Draft Regional Flood Plan
Open House Informational Session
Arlington, Texas
August 31, 2022
Welcome and Introductions

Glenn Clingenpeel
Chair, Trinity Regional Flood Planning Group
Executive Manager, Technical Services and Basin Planning, Trinity River Authority
The Trinity Regional Flood Planning Group

Voting Members
Chad Ballard
Sano Blocker
Melissa Bookhout
Glenn Clingenpeel
Scott Harris
Rachel Ickert
Andrew Isbell
Jordan Macha
Galen Roberts
Matt Robinson
Lissa Shepard
Sarah Standifer

Interest Represented
Small business
Electric-generating utilities
Agricultural interests
River authorities
Water utilities
Flood districts
Public
Environment
Water districts
Industries
Counties
Municipalities
# The Trinity Regional Flood Planning Group

<table>
<thead>
<tr>
<th>Non-Voting Members</th>
<th>Organization Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richard Bagans</td>
<td>Texas Water Development Board</td>
</tr>
<tr>
<td>Rob Barthen</td>
<td>Texas Department of Agriculture</td>
</tr>
<tr>
<td>Steve Bednarz</td>
<td>Texas State Soil and Water Conservation Board</td>
</tr>
<tr>
<td>Justin Bower</td>
<td>Houston-Galveston Area Council</td>
</tr>
<tr>
<td>Ellen Buchanan</td>
<td>Region 5 Neches Flood Planning Group (liaison)</td>
</tr>
<tr>
<td>Todd Burrer</td>
<td>Region 6 San Jacinto Flood Planning Group (liaison)</td>
</tr>
<tr>
<td>Bert Galvan</td>
<td>Texas Commission on Environmental Quality</td>
</tr>
<tr>
<td>Diane Howe</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>Lonnie Hunt</td>
<td>Deep East Texas Council of Governments</td>
</tr>
<tr>
<td>Edith Marvin</td>
<td>North Central Texas Council of Governments</td>
</tr>
<tr>
<td>Kris Robles</td>
<td>General Land Office</td>
</tr>
<tr>
<td>Andrea Sanders</td>
<td>Texas Division of Emergency Management</td>
</tr>
<tr>
<td>Greg Waller</td>
<td>National Weather Service / West Gulf River Forecast Center</td>
</tr>
<tr>
<td>Adam Whisenant</td>
<td>Texas Parks and Wildlife Department</td>
</tr>
</tbody>
</table>
EVENT AGENDA

- Regional Flood Planning Overview
- Region 3 Trinity RFPG Accomplishments to Date
- Highlights of Draft Regional Flood Plan, Recommended Local Solutions
- Upcoming Schedule: Planning Milestones, Public Comment Opportunities
- General Q&A
- Breakout Stations: Learn More About Draft Plan, Visit With RFPG Representatives, Share Input
What is State and Regional Flood Planning?
Texas’ State Flood Planning Process

- 2019: 86th Texas Legislature passed Senate Bill 8, providing new process for statewide flood planning
- Texas Water Development Board (TWDB) charged with implementation
- 15 regional flood planning groups (RFPGs)
- 12 interest categories represented
- First planning cycle started 2020, nearing end (future cycles: 5 years)
- Regional Plans to become part of State Flood Plan Sept. 2024
Regional Flood Planning Process

- Approach modeled after regional water planning
- Grassroots ("bottom up") approach
- Same scope of work for each RFPG
- Regional flood plans will roll up to become State Flood Plan
- Public process
Region 3 Trinity River Basin

- From Cooke County in north to Chambers County on Gulf Coast
- All or part of 38 counties
- Nearly 18,000 square miles, with almost 16,000 stream miles
- 30+ major lakes and reservoirs
- Population approximately 8 million and rapidly growing
Draft Regional Flood Plan
Overview
Regional Flood Plan Components

**Existing & Future Conditions**
- **Task 1** Introduce region
- **Task 2** Determine current and future flood risk
- **Task 3** Establish planning goals
- **Task 4** Identify potential solutions

**Recommended Solutions**
- **Task 5** Select recommended solutions
- **Task 6** Identify potential impacts
- **Task 7** Summarize flood response info
- **Task 8** Recommend improvements
- **Task 9** Identify funding sources
- **Task 10** Encourage public participation

**Amended to Include**
- **Task 11** Perform additional outreach
- **Task 12** Advance FMEs to FMPs
- **Task 13** Adopt amended plan
Chapters 1 through 3
Overview of Region
Current and Future Flood Risk
Planning Goals
Basin-by-Basin: Working Lands

- Farming/ Crop Production
  - Predominant in Upper and Mid Basin areas
  - Concentrations of farming area in Liberty Co.
- Forestry
  - Predominant working land type in Lower Basin
  - Relationship to national forests and preserves
- Ranching
  - Prominent land use throughout basin
  - Largest concentration of ranching areas to NW of Metroplex and in Mid Basin area
Data Collection Website & Outreach

Community Representative?

Community Stakeholders in the RFPG process include individuals with flood-related responsibilities, such as County and Community officials and Staff as well as Federal, State, regional, and local authorities, utilities and districts.

By logging on with your email address and the password provided, you can help provide the RFPGs with localized knowledge of flood planning resources and validate a wide array of flood risk data. Through this data collection effort the RFPG is requesting community stakeholders:

- Provide information about your contact information and flood-related responsibilities.
- Verify collected flood information through an entity-specific backgrounder.
- Respond to questions to support the development of the regional flood plan.
- Verify and provide geospatial data through data uploads and web maps.

The RFPG appreciates any information you are able to verify and provide with the understanding that it may not be possible to provide response to all items.

Entity Login

Member of the Public?

Public Stakeholders in the RFPG process include general public individuals, groups, and organizations including non-profit and non-governmental organizations with an interest in providing information to support flood planning efforts.

By providing your name, address, and email address, you can help provide the RFPG with localized knowledge of flood prone areas and areas where flood mitigation is needed. Your contact information is used to document who is providing information in case we have any follow-up questions.

Name
Address
Email

Take me to the map
Key Findings: Existing Conditions

- Region-wide 1.32 million people displaced by 1% Annual Chance Event (ACE)
- Total value of exposed buildings > $636 billion
- Even more impact from 0.2% ACE
- Assessed impacts of flooding on socially vulnerable populations and community’s ability to recover
Key Findings: Future Conditions

- Hard to assess because few communities map or model
  - RFPG recommended future 1% ACE floodplain as range between current 1% and 0.2% ACE events
  - RFPG recommended 40-foot max buffer for future 0.2% ACE floodplain
- Result: **29% more structures and 25% more people would be potentially impacted by future flood risk conditions**
Regional Flood Planning Goals

(1) Improve flood warning and public safety
(2) Improve flood analyses
(3) Reduce property damage and loss
(4) Preserve the floodplain
(5) Improve flood infrastructure
(6) Expand flood education and outreach
(7) Expand funding
Chapters 4 and 5
Potentially Feasible Actions
Recommended Actions
Potential Actions

Flood Management Evaluations = FME = studies
Flood Mitigation Projects = FMP = projects
Flood Management Strategies = FMS = plans

The Draft Plan includes a variety of recommendations for each category, totaling over $1 billion in recommended solutions.
FME: Region-Wide

• 342 out of 356 recommended and included in Draft Plan

<table>
<thead>
<tr>
<th>FME Type</th>
<th>FME Description</th>
<th># of FMEs Recommended</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparedness</td>
<td>Studies on Flood Preparedness</td>
<td>5</td>
<td>$3,150,000</td>
</tr>
<tr>
<td>Project Planning</td>
<td>Previously Identified Drainage Projects and Flood Studies</td>
<td>228</td>
<td>$60,937,000</td>
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<tr>
<td>Watershed Planning</td>
<td>Flood Mapping Updates, Drainage Master Plans, H&amp;H Modeling, Dam and Levee Failure</td>
<td>108</td>
<td>$79,879,000</td>
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<tr>
<td>Other</td>
<td>Dam Studies</td>
<td>1</td>
<td>$2,000,000</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>342</strong></td>
<td><strong>$145,966,000</strong></td>
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</table>

Regional Flood Planning Goals
(1) Improve flood warning and public safety
(2) Improve flood analyses
(3) Reduce property damage and loss
(4) Preserve the floodplain
(5) Improve flood infrastructure
(6) Expand flood education and outreach
(7) Expand funding

• 342 out of 356 recommended and included in Draft Plan
FMP: Region-Wide

- 7 FMP fully evaluated
- All recommended and included in Draft Plan

### FMP Name Table

<table>
<thead>
<tr>
<th>FMP Name</th>
<th>Sponsor</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Meadows Estates Detention Pond Design</td>
<td>Sachse</td>
<td>$1,868,000</td>
</tr>
<tr>
<td>West Irving Creek Phases 2, 3, and 4</td>
<td>Irving</td>
<td>$98,746,000</td>
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<tr>
<td>Arlington VC(A)-1 Drainage and Erosion Improvements</td>
<td>Arlington</td>
<td>$2,601,000</td>
</tr>
<tr>
<td>Lancaster/Foch Area Mitigation</td>
<td>Fort Worth</td>
<td>$11,771,000</td>
</tr>
<tr>
<td>Linwood Park Flood Mitigation (Western Arlington Heights)</td>
<td>Fort Worth</td>
<td>$50,523,000</td>
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<tr>
<td>Sunnyvale Urban Flooding Reduction Improvements - Area 1</td>
<td>Sunnyvale</td>
<td>$4,560,000</td>
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<tr>
<td>Sunnyvale Urban Flooding Reduction Improvements - Area 2</td>
<td>Sunnyvale</td>
<td>$5,701,000</td>
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$175,770,000

### Regional Flood Planning Goals

1. Improve flood warning and public safety
2. Improve flood analyses
3. **Reduce property damage and loss**
4. Preserve the floodplain
5. Improve flood infrastructure
6. Expand flood education and outreach
7. **Expand funding**
# FMS: Region-Wide

• 136 out of 143 recommended and included in Draft Plan

<table>
<thead>
<tr>
<th>FMS Type</th>
<th>FMS Description</th>
<th># of FMSs Recommended</th>
<th>Total Cost</th>
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</thead>
<tbody>
<tr>
<td>Education and Outreach</td>
<td>Turn Around, Don’t Drown Campaigns; NFIP Education; Flood Education; Dam Safety Education; Floodplain Regulatory Awareness</td>
<td>19</td>
<td>$975,000</td>
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<tr>
<td>Flood Measurement and Warning</td>
<td>Flood Warning Systems; Rain/Stream Gauges and Weather Stations; Low Water Crossings (LWCs)</td>
<td>20</td>
<td>$5,300,000</td>
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<tr>
<td>Infrastructure Projects</td>
<td>Hazardous Roadway Overtopping Mitigation Program; Citywide Drainage Improvements; Flood-Proofing facilities</td>
<td>5</td>
<td>$430,000,000</td>
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<tr>
<td>Other</td>
<td>Debris Clearing Maintenance; Channel Maintenance and Erosion Control; Dam Inspections; Levee Inspections; City Parks; Green Infrastructure; Open Space Programs</td>
<td>12</td>
<td>$8,525,000</td>
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<tr>
<td>Property Acquisition and Structural Elevation</td>
<td>Acquire High Risk and Repetitive Loss Properties; Acquire and Preserve Open Spaces; Flood-Proofing Facilities</td>
<td>28</td>
<td>$295,500,000</td>
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<td>Regulatory and Guidance</td>
<td>City Floodplain Ordinance Creation/Updates; Zoning Regulations; Land Use Programs; Open Space Regulations</td>
<td>52</td>
<td>$6,600,000</td>
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<td></td>
<td><strong>Total</strong></td>
<td><strong>136</strong></td>
<td><strong>$746,900,000</strong></td>
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## Regional Flood Planning Goals
1. Improve flood warning and public safety
2. Improve flood analyses
3. Reduce property damage and loss
4. **Preserve the floodplain**
5. Improve flood infrastructure
6. Expand flood education and outreach
7. Expand funding
FME Status: Upper Basin

• 293 out of 306 recommended and included in Draft Plan

<table>
<thead>
<tr>
<th>FME Type</th>
<th>FME Description</th>
<th># of FMEs Recommended</th>
<th>Total Cost</th>
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<tbody>
<tr>
<td>Preparedness</td>
<td>Studies on Flood Preparedness</td>
<td>4</td>
<td>$2,150,000</td>
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<tr>
<td>Project Planning</td>
<td>Previously Identified Drainage Projects and Flood Studies</td>
<td>208</td>
<td>$55,357,000</td>
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<tr>
<td>Watershed Planning</td>
<td>Flood Mapping Updates, Drainage Master Plans, H&amp;H Modeling, Dam and Levee Failure</td>
<td>80</td>
<td>$57,068,000</td>
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<tr>
<td>Other</td>
<td>Dam Studies</td>
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<td>$2,000,000</td>
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<td></td>
<td><strong>Local Area Total</strong></td>
<td><strong>293</strong></td>
<td><strong>$116,575,000</strong></td>
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</table>
FMP Status: Upper Basin

- 7 FMPs fully evaluated
- 7 recommended and included in Draft Plan

<table>
<thead>
<tr>
<th>FMP ID</th>
<th>FMP Name</th>
<th>Sponsor</th>
<th>Identified in Tech Memo and/or prior to 4/13/22?</th>
<th>All required data available prior to Cutoff Date? (4/13/2022)</th>
<th>Total Cost</th>
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<tbody>
<tr>
<td>033000007</td>
<td>Spring Meadows Estates Detention Pond Design</td>
<td>Sachse</td>
<td>Y</td>
<td>Y</td>
<td>$1,868,000</td>
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<tr>
<td>033000008</td>
<td>West Irving Creek Phases 2, 3, and 4</td>
<td>Irving</td>
<td>Y</td>
<td>Y</td>
<td>$98,746,000</td>
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<tr>
<td>033000016</td>
<td>Arlington VC(A)-1 Drainage and Erosion Improvements</td>
<td>Arlington</td>
<td>Y</td>
<td>Y</td>
<td>$2,601,000</td>
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<tr>
<td>033000030</td>
<td>Lancaster/Foch Area Mitigation</td>
<td>Fort Worth</td>
<td>Y</td>
<td>Y</td>
<td>$11,771,000</td>
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<tr>
<td>033000031</td>
<td>Linwood Park Flood Mitigation (Western Arlington Heights)</td>
<td>Fort Worth</td>
<td>Y</td>
<td>Y</td>
<td>$50,523,000</td>
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<tr>
<td>033000033</td>
<td>Sunnyvale Urban Flooding Reduction Improvements - Area 1</td>
<td>Sunnyvale</td>
<td>Y</td>
<td>Y</td>
<td>$4,560,000</td>
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<tr>
<td>033000036</td>
<td>Sunnyvale Urban Flooding Reduction Improvements - Area 2</td>
<td>Sunnyvale</td>
<td>Y</td>
<td>Y</td>
<td>$5,701,000</td>
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<td></td>
<td>Local Area Total</td>
<td></td>
<td></td>
<td></td>
<td>$175,770,000</td>
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</table>
FMS Status: Upper Basin

- 110 out of 116 recommended and included in Draft Plan

<table>
<thead>
<tr>
<th>FMS Type</th>
<th>FMS Description</th>
<th># of FMSs Recommended</th>
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<tr>
<td>Education and Outreach</td>
<td>Turn Around, Don’t Drown Campaigns; NFIP Education; Flood Education; Dam Safety Education; Floodplain Regulatory Awareness</td>
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<td>$765,000</td>
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<td>Flood Measurement and Warning</td>
<td>Flood Warning Systems; Rain/Stream Gauges and Weather Stations; Low Water Crossings (LWCs)</td>
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<tr>
<td>Infrastructure Projects</td>
<td>Hazardous Roadway Overtopping Mitigation Program; Citywide Drainage Improvements; Flood-Proofing facilities</td>
<td>5</td>
<td>$430,000,000</td>
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<tr>
<td>Other</td>
<td>Debris Clearing Maintenance; Channel Maintenance and Erosion Control; Dam Inspections; Levee Inspections; City Parks; Green Infrastructure; Open Space Programs</td>
<td>11</td>
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<tr>
<td>Property Acquisition and Structural Elevation</td>
<td>Acquire High Risk and Repetitive Loss Properties; Acquire and Preserve Open Spaces; Flood-Proofing Facilities</td>
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<td>$235,500,000</td>
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<td>Regulatory and Guidance</td>
<td>City Floodplain Ordinance Creation/Updates; Zoning Regulations; Land Use Programs; Open Space Regulations</td>
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<td>$5,400,000</td>
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Local Area Total 110 $684,890,000
Chapters 6 through 9

Potential Impacts of Actions
Flood Response Summary
Recommended Planning Process Improvements
Potential Funding
Impacts of the Regional Flood Plan

- Total area in need of flood risk identification vs. total area to be evaluated by recommended FMEs
- ~70% of mapped areas considered outdated and/or approximate
- ~38,000 stream miles classified as outdated and/or approximate
- Draft Plan includes 35 county-wide FMEs to improve mapping coverage
Impacts of the Regional Flood Plan - FMP

- Exposure reduction after FMP implementation
- More FMPs to be included in the Amended Plan

<table>
<thead>
<tr>
<th>Flood Exposure</th>
<th>Existing Conditions</th>
<th>After FMP Implementation</th>
<th>Exposure Reduction from FMPs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1% ACE</td>
<td>1% ACE</td>
<td>1% ACE</td>
</tr>
<tr>
<td>Exposed Structures</td>
<td>1,500</td>
<td>1,108</td>
<td>392</td>
</tr>
<tr>
<td>Exposed Population</td>
<td>37,593</td>
<td>33,421</td>
<td>4,172</td>
</tr>
<tr>
<td>Exposed Low Water Crossings</td>
<td>9</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Number of Road Closure Occurrences</td>
<td>253</td>
<td>192</td>
<td>61</td>
</tr>
<tr>
<td>Road Length (Mi.)</td>
<td>31</td>
<td>23</td>
<td>8</td>
</tr>
</tbody>
</table>
Contributions/Impacts on State Water Plan

Impacts of State Flood Plan on State Water Plan

- Recommended FMSs or FMPs will not have measurable contribution or have negative impact on water supply or water availability

- None of recommended FMSs or FMPs impact operation of existing water supply reservoirs

- Recommended FMSs and FMPs not anticipated to have measurable impact on water supply, water availability, or projects in State Water Plan
Financing Analysis – Who will pay?

- Funding surveys sent to Sponsors on 6/7/2022 and 6/14/2022
- 14% Sponsor response rate (22 of 158) (as of 7/5/2022)
- Overall, total cost of $1,076,686,000 needed to implement recommended FMEs, FMSs, and FMPs
- From total cost, projected $961,274,000 of state and federal funding is needed
Chapter 10
Public Participation
Public Participation

Numerous public meetings of RFPG and Technical Subcommittee, including hybrid meetings across region

Meeting notices and materials posted to website and Texas SOS, and sent via MailChimp to regional stakeholders / interested parties

Maintenance of stakeholders / interested parties database with nearly 850 unique email addresses and nearly 1,100 individual contacts

- City and county officials
- State, federal and other entities with flood planning responsibilities
- Public / interested party sign-ups from website

Development / use of award-winning website
Public Participation

Social media (Twitter) content posted regularly

Press releases and regional media outreach

Development of PowerPoint overview presentation

Presentations to various regional organizations
Public Participation

- Postcard mailers to augment email outreach
- Follow-up phone calls to stakeholders
- Online data gathering survey/tool with interactive webmaps to confirm current flood risk, identify gaps
- Handout materials – flyers and one-pagers
- Postcard Aug. 2022 encouraging review of Draft Plan, promoting upcoming events and public comments
- In-person, open house "roadshow" to showcase Draft Plan, answer questions, at region-wide sites
- Public meeting to take public input on Draft Plan
- Subsequent public meetings to consider public and TWDB input, revise and finalize Regional Flood Plan
Regional Flood Plan Adoption Timeline

- September 8: Public input meeting
- October 10: Public comments due
- Nov/Dec 2022: Plan revisions, final approval
- January 2023: Regional Plan due to TWDB
Upcoming Public Participation Opportunities

Submit comments on Draft Regional Flood Plan by Oct. 10

Web:  www.trinityrfpg.org
• Review Draft Plan on Planning Documents page (sort by “2022 Draft Plan”)
• Submit comments via form on Public Comment page

Email: info@trinityrfpg.org

Mail:
Halff Associates, Inc.
Attn: Stephanie Griffin
4000 Fossil Creek Blvd.
Fort Worth, Texas 76137-1422
Regional Planning Process Questions?
Breakout Stations

• Visit with consultant team and RFPG members, ask questions
• Review interactive floodplain webmap, mark local flooding issues
• Review maps / tables of local recommended flooding solutions
• Review hard copy of Draft Regional Flood Plan
• Access RFPG website to view Draft Plan, sign up for e-updates, complete Public Comment form
• Submit written comment cards
Contact Us

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Email:  info@trinityrfpg.org
Twitter:  @TrinityRFPG

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Attn:  Stephanie Griffin
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Fort Worth, Texas 76137-1422
sgriffin@halff.com
817-813-5704

Planning Group Chair:
Glenn Clingenpeel
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817-467-4343