

APPENDIX K: Written Comments Received on Draft Regional Flood Plan and RFPG Responses

**Public Comments Received on Draft Trinity Regional Flood Plan with RFPG Responses
(August 1 - October 10, 2022)**

Comment #	Date Comment Received	Name	Associated Entity	Comment	Initial Response and/or Action Taken Upon Receipt
1	July 18, 2022	Russell Erskine	City of Plano	<p>I find it interesting that in Table 1.1 that Duck Creek is listed as a major tributary to the East Fork of the Trinity River when Rowlett Creek has a large drainage area (approximately 137 square miles) and longer length (39 miles).</p> <p>I guess Plano doesn't have a population over 25,000 either (list on pages 1-9 and 1-10).</p> <p>Documents looking good.</p> <p>Couple of other comments:</p> <ul style="list-style-type: none"> •On Page 1-20, Collin County is shown as "Colin". •On Page 2-136, a statement on CRS states "CRS Rating of 5 (or 25%) discount". Should this not be 45%? •On Page 2-35, I am really surprised that BLE is being used if it under-predicts the flood levels. But I understand that it is the best available. Personally, I would rather use FEMA Zone A as a guide (if available). I would rather be over conservative on location of floodplains than under like BLE. •Seems to me that the report should be using the latest and greatest information on CRS. Under Risk Rating 2.0 Equity in Action, Table 3.2 is now outdated. Everyone now gets the same discount. I would think Dallas (and Halff) would want to show off that CRS Rating of 4. 	Consultant Team let Russell at City of Plano know we will address his comments.
2	August 28, 2022	Bennie Peek	Self	I saw the recent article in Fortworthreport.org regarding the possibility of future funding to correct the West Seventh Street area problems. In the best case scenario, that is many years away. What is city going to do now to reduce the severity of the flooding problem?	Shared comment with Clair Davis, City of Fort Worth floodplain administrator. Also provided Clair Davis' contact information to the homeowner and shared with the homeowner that we would update our maps of flood-prone areas to incorporate his concerns, but that we did not have emergency response authority to deal with the immediate issue.
3	August 28, 2022	Bennie Peek	Self	The flooding problem on Templeton Dr in Linwood is made much worse by the fact that during heavy rains the storm drains run backward and push pressurized water at high volumes onto Templeton. This, not local surface runoff, is the biggest source of flood water on Templeton. What can be done to change this so that Templeton and any other areas where this happens do not operate as the "retaining ponds" for other parts of the neighborhood?	Shared comment with Clair Davis, City of Fort Worth floodplain administrator. Also provided Clair Davis' contact information to the homeowner and shared with the homeowner that we would update our maps of flood-prone areas to incorporate his concerns, but that we did not have emergency response authority to deal with the immediate issue.
4	August 29, 2022 and October 7, 2022 (duplicate comment except the latter included a new sentence referring to the potential Floodwater Detention Basin and an extra description of the affected area as a high-end neighborhood)	Dane Steinhagen	Self	<p>This serves to notify that I am a resident of Fort Worth and recently purchased my Townhome , closing that purchase on Thursday, August 11th and moving into my home August 16th having new furniture delivered that day. Heavy rains commenced Wednesday August 17th causing severe flash flooding due to stopped-up city sewer drainage systems in and around Templeton Drive @ Hamilton Street and 5th, 6th and 7th Streets in which turned the entire Templeton Drive roadway into a flowing 7-foot Deep Floodwater River by 9pm,,thereby submerging my Ford Truck completely underwater to the dashboard (total loss) and flooding the ground floor of my townhome with up to 2" - inches of floodwater in the first flood, and thereafter to 8"-10" inches of water in the second and third flooding of my home only days apart.</p> <p>THIS SHOULD NOT BE HAPPENING IN Fort Worth, TEXAS and a high-end neighborhood.</p> <p>As you know, this continuous Fort Worth City Street Flooding is caused by absolutley inadequate and/or Completely Plugged-Up City Street System's, and because of this, Myself and ALL surrounding property owners (my Templeton Drive Neighbors) wish for you the CITY OF Fort Worth to immediately establish a "TEMPLETON DRIVE DRAINAGE TASK FORCE" in effort to plunge-out/Clean-out All Templeton Drive City Street Drainage Sewer Piping and all in-line connector pipping eliminating all blockage, and in addition to that, We The People of Templeton Drive hereby this writing request that you immediately dispatch a team of designated streets & drainage-public works engineers to "At Soonest" determine what underground stormwater sewer modifications, replacements, and/or enlargements must be Immediately Dispatched so to elevate/eliminate this constant Templeton Drive street and home flooding by-which has been so devastating to all Templeton Drive Homeowners.</p> <p>In addition, the 4 acre Linwood Park located at 301 Wimberly Street is a close proximity to Templeton Drive to be considered for development of a "Floodwater Detention Basin" being only a part of the overall solution in-effort to divert stormwater flooding away from the Linwood-Templeton Drive neighborhood.</p> <p>Time is of the essence that you please take Immediate Action Now On Templeton Drive City Sewer Piping Clean-out and further assessment.</p> <p>CAN CALL ME ANYTIME</p>	Shared comment with Clair Davis, City of Fort Worth floodplain administrator. Also provided Clair Davis' contact information to the homeowner and shared with the homeowner that we would update our maps of flood-prone areas to incorporate his concerns, but that we did not have emergency response authority to deal with the immediate issue.

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Comment #	RFPG Response
1	<p>Table 1.1 and Figure 1.5 have been updated to reflect Rowlett Creek as being a major tributary, as well as several others that were missing from the list in the Draft Plan.</p> <p>The list of cities with populations greater than 25,000 has been updated to include Plano, as well as several other cities that were missing from the list in the Draft Plan.</p> <p>Page 1-20 typo has been corrected in the Final Plan.</p> <p>Page 2-136: CRS Rating of 5 results in a 25% discount. No changes made.</p> <p>Page 2-35: The RFPG approved the hierarchy of data to be considered best available, which aligned with the TWDB's recommendations. No changes made.</p> <p>Table 3.2: CRS Ratings shown were cited as "December 1, 2020." This was the data that was available when the RFPG began its data collection effort in June 2021. NFIP updates its CRS list periodically. The next cycle of regional flood planning will likely use a more recent CRS publication date. No changes made.</p>
2	<p>This comment was forwarded to the City of Fort Worth upon receipt. The RFPG does not have emergency response capabilities. The area was included in the Draft Flood Plan as one of the recommended FMPs, Linwood Park Flood Mitigation (Western Arlington Heights).</p>
3	<p>This comment was forwarded to the City of Fort Worth upon receipt. The RFPG does not have emergency response capabilities. The area was included in the Draft Flood Plan as one of the recommended FMPs, Linwood Park Flood Mitigation (Western Arlington Heights).</p>
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Comment #	Date Comment Received	Name	Associated Entity	Comment	Initial Response and/or Action Taken Upon Receipt
5	September 1, 2022	Leonard Vyoral	Liberty County WCID #1	We prepared the attached request to study creating a retention pond for the Liberty County Water Control and Improvement District #1. Please let us know if this adequate to kick off the study. Thank you in advance for your help.	David Rivera acknowledged receipt of the response and shared that, from a cursory review, the level of information provided would be sufficient for consideration as a potential FME. David also requested the drainage area to this pond as a boundary on a map. Finally, David noted that the location of the proposed detention pond would fall in the San Jacinto Region and copied the consultant team in charge of that Plan for further assistance. David also indicated the consultant team would review the other 8-10 projects as they are provided, in order to determine in which Region they would belong - to ensure all FME requests are considered by the appropriate RFPG.
6	September 8, 2022	Sonia Sams (on behalf of Je	USACE	Good morning, Please see the following attachment for our initial comments on the Texas State Flood Plan, and there may be additional comments from others at USACE.	Colby Walton acknowledged receipt of the comment and shared the comment with the RFPG consultant team. The referenced attachment (Excel document) is saved in the Teams - Shareholder Engagement - Public Comments Letters and Attachments subfolder. All of the comments pertain to the Legislative Recommendations, Regulatory and Administrative Recommendations, and State Flood Planning Recommendations (Tables 8.1., 8.2 and 8.3).
7	September 22, 2022	James Knicker	Self	Please allow me to introduce myself. My name is James - I'm a local resident of Cross Roads, Texas and am asking for your help. The creek crossing nearby floods every year. I've lived at this residence for over 20 years and have become wrecked with worry about the crossing. Several times a year as a kid I struggled to cross the creek when DFW thunderstorms would flood. It routinely made me miss school and fall behind on my studies. As I've entered adulthood the problem has gotten worse. A nearby subdivision is being built and continues to increase the volume of water that flows through the creek which has caused infrastructure damage for residence of my hometown. This is incredibly risky. It was bad enough that the flooding made the crossing impassable by vehicle but now as my neighbors and I age - it has become a risk to our lives. You see the bridge is out of code, it's over 30 years old and building codes have moved on from when it was originally built. If there was an emergency event at our residence, emergency services would likely be delayed precious minutes in arriving at the address due to the caution needed when crossing an out of date crossing which could result in loss of life or damage of expensive emergency vehicles. To make matters worse - there is wildlife at risk. My neighbor has several horses. Their property also exists in the flood plain. In the event that there's a flood, these animals may be seriously injured or killed due to lack of access to care or fast moving water. I'm writing today to include our crossing in TWDB's Trinity region for consideration in future funding opportunities. After talking with professional engineers to provide a study, design, solution, and FEMA coordination - there could be charges in excess of hundreds of thousands of dollars. Please help the horses and I.	Colby Walton acknowledged receipt of the comment and asked for more location info. Also note the two creek flooding photos submitted in a follow-up email from Mr. Knicker.
8	October 10, 2022	Marty Kelly	TPWD	Good Day! Please find the attached comments for the draft Trinity Regional Flood Plan. Thank you for all of your efforts and hard work to create this plan. Please feel free to contact me with any questions.	Colby Walton acknowledged receipt of the comment. The referenced letter attachment is saved in the Teams folder for consultant review.

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Comment #	RFPG Response
5	<p>Information provided by Liberty County Water Control and Improvement District #1 was reviewed by Region 3 RFPG and determined that the level of information provided was sufficient to be considered as a potential FME. However, the location of this particular detention pond falls in the San Jacinto Region (Region 6), not Region 3. The information was relayed to the San Jacinto Regional Flood Planning Group. Region 3 will help follow up with this request with Region 6.</p> <p>If additional actions (FME, FMP, FMS) are sent for consideration, the Region 3 RFPG will determine the Region they belong to and ensure they are considered by the appropriate Regional Flood Planning Group.</p>
6	<p>A significant number of suggestions were provided for the RFPG's consideration. The RFPG discussed many of these concepts during its meetings in 2022. Unfortunately, time constraints did not afford the RFPG the opportunity to delve into these ideas and consider potential unintended consequences or potential liability that were of concern during those discussions. The RFPG may establish a subcommittee in a future cycle of flood planning to review these ideas for potential recommendations, consistent with state, federal and other regulatory bodies, prior to making recommendations for adjustments to the Legislative, Regulatory and Administrative, and/or State Flood Planning process. No changes made.</p>
7	<p>Region 3 RFPG recommended to Mr. Knicker to initiate conversations with the City of Cross Roads for a potential submittal of an FME to study this situation as part of the Amended Plan. Region 3 RFPG indicated that TWDB funding is only available to public entities and not to private owners.</p> <p>Mr. Knicker also submitted a point on the interactive web map (Comment # 17). Upon further investigation, the RFPG team determined that the area of concern was located in the county, not within the city limits. The roadway is located within the 1% annual chance (100-year) floodplain. The RFPG has added the location as a point in the GIS low water crossing layer. This location has been accounted for in the exposure analysis in the Final Plan. Please contact Denton County to report this situation. The RFPG forwarded your comment to the county as well.</p>
8	<p>The RFPG prefers nature-based solutions where possible.</p> <p>Point A: The RFPG supports and encourages nature-based actions. If a sponsor wishes to advance either or both of these potentially feasible FMEs, the RFPG will consider recommending them in the next cycle of regional flood planning. No changes made.</p> <p>Point B: The RFPG's Technical Consultant used engineering judgement to determine no negative impacts for the six recommended FMPs in question. Additional explanation regarding the recommendations of these six FMPs has been added in Chapter 5 (Table 5.2) and Appendix F (Table 5.3.1).</p> <p>Point C: The RFPG welcomes TPWD's input on the necessary flows to maintain habitat for Alligator Gar. No changes made.</p> <p>Point D: The RFPG is not responsible for designing or constructing the recommended FMXs. The RFPG recommends that TPWD contact the local sponsor to discuss TPWD's preferred design requirements. No changes made.</p> <p>Point E: The RFPG is not responsible for designing or constructing FMXs that might widen, deepen or straighten channels. The RFPG recommends that TPWD contact the local sponsor to discuss TPWD's preferred design requirements. No changes made.</p> <p>During the November 17, 2022 Trinity RFPG meeting, TPWD stated that the attachment was accidentally submitted with the cover letter. TPWD requested that the attachment be removed from TPWD's formal comment letter. The attachment was removed from the TPWD's formal comment letter</p>

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Comment #	Date Comment Received	Name	Associated Entity	Comment	Initial Response and/or Action Taken Upon Receipt
9	October 10, 2022	Danielle Goshen	NWF	Dear Stephanie Griffin, Please see NWF's recommendations on Region 3's Draft Regional Flood Plan, and an associated letter of recommendations incorporating nature-based solutions into the Regional and State Flood Plans.	Colby Walton acknowledged receipt of the comment. The referenced attachments (2) are saved in the Teams folder for consultant review.
10	August 29, 2022	Ellis Pickett	Self	illegal Coffey Dam blocking floodwater flow	None
11	August 29, 2022	Ellis Pickett	Self	Abandoned pipeline. Public safety and navigation hazard.	None
12	August 29, 2022	Ellis Pickett	Self	Second abandoned pipeline since 1940s. Looks like a tree, but not a tree	None
13	August 30, 2022	Charles Brown	Self	Major Agricultural Flooding in this area when water gets released from reservoirs	None
14	August 30, 2022	Mr. and Mrs. Brown	Self	Major Flooding in this dam area. Also flooding from water releases from reservoirs upstream. Costing major damages to crops and ranchland	None
15	September 1, 2022	Seth Wicks	Self	Major Flooding in this whole area both upstream and downstream. Pluvial and Fluvial flooding. extensive flooding. Potential backflow issues in this whole area	None
16	September 1, 2022	Bennie Peek	Self	Massive stormdrain Backflow flooding in this area	None
17	September 23, 2022	James Knicker	Self	At this pin there is a low water crossing over Cantrell Slough. This crossing floods several times annually and poses dire emergency risk to both residents and wildlife. This risk has been amplified by the recent housing subdivision development,	None

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Comment #	RFPG Response
9	<p>The RFPG prefers nature-based solutions where possible.</p> <p>Comment I: The RFPG appreciates your support of the future conditions approach. No changes made.</p> <p>Comment II: The RFPG spent considerable amount of time developing the goals and specific, measurable statements for inclusion in the Draft Plan. The addition of a goal to increase the enforcement of floodplain ordinances may be considered for inclusion in the next cycle of regional flood plan development due to time constraints for this first Flood Plan. No changes made.</p> <p>Comment III: The six FMPs in question were determined to have minimal negative impacts. When these projects are fully designed, the sponsors will have to prove no negative impacts to obtain the necessary local, state and/or federal permits for each project prior to construction. The RFPG does not agree that the proposed goal is appropriate to include in the regional flood plan. No changes made.</p> <p>Comment IV: The RFPG discussed minimum floodplain standards extensively. The RFPG concluded that because this was the first-ever regional flood plan and the compressed schedule to develop the plan, the RFPG wanted to allow entities with flood-control responsibilities to pursue potential future state funding to implement recommended actions without being penalized for having misunderstood the planning process requirements. Therefore, the RFPG did not adopt a minimum floodplain management standard for this first-ever regional flood plan. The RFPG may revisit this subject in the next planning cycle and come to a different conclusion at that time. No changes made.</p> <p>Comment V: The RFPG established future conditions in Chapter 2. The RFPG recognizes the importance of basing future conditions on best available data. This will be an ongoing process in future planning cycles. The comment should be directed to the TWDB. No changes made.</p> <p>Comment VI: The six FMPs in question were determined to have minimal negative impacts. Additional explanation regarding the recommendations of these six FMPs has been added in Chapter 5 (Table 5.2) and Appendix F (Table 5.3.1). When these projects are fully designed, the sponsors will have to prove no negative impacts to obtain the necessary local, state and/or federal permits for each project prior to construction.</p> <p>Comment VII: Nature-based solutions were considered by the RFPG. The RFPG did not consider the movement of a solution from a FMP to a FMS to be "downgraded" as both categories will be eligible for future TWDB funding. The TWDB requirements for recommending FMPs are very stringent. The FMS category is intended to capture those solutions that do not readily meet the TWDB FMP requirements. No changes made.</p> <p>Comment VIII: The Draft Plan incorporated the critical facilities definition and information as provided by TWDB. Any changes to the definition need to be approved by the TWDB for consistency across the state. The comment should be directed to the TWDB. No changes made.</p>
10	The Trinity RFPG does not have regulatory or enforcement authority. Please contact Liberty County to report the situation. The RFPG forwarded your comment to the county as well. No changes made.
11	The Trinity RFPG does not have regulatory or enforcement authority. Please contact Liberty County to report the situation. The RFPG forwarded your comment to the county as well. No changes made.
12	The Trinity RFPG does not have regulatory or enforcement authority. Please contact Liberty County to report the situation. The RFPG forwarded your comment to the county as well. No changes made.
13	The Trinity RFPG recognizes that flooding impacts agricultural operations and production. The property is located within the 1% annual chance (100-year) floodplain. Thus, the area marked on the map was previously included in the GIS flood quilt used in the Draft Plan. The RFPG forwarded your comment to Leon and Houston Counties. No changes made.
14	The Trinity RFPG recognizes that flooding impacts agricultural operations and production. The property is located within the 1% annual chance (100-year) floodplain. Thus, the area marked on the map was previously included in the GIS flood quilt used in the Draft Plan. The RFPG forwarded your comment to Leon and Houston Counties. No changes made.
15	The RFPG previously notified the City of Fort Worth regarding the flooding at this location. The area was included in the Draft Flood Plan as one of the recommended FMPs, Linwood Park Flood Mitigation (Western Arlington Heights). No changes made.
16	The RFPG previously notified the City of Fort Worth regarding the flooding at this location. The area was included in the Draft Flood Plan as one of the recommended FMPs, Linwood Park Flood Mitigation (Western Arlington Heights). No changes made.
17	The roadway is located within the 1% annual chance (100-year) floodplain. The RFPG has added the location as a point in the GIS low water crossing layer. This location has been accounted for in the exposure analysis in the Final Plan. Please contact Denton County to report this situation. The RFPG forwarded your comment to the county as well. (Related to Comment #7)

Public Comment #1

From: Russell Erskine <Rerskine@plano.gov>
Sent: Monday, July 18, 2022 4:31 PM
To: Amoako-Atta, Samuel <sAmoako-Atta@Halff.com>
Cc: Overbey, Jarred <jOverbey@Halff.com>
Subject: FW: Trinity Regional Planning Group

Documents looking good.

Couple of other comments:

- On Page 1-20, Collin County is shown as "Colin".
- On Page 2-136, a statement on CRS states "CRS Rating of 5 (or 25%) discount". Should this not be 45%?
- On Page 2-35, I am really surprised that BLE is being used if it under-predicts the flood levels. But I understand that it is the best available. Personally, I would rather use FEMA Zone A as a guide (if available). I would rather be over conservative on location of floodplains than under like BLE.
- Seems to me that the report should be using the latest and greatest information on CRS. Under Risk Rating 2.0 Equity in Action, Table 3.2 is now outdated. Everyone now gets the same discount. I would think Dallas (and Halff) would want to show off that CRS Rating of 4.

Russell

Please take a moment to complete the City of Plano [Customer Satisfaction Survey](#).

**Engineering
Department**

Serving Since 2018

Russell P. Erskine, P.E., CFM

Senior Engineer

1520 K Avenue, 2nd Floor

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T 972.941.7589

F 972.941.7397

rerskine@plano.gov

plano.gov

From: Russell Erskine
Sent: Friday, July 15, 2022 3:38 PM
To: Overbey, Katy <kOverbey@Halff.com>; Amoako-Atta, Samuel <samoak-atta@Halff.com>
Cc: Overbey, Jarred <jOverbey@Halff.com>
Subject: FW: Trinity Regional Planning Group

I guess Plano doesn't have a population over 25,000 either (list on pages 1-9 and 1-10).

Please take a moment to complete the City of Plano [Customer Satisfaction Survey](#).

Engineering Department	Russell P. Erskine, P.E., CFM
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	Suite 250, Plano, Texas 75074
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	plano.gov

From: Russell Erskine
Sent: Friday, July 15, 2022 3:34 PM
To: Amoako-Atta, Samuel <samoak-atta@Halff.com>
Subject: Trinity Regional Planning Group

I find it interesting that in Table 1.1 that Duck Creek is listed as a major tributary to the East Fork of the Trinity River when Rowlett Creek has a large drainage area (approximately 137 square miles) and longer length (39 miles).

Russell

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**Engineering
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Public Comment #2

Griffin, Stephanie

From: Trinity RFPG <webmaster@trinityrfpg.org>
Sent: Sunday, August 28, 2022 6:47 PM
To: Trinity RFPG
Subject: Public Comment Submission

Name: Bennie Peek

Company/Organization: Peek

Address: 410 Templeton Dr Fort Worth, TX 76107 Phone Number: 8173205081

Email: benniepeek@hotmail.com

Category Interest:

Public Comments Characteristic: Pertaining to a past agenda item, Related to flood planning documents

Comments: The flooding problem on Templeton Dr in Linwood is made much worse by the fact that during heavy rains the storm drains run backward and push pressurized water at high volumes onto Templeton. This, not local surface runoff, is the biggest source of flood water on Templeton. What can be done to change this so that Templeton and any other areas where this happens do not operate as the "retaining ponds" for other parts of the neighborhood?

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This e-mail was sent from a contact form on Region 3 Trinity (<https://protect-us.mimecast.com/s/WyLGCo2vr7hK18IIT1IMEc?domain=trinityrfpg.org>)

Public Comment #3

Griffin, Stephanie

From: Trinity RFPG <webmaster@trinityrfpg.org>
Sent: Sunday, August 28, 2022 6:41 PM
To: Trinity RFPG
Subject: Public Comment Submission

Name: Bennie Peek

Company/Organization: Peek

Address: 410 Templeton Dr Fort Worth, TX 76107 Phone Number: 8173205081

Email: benniepeek@hotmail.com

Category Interest:

Public Comments Characteristic: Pertaining to a past agenda item, Related to flood planning documents

Comments: I saw the recent article in Fortworthreport.org regarding the possibility of future funding to correct the West Seventh Street area problems. In the best case scenario, that is many years away. What is city going to do now to reduce the severity of the flooding problem?

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This e-mail was sent from a contact form on Region 3 Trinity (<https://protect-us.mimecast.com/s/WyLCo2vr7hK18lIT1IMEc?domain=trinityrfpg.org>)

Public Comment #4

From: Dane Steinhagen <dane.steinhagen10@gmail.com>
Sent: Monday, August 29, 2022 1:39 PM
To: Trinity RFPG <info@trinityrfg.org>
Subject: PUBLIC COMMENT - Linwood Flooding

To:

Trinity Regional Flood Planning Group

From:

Dane Steinhagen / Templeton Drive Home Owner (Linwood Fort Worth Neighborhood)

This serves to notify that I am a resident of Fort Worth and recently purchased my Townhome @ 407 Templeton Drive, closing that purchase on Thursday, August 11th and moving into my home August 16th having new furniture delivered that day.

Heavy rains commenced Wednesday August 17th causing severe flash flooding due to stopped-up city sewer drainage systems in and around Templeton Drive @ Hamilton Street and 5th, 6th and 7th Streets in which turned the entire Templeton Drive roadway into a flowing 7-foot Deep Floodwater River by 9pm,,thereby submerging my Ford Truck completely underwater to the dashboard (total loss) and flooding the ground floor of my townhome with up to 2" - inches of floodwater in the first flood, and thereafter to 8"-10" inches of water in the second and third flooding of my home only days apart.

THIS SHOULD NOT BE HAPPENING IN Fort Worth, TEXAS.

As you know, this continuous Fort Worth City Street Flooding is caused by absolutley inadequate and/or Completely Plugged-Up City Street System's, and because of this, Myself and ALL surrounding property owners (my Templeton Drive Neighbors) wish for you the CITY OF Fort Worth to immediately establish a "TEMPLETON DRIVE DRAINAGE TASK FORCE" in effort to plunge-out/Clean-out All Templeton Drive City Street Drainage Sewer Piping and all in-line connector pipping eliminating all blockage, and in addition to that, We The People of Templeton Drive hereby this writing request that you immediately dispatch a team of designated streets & drainage-public works engineers to "At Soonest" determine what underground stormwater sewer modifications, replacements, and/or enlargements must be Immediately Dispatched so to elevate/eliminate this constant Templeton Drive street and home flooding by-which has been so devastating to all Templeton Drive Homeowners.

Time is of the essence that you please take Immediate Action Now On Templeton Drive City Sewer Piping Clean-out and further assessment.

Can reach me anytime on my cell

Dane Steinhagen
m: 409.781.0078

From: Trinity RFPG <webmaster@trinityrfg.org>
Sent: Friday, October 7, 2022 11:49 AM
To: Trinity RFPG <info@trinityrfg.org>
Subject: Public Comment Submission

Name: Dane Steinhagen
Company/Organization: Linwood Home Owner
Address: 407 Templeton Drive
Phone Number: 4097810078
Email: dane.steinhagen10@gmail.com
Category Interest: Flood Districts

Public Comments Characteristic: Concerning an upcoming agenda item, Related to flood planning documents

Comments: This serves to notify that I am a resident of Fort Worth, TX and recently purchased my Townhome @ 407 Templeton Drive, closing that purchase on Thursday, August 11th and moving into my home August 16th having new furniture delivered that day.

Heavy rains commenced Wednesday August 17th causing severe flash flooding due to stopped-up city sewer and backed-up drainage systems in and around Linwood / Templeton Drive @ Hamilton Street and 5th, 6th and 7th Streets in which turned the entire Templeton Drive roadway into a flowing 7-foot Deep Floodwater River by 9pm,,thereby submerging my Ford Truck completely underwater to the dashboard (total loss) and flooding the ground floor of my townhome with up to 2+ " - inches of floodwater in the first flood, and thereafter to 8"-10" inches of water in the second and third flooding of my home only days apart.

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In addition, the 4 acre Linwood Park located at 301 Wimberly Street is a close proximity to Templeton Drive to be considered for development of a "Floodwater Detention Basin" being only a part of the overall solution in-effort to divert stormwater flooding away from the Linwood-Templeton Drive neighborhood.

Time is of the essence that you please take Immediate Action Now On Linwood - Templeton Drive.

Can reach me anytime on my cell - Thank you

Dane Steinhagen

m: 409.781.0078

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This e-mail was sent from a contact form on Region 3 Trinity (<https://trinityfpg.org>)

Public Comment #5

August 31, 2022

David Rivera

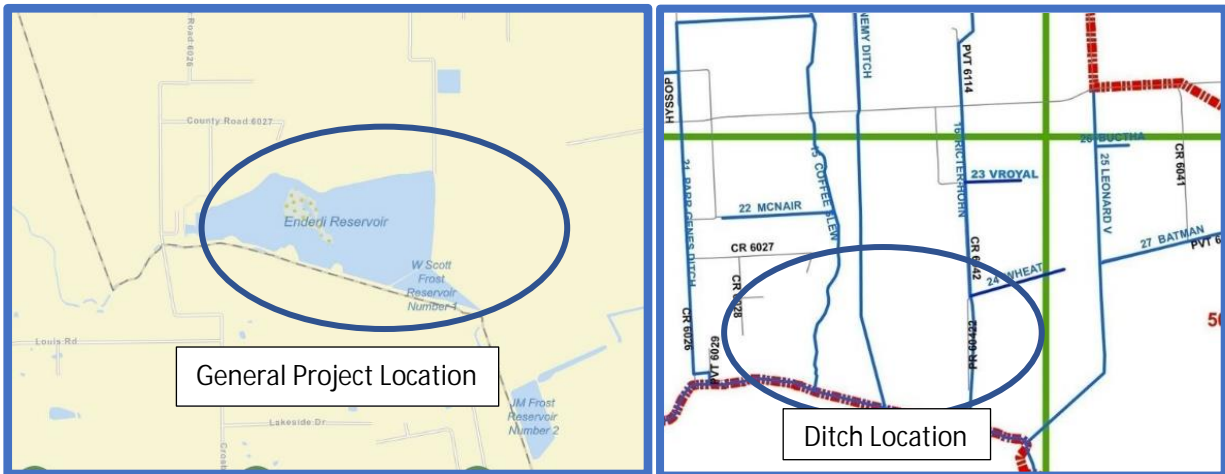
469-773-9190

David.rivera@freese.com

Hi David,

It was a pleasure to meet you at the Trinity Regional Flood Planning Group-Lower Basin Open House on Monday August 29th, 2022. Overall, our group, Liberty County Water Control and Improvement District #1 (WCID#1), was very impressed with the presentation. We are very interested in pursuing a project we think is worthwhile to include in the Regional Flood Plan. We ask your help to study the feasibility of converting an existing reservoir into a retention pond which we believe will solve a long-standing flooding problem for the residents/landowners in this area. See below project location:

Approximate Project Location



Study Description

The project may include obtaining the land or right to the land and convert the Enderli Reservoir into a retention pond to facilitate orderly flow of water into the Cedar Bayou. Currently, the Coffee Slew and Zarsky-Nemy ditches send water into south into the reservoir then into the Cedar Bayou. Over decades, the reservoir has silted up causing the ditches to back up and flood to the north during heavy rains. These 2 ditches help drain water over approximately 12 square miles or 7,700 acres.

Cost Estimate

We believe that the cost to acquire the land could be \$2.5 million and the engineering and construction costs would be \$1.5 million. Total \$4.0 million.

We have 8-10 additional projects we are working through and will submit to you shortly.

Public Comment #6

From: Sams, Sonia L CIV USARMY CESWF (USA) <Sonia.L.Sams@usace.army.mil>
Sent: Thursday, September 8, 2022 8:53 AM
To: Trinity RFPG <info@trinityrfpg.org>
Cc: Reem Zoun <Reem.Zoun@twdb.texas.gov>; James Bronikowski <James.Bronikowski@twdb.texas.gov>; Mairs, Lisa Mccracken CIV USARMY CESWG (USA) <Lisa.M.Mairs@usace.army.mil>; Higginbotham, Bret W CIV USARMY CESWF (USA) <Bret.W.Higginbotham@usace.army.mil>; HUNTER, JOHN M CIV USARMY CESWF (USA) <John.M.Hunter@usace.army.mil>; Cotter, Jerry L CIV USARMY CESWF (USA) <Jerry.L.Cotter@usace.army.mil>; Williams, David J CIV USARMY CESWT (USA) <David.J.Williams@usace.army.mil>; Scissons, Stephen K CIV USARMY CESP (USA) <Stephen.K.Scissons@usace.army.mil>; Kerr, Patrick C CIV USARMY CESWG (USA) <Patrick.C.Kerr@usace.army.mil>; Lepinski, Matthew T CIV USARMY CESWF (USA) <Matthew.T.Lepinski@usace.army.mil>
Subject: Region 3 Trinity

Good Morning,

Please see the following attachment for our initial comments on the Texas State Flood Plan, and there may be additional comments from others at USACE.

Thank you,

Sonia Sams
Project Coordinator
Water Resources Branch
U.S. Army Corps of Engineers
Fort Worth, TX District
817-886-1920

RFPG #3 Comments Regarding Legislative Recommendations, Regulatory and Administrative Recommendations and State Flood Planning Recommendations

Name	Flood Plan Recommendations	Comments
Jerry Cotter	Table 8.1 Legislative	
	<p>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 FME's, FMS's. These organizations would also implement or support implementation of FMP's. These organizations would augment communities and counties that just don't have the resources and expertise to manage flooding.</p>	<p>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.</p>
	<p>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.</p>	<p>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 legislative bill lacks implementation guidance in the form of administrative rules. If development is occurring in unincorporated areas, this development can dynamically impact flood risk.</p>
Jerry Cotter	Table 8.2 Regulatory	
	<p>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.</p>	<p>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.</p>
	<p>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.</p>	<p>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 lapsed 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.</p>
	<p>Establish future land use plans for unincorporated areas associated with rapidly growing urban areas.</p>	<p>"</p>
	<p>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.</p>	<p>"</p>

RFPG #3 Comments Regarding Legislative Recommendations, Regulatory and Administrative Recommendations and State Flood Planning Recommendations		
Name	Flood Plan Recommendations	Comments
Jerry Cotter	Table 8.3 State Flood Planning Recommendations	
	None	
	Potential FMS	
	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.	Notes: 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.
	Add detail to Watersshed 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.
	Update WHA's when future precipitation frequency estimates become available. Efforts to develop future precipitation frequency estimates for Texas are starting.	
	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.	

Public Comment #7

Email from James Knicker, 9/22/22, jamescknicker@gmail.com

To info@trinityrfg.org

To Whom It May Concern,

Please allow me to introduce myself. My name is James - I'm a local resident of Cross Roads, Texas and am asking for your help.

The creek crossing nearby floods every year. I've lived at this residence for over 20 years and have become wrecked with worry about the crossing. Several times a year as a kid I struggled to cross the creek when DFW thunderstorms would flood. It routinely made me miss school and fall behind on my studies.

As I've entered adulthood the problem has gotten worse. A nearby subdivision is being built and continues to increase the volume of water that flows through the creek which has caused infrastructure damage for residence of my hometown.

This is incredibly risky. It was bad enough that the flooding made the crossing impassable by vehicle but now as my neighbors and I age - it has become a risk to our lives. You see the bridge is out of code, it's over 30 years old and building codes have moved on from when it was originally built.

If there was an emergency event at our residence, emergency services would likely be delayed precious minutes in arriving at the address due to the caution needed when crossing an out of date crossing which could result in loss of life or damage of expensive emergency vehicles.

To make matters worse - there is wildlife at risk. My neighbor has several horses. Their property also exists in the flood plain. In the event that there's a flood, these animals may be seriously injured or killed due to lack of access to care or fast moving water.

I'm writing today to include our crossing in TWDB's Trinity region for consideration in future funding opportunities. After talking with professional engineers to provide a study, design, solution, and FEMA coordination - there could be charges in excess of hundreds of thousands of dollars. Please help the horses and I.

Respectfully,

James





Public Comment #8

October 10, 2022



Life's better outside.®

Glenn Clingenpeel, Chair
Trinity Regional Flood Planning Group c/o
Trinity River Authority
5300 South Collins Street
Arlington, TX 76018

Re: 2023 Trinity River Regional Flood Plan

Commissioners

Arch "Beaver" Aplin, III
Chairman
Lake Jackson

Dick Scott
Vice-Chairman
Wimberley

James E. Abell
Kilgore

Oliver J. Bell
Cleveland

Paul L. Foster
El Paso

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Jeffery D. Hildebrand
Houston

Robert L. "Bobby" Patton, Jr.
Fort Worth

Travis B. "Blake" Rowling
Dallas

Lee M. Bass
Chairman-Emeritus
Fort Worth

T. Dan Friedkin
Chairman-Emeritus
Houston

Carter P. Smith
Executive Director

Dear Mr. Clingenpeel,

In 2019 Senate Bills 7 and 8 established a regional and state flood planning process for Texas, aimed at better managing flood risk to reduce loss of life and property. As part of the process, Texas Parks and Wildlife Department (TPWD) was identified as a member of the regional flood planning groups (Texas Water Code Sec. 16.062). The mission of TPWD is to manage and conserve the natural and cultural resources of Texas and its ability to provide opportunities of hunting, fishing, and outdoor recreation for the use and enjoyment of present and future generations. TPWD values this opportunity to contribute to the flood planning process with the goal of enhancing flood risk management and achieving beneficial flood mitigation outcomes. Toward this effort TPWD members serve a dual role of supporting the voting membership in development of the plans and representing the natural resource interests of the state.

TPWD applauds the Trinity River Regional Flood Planning Group (TRFPG) for their efforts in completing the inaugural regional flood plan (RFP) especially considering the abbreviated timeline. Through the exceptional efforts of the TRFPG, this plan will be a meaningful tool for reducing flood impacts to society, especially in those disastrous events that cause loss of life and injury. Because this represents the initial region-wide plan, it has the potential to be precedent setting for subsequent iterations. As such, it is important this plan recognizes the role nature and nature-based solutions can play in flood risk management and promotes opportunities to protect, enhance and restore the flood mitigation benefits provided by natural landforms.

TPWD is supportive of the planning process outlined by the Texas Water Development Board (TWDB) because it aims to achieve an integrative flood risk management (FRM) approach that prioritizes risk reduction through implementation of floodplain management, land use regulations, policy, and a balanced use of grey and natural and nature-based (NNBS) flood mitigation measures that are formed by inclusive participation at all levels of society. TPWD believes this integrative approach when implemented holistically will achieve the maximum benefits for society and natural ecosystems while minimizing environmental impacts. Recent published works on FRM and NNBS (Bridges et al 2021, Glick et al 2020, World Wildlife Fund 2016, Sayers et al 2013) support TWDB integrative flood management approach and provide extensive resources for flood planners.

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512.389.4800

www.tpwd.texas.gov

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

In the interest of achieving the state's flood risk management goals while protecting the state's fish and wildlife resources, TPWD reviewed regional flood plans based on the TWDB guidance principals as described in 31 Texas Administrative Code Chapters 361 and 362. Special focus was provided on the following subset of guidance principals due to its relevance to fish and wildlife management.

- Does the draft flood plan use the best available science, data, models, and flood risk mapping?
- Does the draft flood plan consider the potential upstream and downstream effects, including environmental, of potential flood management strategies (and associated projects) of neighboring areas?
- Does the draft flood plan include strategies and projects that provide for a balance of structural and non-structural flood mitigation measures, including projects that use nature-based features that lead to long-term mitigation of flood risk?
- Does the draft flood plan consider natural systems and beneficial functions of floodplains, including flood peak attenuation and ecosystem services?
- Does the draft flood plan encourage flood mitigation design approaches that work with, rather than against, natural patterns and conditions of floodplains?
- Does the draft flood plan seek to not cause long-term impairment to the designated water quality as shown in the state water quality management plan as a result of a recommended flood management strategy or project?
- Does the draft flood plan consider benefits of flood management strategies to water quality, fish and wildlife, ecosystem function, and recreation, as appropriate?
- Does the draft flood plan minimize adverse environmental impacts and conform with adopted environmental flow standards?
- Does the draft flood plan consider multi-use opportunities such as green space, parks, water quality, or recreation, portions of which could be funded, constructed, and or maintained by additional, third-party project participants?

Additionally, TPWD emphasizes that the following FRM concepts identified in the forementioned literature be incorporated into the RFP.

- Flood is a natural process that has many benefits to human and natural systems.
- Promoting some flooding as desirable and making room for water promotes native species, maintains vital ecosystem services, and reduces the chance of flooding elsewhere.
- Natural landscapes and watersheds provide flood mitigation functions that should be promoted, protected, enhanced, and restored.
- Prioritize risk reduction over flood control by focusing first on reducing loss of life and injury.
- Utilize limited resources fairly.
- Address flood risk using a portfolio approach to first implement non-structural (policy, land management, emergency management) followed by structural (grey and natural and nature-based) strategies.
- Criteria for assessing projects strategies should include a comprehensive suite of measures spanning economical, operational, societal, and environmental

advantages and disadvantages. Assessments focusing on economics alone (number of buildings, acres) should be avoided.

Trinity Regional Flood Plan Comments

Chapter 1 introduces the benefits of natural features in the Trinity River Basin for flood mitigation and ecosystem health and highlights the increasing trend of fragmentation of these features. The plan suggests the region take a deliberate approach to manage its natural areas to continue to receive the benefits of open spaces. The plan includes state parks and wildlife management areas (WMAs) as natural areas that can provide flood mitigation and ecosystem function. These state properties have existing management objectives that can support TRFPG flood mitigation goals. As the region refines its natural infrastructure areas and needs, we encourage TRFPG to continue to work with TPWD and other landowners in the region to meet the flood mitigation goals while also considering existing recreational use, land use and historical management objectives, to ensure those resources are protected as well.

- A** The RFP recommended 342 Flood Management Evaluations (FMEs), seven potentially feasible Flood Mitigation Projects (FMPs), and 136 Flood Management Strategies (FMSs). The FMPs and FMSs were evaluated for whether they included nature-based solutions. One FMP and 14 FMSs include a nature-based solution for flood mitigation. The FMP with a nature-based solution, Arlington VC(A)-1 Drainage and Erosion Improvements (033000016), is estimated to amount to 15% nature-based. The nature-based FMSs include open space conservation through property acquisition, implementation of green infrastructure, implementation of open space and trail programs, and regulatory guidance to protect open space flood-prone areas. TPWD encourages TRFPG to continue to support the inclusion of nature-based solutions for flood mitigation. Two potential FMEs or similar evaluations that may guide the inclusion of additional nature-based solutions are the Trinity Basin NBS Prioritization and Feasibility Analyses (031000356) and Trinity Basin Assessment of Flood Mitigation and Performance of Nature-based Solutions (031000357).
- B** Evaluation of FMPs includes determining if each potential project meets all TWDB no negative impacts requirements. Of the seven recommended FMPs, six do not meet all the no negative impact requirements to upstream or downstream areas. Identified negative impacts include increases in water surface elevation and peak discharge. Engineering judgments have been made for each project to determine no negative impacts. No negative impact judgements include findings that increases in water surface elevation do not impact insurable structures, mitigation options an offset increases in water surface elevation, and increases in water surface elevation and peak discharge are acceptable. When an FMP is recommended without meeting the no negative impacts requirements, it is setting a precedent that allows for negatively impacting neighboring areas. TPWD would like to see this practice minimized and well documented when an FMP does not meet all the no negative impacts required by TWDB.
- C** Chapter 6 discusses the impacts and contributions of the RFP. The plan indicates that the recommended FMPs and FMSs should be able to maintain the environmental flows established through the Senate Bill 3 (SB 3) process. The recommended FMSs and FMPs

are expected to reduce extreme peak flows of the high pulse flow SB 3 values yet maintain the periodic high pulse flows required for sediment transport and ecosystem services. River-floodplain connectivity is important for the reproductive and recruitment success of fish such as the Alligator Gar in the Trinity River. During large flood pulses that inundate the floodplain during spring and summer, Alligator Gar use shallow habitats in the floodplain to spawn. TPWD would like to continue to work with the TRFPG to ensure conservation goals for Alligator Gar and other Species of Greatest Conservation Need are met while also reducing loss of life and property from flooding.

D As the TRFPG and project sponsors continue to evaluate and recommend FMXs (an FMP, FME, or FMS), TPWD would like to encourage the consideration of stream crossing designs that allow for sediment transport and passage of aquatic organisms and do not impound water. Basically, designs that are invisible to the creek. This includes bridges that span the creek where possible or culverted crossings designed with the culvert(s) in the active channel area lower than those in the floodplain benches so that the flow in the channel is not overly spread out. The central/low-flow culvert(s) should be large enough to handle a 1.5-year flow without backing up water. The bottoms of these lower culverts should be set at least a foot below grade (i.e., recessed) to allow natural substrate to cover the culvert bottom and to allow for aquatic organism passage. These lower, recessed culverts should be installed in the thalweg or deepest part of the channel and be aligned with the low flow channel (Clarkin et al., 2006).

E Similarly, FMXs that include channel improvement projects may include widening, deepening, and straightening streams. Channelization and over-widening of streams slows flow, which increases deposition of sediment, decreases fish habitat, increases water temperatures, and can result in channel erosion. Streams in good condition naturally reach bankfull and start spilling onto the floodplain during a 1.5 to 2-year flood event. Widening and deepening a stream channel to force it to contain the 100-year flow negatively impacts the adjacent water table and riparian area and has geomorphic effects upstream and downstream of the modification. If channelization is necessary, constructing a two-stage channel with a low-flow channel and a floodplain allows for the continued transport of sediment, habitat for aquatic wildlife, and can reduce maintenance (Rosgen 1996). TPWD encourages the TRFPG to protect existing streams, riparian areas, and floodplains.

October 10, 2022

Page 5

Thank you for your consideration of these comments. TPWD looks forward to continuing to work with the planning group to develop flood plans that protect life and property that are also beneficial to the environment. Please contact me at (512) 389 – 8214 or at Marty.Kelly@TPWD.Texas.gov or Adam Whisenant at (903) 566 – 8387 or at Adam.Whisenant@TPWD.Texas.gov if you have any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Marty Kelly". The signature is written in a cursive style with a long horizontal flourish extending from the end of the name.

Marty Kelly
Water Resources Program Coordinator

MK:aw

References

Bridges, T. S., J. K. King, J. D. Simm, M. W. Beck, G. Collins, Q. Lodder, and R. K. Mohan, eds. 2021. International Guidelines on Natural and Nature-Based Features for Flood Risk Management. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Clarkin, K., G. Keller, T. Warhol, S. Hixson. 2006. Low-Water Crossings: Geomorphic, Biological, and Engineering Design Considerations. 0625 1808P. San Dimas, CA: U.S. Department of Agriculture, Forest Service, San Dimas Technology and Development Center. 366 p. <http://www.fs.fed.us/eng/pubs/pdf/LowWaterCrossings/index.shtml>

Glick, P., E. Powell, S. Schlesinger, J. Ritter, B.A. Stein, and A. Fuller. 2020. The Protective Value of Nature: A Review of the Effectiveness of Natural Infrastructure for Hazard Risk Reduction. Washington, DC.

Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, CO: Wildland Hydrology Books.

Sayers, P., Y. L.i, G. Galloway, E. Penning-Rowsell, F. Shen, K. Wen, Y. Chen, and T. Le Quesne. 2013. Flood Risk Management: A Strategic Approach. Paris, UNESCO.

World Wildlife Fund. 2016. Natural and Nature-based Flood Management: A Green Guide. Washington, DC: World Wildlife Fund. [Http://envirodm.org/flood-managment](http://envirodm.org/flood-managment) 2016 WWF.

Public Comment #9

National Wildlife Federation’s Letter of Recommendations to Region 3 Regional Flood Planning Group Promoting an Equitable Regional Flood Plan, the Protection of Natural Flood Mitigation Features, and Use of Nature Based Flood Mitigation Solutions

Background

State legislation enabling the Regional Flood Plan process provided guidelines and deliverables to be accomplished by each flood planning group, with regional plans becoming the basis of a state flood plan. These plans would be developed through the creation and identification of projects to be considered for future funding. Enabling legislation also directed the Texas Water Development Board (TWDB) to identify and evaluate natural flood mitigation features and include Nature Based Solutions (NBS) among proposed flood mitigation projects.

Region 3, along with all the other Regional Flood Planning Groups (RFPGs) have had to work under a tight timeline during the initial planning round – and we appreciate the work the Region has put into making a holistic flood plan. In particular, in addition to the various flood mitigation evaluations, strategies, and projects that incorporate nature-based solutions, we are encouraged by the following items included in Region 3’s draft Regional Flood Plan:

- *Legislative Recommendations:*
 - 8.1.1. (Increase state funding to help counties maintain drainage and stormwater infrastructure in unincorporated areas);
 - 8.1.3. (Provide funding and/or technical assistance to develop regulatory floodplain maps); and
 - 8.1.7. (Extend Local Government Code, Title 13, Subtitle A, Chapter 552 to allow counties the opportunity to establish and collect drainage utility fees in unincorporated areas).
- *State Flood Planning Recommendation:*
 - 8.3.2. (Develop a fact sheet and/or other publicity measure to encourage entities to participate in the regional flood planning effort).
- *Adopted Flood Protection Goals:*
 - Increase acreage of publicly protected natural areas for flood and ecosystem purposes to reduce future impacts of flooding;
 - Increase number of nature-based practices as part of flood risk reduction projects; and
 - Increase the number of participating entities in the regional flood planning process.

While Region 3 and the TWDB has been very responsive to the questions and concerns expressed by the public and various RFPs, the process and initial regional planning round has highlighted several areas of concern regarding the evaluation of natural flood mitigation features for their level of function and the incorporation of NBS into flood control strategies. This process highlighted the current lack of data specific to Texas regions needed to accurately evaluate natural flood mitigation features and, therefore, the need for methods beyond a traditional Hydrologic Engineering Center's - River Analysis System (HEC-RAS) approach. In addition, Technical Consultant outreach to communities demonstrated the need to increase knowledge on incorporating Nature Based Solutions into flood control strategies.

Equity and nature-based solutions will need to be woven into every facet of this program and incorporated into future policies and strategies in order to empower community collaboration and leverage the state's vast network of natural ecosystems in building resilient communities.

The following **comments and recommendations specific to Region 3** seek to better ensure an equitable flood plan, and one that centers natural infrastructure and nature-based projects. We recognize that the region will not be able to address some comments provided, however it is our hope that during subsequent rounds, these comments will be taken into consideration.

I. *We support Region 3's "future conditions analysis" that applied the State Climatologist Recommendations to local studies to better incorporate climate change considerations*

Future conditions analysis is a vital component in the Regional Flood Planning Process. A 2020 report¹ published by the Association of State Floodplain Managers highlighted the following statistics:

- by 2100, the 1% annual chance floodplain would increase in size by 45% in riverine areas and of that growth, 30% would be attributable to development and 70% to climate change;
- coastal special flood hazard areas would increase by as much as 55% by 2100; and
- Sea level rise is accelerating and a majority of coastal communities will experience 30 days of high tide flooding annually by 2050.

These are just a few statistics that show just how quickly floodplains are changing both due to development and climate change. This makes future conditions analysis critical in determining the flood needs of the region.

¹ASFPM, Flood Mapping for the Nation: A Cost Analysis for Completing and Maintaining the Nation's NFIP Flood Map Inventory, available at: https://asfpm-library.s3-us-west-2.amazonaws.com/FSC/MapNation/ASFPM_MaptheNation_Report_2020.pdf.

For the potential future 100-year floodplain, Region 3 used the existing 500-year floodplain quilt as a proxy for the maximum increase and applied the State Climatologist’s recommendations to two large scale regional rain on grid studies to determine the minimum extent of the future 100-year floodplain.² A 40 foot buffer was provided along the future 100-year floodplain to determine the extent of the 500-year flood hazard boundary.

By incorporating the State Climatologist’s recommendations on climate change considerations into future conditions analysis, climate change impacts are taken into consideration through this proxy. While additional studies would be helpful to help refine the methodology across the region, we are pleased to see utilization of local studies and incorporation of the State Climatologist’s recommendations.

II. Add a Flood Protection Goal to have increased enforcement of floodplain ordinances

Region 3 noted that approximately 44% of entities within the region have low, none, or unknown activity with regards to enforcing floodplain regulations. As is noted in the Draft Flood Plan, “[t]hese entities have a significant opportunity to improve the effectiveness of their ordinance or court order by increasing the enforcement of their existing floodplain ordinances.” In order to address this shortfall, we recommend that Region 3 adopt a Goal under Category 3 to increase enforcement of floodplain ordinances.

III. Add a Flood Protection Goal to decrease number of FMPs that have negative impacts associated with the project and add an administrative recommendation to provide best management practices to local entities on how to avoid negative impacts

In the draft Flood Plan, six out of seven projects would result in negative impacts, such as increased Water Surface Elevation (WSE) or an increase in peak flow. The goal for these projects is to provide flood mitigation benefits to the region, and we are concerned that projects with significant negative impacts, are not properly mitigated for. The region, therefore, should strive to decrease the amount of projects with negative impacts over time – which could be reflected in a Flood Protection Goal. Further, Region 3 can provide an administrative recommendation to the TWDB to provide best management practices to local entities on how to reduce negative impacts associated with projects.

IV. Adopt NFIP participation as a minimum floodplain management standard

Region 3 did not adopt any minimum floodplain management standards into its draft plan. Minimum floodplain management standards can be adopted by the region, which local entities

² Region 3, Draft Regional Flood Plan, at 2-111.

must adopt before a FME, FMS, or FMP is included under the Regional Flood Plan, and therefore eligible for funding under FIF.

We encourage Region 3 to consider NFIP participation as a minimum floodplain management standard. In Region 3, 87% of all communities participate in the NFIP and 89% of communities have floodplain regulations that meet or exceed NFIP minimum standards.³ Participation in the NFIP requires participants to adopt a floodplain management ordinance and to designate a floodplain administrator who is responsible for understanding and interpreting local floodplain management regulations and reviewing them for compliance with NFIP standards.

Since floodplain management ordinances and designation of a floodplain administrator are essential to proper flood planning at the local level, requiring the remaining communities to participate in the NFIP seems like an appropriate baseline, before entities can potentially receive funding for flood mitigation projects. We recommend that the Region uses its power to adopt minimum floodplain standards, by requiring NFIP participation as a minimum standard. This adoption received 49% support during surveying done by the region.⁴

V. Add a regulatory recommendation to direct TWDB to provide best management practices on how to incorporate assumptions into modeling future conditions

Region 3 requested local maps and models from communities within the region, and a few communities included future conditions in their mapping and modeling. However, the Region noted that assumptions varied from one entity to another in regard to information included in determining future conditions. We recommend that Region 3 encourage the TWDB to provide best management practices and guidance to local entities on how to incorporate climate change into their modeling. This guidance can be modeled after the State Climatologist's Climate Change Recommendations for Regional Flood Planning document.⁵

VI. Include impact to natural infrastructure when analyzing "No Negative Impacts"

Of 33 potential FMPs, 7 were adopted in the Draft Flood Plan as FMPs. Even out of the 7 FMPs, 6 showed negative impacts, with one project meeting all No Negative Impact requirements. There seemed to be considerable discretion from the Region on which projects to incorporate, using engineering judgment. For example, the West Irving Creek Phases 2, 3, and 4 showed increases in peak discharge in downstream areas due to significant increase in channel capacity. Appendix F notes that impacts however, "are fully contained within the proposed channel and

³ Region 3, Draft Regional Flood Plan, at 3-3.

⁴ Region 3, Draft Regional Flood Plan, at 3-18.

⁵ John Nielsen-Gammon and Savannah Jorgensen, Climate Change Recommendations for Regional Flood Planning (April 16, 2021) available at: <https://climatexas.tamu.edu/files/CliChFlood.pdf>.

do not cause any adverse impact to adjacent properties.” The description later goes on to state that “[t]here is one area within the project’s zone of influence that would experience an increase of approximately 1 foot in water surface elevation but this is a public park area with no insurable structures.” Open spaces, such as parks, provide significant flood mitigation benefits to neighboring communities. The analysis of “No Negative Impacts” should include impacts to natural infrastructure. A one foot increase in water surface elevation could result in reduced ability for the park to provide flood mitigation benefits, which should be considered when selecting FMPs for the region.

VII. Consider discretion when analyzing nature-based FMPs and provide an administrative recommendations to the TWDB on how to apply potential FMP requirements to nature-based projects

Only projects with significant amounts of detail are incorporated as Flood Management Projects in the Draft Regional Flood Plans. We are concerned that natural infrastructure projects could be downgraded to FMSs due to lack of data provided to the Region. It is important to note that analyses like the BCR are not always tailored for natural infrastructure projects. For example, while preserving open space within the floodplain helps protect land from development which could negatively impact flooding, a traditional BCR may not adequately account for protection of development that hasn’t occurred yet. Since we are unsure where to view which projects were submitted to the Region, but subsequently removed because it didn’t align with a goal or other reason, or downgraded to a strategy, we recommend the RFPG to provide discretion to potential FMPs that are largely nature-based. We also encourage the Region to provide an administrative recommendation to the TWDB to provide guidance to the Regions on how to apply potential FMP requirements to nature-based projects.

VIII. Refine Assessment and Identification of Flood Mitigation Needs

Critical facilities in particular need additional attention when assessing and identifying flood mitigation needs. Certain critical facilities pose higher risk to surrounding communities during flooding, such as superfund sites and refineries. We recommend that the Region include in its weighted approach risks based on the number of industrial facilities that pose environmental justice risks to neighboring and fenceline communities. If facilities are identified that are within floodplains and are not adequately protected, the region should propose legislative, administrative, and regulatory recommendations to better ensure facilities do not pose a risk to neighboring communities during flooding.

Include natural features in flood exposure analysis

Region III provides a good description of the protective values provided by healthy and functional natural systems. Losing these critical systems means that the flood risks will often compound for communities due to the loss of the hazard risk reduction provided by them. We recommend including natural systems in the flood exposure assets to assess damages for present and future flood risks which can help delineate areas most prone to flooding, priority areas for conservation and flood mitigation, and subsequently influence recommendations for FMPs.

We appreciate the work the Region is doing to help better plan for and protect our communities from flooding. Further, we appreciate the opportunity to submit these comments. In addition to the comments, above, we've attached a letter providing additional comments for consideration by the region during future planning cycles.

Sincerely,

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TWDB Comments on Draft Trinity Regional Flood Plan with RFPG Responses

Task #	Comment #	TWDB Comment	Level #	RFPG Response
General	1	Please ensure that all "submittal requirements" identified in each of the Exhibit C Guidance document sections are submitted in the final flood plan.	1	All "submittal requirements" identified in each of the Exhibit C Guidance document sections were included in the final flood plan.
1	2	Existing Infrastructure GIS Feature Class, ExFldInfraPt: Please include all low water crossings (LWCs) identified during the flood planning process in this feature layer. The ExFldExpAll feature class contains 2,830 LWCs, and the ExFldInfraPt feature class contains only 1,285 LWCs. Note: This is required in contrast to the optional LWC feature class. See Table 7 of Exhibit D for a list of valid entries [31 TAC §361.31].	1	Mismatches were identified and reconciled where applicable.
1	3	Existing Infrastructure GIS Feature Class, ExFldInfraPol: It appears that some fields are missing entries, including 'NATBUILT', 'CONDITION', and 'LOS'. Please ensure all required fields are populated with valid entries per Exhibit D Table 5 [31 TAC §361.31 & Exhibit D 3.3].	1	During the TWDB call on 11/03/2022, TWDB stated its preference is for consultants to use default ArcGIS <null>. Additional required attribute data that was not available was left null using the default ArcGIS <null>.
1	4	Existing Infrastructure GIS Feature Classes, ExFldInfraLn: It appears that some fields are missing entries, including 'NATBUILT', 'CONDITION', 'LOS', 'DEF_TYPE', and 'DEF_DESCR'. Please ensure all required fields are populated with valid entries per Exhibit D Table 6 [31 TAC §361.31 & Exhibit D 3.3].	1	During the TWDB call on 11/03/2022, TWDB stated its preference is for consultants to use default ArcGIS <null>. Additional required attribute data that was not available was left null using the default ArcGIS <null>.
1	5	Existing Projects Table 2: It appears that some fields are missing entries, including 'HUC8' and 'Project Status'. Please ensure all required fields are populated with valid entries per Exhibit C Table 2 [31 TAC §361.32].	1	GIS Layer was attributed and has been reconciled with TWDB-Required Table 2.
1	6	Existing Projects GIS Feature Class, ExFldProjs: It appears that some fields are missing entries, including 'EXPRJDESC' and 'FUNDING'. Please ensure all required fields are populated with valid entries per Exhibit D Table 8 [31 TAC §361.32].	1	Missing attributes were populated where applicable. Additional required attribute data that was not available was left as null using the default ArcGIS <null>.
2A	7	Existing Condition Flood Hazard Analysis: It appears that a summary depicting flood type is missing. Please include a summary of total land areas (square miles) of each flood risk by flood risk type, county, region, and frequency [Exhibit C Section 2.2.A.1, page 24, Submittal requirement #2].	1	Table 2.3 has been updated to include a summary by flood risk type.
2A	8a	Existing Condition Flood Hazard GIS Feature Class, ExFldHazard: The Total Area in Floodplain for both 1% and 0.2% Annual Chance Flood Risks in Table 3 does not appear to match the same area totals in the ExFldHazard feature class. Please review and reconcile as appropriate.	1	Mismatches were identified and reconciled where applicable.
2A	8a [sic]	Existing Condition Flood Hazard GIS Feature Class, ExFldHazard It appears that some fields are missing entries, including 'HUC8'. Please ensure all required fields are populated with valid entries per Exhibit D Table 9 [31 TAC §361.33(b)].	1	Missing attributes were populated where applicable. Additional required attribute data that was not available was left as null using the default ArcGIS <null>.
2A	9a	Existing Condition Flood Exposure (Exhibit C Table 3): Please ensure that the feature counts for both Residential Structures and total Structures are consistent with the ExFldExpAll GIS feature class.	1	Mismatches were identified and reconciled where applicable.
2A	9b	Existing Condition Flood Exposure (Exhibit C Table 3): The day and night populations in Table 3 do not appear to match those in the ExFldExpAll feature class. Please review and reconcile [31 TAC §361.33 & Exhibit C 2.2.A.3].	1	Mismatches were identified and reconciled where applicable.

TWDB Comments on Draft Trinity Regional Flood Plan with RFPG Responses

Task #	Comment #	TWDB Comment	Level #	RFPG Response
2A	10	Existing Condition Flood Exposure GIS Feature Class, ExFldExpPt: Please ensure that the following facility types are included in the Polygon (ExFldExpPol) feature class instead of the Point (ExFldExpPt) feature class: Schools, hospitals, and fire stations [31 TAC §361.33(c) & Exhibit C 2.2.A.2].	1	<p>Data type received was used as-is. Critical Facilities were received as point data. Guidelines didn't specify to change to polygon in Exhibit C and D. Significant effort was used to fix building data received including geometry issues and fixing some of the building type designations. Overall, the exposure counts, populations, etc. has been greatly improved. The extra significant effort needed to make this change with very little time (and in a highly developed basin like Trinity with large datasets) will not change to the results at a planning level.</p> <p>During the TWDB call on 11/03/2022, TWDB wanted numbers to match among points, lines, and polygons for exposure counts. TWDB asked that we put forth minimal effort to ensure that critical facilities data received as points are accounted for in the building polygon layer. TWDB confirmed that it was not necessary to re-attribute existing buildings as critical facilities in areas where there are multiple buildings, such as schools and hospitals. Points have been attributed to the nearest polygon.</p>
2A	11a	Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: It appears that this feature class may not equal the sum of point, line, and polygon layers. Please ensure that count of ExFldExpAll is the sum of ExFldExpPt, ExFldExpLn, and ExFldExpPol feature class counts.	1	Mismatches were identified and reconciled where applicable.
2A	11b	Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: Please ensure that the following facility types are included in the Polygon (ExFldExpPol) feature class instead of the Point (ExFldExpPt) feature class: Schools, hospitals, and fire stations.	1	<p>Data type received was used as-is. Critical Facilities were received as point data. Guidelines didn't specify to change to polygon in Exhibit C and D. Significant effort was used to fix building data received including geometry issues and fixing some of the building type designations. Overall, the exposure counts, populations, etc. has been greatly improved. The extra significant effort needed to make this change with very little time (and in a highly developed basin like Trinity with large datasets) will not change to the results at a planning level.</p> <p>During the TWDB call on 11/03/2022, TWDB wanted numbers to match among points, lines, and polygons for exposure counts. TWDB asked that we put forth minimal effort to ensure that critical facilities data received as points are accounted for in the building polygon layer. TWDB confirmed that it was not necessary to re-attribute existing buildings as critical facilities in areas where there are multiple buildings, such as schools and hospitals. Points have been attributed to the nearest polygon.</p>
2A	11c	Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: It appears that the Structure count in Table 3 does not match the count in ExFldExpAll. Please reconcile.	1	Mismatches were identified and reconciled where applicable.
2A	11d	Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: The day and night populations in Table 3 do not appear to match those in the ExFldExpAll feature class. Please review and reconcile.	1	Mismatches were identified and reconciled where applicable.
2A	11e	Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: It appears that some fields contain invalid entries, including 'CRIT_TYPE' and 'EXP_TYPE'. Please ensure all required fields are populated with valid entries Exhibit D Table 14.	1	The Valid Value Domain List was updated per recent TWDB updates and was applied to appropriate layers.
2A	11f	Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: Please use the updated 'CRIT_TYPE' valid entry list: "Medical, Police, Fire, EMS, Shelter, School, Infrastructure, Water Treatment, Wastewater Treatment, Power Generation, Other" [31 TAC §361.33(c),(d) & Exhibit C 2.2.A.2].	1	The Valid Calue Domain List was updated per recent TWDB updates and revised where applicable.

TWDB Comments on Draft Trinity Regional Flood Plan with RFPG Responses

Task #	Comment #	TWDB Comment	Level #	RFPG Response
2A	12	Existing Vulnerability Map (Exhibit C Map 7): It appears the map displays an average SVI per county. Please depict all features (structures, low water crossings, critical infrastructure, etc.) with SVI values over 0.75 in the region [31 TAC §361.34(d),(e) & Exhibit C 2.2.A.3 Submittal requirements 2 & 3].	1	During the TWDB call on 11/03/2022, TWDB realized that were not looking at the Appendix B folder that had all the final submitted required maps. TWDB confirmed the information submitted in the Appendix B folder appeared to be complete. TWDB asked that the same maps presented in Appendix B also be included in "StaticMaps" folder. The maps have been included in both locations, as appropriate.
2A	13	Model Coverage GIS Feature Class, ModelCoverage: It appears that some fields contain invalid/missing entries, including 'MODEL_ID' and 'MODEL_SOFTW'. Please ensure all required fields are populated with valid entries per the Summary Update to Exhibit D document available on the TWDB website [31 TAC §361.33(b)(2)].	1	Missing attributes were populated where applicable. Additional required attribute data that was not available was left as null using the default ArcGIS <null>.
2B	14	Future Condition Flood Analysis text: It appears that a summary depicting flood type is missing. Please include a summary table of total land areas (square miles) of flood risk by flood risk type, counties, regions, and frequency [Exhibit C Section 2.2.B.1, page 33, Submittal requirement #3].	1	Table 2.34 has been updated to include a summary by flood risk type.
2B	15	Future Condition Map Gaps GIS Feature Class, Fut_Map_Gaps: It appears that some fields are missing entries, including 'COUNTY'. Please ensure all required fields are populated with valid entries [31 TAC §361.34(b)(6)].	1	Missing attributes were populated where applicable. Additional required attribute data that was not available was left as null using the default ArcGIS <null>.
2B	16	Future Condition Flood Exposure GIS Feature Class, FutFldExpLn: It appears that some fields are missing entries, including 'HUC8'. Please ensure all required fields are populated with valid entries per Exhibit D Table 17 [31 TAC §361.34(c) & Exhibit D 3.6.2].	1	Missing attributes were populated where applicable. Additional required attribute data that was not available was left as null using the default ArcGIS <null>.
2B	17	Future Condition Flood Exposure GIS Feature Class, FutFldExpAll: It appears the count for this feature class is more than sum of features in the FutFldExpPol, FutFldExpLn, and FutFldExpPt feature classes. Please reconcile. [31 TAC §361.34(c) & Exhibit D 3.6.2].	1	Mismatches were identified and reconciled where applicable.
2B	18	Future Vulnerability Map (Exhibit C Map 12): It appears the map displays an average SVI per county. Please depict all features (structures, low water crossings, critical infrastructure, etc.) with SVI values over 0.75 in the region [31 TAC §361.34(d), Exhibit C 2.2.B.3 Submittal requirements 2 & 3].	1	During the TWDB call on 11/03/2022, TWDB realized that were not looking at the Appendix B folder that had all the final submitted required maps. TWDB confirmed the information submitted in the Appendix B folder appeared to be complete. TWDB asked that the same maps presented in Appendix B also be included in "StaticMaps" folder. The maps have been included in both locations, as appropriate.
3A	19	Existing Floodplain Management Practices GIS Feature Class, ExFpMp: It appears that some fields contain invalid entries, including 'LEV_ENFRC'. Please ensure all required fields are populated with valid entries per Exhibit D Table 20 [31 TAC §361.35 & Exhibit D 3.7].	1	The Valid Value Domain List was updated per recent TWDB updates and was applied to appropriate layers.
4B	20	Streams GIS Feature Class, Streams: It appears that some fields are missing entries, including 'STR_NAME'. Please ensure all required fields are populated with valid entries per Exhibit D Table 22 [Exhibit D 3.9].	1	Missing attributes were populated where applicable. Additional required attribute data that was not available was left as null using the default ArcGIS <null>.
4B	21	Flood Management Evaluations (FME) GIS Feature Class, FME: Several required fields contain NULL values. For example, 'SOURCE' and 'DESCR'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 23 [31 TAC §361.38(i) & Exhibit D 3.10].	1	All null values that represent either 'not applicable' or 'unknown' have been populated with the ArcGIS default <Null>. Required fields that were not available were also left as <Null>.
4B	22	Flood Management Evaluations (FME) Map (Exhibit C Map 16): Please indicate on the map whether the identified FME area is associated with a previously studied area that requires an update or if the identified study area does not have any existing or anticipated flood mapping, models, etc., and therefore requires an initial study [31 TAC §361.38(m) & Exhibit C 2.4.B].	1	The FIF Category 1 Projects Shapefile provided by TWDB was added to the map to show this designation for previously studied areas. Every recommended FME will leverage any existing studies and H&H models and expand the analysis as necessary to achieve a higher level of detail that will allow performing an accurate No Negative Impact Analysis.
4B	23	Flood Mitigation Projects (FMP) (Exhibit C Table 13): It appears that some FMPs do not have a BCR. Please include a BCR for each project. Consider using the TWDB BCR tool as appropriate [31 TAC §361.38(c-e) & Exhibit C 2.4.B].	1	Table 13 for the potentially feasible FMPs includes a column for BCR. However, the BCR requires significant effort to develop for FMPs that are ultimately not recommended. The BCRs for the potentially feasible FMPs that are not recommended are assumed to be zero. During the TWDB call on 11/03/2022, TWDB agreed with this solution. The table has been populated accordingly.

TWDB Comments on Draft Trinity Regional Flood Plan with RFPG Responses

Task #	Comment #	TWDB Comment	Level #	RFPG Response
4B	24	Flood Mitigation Projects (FMP) GIS Feature Class, FMP: Several required fields contain NULL values. For example, 'RECOMMEND' and 'FARMACRE100'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 24 [31 TAC §361. 38(c-e)].	1	All null values that represent either 'not applicable' or 'unknown' have been populated with the ArcGIS default <Null>. Required fields that were not available were also left as <Null>.
4B	25	Flood Management Strategies (FMS) (Exhibit C Table 14): Please add the 'Nonrecurring, Noncapital Cost (\$)' field. Please include the estimated non-recurring, noncapital cost, and if available, the estimated total strategy cost separately in 'Estimated Total Strategy Cost (\$)'. Refer to the Summary Update to Exhibit D document available on the TWDB website for more detail on how to properly include this data [31 TAC §361.38(d) & Exhibit C 2.4.B].	1	Required fields were added and populated as appropriate in Table 14 and the FMS feature class.
4B	26	Flood Management Strategies (FMS) GIS Feature Class, FMS: Several required fields contain NULL values. For example, 'CONSTRUCT', 'REDSTRUCT100', and 'REMSTRC500'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 24 [31 TAC §361. 38(d)].	1	All null values that represent either 'not applicable' or 'unknown' have been populated with the ArcGIS default <Null>. Required fields that were not available were also left as <Null>.
5	27.a.i	Flood Mitigation Project (FMP) Recommendations: Appendix F, Table 5.3.1 appears to show that only one FMP meets all "no negative impact" requirements per guidelines in Exhibit C Section 3.6. However, all seven recommended FMPs are listed as having no negative impacts based on engineering judgement. Please provide additional details and clarification on the following: West Irving Creek Phases 2, 3, and 4 (FMP 033000008) Approximately 1ft increase in elevation of water surface elevation (WSE) in public park may be allowable if associated mitigation measures as part of implementation of project will alleviate negative impacts.	1	<p>Table 5.3.1 in Appendix F was updated to include rationale behind the determination of No Negative Impacts based on engineering judgement. Additional details have been provided in Appendix F to support this determination.</p> <p>The West Irving Creek Drainage Improvements Comprehensive Planning Study (FNI, 2022) describes the alternatives that were considered for this area as part of the project design (Section 3.3.1). Multiple grading alternatives were presented to the City Parks Department, and after discussion it was decided that some alternatives would not be feasible for construction while others would be investigated further during the design phase of the project.</p> <p>The first alternative involved grading out a bench above the Ordinary High Water Mark (OHWM). This option resulted in the greatest WSE decreases, but grading would result in the removal of Markwood Park. The second alternative involved deepening the channel. This option would cause moderate impact to Markwood Park, but it would conflict with existing sewer lines in the park and require more extensive environmental permitting as grading would occur below the OHWM. Both alternatives were discarded by the City since they would cause negative impacts on Markwood Park.</p> <p>Three additional alternatives were investigated. All involved grading out a bench in the Dallas College Irving Center Campus above the OHWM. These would provide greater capacity and storage and would also allow the majority of the existing open space in the Dallas College Irving Center campus to remain in use. In Markwood Park, various levels of grading and modifications were considered. Through evaluation of these alternatives, it was determined that grading in the Dallas College Irving Center campus provides significant benefits and is necessary in order for any changes within Markwood Park to be beneficial.</p> <p>The improvements in the Dallas College Irving Center campus will remove six structures from the</p>

TWDB Comments on Draft Trinity Regional Flood Plan with RFPG Responses

Task #	Comment #	TWDB Comment	Level #	RFPG Response
5	27.a.ii	Flood Mitigation Project (FMP) Recommendations: Appendix F, Table 5.3.1 appears to show that only one FMP meets all "no negative impact" requirements per guidelines in Exhibit C Section 3.6. However, all seven recommended FMPs are listed as having no negative impacts based on engineering judgement. Please provide additional details and clarification on the following: West Irving Creek Phases 2, 3, and 4 (FMP 033000008) Please identify jurisdiction and regulation or other basis that allows for a 1foot of increase in WSE in a public park. Please locate the public park on map.	1	Public park areas within the City's jurisdiction was identified on a map (See Figure 5.3.3 in Appendix F) along with existing and proposed 100-yr floodplain limits. See response to comment #27.a.i and Appendix F for rationale behind the selection of the current alternative and why this was considered the option with the least impacts to the City park areas.
5	27.b	Flood Mitigation Project (FMP) Recommendations: Appendix F, Table 5.3.1 appears to show that only one FMP meets all "no negative impact" requirements per guidelines in Exhibit C Section 3.6. However, all seven recommended FMPs are listed as having no negative impacts based on engineering judgement. Please provide additional details and clarification on the following: Arlington VC(A)-1 (FMP 033000016): Appendix F page F-15 states "The increases do not impact insurable structures in the watershed." Please confirm that the project does not increase inundation of infrastructure such as residential and commercial buildings and structures' as per Exhibit C Section 3.6.A (page 108) or remove project from the recommended project list.	1	Model results were reevaluated and there are no increases in water surface elevation (WSE) under proposed conditions that would impact infrastructure such as residential and commercial buildings and structures. The only rise in WSE occurs at the Sylvan Dr crossing (+0.31 ft), but this rise is contained within the roadway right-of-way.
5	27.c.i	Flood Mitigation Project (FMP) Recommendations: Appendix F, Table 5.3.1 appears to show that only one FMP meets all "no negative impact" requirements per guidelines in Exhibit C Section 3.6. However, all seven recommended FMPs are listed as having no negative impacts based on engineering judgement. Please provide additional details and clarification on the following: Linwood Park Flood Mitigation (FMP 033000031): Please provide additional clarification about the ~3ft increase. Is this increase below ground? Does this impact any structures? Is the increase contained within drainage easement. Please confirm that the project does not increase inundation of infrastructure such as residential and commercial buildings and structures' as per Exhibit C Section 3.6.A (page 108) or remove project from the recommended project list.	1	Model results were reevaluated. The updated No Negative Impacts analysis now demonstrates no increase(s) in water surface elevations (WSEs). The WSEs between the pre-project and post-project conditions either remained the same, or decreased. The analysis did reveal a significant increase in peak discharge at the project outfall, but justification for considering that this FMP meets No Negative Impacts criteria based on professional engineering judgement has been provided. Table 5.2 in Chapter 5 and Table 5.3.1 in Appendix 5.3 were updated to reflect these results and conclusions.
5	27.c.ii	Flood Mitigation Project (FMP) Recommendations: Appendix F, Table 5.3.1 appears to show that only one FMP meets all "no negative impact" requirements per guidelines in Exhibit C Section 3.6. However, all seven recommended FMPs are listed as having no negative impacts based on engineering judgement. Please provide additional details and clarification on the following: Linwood Park Flood Mitigation (FMP 033000031): Please identify locations of water surface elevation (WSE) increase and clarify how it does not cause negative impact [31 TAC §361.38(c-e)].	1	Model results were reevaluated. The updated No Negative Impacts analysis now demonstrates no increase(s) in water surface elevations (WSEs). The WSEs between the pre-project and post-project conditions either remained the same, or decreased. The analysis did reveal a significant increase in peak discharge at the project outfall, but justification for considering that this FMP meets No Negative Impacts criteria based on professional engineering judgement has been provided. Table 5.2 in Chapter 5 and Table 5.3.1 in Appendix 5.3 were updated to reflect these results and conclusions.
5	28	Flood Mitigation Project (FMP) Recommendations: Each recommended FMP must be accompanied with an associated model or supporting documentation to show no negative impact. Please confirm that this was done and provide reference to supporting materials.	1	The models were uploaded prior to the September 30, 2022 deadline. The name of the associated FMP model was added to the FMP summary table (Table XX) in Chapter 5.
5	29	Flood Management Evaluation (FME) Recommendations GIS Feature Class, FME: Several required fields contain NULL values. For example, 'ROADCLS', and 'SOURCE'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 23 [31 TAC §361.39(c),(f) & Exhibit D 3.10].	1	All null values that represent either 'not applicable' or 'unknown' have been populated with the ArcGIS default <Null>. Required fields that were not available were also left as <Null>.

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Task #	Comment #	TWDB Comment	Level #	RFPG Response
5	30	Flood Management Evaluation (FME) Recommendations Map (Exhibit C Map 19): Please indicate on the map whether the identified FME area is associated with a previously studied area that requires an update or if the identified study area does not have any existing or anticipated flood mapping, models, etc., and therefore requires an initial study [31 TAC §361.39 & Exhibit D 3.10].	1	The FIF Category 1 Projects Shapefile provided by TWDB was added to the map to show this designation for previously studied areas. Every recommended FME will leverage any existing studies and H&H models and expand the analysis as necessary to achieve a higher level of detail that will allow performing an accurate No Negative Impact Analysis.
5	31	Flood Mitigation Project (FMP) Recommendations GIS Feature Class, FMP: Several required fields contain NULL values. For example, 'RECOMMEND' and 'COSTSTRUCT'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 24 [31 TAC §361.39 & Exhibit D 3.11.1].	1	All null values that represent either 'not applicable' or 'unknown' have been populated with the ArcGIS default <Null>. Required fields that were not available were also left as <Null>.
5	32	Flood Management Strategies (FMS) Recommendations GIS Feature Class, FMS: Several required fields contain NULL values. For example, 'RECOMMEND', 'CONSTRUCT', 'REDSTRUCT100', and 'REMSTRC500'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 26 [31 TAC §361.39 & Exhibit D 3.10].	1	All null values that represent either 'not applicable' or 'unknown' have been populated with the ArcGIS default <Null>. Required fields that were not available were also left as <Null>.
General	33	To better align with our agency's preferred nomenclature, please consider using the name, "Cursory Floodplain Data" instead of "Fathom" or Cursory Fathom Data" throughout the regional flood plan.	2	Noted. No changes made.
ES	34	Please consider updating blank highlighted section (Page ES-2)	2	The word "approved" replaced the blank highlighted section on Page ES-2.
1	35	Planning Area Description text: Please consider providing a description of how Low Water Crossings were identified within the text of Chapter 1.	2	The source of the low water crossings was included below Table 1.9 in the Draft Flood Plan. Additionally, references to Chapter 2 were already included in the text of the Draft Flood Plan. No changes made.
1	36a	Existing Infrastructure Map (Exhibit C Map 1): It appears that the wetlands in Map 1 do not seem to represent the full extent of the wetlands in ExFldInfraPol. Please consider reviewing and revising as appropriate.	2	Updated where applicable.
1	36b	Existing Infrastructure Map (Exhibit C Map 1): Map 1 in Appendix B-Required Maps does not appear to include a title. Please consider adding.	2	During the TWDB call on 11/03/2022, TWDB realized that were not looking at the Appendix B folder that had all the final submitted required maps. TWDB confirmed the information submitted in the Appendix B folder appeared to be complete. TWDB asked that the same maps presented in Appendix B also be included in "StaticMaps" folder. The maps have been included in both locations, as appropriate.
1	37a	Deficient Infrastructure Map (Exhibit C Map 3): Please consider matching the black outline on the dam symbol used in the legend.	2	Revised where applicable.
1	37b	Deficient Infrastructure Map (Exhibit C Map 3): Map 3 in Appendix B-Required Maps does not appear to include a title. Please consider adding.	2	During the TWDB call on 11/03/2022, TWDB realized that were not looking at the Appendix B folder that had all the final submitted required maps. TWDB confirmed the information submitted in the Appendix B folder appeared to be complete. TWDB asked that the same maps presented in Appendix B also be included in "StaticMaps" folder. The maps have been included in both locations, as appropriate.
1	38	Previous Studies Text: Please consider including a list of previous flood studies considered by the RFPG to be relevant to development of the RFP.	2	Noted. No changes made.
1	39	Existing Projects Map (Exhibit C Map 2): Please consider improving map readability of text and the extents of existing projects.	2	During the TWDB call on 11/03/2022, TWDB realized that were not looking at the Appendix B folder that had all the final submitted required maps. TWDB confirmed the information submitted in the Appendix B folder appeared to be complete. TWDB asked that the same maps presented in Appendix B also be included in "StaticMaps" folder. The maps have been included in both locations, as appropriate.
2A	40	Existing Condition Gaps GIS Feature Class, Ex_Map_Gaps: Please consider clipping this feature class to the planning region.	2	Features have been clipped to the Region.

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Task #	Comment #	TWDB Comment	Level #	RFPG Response
2A	41a	Existing Condition Flood Exposure GIS Feature Class, ExFldExpPol: Please ensure that critical facilities are not duplicated in the point and polygon feature classes. It is preferred for critical features to be shown in the polygon feature class.	2	<p>Data type received was used as-is. Critical Facilities were received as point data. Guidelines didn't specify to change to polygon in Exhibit C and D. Significant effort was used to fix building data received including geometry issues and fixing some of the building type designations. Overall, the exposure counts, populations, etc. has been greatly improved. The extra significant effort needed to make this change with very little time (and in a highly developed basin like Trinity with large datasets) will not change to the results at a planning level.</p> <p>During the TWDB call on 11/03/2022, TWDB wanted numbers to match among points, lines, and polygons for exposure counts. TWDB asked that we put forth minimal effort to ensure that critical facilities data received as points are accounted for in the building polygon layer. TWDB confirmed that it was not necessary to re-attribute existing buildings as critical facilities in areas where there are multiple buildings, such as schools and hospitals. Critical facilities have been attributed to the nearest polygon to avoid duplication in the counts of impacted critical facilities.</p>
2A	41b	Existing Condition Flood Exposure GIS Feature Class, ExFldExpPol: The agricultural coverage layers appear to have irregular triangle and rectangular features that may be a result of the conversion of a raster to polygon. Please review and revise, as appropriate.	2	<p>This is a function of floodplain geometry. Even if the agricultural areas were smoothed, clipping to get exposure in existing and future conditions mapping will still generate slivers. Not using the agricultural data as classified and received will affect the calculated dollar exposure values, since they are dependent on areas (acreage, etc.) when calculating the agricultural dollar value density.</p> <p>The holes in the polygons from the rasters were used as-is to avoid data misinterpretation issues. This dataset is quite large and challenging to geoprocess in a short time for exposure analysis. No changes made.</p>

October 17, 2022

Mr. J. Kevin Ward
Executive Manager
Trinity River Authority
P.O. Box 60
Arlington, TX 76004-0060

RE: Texas Water Development Board Comments on Region 03 Trinity RFPG's Draft Regional Flood Plan Contract No. 210792488.

Dear Mr. Ward:

Texas Water Development Board (TWDB) staff has performed a review of the draft regional flood plan submitted by August 1, 2022, on behalf of the Region 03 Trinity Regional Flood Planning Group (RFPG). The attached comments will follow this format:

- **LEVEL 1:** Comments and questions that must be satisfactorily addressed to meet specific statute, rule, or contract requirements; and,
- **LEVEL 2:** Comments and suggestions for consideration that may improve the readability and/or overall understanding of the regional flood plan

Please note that while Level 2 comments are provided for the planning group's consideration, Level 1 comments must be addressed prior to the submission of final Regional Flood Plans by the January 10, 2023, deadline.

It is expected that the data contained in all written report sections, tables, excel spreadsheets, and the geodatabase will be consistent throughout. In cases where there are any discrepancies in data, the geodatabase dataset will supersede other data and the TWDB will utilize the geodatabase dataset when developing the state flood plan.

TWDB review of the draft regional flood plans is comprised of many spot checks of data across several deliverables and is not an all-encompassing data review. Please note that TWDB's review does not imply accuracy of the draft regional flood plan. Each RFPG is responsible for ensuring the completeness and accuracy of the plan and all associated data.

To facilitate efficient and timely completion, and Board approval, of your final regional flood plan, please provide your TWDB Regional Flood Planner with a draft of your response to these comments (e.g., informally via email) on the draft RFP as soon as possible. This will allow TWDB staff to provide preliminary feedback on proposed RFPG responses to assist you in meeting your RFPG's timeline for approval and submission to TWDB of the final plan by the deadline. It will also help to minimize the need for subsequent follow-ups after final regional flood plan submission to TWDB.

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[Board Members](#)

Brooke T. Paup, Chairwoman | George B. Peyton V, Board Member
Jeff Walker, Executive Administrator

Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

Title 31 TAC §361.50(c) requires the regional flood planning group to consider any written or oral Comment received from the public on the draft regional flood plan (RFP); and the EA's written comment on the draft RFP prior to adopting a final RFP. Section 361.50(d) requires the final adopted plan include summaries of all timely written and oral comments received, along with a response, for each, explaining any resulting revisions or why changes are not warranted. Copies of TWDB's Level 1 and 2 written comments and the RFPG's responses must be included in the final, adopted RFP. While the comments included in this letter represent TWDB's review to date, please anticipate the need to respond to additional comments or questions, as necessary, regarding data integrity related to the Board's State Flood Plan Database (that is built from the 15 regional databases), even after submission of the final plan to TWDB.

Standard to all RFPGs is the need to include certain content in the final RFPs that was not yet available at the time that drafts were prepared and submitted. In your final RFP, please be sure to incorporate in the final submitted plan, documentation, for example, that a public meeting to receive comments was held as required and that comments received on the draft RFP were considered in the development of the final plan [31 TAC §361.50(d)].

If you have any questions regarding these comments or would like to discuss your approach to addressing any of these comments, please do not hesitate to contact Richard Bagans at 512-936-0129 or via email at richard.bagans@twdb.texas.gov. TWDB staff are available to assist you in any way possible to ensure successful completion of your final regional flood plan.

Lastly, on behalf of TWDB, I would like to thank you, the sponsor, the RFPG members and the technical consultants for accomplishing this major milestone of a herculean effort and advancing the flood risk reduction mission in our state.

Sincerely,

Reem J. Zoun, PE, CFM, ENV SP
Director
Flood Planning

Attachment: TWDB Comments

Cc: Glenn Clingenpeel, RFPG Chair
Howard Slobodin, Trinity River Authority
Stephanie Griffin, Half Associates, Inc.
Matt Nelson, TWDB
James Bronikowski, TWDB
Anita Machiavello, TWDB
Richard Bagans, TWDB

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Jeff Walker, Executive Administrator

October 17, 2022

TWDB Comments on Region 03 Trinity Regional Flood Planning Group's Draft Regional Flood Plan

Level 1: Comments and questions must be satisfactorily addressed to meet statutory, agency rule, and/or contract requirements.

General Comments

1. Please ensure that all "Submittal requirements" identified in each of the Exhibit C Guidance document sections are submitted in the final flood plan.

SOW Task 1

2. Existing Infrastructure GIS Feature Class, *ExFldInfraPt*: Please include all low water crossings (LWCs) identified during the flood planning process in this feature layer. The *ExFldExpAll* feature class contains 2,830 LWCs, and the *ExFldInfraPt* feature class contains only 1,285 LWCs. Note: This is required in contrast to the optional LWC feature class. See Table 7 of Exhibit D for a list of valid entries [31 TAC §361.31].
3. Existing Infrastructure GIS Feature Class, *ExFldInfraPol*: It appears that some fields are missing entries, including 'NATBUILT', 'CONDITION', and 'LOS'. Please ensure all required fields are populated with valid entries per Exhibit D Table 5 [31 TAC §361.31 & Exhibit D 3.3].
4. Existing Infrastructure GIS Feature Classes, *ExFldInfraLn*: It appears that some fields are missing entries, including 'NATBUILT', 'CONDITION', 'LOS', 'DEF_TYPE', and 'DEF_DESCR'. Please ensure all required fields are populated with valid entries per Exhibit D Table 6 [31 TAC §361.31 & Exhibit D 3.3].
5. Existing Projects Table 2: It appears that some fields are missing entries, including 'HUC8' and 'Project Status'. Please ensure all required fields are populated with valid entries per Exhibit C Table 2 [31 TAC §361.32].
6. Existing Projects GIS Feature Class, *ExFldProjs*: It appears that some fields are missing entries, including 'EXPRJDESC' and 'FUNDING'. Please ensure all required fields are populated with valid entries per Exhibit D Table 8 [31 TAC §361.32].

SOW Task 2A

7. Existing Condition Flood Hazard Analysis: It appears that a summary depicting flood type is missing. Please include a summary of total land areas (square miles) of each flood risk by flood risk type, county, region, and frequency [Exhibit C Section 2.2.A.1, page 24, Submittal requirement #2].
8. Existing Condition Flood Hazard GIS Feature Class, *ExFldHazard*:
 - a. The Total Area in Floodplain for both 1% and 0.2% Annual Chance Flood Risks in Table 3 does not appear to match the same area totals in the *ExFldHazard* feature class. Please review and reconcile as appropriate.

- a. It appears that some fields are missing entries, including 'HUC8'. Please ensure all required fields are populated with valid entries per Exhibit D Table 9 [31 TAC §361.33(b)].
9. Existing Condition Flood Exposure (Exhibit C Table 3):
 - a. Please ensure that the feature counts for both Residential Structures and total Structures are consistent with the *ExFldExpAll* GIS feature class.
 - b. The day and night populations in Table 3 do not appear to match those in the *ExFldExpAll* feature class. Please review and reconcile [31 TAC §361.33 & Exhibit C 2.2.A.3].
10. Existing Condition Flood Exposure GIS Feature Class, *ExFldExpPt*: Please ensure that the following facility types are included in the Polygon (*ExFldExpPol*) feature class instead of the Point (*ExFldExpPt*) feature class: Schools, hospitals, and fire stations [31 TAC §361.33(c) & Exhibit C 2.2.A.2].
11. Existing Condition Flood Exposure GIS Feature Class, *ExFldExpAll*:
 - a. It appears that this feature class may not equal the sum of point, line, and polygon layers. Please ensure that count of *ExFldExpAll* is the sum of *ExFldExpPt*, *ExFldExpLn*, and *ExFldExpPol* feature class counts.
 - b. Please ensure that the following facility types are included in the Polygon (*ExFldExpPol*) feature class instead of the Point (*ExFldExpPt*) feature class: Schools, hospitals, and fire stations.
 - c. It appears that the Structure count in Table 3 does not match the count in *ExFldExpAll*. Please reconcile.
 - d. The day and night populations in Table 3 do not appear to match those in the *ExFldExpAll* feature class. Please review and reconcile.
 - e. It appears that some fields contain invalid entries, including 'CRIT_TYPE' and 'EXP_TYPE'. Please ensure all required fields are populated with valid entries Exhibit D Table 14.
 - f. Please use the updated 'CRIT_TYPE' valid entry list: "Medical, Police, Fire, EMS, Shelter, School, Infrastructure, Water Treatment, Wastewater Treatment, Power Generation, Other" [31 TAC §361.33(c),(d) & Exhibit C 2.2.A.2].
12. Existing Vulnerability Map (Exhibit C Map 7): It appears the map displays an average SVI per county. Please depict all features (structures, low water crossings, critical infrastructure, etc.) with SVI values over 0.75 in the region [31 TAC §361.34(d),(e) & Exhibit C 2.2.A.3 Submittal requirements 2 & 3].
13. Model Coverage GIS Feature Class, *ModelCoverage*: It appears that some fields contain invalid/missing entries, including 'MODEL_ID' and 'MODEL_SOFTW'. Please ensure all required fields are populated with valid entries per the [Summary Update to Exhibit D](#) document available on the TWDB website [31 TAC §361.33(b)(2)].

SOW Task 2B

14. Future Condition Flood Analysis text: It appears that a summary depicting flood type is missing. Please include a summary table of total land areas (square miles) of flood risk by flood risk type, counties, regions, and frequency [Exhibit C Section 2.2.B.1, page 33, Submittal requirement #3].

15. Future Condition Map Gaps GIS Feature Class, *Fut_Map_Gaps*: It appears that some fields are missing entries, including 'COUNTY'. Please ensure all required fields are populated with valid entries [31 TAC §361.34(b)(6)].
16. Future Condition Flood Exposure GIS Feature Class, *FutFldExpLn*: It appears that some fields are missing entries, including 'HUC8'. Please ensure all required fields are populated with valid entries per Exhibit D Table 17 [31 TAC §361.34(c) & Exhibit D 3.6.2].
17. Future Condition Flood Exposure GIS Feature Class, *FutFldExpAll*: It appears the count for this feature class is more than sum of features in the *FutFldExpPol*, *FutFldExpLn*, and *FutFldExpPt* feature classes. Please reconcile. [31 TAC §361.34(c) & Exhibit D 3.6.2].
18. Future Vulnerability Map (Exhibit C Map 12): It appears the map displays an average SVI per county. Please depict all features (structures, low water crossings, critical infrastructure, etc.) with SVI values over 0.75 in the region [31 TAC §361.34(d), Exhibit C 2.2.B.3 Submittal requirements 2 & 3].

SOW Task 3A

19. Existing Floodplain Management Practices GIS Feature Class, *ExFpMp*: It appears that some fields contain invalid entries, including 'LEV_ENFRC'. Please ensure all required fields are populated with valid entries per Exhibit D Table 20 [31 TAC §361.35 & Exhibit D 3.7].

SOW Task 4B

20. Streams GIS Feature Class, *Streams*: It appears that some fields are missing entries, including 'STR_NAME'. Please ensure all required fields are populated with valid entries per Exhibit D Table 22 [Exhibit D 3.9].
21. Flood Management Evaluations (FME) GIS Feature Class, *FME*: Several required fields contain NULL values. For example, 'SOURCE' and 'DESCR'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 23 [31 TAC §361.38(i) & Exhibit D 3.10].
22. Flood Management Evaluations (FME) Map (Exhibit C Map 16): Please indicate on the map whether the identified FME area is associated with a previously studied area that requires an update or if the identified study area does not have any existing or anticipated flood mapping, models, etc., and therefore requires an initial study [31 TAC §361.38(m) & Exhibit C 2.4.B].
23. Flood Mitigation Projects (FMP) (Exhibit C Table 13): It appears that some FMPs do not have a BCR. Please include a BCR for each project. Consider using the TWDB BCR tool as appropriate [31 TAC §361.38(c-e) & Exhibit C 2.4.B].
24. Flood Mitigation Projects (FMP) GIS Feature Class, *FMP*: Several required fields contain NULL values. For example, 'RECOMMEND' and 'FARMACRE100'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 24 [31 TAC §361.38(c-e)].
25. Flood Management Strategies (FMS) (Exhibit C Table 14): Please add the 'Nonrecurring, Noncapital Cost (\$)' field. Please include the estimated non-recurring, noncapital cost, and if available, the estimated total strategy cost separately in 'Estimated Total Strategy Cost (\$)'. Refer to the [Summary Update to Exhibit D](#) document available on the TWDB website for more detail on how to properly include this data [31 TAC §361.38(d) & Exhibit C 2.4.B].

26. Flood Management Strategies (FMS) GIS Feature Class, *FMS*: Several required fields contain NULL values. For example, 'CONSTRUCT', 'REDSTRUCT100', and 'REMSTRC500'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 24 [31 TAC §361.38(d)].

SOW Task 5

27. Flood Mitigation Project (FMP) Recommendations: Appendix F, Table 5.3.1 appears to show that only one FMP meets all "no negative impact" requirements per guidelines in Exhibit C Section 3.6. However, all seven recommended FMPs are listed as having no negative impacts based on engineering judgement. Please provide additional details and clarification on the following:
- a. West Irving Creek Phases 2, 3, and 4 (FMP 033000008)
 - i. Approximately 1ft increase in elevation of water surface elevation (WSE) in public park may be allowable if associated mitigation measures as part of implementation of project will alleviate negative impacts.
 - ii. Please identify jurisdiction and regulation or other basis that allows for a 1foot of increase in WSE in a public park. Please locate the public park on map.
 - b. Arlington VC(A)-1 (FMP 033000016): Appendix F page F-15 states "The increases do not impact insurable structures in the watershed." Please confirm that the project does not increase inundation of infrastructure such as residential and commercial buildings and structures' as per Exhibit C Section 3.6.A (page 108) or remove project from the recommended project list.
 - c. Linwood Park Flood Mitigation (FMP 033000031):
 - i. Please provide additional clarification about the ~3ft increase. Is this increase below ground? Does this impact any structures? Is the increase contained within drainage easement. Please confirm that the project does not increase inundation of infrastructure such as residential and commercial buildings and structures' as per Exhibit C Section 3.6.A (page 108) or remove project from the recommended project list.
 - ii. Please identify locations of water surface elevation (WSE) increase and clarify how it does not cause negative impact [31 TAC §361.38(c-e)].
28. Flood Mitigation Project (FMP) Recommendations: Each recommended FMP must be accompanied with an associated model or supporting documentation to show no negative impact. Please confirm that this was done and provide reference to supporting materials.
29. Flood Management Evaluation (FME) Recommendations GIS Feature Class, *FME*: Several required fields contain NULL values. For example, 'ROADCLS', and 'SOURCE'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 23 [31 TAC §361.39(c),(f) & Exhibit D 3.10].
30. Flood Management Evaluation (FME) Recommendations Map (Exhibit C Map 19): Please indicate on the map whether the identified FME area is associated with a previously studied area that requires an update or if the identified study area does not have any existing or anticipated flood mapping, models, etc., and therefore requires an initial study [31 TAC §361.39 & Exhibit D 3.10].

31. Flood Mitigation Project (FMP) Recommendations GIS Feature Class, *FMP*: Several required fields contain NULL values. For example, 'RECOMMEND' and 'COSTSTRUCT'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 24 [31 TAC §361.39 & Exhibit D 3.11.1].
32. Flood Management Strategies (FMS) Recommendations GIS Feature Class, *FMS*: Several required fields contain NULL values. For example, 'RECOMMEND', 'CONSTRUCT', 'REDSTRUCT100', and 'REMSTRC500'. Please confirm that all NULL values utilized for numeric fields represents either 'not applicable' or 'unknown'. Please ensure all required fields are populated with valid entries per Exhibit D Table 26 [31 TAC §361.39 & Exhibit D 3.10].

Level 2: Comments and suggestions for consideration that may improve the readability and overall understanding of the regional flood plan.

General Comments

33. To better align with our agency's preferred nomenclature, please consider using the name, "Cursory Floodplain Data" instead of "Fathom" or Cursory Fathom Data" throughout the regional flood plan.

Executive Summary

34. Please consider updating blank highlighted section (Page ES-2)

SOW Task 1

35. Planning Area Description text: Please consider providing a description of how Low Water Crossings were identified within the text of Chapter 1.
36. Existing Infrastructure Map (Exhibit C Map 1):
 - a. It appears that the wetlands in Map 1 do not seem to represent the full extent of the wetlands in ExFldInfraPol. Please consider reviewing and revising as appropriate.
 - b. Map 1 in Appendix B-Required Maps does not appear to include a title. Please consider adding.
37. Deficient Infrastructure Map (Exhibit C Map 3):
 - a. Please consider matching the black outline on the dam symbol used in the legend.
 - b. Map 3 in Appendix B-Required Maps does not appear to include a title. Please consider adding.
38. Previous Studies Text: Please consider including a list of previous flood studies considered by the RFPG to be relevant to development of the RFP.
39. Existing Projects Map (Exhibit C Map 2): Please consider improving map readability of text and the extents of existing projects.

SOW Task 2A

40. Existing Condition Gaps GIS Feature Class, *Ex_Map_Gaps*: Please consider clipping this feature class to the planning region.
41. Existing Condition Flood Exposure GIS Feature Class, *ExFldExpPol*:

- a. Please ensure that critical facilities are not duplicated in the point and polygon feature classes. It is preferred for critical features to be shown in the polygon feature class.
 - b. The agricultural coverage layers appear to have irregular triangle and rectangular features that may be a result of the conversion of a raster to polygon. Please review and revise, as appropriate.
42. Existing Condition Flood Exposure GIS Feature Class, *ExFldExpAll*:
- a. The agricultural coverage layers appear to have irregular triangle and rectangular features that may be a result of the conversion of a raster to polygon. Please consider reviewing and revising, as appropriate.
 - b. Please ensure that critical facilities are not duplicated in the from the *ExFldExpPt*, *ExFldExpLn*, and *ExFldExpPol* feature classes.
 - c. Multiple cells have “0” entries for required fields 'POP_DAY', 'POP_NIGHT', and 'SVI', which may be acceptable for vacant or unknown buildings. Please consider reviewing data for accuracy.
43. Future Condition Gaps GIS Feature Class, *Fut_Map_Gaps*: Please consider clipping this feature class to the planning region boundary.

SOW Task 2B

44. Future Condition Flood Exposure GIS Feature Class, *FutFldExpLn*: Please consider including natural gas pipelines and electric power transmission lines in the future exposure analysis. Relevant data can be accessed through the Flood Planning Data Hub: <https://twdb-flood-planning-resources-twdb.hub.arcgis.com>
45. Future Condition Flood Exposure GIS Feature Class, *FutFldExpPt*:
- a. Please consider reclassifying features with entries of “Other” for the ‘EXP_TYPE’ field. For example, some features may be better categorized as “Roadway Stream Crossings”.
 - b. Please ensure that all roadway crossings with identified flood risk are shown. There appear to be some road crossings within the *ExFldHazard* layer that do not appear to be identified as point features (where the roads and streams cross within the *ExFldHazard* layer).
46. Future Condition Flood Exposure GIS Feature Class, *FutFldExpAll*:
- a. The agricultural coverage layers appear to have irregular triangle and rectangular features that may be a result of the conversion of a raster to polygon. Please consider reviewing and revising, as appropriate.
 - b. Please ensure that points are included for polygons in the *FutFldExpPol* feature class. When converting from an exposure polygon, the centroid may be used or any other method determined to best locate the point. Please review why *ExFldExpAll* has more points than *FutFldExpAll*.
 - c. If the ‘CRITICAL’ field contains a “No” entry, then please leave ‘CRIT_TYPE’ as NULL.

SOW Task 4A

47. Greatest Gaps Map (Exhibit C Map 14): In the legend, please consider adding an explanation next to all colors possibly providing numbers next to the levels (e.g., 1=Lowest and 5=Highest).

48. Greatest Risk Map (Exhibit C Map 15): In the legend, please consider adding an explanation next to all colors possibly providing numbers next to the levels. (e.g., 1=Lowest and 5=Highest).

SOW Task 4B

49. Flood Management Evaluation (FME) text:
- a. Please consider reviewing the *Watersheds* and *FME* feature classes for alignment. For example, FME_ID: 031000110 does not appear to align with the Watershed boundary feature class. (Other examples include but are not limited to FME_IDs: 031000097-031000119, 031000131, 031000136, 031000140, 031000158, 031000173, 03100069)
 - b. For county-wide watershed strategies where majority of the county falls outside of the RFPG boundary, please consider explaining how the strategy benefits the region and please coordinate with other RFPGs to make sure that efforts are not duplicated. For example, FME_ID: 031000035 and 031000001.
 - c. Some FMEs appear to overlap. Please review the spatial boundaries of FME_ID: 031000110, 031000101, 031000118. Some overlap may be intended if there are differences in FME scope.
 - d. In areas where there are detailed FEMA maps, please describe how this would be incorporated into the County FEMA Mapping studies (FME ID: 031000001-031000035).
 - e. For those areas in RFPG with existing BLE models state how the FME will improve upon the current BLE models (FME_ID: 031000001- 031000035). BLE is available for the entire Region 3. For reference the BLE data is available here: <https://webapps.usgs.gov/infrm/estbfe/>
 - f. In areas where there is an ongoing TWDB-funded FIF Category 1 study, please consider describing how duplication of efforts would be avoided and how TWDB-funded TWDB-funded FIF Category 1 study data would be incorporated into the proposed FMEs. For example, FME_IDs 031000003, 03100020, and 031000284 appear to overlap with current TWDB-funded FIF Category 1 studies such as FIF ID 40010 (Trinity River Mid-Basin Watershed Study Phase II).
50. Flood Management Evaluation (FME) GIS Feature Class, *FME*: Please consider filling out the 'MODEL_DESC' field for clarity on existing studies to be used. Please ensure existing or ongoing BLE and TWDB-funded FIF Category 1 studies are included.
51. Flood Management Evaluation (FME) Map (Exhibit C Map 16): It appears unclear what various shades of orange represent. Please consider revising map for clarity.
52. Flood Management Strategy (FMS) Table (Exhibit C Table 14): Please consider if FMS_IDs: 032000034, 032000042, 032000049, 032000053, 032000056-032000057, 032000074 should be reclassified as FMPs. Please refer to non-structural FMPs section in Exhibit C p. 54.
53. Flood Management Strategy (FMS) GIS Feature Class, *FMS*: For county-wide watershed strategies where majority of the county falls outside of the RFPG boundary, please consider including justification how the strategy benefits the RFPG and please coordinate with other RFPGs to make sure the efforts are not duplicated. For example, FMS_ID 032000087.
54. Flood Management Strategy (FMS) Map (Exhibit C Map 18): It appears unclear what various shades of red represent. Please consider revising map for clarity.

SOW Task 5

55. Flood Management Evaluation (FME) Recommendations text: In areas where there is an ongoing TWDB-funded FIF Category 1 study, please consider describing how duplication of efforts would be avoided and how TWDB-funded FIF Category 1 study data would be incorporated into the proposed FMEs. For example, FME_IDs 031000003, 03100020, and 031000284 appear to overlap with current TWDB-funded FIF Category 1 studies such as FIF ID 40010 (Trinity River Mid-Basin Watershed Study Phase II).
56. Flood Management Evaluation (FME) Recommendations GIS Feature Class, *FME*: Please consider filling out the 'MODEL_DESC' field for clarity on existing studies to be used. Please ensure existing or ongoing BLE and TWDB-funded FIF Category 1 studies are included.
57. Flood Management Evaluation (FME) Recommendations Map (Exhibit C Map 19): It appears unclear what various shades of orange represent. Please consider revising map for clarity.