



Update from Consultant Team


Neches Regional Flood Planning Group

March 24, 2022

1

Agenda

- March 7th Technical Memorandum Submission
- Task 3B Goals Discussion Revisited
- Task 3A Floodplain Management Practices
 - Emergency Preparedness
 - Floodplain Management Practices
 - New Construction/Redevelopment Standards
- Task 4A Flood Mitigation Needs Analysis
- Task 4B Update
 - Stakeholder Outreach Regarding FMEs, FMSs, FMPs

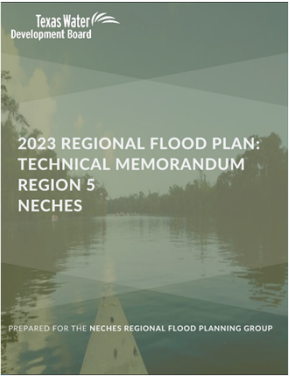


2

Task 4C – Technical Memorandum

5


- Second Technical Memo Submitted to TWDB March 7, 2022
 - TWDB 30-day Administrative Review
 - Detailed Technical Review with informal comments in May 2022.



3

Task 3A & 3B Overview


5



Minimum Standards

- Identify and reduce risk of impact to life and property

← 3A → 3B →



Goals

- Define overarching flood mitigation and floodplain management goals

4

Task 3B – Potential Changes to Approved Goals

5

Goal ID	Goal	Short-Term Goal	Long-Term Goal
05000001 05000002	Design xx% of the new regional infrastructure projects for larger storm events.	10%	25%

- Suggested Revision
 - An average of xx% of the new regional infrastructure projects will utilize larger storm events (≥100-year) as the basis of their design.
 - 10% by 2033, 25% by 2053

5

Task 3B – Potential Changes to Approved Goals

5

Goal ID	Goal	Short-Term Goal	Long-Term Goal
05000003 05000004	RFPG will consider and incorporate nature-based practices and floodplain preservation in xx% of their new flood risk reduction projects	10%	25%

- Suggested Revision
 - RFPG must consider and should incorporate nature-based practices and floodplain preservation in xx% of their new flood risk reduction projects

6

Task 3B – Goal Comparisons

5

- FMEs, FMPs, and FMPs must be tied to a specific flood mitigation or floodplain management goal.

RFPG Region Name	Improve Flood Infrastructure				Improve Data				
	Regional Projects	Nature Based Practices	Critical Facilities	Reduce exposure to Structures	Detailed Studies	Gauges	Critical Infrastructure Database	Stormwater Asset Management	Latest Rainfall
Neches	*	*	*	*	*	*	*	*	*
Sabine	*		*		*			*	*
Trinity					*				*
San Jacinto	*	*	*	*					
Lower Brazos			*		*	*			*

7

Task 3B – Goal Comparisons

5

RFPG Region Name	Expand Funding			Education & Outreach	Policy & Regulation	Protect Life & Safety				Protect Property
	State/Federal Projects	O&M	Self-Funding	Expand Education & Outreach	Improve Policy & Regulation	Agriculture	Warning Systems	Roadway Flooding	Natural Areas	Repetitive Loss
Neches	*	*	*	SUGGESTED				SUGGESTED		
Sabine		*		*			*	*		
Trinity				*	*	*			*	
San Jacinto	*			*	*			*		
Lower Brazos				*	*		*			*

8

Task 3B – Addition of New Goal

5

- Low Water Crossings

Goal	Short-Term Goal	Long-Term Goal
Give notice to 100% of affected units of local government and improve XX% of Low Water Crossings, identified in the latest Regional Flood Plan, by installing warning devices .	50%	100%
Give notice to 100% of affected units of local government and solicit funding applications for improvement or removal of XX% of Low Water Crossings identified in the latest Regional Flood Plan.	25%	80%

- Currently 186 identified LWC within the Neches FPR

9

Task 3B – Addition of New Goal

5

- Public Education/Outreach

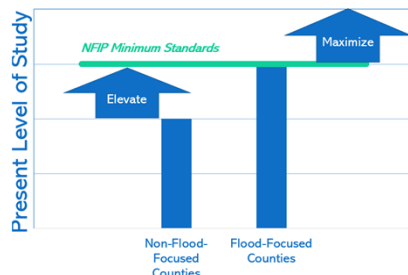
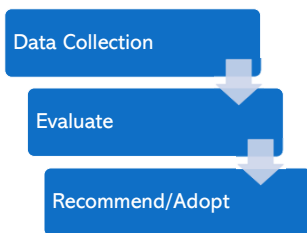
Short Term Goal	100% of counties to perform public education and awareness campaigns to better inform the public of flood-related risks on an annual basis.
Long Term Goal	Maintain 100% participation of counties performing public education and awareness campaigns to better inform the public of flood-related risks on an annual basis.

10

Task 3A – Floodplain Management Practices

5

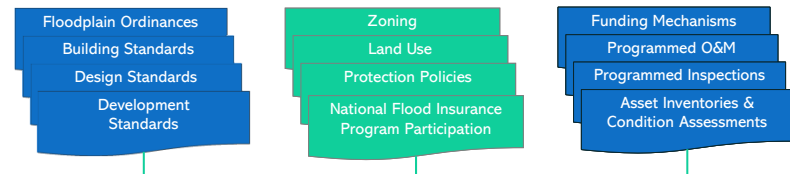
- Goal: Evaluate/recommend floodplain management practices
 1. Identify and reduce the risk and impact to life and property that already exists
 2. Avoid increasing or creating new flood risk by addressing future development within the areas known to have existing or future flood risk.



11

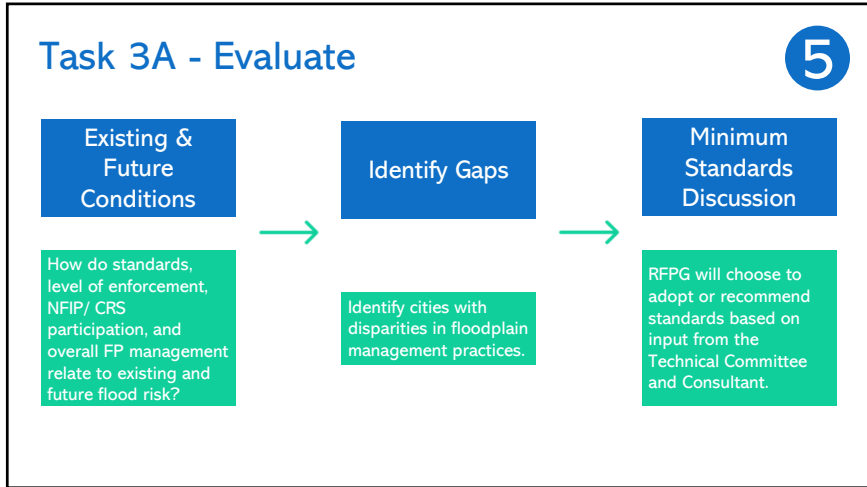
Task 3A – Data Collection

5



Entity	Floodplain management regulations	Adopted minimum regulations	NFIP Participant	Higher Standards Adopted	Floodplain Management Practices	Level of enforcement of practices	Existing Stormwater or Drainage Fee
County 1	Yes	Yes	Yes	No	Moderate	Moderate	Yes
City 1	No	No	No	No	Low	Low	No
Special Purpose District	Unknown	No	No	No	None	None	No

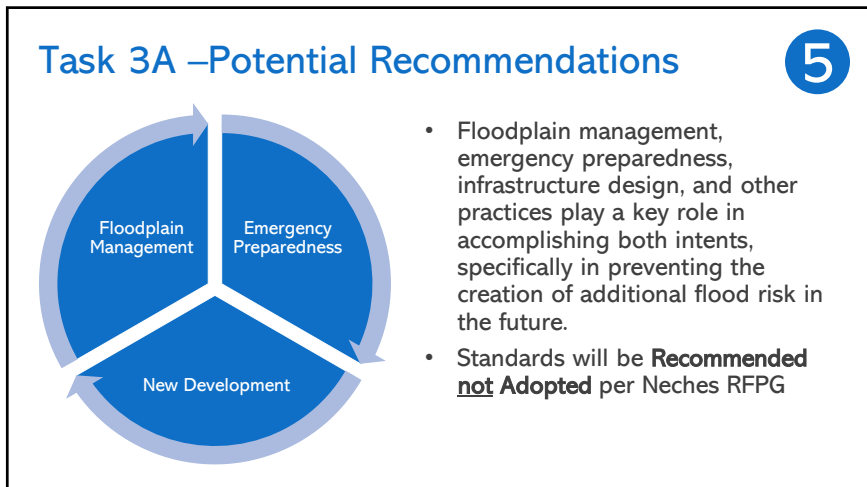
12



13

- ### Task 3A - Recommend or Adopt 5
- Recommend
 - All FMEs, FMSs, and FMPs can be considered in the RFP
 - Adopt
 - Must meet adopted minimum **BEFORE** FME, FMS, or FMP can be included in the RFP
 - RFPGs do not have the authority to enact or enforce floodplain management, land use, or other infrastructure design standards

14



15

Task 3A - Potential Recommendations 5

- Floodplain Management Practices

Type	Example Recommended Standard
Minimum Regulations	All municipalities should adopt minimum requirements outlined by FEMA for NFIP participation.
	All communities should adopt and enforce floodplain regulations.
Property Acquisition	All communities should adopt a property acquisition program for repetitive loss structures that conform to property acquisition and relocation for open space (FEMA 44 C.F.R. Part 80) requirements.
Operations & Maintenance	Entities should plan and maintain infrastructure to prevent more expensive replacement costs.
Maintenance	Communities should create a drainage infrastructure maintenance strategy following complaints or damages after a storm.

16

Task 3A - Potential Recommendations

5

- Emergency Preparedness

Type	Example Recommended Standard
Flood Awareness	All communities should create and maintain a website or webinars on public flood risk awareness.
Flood Risk Information	All communities should use the best available precipitation data for regulatory and design criteria/standards.
Flood Response	All communities should have a Hazard Mitigation Plan for significant storm events.
	All communities should have a warning system to contact citizens before and during storm events.

17

Task 3A - Potential Recommendations

5

- New Development

Type	Example Recommended Standard
Roadways	Roadways designated as evacuation routes are designed such that the 100-year inundation extent is contained within the right-of-way and at least one navigable lane is maintained in each direction.
Culvert and Bridge Crossings	Culverts should demonstrate no adverse impact for 100-year storm event
Detention	Communities should require compensatory storage for all fill in the 100-year floodplain.
	Communities should require all new development in Zone A or unmapped areas provide a hydrologic and hydraulic study and demonstrate no adverse impacts downstream.

18

Task 3A - Potential Recommendations

5

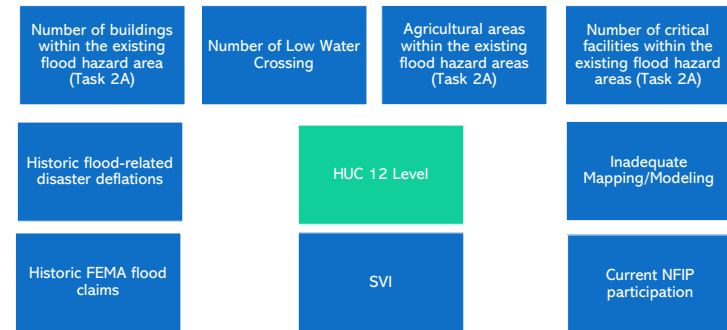
- New Development

Type	Example Recommended Standard
Habitable Structures	All habitable structures in coastal communities should be designed such that finished floor elevations are 3 feet above the BFE including the combined riverine and coastal effects.
	All habitable structures in non-coastal communities are designed such that finished floor elevations are 2 feet above the riverine 100-year WSE, EXCEPT where stricter local standards apply.
Critical Facilities	All critical facilities in coastal communities should be designed such that finished floor elevations are 2 feet above the highest elevation of either the riverine 500-year or coastal 100-year WSE including the combined riverine and coastal effects.
	All critical facilities in non-coastal communities should be designed such that finished floor elevations are 2 feet above the riverine 100-year WSE.
Nature-Based Solution	All new construction should consider nature-based solutions and sustainable solutions.

19

Task 4A - Flood Mitigation Needs Analysis Process

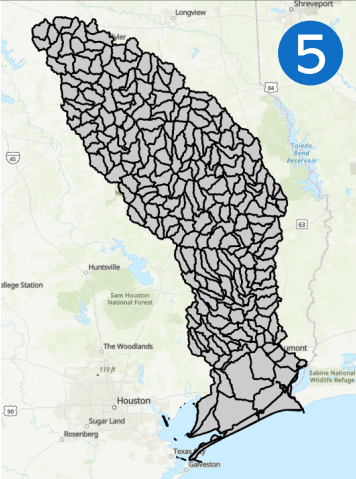
5



20

Task 4A – Flood Mitigation Needs Analysis Process

- Unit of Analysis
 - HUC = Hydrologic Unit Code
 - HUC 12 will be used as unit of analysis (local sub-watershed level that captures tributary systems)
 - 261 HUC 12 sub-watersheds



21

Task 4A – Flood Mitigation Needs Analysis

- Scoring
 - Percentile of numerical category to properly represent the entire region
 - 20th Percentile (bottom 20% of values of all HUC 12's)= 1 Point
 - 80th Percentile (top 20% of values of a HUC 12's)= 5 Points

Category	Unit	0 points	1 point	2 points	3 points	4 points	5 points	
1 Buildings within the Existing Flood Hazard Layer	Count	0	1-2	2-5	5-17	17-97	97+	
2 Low Water Crossings	Count	0	1-5	5-10	10-15	15-23	23+	
3 Agricultural within Existing Flood Hazard Layer	Square Miles	0	0-0.0013	0.0013-0.0069	0.0069-0.020	0.020+		
4 Critical Facilities within the Existing Flood Hazard Layer	Count	0	1				2+	
5 NFIP Status	N/A	NFIP community						non-NFIP community
6 Social Vulnerability Index (SVI)	Decimal	0	0-0.35	0.35-0.43	0.43-0.49	0.49-0.62	0.62+	
7 Inadequate Mapping (Gap Analysis from Task 2A)	N/A	Atlas 14 Data Update Required		Detailed Study Older Than 10 Years		Approximate Data		
8 Historical FEMA Claims	Count	0		0-2		2-9	9+	
9 Historical Disaster Declarations	Count	0	0-14	14-15	15-17	17-19	19+	

22

Task 4A – Flood Mitigation Needs Analysis

Alternative Scoring

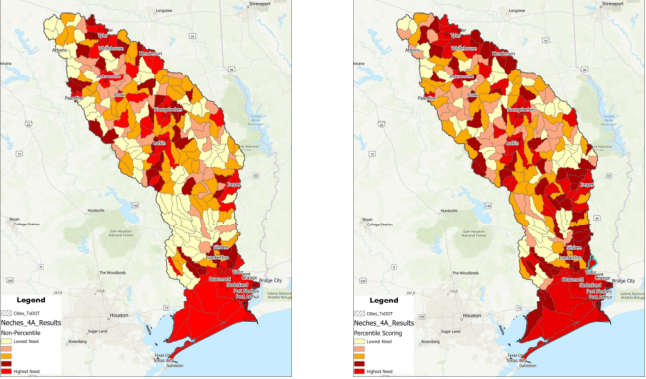
- Points allocated for brackets of *approximately equal numerical size*

Category	Unit	0 points	1 point	2 points	3 points	4 points	5 points	
1 Buildings within the Existing Flood Hazard Layer	Count	0	1-55	56-110	111-166	167-221	222+	
2 Low Water Crossings	Count	0	1-8	9-25	26-34	35-43	44+	
3 Agricultural within Existing Flood Hazard Layer	Square Miles	0	0.001-0.013	0.014-0.029	0.030-0.045	0.046-0.061	0.062+	
4 Critical Facilities within the Existing Flood Hazard Layer	Count	0	1-5	5-10	10-100	100-375	375+	
5 NFIP Status	N/A	NFIP community						non-NFIP community
6 Social Vulnerability Index (SVI)	Decimal	0	0.01-0.20	0.20-0.40	0.40-0.50	0.50-0.65	0.65+	
7 Inadequate Mapping (Gap Analysis from Task 2A)	N/A	Atlas 14 Data Update Required		Detailed Study Older Than 10 Years		Approximate Data		
8 Historical FEMA Claims	Count	0	1-10	10-30	30-100	100-1000	1000+	
9 Historical Disaster Declarations	Count	0		1-10		10-20	20+	

23

Task 4A – Flood Mitigation Needs Analysis

Scoring Analysis



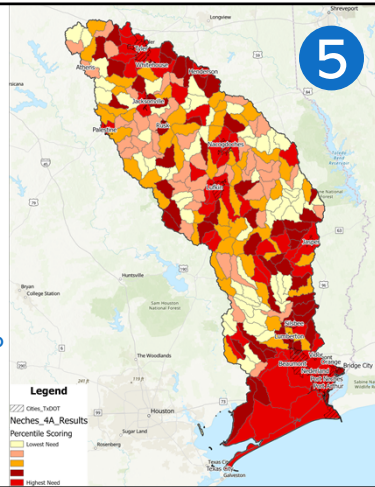
Alternative Scoring (Even Size Numerical Categories)

Percentile Scoring

24

Task 4A – Flood Mitigation Needs Analysis

- Scoring
 - Percentile of numerical category
 - 20th Percentile (bottom 20% of values of all HUC 12's)= 1 Point
 - 80th Percentile (top 20% of vales of a HUC12's)= 5 Points
 - Top 20% of Total Scores= Highest Need
 - Bottom 20% of Total Scores= Lowest Need
 - **Lowest Need does not mean there is no need/flood risk**



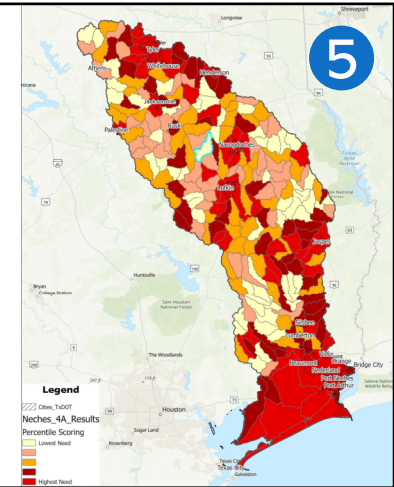
25

Task 4A – Flood Mitigation Needs Analysis

Scoring Example: Lower Scoring HUC12

Category	HUC 12	120200040603	Score
Number of Buildings in 1% and 0.2% Floodplain Areas (Existing Flood Hazard)		5	2
Number of Low Water Crossings		8	2
Agricultural Areas in Flood Prone Areas (Square Miles)		0	0
Number of Critical Facilities in 1% and 0.2% Floodplain Areas		0	0
Communities Participating in NFIP		Yes	0
Social Vulnerability Index of HUC 12 (SVI)		0.511	4
Inadequate Floodplain Mapping (Rank by category)		Approximate Data	5
Number of Historical FEMA Claims		0	0
Number of historical flood-related Disaster Declarations		15	2
TOTAL SCORE			15

*Items in blue contribute to overall lower score



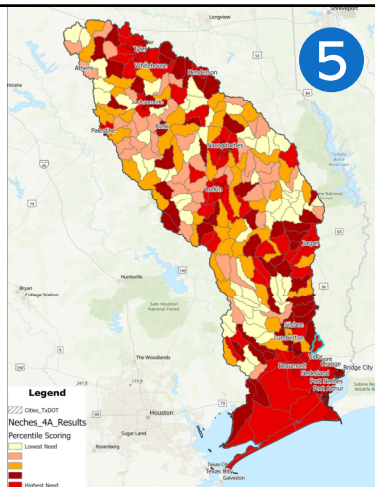
26

Task 4A – Flood Mitigation Needs Analysis

Scoring Example: High Scoring HUC12

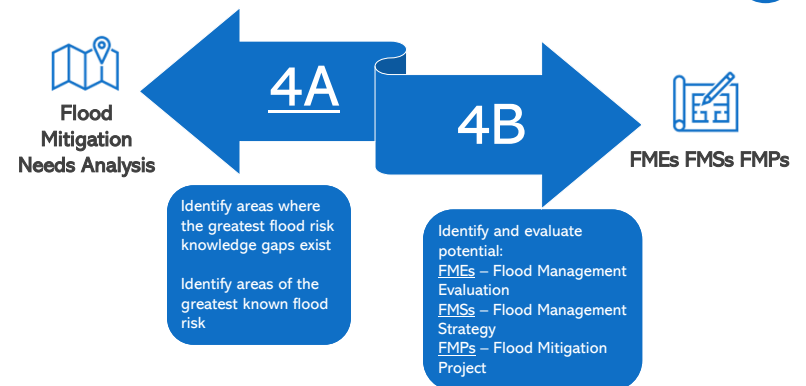
Category	HUC 12	120200040603	Score
Number of Buildings in 1% and 0.2% Floodplain Areas (Existing Flood Hazard)		1225	5
Number of Low Water Crossings		38	5
Agricultural Areas in Flood Prone Areas (Square Miles)		0.030754	5
Number of Critical Facilities in 1% and 0.2% Floodplain Areas		6	5
Communities Participating in NFIP		Yes	0
Social Vulnerability Index of HUC 12 (SVI)		0.417126	2
Inadequate Floodplain Mapping (Rank by category)		Atlas 14 Data Update Required	1
Number of Historical FEMA Claims		515	5
Number of historical flood-related Disaster Declarations		21	5
TOTAL SCORE			33

*High score in most categories



27

Task 4A & 4B Overview



28

Task 4B – Initial List of FMEs, FMPs, FMSs 5

- Prepared initial list based on open-source research
- Contacted stakeholders with potentially feasible FMEs, FMPs, FMSs
 - Initial contact made via email
 - Followed up with phone call if no response provided within 2 weeks
- **Fundamental that entities provide data to go into evaluation and identification of FME, FMP, and FMS**

29

Task 4B - Outreach 5

Entities Contacted		
Chambers County	Harris County	City of Groves
City of Anahuac	Henderson County	City of Henderson
City of Ivanhoe	Houston County	Henderson County
City of Jasper	Jasper County	City of Hideaway
City of Kountze	Jefferson County	City of Hudson
City of Rose Hill Acres	Liberty County	City of Jacksonville
Hardin County	Nacogdoches County	City of Lindale
Angelina & Neches River Authority	Rusk County	City of Lufkin
Jefferson County Drainage District 6	Sabine County	City of Lumberton
Chambers County	San Augustine County	Lumberton MUD
Chambers County	Smith County	City of Nacogdoches
Orange County	Tyler County	City of Nederland
Anderson County	Big Thicket National Preserve	City of Orange
Angelina County	Big Thicket Natural Heritage Trust	City of Palestine
Chambers County	TxDOT, Beaumont District	City of Port Arthur
Cherokee County	Anderson County	City of Rusk
Galveston County	City of Athens	City of San Augustine
Hardin County	City of Beaumont	City of Tyler
Galveston County	City of Bridge City	City of Vidor
	City of Diboll	City of Whitehouse

30

Task 4B – Outreach Data Requested 5

Mr. Silvey,

We have compiled a tabular list of **potential flood-mitigation studies and projects** for the Neches Regional Flood Planning Group Technical Memo and is included as an attachment. This list was compiled using publicly available data.

This tabular list includes projects/studies currently considered by the Neches Regional Flood Planning Group for potential inclusion in the Regional Flood Plan. The data needed for evaluation of these projects/studies is outlined below. When applicable to your entity, provide us with:

1. **Supporting Hydrology & Hydraulic Models**
 - a. If related to the projects/studies in question
2. **Cost Estimates**
 - a. Estimated Cost Share, Funds Source and Funds Needed
3. **Project/Study Footprint**
 - a. Preferably in digital format
4. **Project/Study Service Area**
 - a. Preferably in digital format
5. **Supporting Engineering Reports, feasibility studies, etc.**
6. **Any other flood-mitigation related project/study currently not on this table and that your entity wishes that it be considered for inclusion in the Plan.**

For more information on the state-wide flood planning effort please visit this FAQ page, <https://www.twdb.texas.gov/flood/planning/faq.asp>

Response to requests for information may be submitted electronically via a **secure email link**, or **another method of your preference**.

In order to properly review and incorporate your data, we would appreciate your response by **March 1, 2022**.

31

Task 5 – Recommendation of FMEs, FMPs, and FMSs 5

- Goal: Evaluate/recommend FMEs, FMSs, and FMPs for inclusion in the regional flood plan.
 - FMEs, FMSs, and FMPs previously identified and screened as part of Task 4B.
- Not all FMEs, FMSs, and FMPs identified will be included in the final recommendations.
 - **Each FME, FMS, and FMP identified will need to be evaluated and voted on individually per 31 TAC §361.50.**
 - Criterion for final evaluation and recommendation at RFPG's discretion.

32

