PLLC
Sonia Lambert	Water Districts	Cameron County Irrigation District #2
Riazul Mia	Water Utilities	City of Laredo
ALFF		

REGIONAL FLOOD PLANNING GROUP MEMBERS (Non-voting)

Name	Title	Entity
Megan Ingram	Regional Flood Planner	Texas Water Development Board
Ramon Macias III	Principal Engineer	IBWC, US Section
Shonda Mace	Planner	General Land Office
Willy Cupit	Natural Resources Specialist	Texas Parks and Wildlife Department
Lupita Trinidad- Ramos	Homeland Security Planner III	South Texas Development Council
Brian Hurtuk	Hazard Mitigation Planner	Texas Department of Emergency Management
Nelda Barrera	Field Representative	Texas Department of Agriculture
Adrian Perez	Field Representative	Texas State Soil and Water Conservation Board
Manny Cruz	Executive Director	Lower Rio Grande Development Council
David Ramirez	Area Director – Border & Permian Basin	Texas Commission on Environmental Quality
Nick Gallegos	Executive Director	Middle Rio Grande Development Council



REGIONAL FLOOD PLANNING GROUP SPONSORS



Hidalgo County Drainage District No. 1





















Counties

- **Cities**
- **Flood Control Districts**
- **Drainage Districts**
- □ Irrigation Districts

Anyone with flood mitigation authority and responsibilities



OVERVIEW OF REGIONAL FLOOD PLANNING PROCESS





- 2019: 86th Texas Legislature passed Senate Bill 8, providing a new process for statewide flood planning
- Texas Water Development Board (TWDB) charged with implementation
- 15 regional flood planning groups (RFPGs) created by TWDB, based on drainage basins
- □ First planning cycle started late 2020
- Regional Plans to become part of State Flood Plan in Sept. 2024
- □ Updated every 5 years







The goal of this effort is to better manage future flood risk to reduce loss of life and property from flooding.









- Regional Flood Plans will identify flood risk and recommend
 - □ Flood Management Evaluations (FMEs)
 - □ Flood Mitigation Projects (FMPs)
 - □ Flood Management Strategies (FMSs)
- State Flood Plan will rank the recommended FMEs, FMPs, and FMSs at a state level
- Inclusion in the State Flood Plan will be needed for future state funding for flood related activities











OVERVIEW OF DRAFT REGION 15 LOWER RIO GRANDE REGIONAL FLOOD PLAN





CH. 1 – PLANNING AREA DESCRIPTION Overview of Region 15

Descriptions of:

- □ location,
- □ economics,
- agricultural information,
- □ social vulnerability,
- □ flood-prone areas,
- historical floods and associated damages,

- jurisdictions with flood-related authorities or responsibilities,
- existing
 infrastructure, and
- ongoing flood mitigation projects





CH. 1 – PLANNING AREA DESCRIPTION *Overview of Region 15*







CH. 1 – PLANNING AREA DESCRIPTION

□ 15% of total area is in 1% ACE

□ 41 of 54 communities have 20%+ area in 1% ACE

Overview of Region 15

□ 86 entities with flood control authority

□ 91% of entities participate in NFIP

57% of counties have Hazard Mitigation Plans

□ 85 on-going flood mitigation projects







CH. 2 FLOOD RISK ANALYSES

1% & 0.2% Annual Chance Event – Existing & Future Conditions

□ Floodplain Quilt Sources

- Local Studies (from Cities, Counties, River Authorities, etc.)
- □ FEMA National Flood Hazard Layer
 - Effective Date for Detailed Study Areas (Zone AE, AO, AH and VE)
 - Pending & Preliminary Data
 - Effective Data for Approximate Study Areas (Zone A and V)
- Base Level Engineering

Fathom – approximate 10-meter resolution nationwide floodplains





CH. 2 FLOOD RISK ANALYSES *Existing Condition Flood Risk Analyses*

% of Area in Existing Floodplain Quilt by County

County	1% Flood Hazard	0.2% Flood Hazard*	Combined Flood Hazard
Brooks	34%	1%	35%
Cameron	46%	30%	76%
Dimmit	24%	2.5%	27%
Edwards	22%	2%	24%
Hidalgo	40%	15.4%	55%
Jim Hogg	16%	4%	20%
Kenedy	39%	16.5%	56%
Kinney	31%	4%	35%
Maverick	29%	3.7%	33%
Starr	27%	3%	30%
Val Verde	26%	3.2%	29%
Webb	28%	3%	31%
Willacy	46%	25.6%	72%
Zapata	30%	3%	33%





CH. 2 FLOOD RISK ANALYSES

Future Condition Flood Risk Analyses

Increase in Flood Hazard Area for Future Condition Compared to Existing Condition

Flood Frequency	Existing Conditions Area (2020) (Sq. Mi)	Future Conditions Area (2050) (sq. mi.)	Increase (sq. mi.)	% Increase
1% Annual Chance	4,078	5,287	1,209	29%
0.2% Annual Chance	5,287	6,556	1,269	24%







CH. 2 FLOOD RISK ANALYSES Flood Risk Exposure Analysis

Summary of Increased Exposure in Flood Hazard Area, 1% ACE

Feature	Existing Conditions 2020	Future Conditions 2050	Increase
Population	965,787	1,365,701	399,914
Total Structures	288,366	394,669	106,303
Residential Structures	233,776	320,563	86,787
Non-Residential Structures	54,590	74,106	19,516
Critical Facilities	566	865	299
Low Water Crossing	126	129	3
Roadway Segments (miles)	6,376	9,163	2,787
Agricultural Area (sq. mi)	1,793	2,258	465



CH. 3A – EVALUATION & RECOMMENDATION OF FLOODPLAIN MANAGEMENT PRACTICES Recommended Practices and Standards, Region-wide

- Entities should base their BFEs on FEMA Firm maps in the absence of detailed Hydrologic and Hydraulic (H&H) studies or Base Level Engineering (BLE) studies.
- Where injury, sickness, or loss of life has happened, or where structural flood mitigation alternatives are not practical or are otherwise infeasible, communities should have a Buyout program to buy out properties if funding is available. The program should assist owners in relocating to areas with reduced flood risk.
- Storm drainage systems should convey the 4 percent annual chance (25-Year) flood event underground (within a storm sewer/pipe system) and the 1 percent annual chance (100-Year) flood event within the right-of-way.



CH. 3A – EVALUATION & RECOMMENDATION OF FLOODPLAIN MANAGEMENT PRACTICES Recommended Practices and Standards, Region-wide

- New and significantly altered roadways with curb and gutter should have a 10 percent annual chance (10-year) flood event water surface elevation below the top of the curb and a 25-year design for culverts.
- New construction shall (and the retrofitting or pre-existing residential/ commercial buildings outside of coastal areas should) have a finished floor elevation of 1-foot above the 1 percent annual chance event BFE. New Construction shall (and retrofit pre-existing residential/commercial buildings in coastal areas) should have a finished floor elevation of 1-foot above the highest elevation of either the riverine or coastal BFE, including combined riverine and coastal effects.





CH. 3B – FLOOD MITIGATION AND FLOODPLAIN MANAGEMENT GOALS *Proposed Overarching Goal Categories*

- 1. Flood Infrastructure Projects
- 2. Education and Outreach
- 3. Flood Warning and Readiness
- 4. Flood Studies and Analysis
- 5. Guidance
- 6. Property Acquisition, Structure Elevation, and Floodproofing





CH. 4A – FLOOD MITIGATION NEEDS ANALYSIS Goal of Task Identify areas in region with greatest: Flood risk knowledge gaps

G FMEs

- Known flood risks and flood mitigation needs
 - G FMSs

FMPs



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CH. 4A – FLOOD MITIGATION NEEDS ANALYSIS







CH. 4B – POTENTIAL FMEs, FMSs & FMPs

Review of FMEs, FMPs, and FMSs (FMX)

FLOOD MANAGEMENT EVALUATIONS (FMEs) (proposed studies)			FLOOD MITIGATION PROJECTS (FMPs) (proposed projects)		
Studies Risk Reduction Analysis		Structural Infrastructure	Non-Structural		
Flood Preparedness Study	Modeling and Mapping / Risk Identification	Alternatives Analysis / Feasibility Assessment	Preliminary Engineering (30% design)	Advanced Analysis / Design / Construction (30 - 100% design)	 Project Implementation Property/Easement Acquisition Elevation of Structures Floodproofing Flood Readiness and Resilience Flood Warning, Gauges Regulatory Requirements

FLOOD MANAGEMENT STRATEGIES (FMSs)

(proposed plans)

- Infrastructure Projects
- Property/Easement Acquisition
- Elevation of Structures

- Education and Outreach
- Flood Warning and Measurement
- Regulatory and Guidance





CH. 4B – FMX SELECTION PROCESS 6 General Steps

STEP 1	INITIAL SCREENING OF EVALUATIONS, PROJECTS & STRATEGIES RECEIVED Screen for minimum TWDB rules and guidance requirements
STEP 2	SCREENING OF PROJECTS (FMPs) Screen per TWDB flowchart and guidance
STEP 3	SCREENING OF EVALUATIONS (FMEs) Screen for minimum TWDB guidance requirements
STEP 4	SCREENING OF STRATEGIES (FMSs) Screen for minimum TWDB guidance requirements
STEP 5	DETAILED EVALUATIONS OF SELECTED EVALUATIONS , PROJECTS & STRATEGIES
STEP 6	FINAL RECOMMENDATIONS OF EVALUATIONS, PROJECTS & STRATEGIES





CH. 4B – FMX SELECTION PROCESS

STEP 1 INITIAL SCREENING OF *EVALUATIONS, PROJECTS & STRATEGIES* RECEIVED

Screen for minimum TWDB rules and guidance requirements Does it address the following?

- **1.1** Flood mitigation or floodplain management goal (Task 3B)
- 1.2 Meet an emergency need
- **1.3** Flood problem with drainage area of 1 square mile or greater*
- 1.4 Reduce flood risk for 100-year (1% annual chance) flood

*except in instances of flooding of critical facilities or transportation routes or for other reasons, including levels of risk or project size, determined by the RFPG





CH. 4B – FMP SELECTION PROCESS

STEP 2



SCREENING OF PROJECTS

"Sufficient data"

- H&H modeling, mapping, and basis for mitigation project analysis generally meets Section 3.5 of TWDB technical guidelines
 - Reliable
 - Minimal uncertainty

"Negative effect"

- For the 100-year (1% annual chance) flood event, no rise in flood elevation or discharge should be permissible. Projects should not:
 - Increase inundation on homes or commercial buildings
 - Increase inundation beyond ROW or easements
 - Increase inundation beyond existing drainage infrastructure capacity



CH. 4B – FME SELECTION PROCESS

STEP 3

SCREENING OF EVALUATIONS

Three General Categories of Evaluations:

- Projects (FMPs) that didn't make the cut in Step **2**FMX Selection Process
- 2. Planned flood studies or flood risk reduction alternatives analyses provided by communities
- 3. Flood study or flood risk reduction alternatives analysis needs identified in Task 4A

Screen for minimum TWDB rules and guidance requirements

- 3.1 If detailed H&H and mitigation alternatives analysis → *Project* or *Strategy*
- 3.2 Sensible
- 3.3 Reasonable planning-level cost estimate
- **3.4** Identified sponsor(s)
- 3.5 Structures, population and critical facilities at risk
- 3.6 Roadways at risk
- 3.7 Area of farm and ranch land at risk





CH. 4B – FMX SELECTION PROCESS

STEP 5

DETAILED EVALUATIONS OF SELECTED EVALUATIONS, PROJECTS & STRATEGIES

Does it have the following?

- **5.1** Project benefit-cost ratios > 1.0
- **5.2** A *willing* sponsor(s)
- 5.3 No known challenging implementation constraints or hurdles (ROW, utility conflicts, permitting, etc.)
- **5.4** Met RFPG specific requirements to incorporate a project or strategy into the RFP?





CH. 4B – IDENTIFICATION OF NEEDS

Potential FMEs Identified

FME Type	FME Description	# of Potential FMEs Identified
Watershed Planning	Flood Risk Modeling/ Mapping Promotes the development and/or refinement of detailed flood risk maps to address data gaps and inadequate mapping. Creates FEMA mapping in previously unmapped areas and updates existing FEMA maps as needed.	24
Project Planning	Flood Mitigation Alternative Analysis/ Feasibility Study Supports the development and analysis of H&H models to evaluate flood risk within specific problem area, evaluate potential alternatives to mitigate flood risk, and develop a project.	85
Other	Preliminary Engineering Evaluation of a proposed project to determine whether implementation would be feasible OR initial engineering assessment that includes conceptual design, alternative analysis, and up to 30 percent engineering design.	24
	Total	133





CH. 4B – IDENTIFICATION OF NEEDS

Potential FMPs Identified

Entity	FMP Des	# of Potential FMPs Identified	
City of Alton	 West Mile 5 Road and Louisiana Street Alt. 2 FM 676 South Glasscock Road Alternative 3 North Inspiration Rd and W St. Jude Ave Alt 2 	 North Stewart Boulevard Alternative 2 South Stewart Boulevard Alternative 2A West Mile 5 and South Glasscock Road Alt 3 	6
City of Eagle Pass	 Risk Area 11 Rancho Escondido Risk Area 12 Fox Borough Drive Risk Area 13 Celle De Los Santos neighborhood Risk Area 15 Trib 3 Detention at Main Street Risk Area 2 Treasure Hills 	 Risk Area 3 Arrow Point Boulevard Risk Area 4 Bibb & Misty Willow storm drain Risk Area 5 Debona Drive Risk Area 6 Trib 2 bypass & detention at Eagle Pass High School fields Risk Area 8 Tributary 2 channel widening near Alexander Drive 	10
City of Pharr	 Downtown Pharr Mitigation Project North Pharr Backwater Relief Project North Pharr Culvert Improvements 	 North Pharr Mitigation Project Pharr - San Juan Regional Detention Facility 	5
City of Weslaco	 South Texas Boulevard and East 18th Street Pleasantview Drive and 11th Street Los Torritos Str and N Kansas Avenue, Ph 2 Mile 10 N and Mile 5 ½ W 	 South International Boulevard and Bus 83 Texas Blvd to Airport Dr South of Bus 83 West Weslaco Westgate Drive and Sugar Cane Drive 	8
Hidalgo County Precinct 4	 Risk Area A at Mile 8.5 Rd. & Ware Rd. Risk Area B at Mile 6 & North Ware Rd. Risk Area C at FM 2812 & FM 493 Risk Area D at S. McColl & Canton Rd. 	 Risk Area E at Hwy 107 & Val Verde Rd. Risk Area F at Texas Rd. & Cesar Chavez Rd. Risk Area G at Hoehn Rd. & Mile 11 Rd. Risk Area I at Sharp Rd. & E Monte Cristo Rd Risk Area J at SH107 & FM 907 	9
	Total		



CH. 4B – IDENTIFICATION OF NEEDS Potential FMSs Identified

FMS Type	FMS Description	# of Potential FMSs Identified
Education and Outreach	NFIP Education; Flood Education; Floodplain Regulatory Awareness; Emergency Contact Awareness	8
Flood Measurement and Warning	Flood Warning Systems; Mass Notifications during Natural Hazard Incident; Dam Inundation Studies	25
Regulatory and Guidance	City Floodplain Ordinance Creation/Updates; Zoning Regulations; Land Use Programs;	18
	Total	51





TASK 5 - RECOMMENDED FMEs

FME Type	FME Description	# of Potential FMEs Identified	# of FMEs Recommended	Total Cost of Recommended FMEs
Watershed Planning	Flood Risk Modeling/ Mapping	24	22	\$7,500,000
Preparedness	Preparedness Flood Mitigation Alternative Analysis/ Feasibility Study		51	\$22,195,000
Other Preliminary Engineering		24	22	\$27,330,000
Total		133	95	\$57,025,000





TASK 5 - RECOMMENDED FMEs

EME

US Highway

- FME's provide watershed planning, a detailed hydrologic and hydraulic studies and will highlight flood risk within the region.
- Preparedness and flood mitigation alternatives that serve as feasibility studies.
- Preliminary Engineering designs to address specific flood needs.





TASK 5 - RECOMMENDED FMPs

FMP Name	FMP Description	Cost
North Pharr Mitigation Project	Construct 3400 linear feet of channel, culvert improvements, a connection to the outfall, and an inline Regional Detention Facility (RDF) along the Pharr- McAllen drain	\$8,195,000
Southwest Pharr Drainage Mitigation Project	Construct four regional detention facilities (RDF) in South Pharr.	\$5,587,000
	Total	\$13,782,000





TASK 5 - RECOMMENDED FMPs

- Designed to demonstrate a no negative impact on a neighboring area as a result of implementation.
- If negative impact are identified, mitigation measures may be utilized to alleviate impact.
- Uses engineers professional judgment to alleviate if negative impact is observed from implementation.





TASK 5 - RECOMMENDED FMSs

FMS Type	FMS Description	# of Potential FMSs Identified	# of FMSs Recommended	Total Cost of Recommende d FMSs
Education and Outreach	NFIP Education; Flood Education; Floodplain Regulatory Awareness; Emergency Contact Awareness	8	8	\$66,000
Flood Measurement and Warning	Flood Warning Systems; Mass Notifications during Natural Hazard Incident; Dam Inundation Studies	25	25	\$1,867,000
Regulatory and Guidance	City Floodplain Ordinance Creation/Updates; Zoning Regulations; Land Use Programs;	18	18	\$2,177,000
	Total	51	51	\$4,109,000
HALFF				



TASK 5 - RECOMMENDED FMSs

Similar to FMP requirements and must be able to demonstrate

- Support one regional floodplain mitigation goal
- No negative impact to an entity's water supply
- No overallocation of a water source based on availability.
- No negative impacts on downstream properties.



CH. 6 – IMPACTS & CONTRIBUTIONS OF THE REGIONAL FLOOD PLAN

Population Removed from the Floodplain

Annual Chance Event Flood Event	Existing At-Risk Population	Reduction of At-Risk Population after Implementation	Decrease in Population Impacted
1% (100-Year Event)	276,662	7,217	2.6%
0.2% (500-Year Event)	689,125	42,064	6.1%
Total	965,787	49,281	5.1%

Structures Removed from the Floodplain

Annual Chance Event Flood Event	Existing At-Risk Structures	Reduction of At-Risk Structures after Implementation	Decrease in Structures Impacted
1% (100-Year Event)	114,282	4,530	4%
0.2% (500-Year Event)	174,084	7,204	4.1%
Total	288,366	11,734	4%





TASK 7 – PREPAREDNESS ACTIVITIES Activities before a flood event

WARNING

WATCH

ADVISORY

dvisories are for less serious conditions than warnings, that cause significant inconvenience and if cautio is not exercised, could lead to situations that may threaten life or property OUTLOOK An outlook is issued when a hazardous weather or hydrologic event is possible in the next week. Outlooks

are intended to raise awareness of the potential for significant weather that could lead to situations that may threaten life or property

Preparedness Activities

- Early Warning Systems
- Education on Suggested Response Activities
- Procurement of Emergency Response Equipment
- Hazard Mitigation Planning





TASK 7 – RESPONSE ACTIVITIES Efforts during and immediately after a flood

Response Activities

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- Distribution of Emergency Supplies
 - □ Sandbags
- Deployment of Emergency Response Equipment and Activities
 - □ Rescue
 - Debris Removal
 - Mobile Pumps
 - Notification System for Closures





Recovery Activities

- Restoration of Utilities
- Removal of Excess Debris
- □ Continued use of Response Equipment
- Documentation of activities for future mitigation efforts
- Damage Assessments and Reparations





TASK 8 - ADMINISTRATIVE, REGULATORY,AND LEGISLATIVE RECOMMENDATIONS

ID	Regulatory & Administrative Recommendation Statements
8.2.1	Flooding does not recognize jurisdictional boundaries. Remove barriers that prevent jurisdictions from working together to provide regional flood mitigation solutions and regional detention across jurisdictional boundaries.
8.2.2	Funding for projects that benefit agricultural activities should not be scored or awarded based on a traditional benefit-cost ratio.
8.2.3	Funding for projects in Historically Disadvantaged Communities or Areas of Persistent Poverty should be allocated a minimum amount of future funding, so they are not competing against more fortunate communities.
8.2.4	Separate funding should be made available for each of the different aspects of floodplain management, such as developing floodplain maps, flood planning studies, advance project planning and development for floodplain management projects, and implementation of floodplain management projects.
 8.2.5	Require that future regional flood planning studies develop and maintain a 100-year timeline.
LFF	

Solution TASK 8 – ADMINISTRATIVE, REGULATORY, AND LEGISLATIVE RECOMMENDATIONS

ID	Legislative Recommendation Statements
8.1.1	Add legislative ability to allow counties the opportunity to establish and assess drainage (stormwater) utility fees. Legislation is needed to allow counties and others with flood control responsibilities to establish drainage (stormwater) utilities and collect fees for these services. Extend Local Government Code, Title 13, Subtitle A, Chapter 552 to allow counties the opportunity to establish and collect drainage utilities/fees.
8.1.2	Provide alternative revenue-generating sources of funding. Expand eligibility for and use of funding for stormwater and flood mitigation solutions (Local, State, Federal, Public/Private Partnerships, etc.)
8.1.3	Requirements for future planning studies



Solution TASK 8 – ADMINISTRATIVE, REGULATORY, AND LEGISLATIVE RECOMMENDATIONS

ID	Other Recommendation Statements
8.3.1	Flood planning alternatives should include options that do not cause irreparable damage to coastal habitats.
8.3.2	The Regional Flood Plan should include tools and resources to continuously include all significant impacts on the watersheds and floodplain management.



5 TASK 9 – FLOOD INFRASTRUCTURE FINANCING ANALYSIS

What role should the RFPG recommend that the State of Texas take when financing recommended FMSs, FMPs, and FMEs?

□ The State of Texas should:

- □ Take additional steps to inform communities of funding opportunities
- □ Expand the eligibility of project and entity types under existing programs
- Expand funding opportunities or create new programs for communities and special districts unable to meeting local cost sharing requirements.
- □ Provide resources for communities unable to apply for funding due to lack of expertise
- Provide technical resources (or funding to acquire technical resources) to provide technical and professional services needed for funding opportunities applications
- □ Prioritize vulnerable communities when considering financing recommendations
- □ Require that all projects consider impacts on downtown areas.





<u>3 WAYS TO COMMENT</u>

- 1. Comment here or at any RFPG meeting
- **2. Provide written comments to:**

Kleal@halff.com

Jaime.Salazar@hcdd1.org

Include Region 15 in the subject line.

3. <u>www.region15lrg.org</u> – Public Comments Page





COMMENTS





YOUR INPUT IS IMPORTANT.

