REGION 3 TRINITY
REGIONAL FLOOD PLANNING GROUP

MEMORANDUM

TO:	Region 3 Trinity Regional Flood Planning Group (RFPG)	**DATE:**	May 25, 2022
FROM:	Stephanie Griffin	**AVO:**	43791.001 000800
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SUBJECT:	Additional Recommendations for Chapter 8 of the Trinity Regional Flood Plan		

During the review period for Chapter 8 of the Trinity Regional Flood Plan, the consultant team received additional recommendations for potential inclusion in the draft plan. These statements are provided for your review and consideration for potential inclusion in the draft plan.

The included recommendations are separated into 2 categories: Consultant Recommendations and Proposed Recommendations requiring action.

Consultant Recommendations are proposed by the technical consultant team during the development of the draft plan. These recommendations are relatively technical in nature and focus on specific tasks required for the plan. The RFPG does not need to take any action on the Consultant Recommendations at the June 2nd RFPG meeting, unless one of the RFPG members wishes to discuss a particular item further.

Proposed Recommendations requiring action will be voted on by the RFPG at the RFPG meeting on June 2, 2022. These are new suggestions that the consultant team received from RFPG members following the April RFPG meeting. The vote will determine each recommendation's inclusion in the chapter, as written. Chapter 8 is not authorized by the TWDB to be revised as part of the Amended Regional Flood Plan. Thus, the RFPG needs to take action on these suggestions for potential inclusion in the draft plan.

Consultant Recommendations

Additional Flood Planning Recommendations

Potential ID	Recommendation	Recommendation Reasoning
CA #10	Increase 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 current way to fund projects.
CA #11	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. Some entities are still requesting information regarding the Flood Planning process and do not understand the benefits of participating.
CA #12	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 good to consider, the current criteria does not allow for projects that exceed these thresholds but account for the impact through design or downstream accommodations.
CA #13	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.
CA #14	Develop a statewide bridge inventory with bridge deck elevations.	The availability of statewide LiDAR provides the opportunity to more accurately describe the risk at riverine crossings (i.e. overtopping elevation). The creation of a statewide database would further simplify this data.
CA #15	Improve upon flood risk identification and exposure process with regards to building footprints and population at risk.	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 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 overestimates the population at risk quantification.

Proposed Recommendations Requiring Action (Voting Items)

Additional Legislative Recommendations

Potential ID	Recommendation	Recommendation Reasoning
RA #1	Non regulatory regional flood control or drainage districts should be established and funded for rapidly growing urban areas such as DFW, Houston, San Antonio, etc. Responsibility would be to provide consistency, technical resources, funding and reviews in support of FMEs, FMSs. These organizations would also implement or support implementation of FMPs. These organizations would augment communities and counties that do not have the resources and expertise to manage flooding.	Rapidly developing areas surrounding larger urban centers are at greater risk of having runoff patterns increasing because of development. These urban areas are comprised of many communities and unincorporated county areas. Many of the smaller communities are not funded or resourced to deal with the complexities of floodplain management and therefore there is a lack of or inconsistencies in floodplain management practices.
RA #2	Clarify the early 2000's state legislation that provide counties the authority to regulate floodplains to explicitly allow and encourage activities associated with floodplain management such as development of land use plans, regulatory authorities, e.g. permitting.	Although state legislation was passed in the early 2000's which gave counties the ability to regulate floodplains, interpretation of these regulations varies widely from county to county. The legislate bill lacks implementation guidance in the form of administrative rules. If development is occurring in unincorporated areas, this development can dynamically impact flood risk.

Additional Regulatory Recommendations

Potential ID	Recommendation	Recommendation Reasoning
RA #3	Require the use of n-values and channel conditions which would likely result if the channel or project were not maintained. Exceptions would be golf courses or other areas where an organization exists which would maintain the channel in perpetuity. Disallow maintenance by marginal organizations such as home owners associations to justify acceptance of lower n-values as this is an unrealistic expectation.	When channels are constructed, most often channel bed, banks and overbanks are cleared; however; with many miles of these channels, it is often difficult for communities to maintain those beds, banks and overbanks at their design conditions. Generally, there is a lack of channel maintenance to ensure flood conveyance areas, established as part of a development or improvement projects, to retain their design level n-values. This results in unexpected changes in channel conveyance and increased flooding. Channel maintenance is very expensive activity that can trigger environmental permitting requirements.
RA #4	No loss of valley storage to the 500-year level. Communities could allow redistribution of valley storage to allow interactions with natural areas but no loss of storage.	Land development in upstream areas increases runoff in downstream areas. This happens because of increased impervious cover and decreased tree cover, and therefore less ability to absorb rainfall. Additionally, development, in most communities, encroaches into riparian areas and decreases the amount of storage available to accommodate flood waters. Just the main thread of the Trinity River though DFW stores more flood waters during of flood than any three of the USACE reservoirs that provide flood protection for DFW. The many other streams provide even more storage than the main stem. There is limited capacity in rivers and streams to convey floodwaters. This means that all areas above any given conveyance point have to store flood water until sufficient time has laps to pass the water away from the impacted area. The streams are where this water is stored and depleting these storage areas will impact DS areas.

RA #5	Establish future land use plans for unincorporated areas associated with rapidly growing urban areas.	Land development in upstream areas increases runoff in downstream areas. This happens because of increased impervious cover and decreased tree cover, and therefore less ability to absorb rainfall. Additionally, development, in most communities, encroaches into riparian areas and decreases the amount of storage available to accommodate flood waters. Just the main thread of the Trinity River though DFW stores more flood waters during of flood than any three of the USACE reservoirs that provide flood protection for DFW. The many other streams provide even more storage than the main stem. There is limited capacity in rivers and streams to convey floodwaters. This means that all areas above any given conveyance point have to store flood water until sufficient time has laps to pass the water away from the impacted area. The streams are where this water is stored and depleting these storage areas will impact DS areas.
RA #6	Use of ultimate development land use conditions in the development of future flows. Require use of future flows for regulation of floodplains and development of FMP's.	Land development in upstream areas increases runoff in downstream areas. This happens because of increased impervious cover and decreased tree cover, and therefore less ability to absorb rainfall. Additionally, development, in most communities, encroaches into riparian areas and decreases the amount of storage available to accommodate flood waters. Just the main thread of the Trinity River though DFW stores more flood waters during of flood than any three of the USACE reservoirs that provide flood protection for DFW. The many other streams provide even more storage than the main stem. There is limited capacity in rivers and streams to convey floodwaters. This means that all areas above any given conveyance point have to store flood water until sufficient time has laps to pass the water away from the impacted area. The streams are where this water is stored and depleting these storage areas will impact DS areas.

Additional Flood Planning Recommendations

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RA #7	Encourage storm shifting to validate 100-yr estimates and to provide a broader understanding of communities' actual flood risk Storms identified and cataloged as part of the GLO funded USACE led Texas Storm Study could be the primary source of storms to be shifted.	Great deal of uncertainty in 100-yr estimates. Use of observed storms that approximately match depth duration data from NOAA Atlas 14 or other precipitation frequency sources validates 100-yr estimates. Additionally, wet, dry and average conditions as well as conditions at the time the storm occurred can be presented. Additionally, communities have and can experience storms that exceed the 100-yr. While not regulatory, this information will provide additional hazard mitigation data so communities can address critical infrastructure impacts and be better prepared.
RA #8	Add detail to Watershed Hydrology Assessments (WHA) for communities within basins with completed WHA's. The WHA for the Trinity has been completed.	The WHA's, funded by FEMA, are considered the best available flood flow frequency estimates, e.g. 100-yr. These estimates consider the latest precipitation frequencies, the variations in watershed response and determine critical flood drivers by employing a wide range of sensitivity analysis for each computation point.
RA #9	Update WHA's when future precipitation frequency estimates become available. Efforts to develop future precipitation frequency estimates for Texas are starting.	[None provided.]
RA #10	Establish regional efforts, for large urban centers to develop future land use data for all developing areas, not just incorporated areas, for use in developing future flood flow frequency estimates and future 100-yr (and other recurrence interval) hazard boundaries.	[None provided.]