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## Exhibit

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# Scope of Work

March 2021

Disclaimer: This document includes the standard Scope of Work developed for Regional Flood Planning Grant Contracts by the Texas Water Development Board. The Scope of Work for certain grant contracts may contain revised language to reflect requested edits from Regional Flood Planning Groups and Planning Group Sponsors.

**First Cycle of Regional Flood Plan Development  
(2020–2023)**

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## Task 1 – Planning Area Description

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 Texas Administrative Code (TAC) Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.30, 361.31, and 361.32.

The objective of this task is to prepare a standalone chapter to be included in the 2023 Regional Flood Plan that describes the Flood Planning Region (FPR).

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to prepare a chapter that includes:**

1. A brief, general descriptions of the following:
  - a. social and economic character of the region such as information on development, population, economic activity, and economic sectors most at risk of flood impacts;
  - b. the areas in the FPR that are flood-prone and the types of major flood risks to life and property in the region;
  - c. key historical flood events within the region including associated fatalities and loss of property;
  - d. political subdivisions with flood-related authority and whether they are currently actively engaged in flood planning, floodplain management, and flood mitigation activities;
  - e. the general extent of local regulation and development codes relevant to existing and future flood risk;
  - f. agricultural and natural resources most impacted by flooding; and
  - g. existing local and regional flood plans within the FPR.
2. A general description of the location, condition, and functionality of existing natural flood mitigation features and constructed major flood infrastructure within the FPR, including but not limited to:
  - a. rivers, tributaries, and functioning floodplains;
  - b. wetlands;
  - c. playa lakes;
  - d. sinkholes;
  - e. alluvial fans;
  - f. vegetated dunes;
  - g. levees;
  - h. sea barriers, walls, and revetments;
  - i. tidal barriers and gates;
  - j. stormwater tunnels;
  - k. stormwater canals;
  - l. dams that provide flood protection;
  - m. detention and retention ponds;
  - n. weirs;
  - o. storm drain systems; and
  - p. any other flood-related infrastructure within the FPR.

3. Include a tabulated list and GIS map of existing infrastructure.
4. Include an assessment of existing infrastructure.
5. Explain, in general, the reasons for non-functional or deficient natural flood mitigation features or major flood infrastructure being non-functional or deficient, provide a description of the condition and functionality of the feature or infrastructure and whether and when the natural flood feature or major flood infrastructure may become fully functional, and provide the name of the owner and operator of the major flood infrastructure.
6. A general description of the location, source of funding, and anticipated benefits of proposed or ongoing major infrastructure and flood mitigation projects in the FPR, including:
  - a. new structural flood mitigation projects currently under construction;
  - b. non-structural flood mitigation projects currently being implemented; and
  - c. structural and non-structural flood mitigation projects with dedicated funding to construct and the expected year of completion.
7. A review and summary of relevant existing planning documents in the region. Documents to be summarized include those referenced under 31 TAC §361.22.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:** A completed Chapter 1 describing the FPR, existing natural flood mitigation features, constructed major flood infrastructure, and major infrastructure and flood mitigation projects currently under development. A tabulated list and GIS map of existing infrastructure and their conditions. Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 2A – Existing Condition Flood Risk Analyses

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.33.

The objective of this task is to prepare a chapter to be combined with Task 2B and included in the 2023 Regional Flood Plan that describes the existing and future condition flood risk in the FPR.

The RFPGs must perform existing condition flood risk analyses for the region comprising: (1) flood hazard analyses that determine the location, magnitude, and frequency of flooding; (2) flood exposure analyses to identify who and what might be harmed within the region; and (3) vulnerability analyses to identify vulnerabilities of communities and critical facilities.

The information developed must be used to assist the RFPG to establish priorities in subsequent planning tasks, to identify areas that need Flood Management Evaluations (FMEs), and to efficiently deploy its resources.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Perform existing condition flood hazard analyses to determine the location and magnitude of both 1% annual chance and 0.2% annual chance flood events as follows:
  - a. collect data and conduct analyses sufficient to characterize the existing conditions for the planning area;
  - b. identify areas within each FPR where hydrologic and hydraulic model results are already available and summarize the information;
  - c. utilize best available data, including hydrologic and hydraulic models for each area;
  - d. prepare a map showing areas identified by the RFPG as having an annual likelihood of inundation of more than 1% and 0.2%, the areal extent of this inundation, and the sources of flooding for each area; and
  - e. prepare a map showing gaps in inundation boundary mapping and identify known flood-prone areas based on location of hydrologic features, historic flooding and/or local knowledge.
2. Develop high-level, region-wide, and largely GIS-based existing condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1% annual chance and 0.2% annual chance flood events as follows:
  - a. analyses of existing development within the existing condition floodplain and the associated flood hazard exposure;
  - b. for the floodplain as defined by FEMA or as defined by an alternative analysis if the FEMA-defined floodplain is not considered best available;
  - c. may include only those flood mitigation projects with dedicated construction funding and scheduled for completion prior to adoption of the next state flood plan.
  - d. must consider the population and property located in areas where existing levees or dams do not meet FEMA accreditation as inundated by flooding without those structures in place. Provisionally accredited structures may be allowed to provide flood protection, unless best available information demonstrates otherwise.
  - e. must consider available datasets to estimate the potential flood hazard exposure including, but not limited to:
    - i. number of residential properties and associated population;
    - ii. number of non-residential properties;
    - iii. other public infrastructure;
    - iv. major industrial and power generation facilities;
    - v. number and types of critical facilities;
    - vi. number of roadway crossings;
    - vii. length of roadway segments; and
    - viii. agricultural area and value of crops exposed.
  - f. must include a qualitative description of expected loss of function, which is the effect that a flood event could have on the function of inundated structures (residential, commercial, industrial, public, or others) and infrastructure, such as transportation, health and human services, water supply, wastewater treatment, utilities, energy generation, and emergency services.

3. Perform existing condition vulnerability analyses as follows:
  - a. identify resilience of communities located in flood-prone areas identified as part of the existing condition flood exposure analyses, utilizing relevant data and tools.
  - b. identify vulnerabilities of critical facilities to flooding by looking at factors such as proximity to a floodplain or other bodies of water, past flooding issues, emergency management plans, and location of critical systems like primary and back-up power.
4. All data produced as part of the existing condition flood exposure analysis and the existing condition vulnerability analysis must include:
  - a. underlying flood event return frequency;
  - b. type of flood risk;
  - c. county;
  - d. HUC12;
  - e. existing flood authority boundaries;
  - f. Social Vulnerability Indices for counties and census tracts; and
  - g. other categories as determined by RFPGs or in TWDB Flood Planning guidance documents.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:**

- Prepare a stand-alone chapter (including work from both Tasks 2A & 2B) to be included in the 2023 Regional Flood Plan.
- Prepare maps according to 1(d) and 1(e).
- A tabulated list and GIS map of all pertinent information. All maps should be submitted with underlying GIS data utilized to prepare them.
- Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 2B – Future Condition Flood Risk Analyses

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.34.

The objective of this task is to prepare a chapter to be combined with Task 2A and included in the 2023 Regional Flood Plan that describes the existing and future condition flood risk in the FPR.

RFPGs must perform future condition flood risk analyses for the region comprising: (1) flood hazard analyses that determine the location, magnitude and frequency of flooding; (2) flood exposure analyses to identify who and what might be harmed within the region; and (3) vulnerability analyses to identify vulnerabilities of communities and critical facilities.

The information developed must be used to assist the RFPG to establish priorities in subsequent planning tasks, to identify areas that need FMEs, and to efficiently deploy its resources.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Perform future condition flood hazard analyses to determine the location and magnitude of both 1% annual chance and 0.2% annual chance flood events as follows:
  - a. collect data and conduct analyses sufficient to characterize the future conditions for the planning area based on a "no-action" scenario of approximately 30 years of continued development and population growth under current development trends and patterns, and existing flood regulations and policies based on:
    - i. current land use and development trends and practices and associated projected population based on the most recently adopted state water plan decade and population nearest the next regional flood plan adoption date plus approximately 30 years or as provided for in TWDB Flood Planning guidance documents;
    - ii. reasonable assumptions regarding locations of residential development and associated population growth;
    - iii. anticipated relative sea level change and subsidence based on existing information;
    - iv. anticipated changes to the functionality of the existing floodplain;
    - v. anticipated sedimentation in flood control structures and major geomorphic changes in riverine, playa, or coastal systems based on existing information;
    - vi. assumed completion of flood mitigation projects currently under construction or that already have dedicated construction funding; and
    - vii. other factors deemed relevant by the RFPG.
  - b. identify areas within each FPR where future condition hydrologic and hydraulic model results are already available and summarize the information;
  - c. utilize best available data, including hydrologic and hydraulic models for each area;
  - d. where future condition results are not available, but existing condition hydrologic and hydraulic model results are already available, the RFPGs must modify hydraulic models to identify future conditions flood risk for 1% and 0.2% annual chance storms based on simplified assumptions utilizing the information identified in this task.
  - e. prepare a map showing areas of 1% and 0.2% annual chance of inundation for future conditions, the areal extent of this inundation, and the sources of flooding for each area.
  - f. prepare a map showing gaps in inundation boundary mapping and identify known flood-prone areas based on location of hydrologic features, historic flooding, and/ or local knowledge.
2. Perform future condition flood exposure analyses using the information identified in the future condition flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both future condition 1% annual chance and future condition 0.2% annual chance flood events as follows:
  - a. analyses of existing and future developments within the future condition floodplain and the associated flood hazard exposure; and



- b. to include only those flood mitigation projects with dedicated construction funding scheduled for completion prior to the next regional flood plan adoption date plus 30 years or as provided for in TWDB Flood Planning guidance documents.
- c. Identification of flood prone areas associated with the hazard exposure analyses must be based on analyses that rely primarily on the use and incorporation of existing and available:
  - i. FIRMs or other flood inundation maps and GIS related data and analyses;
  - ii. available hydraulic flood modeling results;
  - iii. model-based or other types of geographic screening tools for identifying flood prone areas; and
  - iv. other best available data or relevant technical analyses that the RFPG determines to be the most updated or reliable.
3. Perform future condition vulnerability analyses as follows:
  - a. identify resilience of communities located in flood-prone areas identified as part of the future condition flood exposure analyses, utilizing relevant data and tools.
  - b. identify vulnerabilities of critical facilities to flooding by looking at factors such as proximity to a floodplain or other bodies of water, past flooding issues, emergency management plans, and location of critical systems like primary and back-up power.
4. All data produced as part of the future condition flood exposure analysis and the future condition vulnerability analysis must include:
  - a. underlying flood event return frequency;
  - b. type of flood risk;
  - c. county;
  - d. HUC12;
  - e. existing flood authority boundaries;
  - f. Social Vulnerability Indices for counties and census tracts; and
  - g. other categories as determined in TWDB Flood Planning guidance documents.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:**

- Prepare a stand-alone chapter (including work from both Tasks 2A & 2B) to be included in the 2023 Regional Flood Plan.
- Prepare maps according to 1(e) and 1(f). A tabulated list and GIS map of all pertinent information. All maps should be submitted with underlying GIS data utilized to prepare them.
- Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 3A – Evaluation and Recommendations on Floodplain Management Practices

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.35.

Recognizing the extent that previous and current practices may have increased flood risks, including residual risks, and considering broad floodplain management and land use approaches that will avoid increasing flood risks, and avoid negatively affecting neighboring areas, the RFPG must accomplish the following tasks.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Consider the extent to which a lack of, insufficient, or ineffective current floodplain management and land use practices, regulations, policies, and trends related to land use, economic development, and population growth, allow, cause, or otherwise encourage increases to flood risks to both:
  - a. existing population and property, and
  - b. future population and property.
2. Take into consideration the future flood hazard exposure analyses performed under Task 2B, consider the extent to which the 1% annual chance floodplain, along with associated flood risks, may change over time in response to anticipated development and associated population growth and other relevant man-made causes, and assess how to best address these potential changes.
3. Based on the analyses in (1) and (2), make recommendations regarding forward-looking floodplain management and land use recommendations, and economic development practices and strategies, that should be implemented by entities within the FPR. These region-specific recommendations may include minimum floodplain management and land use standards and should focus on how to best address the changes in (2) for entities within the region. These recommendations will inform recommended strategies for inclusion in the Regional Flood Plan.
4. RFPGs may also choose to adopt region-specific, minimum floodplain management or land use or other standards that impact flood-risk, that may vary geographically across the region, that each entity in the FPR must adopt prior to the RFPG including in the Regional Flood Plan any Flood Management Evaluations, Flood Management Strategies, or Flood Mitigation Projects that are sponsored by or that will otherwise be implemented by that entity.
5. Consider example floodplain management and infrastructure protection standards provided by TWDB.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:**

- Prepare a stand-alone chapter (including work from both Tasks 3A & 3B) to be included in the 2023 Regional Flood Plan.
- List region-specific recommendations regarding forward-looking floodplain management and land use, which may include minimum floodplain management and land use standards.
- Any additional deliverables identified in the TWDB Flood Planning guidance documents.

**Task 3B – Flood Mitigation and Floodplain Management Goals**

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.36.

In this task, the RFPG must consider the Guidance Principles under 31 TAC §362.3, Tasks 1-3A, input from the public, and other relevant information and considerations.

The RFPG must use these goals to guide the RFPG in carrying out the following Tasks 4A – 5.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Identify specific and achievable flood mitigation and floodplain management goals along with target years by which to meet those goals for the FPR to include, at a minimum, goals specifically addressing risks to life and property.
2. Recognize and clearly state the levels of residual risk that will remain in the FPR even after the stated flood mitigation goals are fully met.
3. Structure and present the goals and the residual risks in an easily understandable format for the public including in conformance with TWDB Flood Planning guidance documents.
4. When appropriate, choose goals that apply to full single HUC8 watershed boundaries or coterminous groups of HUC8 boundaries within the FPR.
5. Identify both short-term goals (10 years) and long-term goals (30 years).

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:**

- Prepare a stand-alone chapter (including work from both Tasks 3A & 3B) to be included in the 2023 Regional Flood Plan.
- Identify flood mitigation and floodplain management goals considering minimum recommended flood protection goal provided by TWDB.
- Identify specific and achievable flood mitigation and floodplain management goals (10 year and 30 year) in an easily understandable format for the public.

- Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 4A – Flood Mitigation Needs Analysis

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.37.

The RFPG must conduct the analysis in a manner that will ensure the most effective and efficient use of the resources available to the RFPG.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Based on the analyses and goals developed by the RFPG under Tasks 2A through 3B and any additional analyses or information developed using available screening-level models or methods, the RFPG must identify locations within the FPR that the RFPG considers to have the greatest flood mitigation and flood risk study needs by considering:
  - a. the areas in the FPR that the RFPG identified as the most prone to flooding that threatens life and property;
  - b. the relative locations, extent, and performance of current floodplain management and land use policies and infrastructure located within the FPR, particularly within the locations described in (a);
  - c. areas identified by the RFPG as prone to flooding that don't have adequate inundation maps;
  - d. areas identified by the RFPG as prone to flooding that don't have hydrologic and hydraulic models;
  - e. areas with an emergency need;
  - f. existing modeling analyses and flood risk mitigation plans within the FPR;
  - g. flood mitigation projects already identified and evaluated by other flood mitigation plans and studies;
  - h. documentation of historic flooding events;
  - i. flood mitigation projects already being implemented; and
  - j. any other factors that the RFPG deems relevant to identifying the geographic locations where potential FMEs and potentially feasible FMSs and FMPs must be identified and evaluated under §361.38.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:**

- Prepare a stand-alone chapter (including work from both Tasks 4A & 4B) to be included in the 2023 Regional Flood Plan.
- A map identifying the geographic locations within the FPR considered to have the greatest flood mitigation and flood risk study needs where potential FMEs and potentially feasible FMSs and FMPs must be evaluated
- A tabulated list and GIS map of all pertinent information. All maps should be submitted with underlying GIS data utilized to prepare them.
- Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## **Task 4B – Identification and Evaluation of Potential Flood Management Evaluations and Potentially Feasible Flood Management Strategies and Flood Mitigation Projects**

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.38.

Based on analyses and decisions under Tasks 2A through 4A the RFPG must identify and evaluate potential FMEs and potentially feasible FMSs and FMPs, including nature-based solutions, some of which may have already been identified by previous evaluations and analyses by others.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Receive public comment on a proposed process to be used by the RFPG to identify and select FMEs, FMSs, and FMPs for the 2023 Regional Flood Plan.
2. Summarize the RFPG process for identifying potential FMEs and potentially feasible FMSs and FMPs and include a description of the process in the draft and final adopted Regional Flood Plan.
3. Identify potentially feasible FMSs and FMPs in accordance with the RFPG established process.
4. When evaluating FMSs and FMPs the RFPG must, at a minimum, identify one solution that provides flood mitigation associated with 1% annual chance flood event. In instances where mitigating for 1% annual chance events is not feasible, the RFPG must document the reasons for its infeasibility, and at the discretion of the RFPG, other FMSs and FMPs to mitigate more frequent events may also be identified and evaluated based on TWDB Flood Planning guidance documents.
5. For areas within the FPR that the RFPG does not yet have sufficient information or resources to identify potentially feasible FMSs and FMPs, the RFPG must identify areas for potential FMEs that may eventually result in FMSs and/or FMPs.
6. The RFPG must evaluate potentially feasible FMSs and FMPs understanding that, upon evaluation and further inspection, some FMSs or FMPs initially identified as potentially feasible may, after further inspection, be reclassified as infeasible.
7. FMPs will be ranked in the state flood plan and
  - a. must represent discrete, projects;
  - b. must not entail an entire capital program or drainage masterplan; and

- c. may rely on other flood-related projects.
8. Evaluations of potentially feasible FMSs and FMPs require associated, detailed hydrologic and hydraulic modeling results that quantify the reduced impacts from flood events and the associated benefits and costs. Information may be based on previously performed evaluations of projects and related information. Evaluations of potentially feasible FMS and FMPs must include the following information and be based on the following analyses:
- a. A reference to the specific flood mitigation or floodplain management goal addressed by the feasible FMS or FMP;
  - b. A determination of whether FMS or FMP meets an emergency need;
  - c. An indication regarding the potential use of federal funds, or other sources of funding, as a component of the total funding mechanism;
  - d. An equitable comparison between and consistent assessment of all FMSs and FMPs that the RFPG determines to be potentially feasible;
  - e. A demonstration that the FMS or FMP will not negatively affect a neighboring area;
  - f. A quantitative reporting of the estimated benefits of the FMS or FMP, including reductions of flood impacts of the 1% annual chance flood event and other storm events identified and evaluated if the project mitigates to a more frequent event, to include, but not limited to:
    - (1) Associated flood events that must, at a minimum, include the 1% annual chance flood event and other storm events identified and evaluated;
    - (2) Reduction in habitable, equivalent living units flood risk;
    - (3) Reduction in residential population flood risk;
    - (4) Reduction in critical facilities flood risk;
    - (5) Reduction in road closure occurrences;
    - (6) Reduction in acres of active farmland and ranchland flood risk;
    - (7) Estimated reduction in fatalities, when available;
    - (8) Estimated reduction in injuries, when available;
    - (9) Reduction in expected annual damages from residential, commercial, and public property; and
    - (10) Other benefits as deemed relevant by the RFPG including environmental benefits and other public benefits.
  - g. A quantitative reporting of the estimated capital cost of FMPs in accordance with TWDB Flood Planning guidance documents;
  - h. Calculated benefit-cost ratio for FMPs in accordance with *Exhibit C: General Guidelines* and based on current, observed conditions;
  - i. For projects that will contribute to water supply, all relevant evaluations required under §357.34(e) (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies and Water Management Strategy Projects), as determined by the EA based on the type of contribution, and a description of its consistency with the currently adopted State Water Plan;
  - j. A description of potential impacts and benefits from the FMS or FMP to the environment, agriculture, recreational resources, navigation, water quality, erosion, sedimentation, and impacts to any other resources deemed relevant by the RFPG;

- k. A description of residual, post-project, and future risks associated with FMPs including the risk of potential catastrophic failure and the potential for future increases to these risks due to lack of maintenance;
  - l. Implementation issues including those related to rights-of-way, permitting, acquisitions, relocations, utilities and transportation; and
  - m. Funding sources and options that exist or will be developed to pay for development, operation, and maintenance of the FMS or FMP.
9. Evaluations of potential FMEs must be at a reconnaissance or screening-level, unsupported by associated detailed hydrologic and hydraulic analyses. These must be identified for areas that the RFPG considers a priority for flood risk evaluation but that do not yet have the required detailed hydrologic and hydraulic modeling or associated project evaluations available to evaluate specific FMSs or FMPs for recommendation in the Regional Flood Plan. These FMEs must be based on recognition of the need to develop detailed hydrologic models or to perform associated hydraulic analyses and associated project evaluations in certain areas identified by the RFPG. Evaluations of potential FMEs must include the following analyses:
- a. A reference to the specific flood mitigation or floodplain management goal to be addressed by the potential FME.
  - b. A determination of whether FME may meet an emergency need.
  - c. An indication regarding the potential use of federal funds, or other sources of funding as a component of the total funding mechanism.
  - d. An equitable comparison between and consistent assessment of all FMEs.
  - e. An indication of whether hydrologic and or hydraulic models are already being developed or are anticipated in the near future and that could be used in the FME.
  - f. A quantitative reporting of the estimated benefits, including reductions of flood risks, to include:
    - (1) Estimated habitable, living unit equivalent and associated population in FME area;
    - (2) Estimated critical facilities in FME area;
    - (3) Estimated number of roads closures occurrences in FME area;
    - (4) Estimated acres of active farmland and ranchland in FME area; and
    - (5) A quantitative reporting of the estimated study cost of the FME and whether the cost includes use of existing or development of new hydrologic or hydraulic models.
  - g. For FMEs, RFPGs do not need to demonstrate that an FME will not negatively affect a neighboring area.
10. RFPGs must evaluate and present potential FMEs and potentially feasible FMSs and FMPs with sufficient specificity to allow state agencies to make financial or regulatory decisions to determine consistency of the proposed action before the state agency with an approved Regional Flood Plan.
11. Analyses must clearly designate a representative location of the FME and beneficiaries including a map and designation of HUC12 and county location.
12. Analyses must be performed in accordance with TWDB Flood Planning guidance documents.
13. All data produced as part of the analyses under this task must be organized and summarized in the Regional Flood Plan in accordance with TWDB Flood Planning guidance documents.

14. Plans to be considered in developing this chapter include relevant plans referenced under 31 TAC §361.22.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:**

- Prepare a stand-alone chapter (including work from both Tasks 4B & 5) to be included in the 2023 Regional Flood Plan.
- A list of the potentially feasible FMSs and associated FMPs that were identified by the RFPG. The TWDB Flood Planning guidance documents will include minimum data submittal requirements and deliverable format.
- A map identifying the geographic locations within the FPR considered to have the greatest flood mitigation and flood risk study needs where potential FMEs and potentially feasible FMSs and FMPs must be evaluated. TWDB Flood Planning guidance documents will include minimum data submittal requirements and deliverable format.
- Data must be organized and summarized in the Regional Flood Plan in accordance with TWDB Flood Planning guidance documents.
- A tabulated list and GIS map of all pertinent information. All maps should be submitted with underlying GIS data utilized to prepare them.
- Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 4C – Prepare and Submit Technical Memorandum

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.13(e).

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Prepare a concise Technical Memorandum to include:
  - a. A list of existing political subdivisions within the FPR that have flood-related authorities or responsibilities;
  - b. A list of previous flood studies considered by the RFPG to be relevant to development of the Regional Flood Plan;
  - c. A geodatabase and associated maps in accordance with TWDB Flood Planning guidance documents that the RFPG considers to be best representation of the region-wide 1% annual chance flood event and 0.2% annual chance flood event inundation boundaries, and the source of flooding for each area, for use in its risk analysis, including indications of locations where such boundaries remain undefined;



- d. A geodatabase and associated maps in accordance with TWDB Flood Planning guidance documents that identifies additional flood-prone areas not described in (c) based on location of hydrologic features, historic flooding, and/or local knowledge;
  - e. A geodatabase and associated maps in accordance with TWDB Flood Planning guidance documents that identifies areas where existing hydrologic and hydraulic models needed to evaluate FMSs and FMPs are available;
  - f. A list of available flood-related models that the RFPG considers of most value in developing its plan;
  - g. The flood mitigation and floodplain management goals adopted by the RFPG per §361.36;
  - h. The documented process used by the RFPG to identify potentially feasible FMSs and FMPs;
  - i. A list of potential FMEs and potentially feasible FMSs and FMPs identified by the RFPG, if any; and
  - j. A list of FMSs and FMPs that were identified but determined by the RFPG to be infeasible, including the primary reason for it being infeasible.
2. Approve submittal of the Technical Memorandum to TWDB at a RFPG meeting subject notice requirements in accordance with 31 TAC §361.21(h). The Technical Memorandum must be submitted to TWDB in accordance with Section I Article I of the contract.

## Task 5 – Recommendation of Flood Management Evaluations and Flood Management Strategies and Associated Flood Mitigation Projects

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.39.

The objective of this task is to evaluate and recommend Flood Management Evaluations (FMEs), Flood Management Strategies (FMSs) and their associated Flood Mitigation Projects (FMPs) to be included in the 2023 Regional Flood Plan that describes the work completed, presents the potential FMEs, potentially feasible FMSs and FMPs, recommended and alternative FMSs and FMPs, including all the technical evaluations, and presents which entities will benefit from the recommended FMSs and FMPs.

**Work associated with any Task 5 subtasks is contingent upon a written notice-to-proceed. This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Recommend FMSs and FMPs to reduce the potential impacts of flood based on the evaluations under §361.38 and RFPG goals and that must, at a minimum, mitigate for flood events associated with at 1% annual chance (100-yr flood) where feasible. In instances where mitigating for 100-year events is not feasible, FMS and FMPs to mitigate more frequent events may be recommended based on TWDB Flood Planning guidance documents. Recommendations must be based upon the identification, analysis, and comparison of alternatives that the RFPG

determines will provide measurable reductions in flood impacts in support of the RFPG's specific flood mitigation and/or floodplain management goals.

2. Provide additional information in conformance with TWDB Flood Planning guidance documents which will be used to rank recommended FMPs in the state flood plan.
3. Recommend FMEs that the RFPG determines are most likely to result in identification of potentially feasible FMSs and FMPs that would, at a minimum, identify and investigate one solution to mitigate for flood events associated with a 1% annual chance flood event and that support specific RFPG flood mitigation and/or floodplain management goals.
4. Recommended FMSs or FMPs may not negatively affect a neighboring area or an entity's water supply.
5. Recommended FMSs or FMPs that will contribute to water supply may not result in an overallocation of a water source based on the water availability allocations in the most recently adopted State Water Plan.
6. Specific types of FMEs, FMSs, or FMPs that should be included and that should not be included in Regional Flood Plans must be in accordance with TWDB Flood Planning guidance documents.
7. FMS and FMP documentation must include a strategy or project description, discussion of associated facilities, project map, and technical evaluations addressing all considerations and factors required under 31 TAC §361.38(h).
8. Coordinate and communicate with FME, FMS, and FMP sponsors, individual local governments, regional authorities, and other political subdivisions.
9. Process documentation of selecting all recommended FMSs and associated FMPs including development of FMS evaluations matrices and other tools required to assist the RFPG in comparing and selecting recommended FMSs and FMPs.
10. Document the evaluation and selection of all recommended FMS and FMPs, including an explanation for why certain types of strategies may not have been recommended.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:**

- Prepare a stand-alone chapter (including work from both Tasks 4B & 5) to be included in the 2023 Regional Flood Plan to include technical analyses of all evaluated FMSs and FMPs.
- A list of the recommended FMEs, FMSs, and associated FMPs that were identified by the RFPG. TWDB Flood Planning guidance documents will include minimum data submittal requirements and deliverable format.
- Data must be organized and summarized in the Regional Flood Plan in accordance with TWDB Flood Planning guidance documents.
- A tabulated list and GIS map of all pertinent information. All maps should be submitted with underlying GIS data utilized to prepare them.
- Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 6A – Impacts of Regional Flood Plan

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.40.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to include:**

1. a region-wide summary of the relative reduction in flood risk that implementation of the Regional Flood Plan would achieve within the region including with regard to life, injuries, and property.
2. a statement that the FMPs in the plan, when implemented, will not negatively affect neighboring areas located within or outside of the FPR.
3. a general description of the types of potential positive and negative socioeconomic or recreational impacts of the recommended FMSs and FMPs within the FPR.
4. a general description of the overall impacts of the recommended FMPs and FMSs in the Regional Flood Plan on the environment, agriculture, recreational resources, water quality, erosion, sedimentation, and navigation.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:** Prepare a stand-alone chapter (including work from both Tasks 6A & 6B) to be included in the 2023 Regional Flood Plan. Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 6B – Contributions to and Impacts on Water Supply Development and the State Water Plan

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.41.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Include a region-wide summary and description of the contribution that the regional flood plan would have to water supply development including a list of the specific FMSs and FMPs that would contribute to water supply.
2. Include a description of any anticipated impacts, including to water supply or water availability or projects in the State Water Plan, that the regional flood plan FMSs and FMPs may have.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:** Prepare a stand-alone chapter (including work from both Tasks 6A & 6B) to be included in the 2023 Regional Flood Plan. Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 7 – Flood Response Information and Activities

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.42.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Summarize the nature and types of flood response preparations within the FPR including providing where more detailed information is available regarding recovery.
2. Coordinate and communicate, as necessary, with entities in the region to gather information.
3. RFPGs must not perform analyses or other activities related to planning for disaster response or recovery activities.
4. Plans to be considered in developing this chapter include relevant plans referenced under 31 TAC §361.22.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:** Prepare a stand-alone chapter to be included in the 2023 Regional Flood Plan. Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 8 – Administrative, Regulatory, and Legislative Recommendations

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.43.

The objective of this task is to prepare a separate chapter to be included in the 2023 Regional Flood Plan that presents the RFPG's administrative, legislative, and regulatory recommendations.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to develop:**

1. Legislative recommendations that they consider necessary to facilitate floodplain management and flood mitigation planning and implementation.
2. Other regulatory or administrative recommendations that they consider necessary to facilitate floodplain management and flood mitigation planning and implementation.
3. Any other recommendations that the RFPG believes are needed and desirable to achieve its regional flood mitigation and floodplain management goals.
4. Recommendations regarding potential, new revenue-raising opportunities, including potential new municipal drainage utilities or regional flood authorities, that could fund the development, operation, and maintenance of floodplain management or flood mitigation activities in the region.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:** Prepare a stand-alone chapter to be included in the 2023 Regional Flood Plan. Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 9 – Flood Infrastructure Financing Analysis

In addition to generally meeting all applicable rules and statute requirements governing regional and state flood planning under 31 TAC Chapters 361 and 362, this portion of work must, in particular, include all work necessary to meet all the requirements of 31 TAC §361.44.

The objective of this task is to report on how sponsors of recommended FMPs propose to finance projects.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. Coordinate and communicate with individual local governments, regional authorities, and other political subdivisions.
2. Perform a survey, including the following work:
  - a. Contacting FME and FMP sponsors.
  - b. Collection and collation of data.
  - c. Documentation of the effectiveness of survey methodology, providing percent survey completions, and whether an acceptable minimum percent survey completion was achieved.

- d. Submission of data.
3. Coordinate with FME and FMP sponsors as necessary to ensure detailed needs and costs associated with their anticipated evaluations and projects are sufficiently represented in the Regional Flood Plan for future funding determinations.
4. Indicate how individual local governments, regional authorities, and other political subdivisions in their region propose to finance the region's recommended FMPs, and FMEs included in their flood plan. The assessment must also describe what role the RFPG proposes for the state in financing recommended FMPs, and FMEs. As projects are implemented, those improvements and associated benefits must be incorporated into and reflected in the subsequent Regional Flood Plans.
5. Summarize the survey results.

The information gathered and developed in preparation of this chapter must be subject to the following review process prior to submission of any deliverables:

1. Review of the chapter documents and related information by RFPG members.
2. Modifications to the chapter document based on RFPG, public, and/or agency comments.
3. Submittal of chapter document to TWDB for review and approval.
4. All effort required to obtain final approval of the Regional Flood Plan chapter by TWDB.

**Deliverables:** A completed Chapter 9 must be delivered in the 2023 Regional Flood Plan to include summary of reported financing approaches for all recommended FMPs and FMEs. Data must be submitted in accordance with TWDB guidance documents. Any additional deliverables identified in the TWDB Flood Planning guidance documents.

## Task 10 – Public Participation and Plan Adoption

The objective of this task is to address public participation, public meetings, eligible administrative and technical support activities, and other requirements and activities eligible for reimbursement. Objectives also include activities necessary to complete and submit a draft and final Regional Flood Plan, and obtain TWDB approval of the Regional Flood Plan.

In this task, the RFPG must evaluate and ensure that the draft and final Regional Flood Plan satisfies the requirements for regional flood plans in the guidance principles adopted in Title 31 TAC §362.3 and must include a statement in the draft and final Regional Flood Plan explaining how the Regional Flood Plan satisfies the requirements of each of the guidance principles in accordance with Title 31 TAC §361.20.

**This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:**

1. In addition to generally meeting all applicable statute requirements governing regional and state flood planning this portion of work must, in particular, include all technical and administrative support activities necessary to meet all the requirements of 31 TAC Chapters 361 and 362 that are not already addressed under the scope of work associated with other contract Tasks but that are necessary and or required to complete and deliver an draft Regional Flood Plan and final, adopted Regional Flood Plan to TWDB and obtain approval of the adopted Regional Flood Plan by TWDB.

2. Organization, support, facilitation, and documentation of all meetings associated with: preplanning meeting; consideration of a substitution of alternative flood management strategies; public meeting after adoption of the draft Regional Flood Plan and prior to adoption of the final Regional Flood Plan; and consideration of Regional Flood Plan amendments, alternative FMS substitutions, or Board-directed revisions.

#### **Technical Support and Administrative Activities**

1. RFPGs must support and accommodate periodic presentations by the TWDB for the purpose of orientation, training, and retraining as determined and provided by the TWDB during regular RFPG meetings.
2. Attendance and participation of technical consultants at RFPG, subgroup, subcommittees, special and or other meetings including preparation and follow-up activities.
3. Developing technical and other presentations and handout materials for regular and special meetings to provide technical and explanatory data to the RFPG and its subcommittees, including follow-up activities.
4. Administrative and technical support and participation in RFPG activities, and documentation of any RFPG workshops, work groups, subgroup and/or subcommittee activities.
5. Technical support and administrative activities associated with periodic and special meetings of the RFPG including developing agendas and coordinating activities for the RFPG.
6. Provision of progress reports to TWDB for work performed under this Contract.
7. Development of draft and final responses for RFPG approval to public questions or comments as well as approval of the final responses to comments on Regional Flood Plan documents.
8. Intraregional and interregional coordination and communication, and or facilitation required within the FPR and with other RFPGs to develop a Regional Flood Plan.
9. Incorporation of all required data and reports into Regional Flood Plan document.
10. Modifications to the Regional Flood Plan documents based on RFPG, public, and or agency comments.
11. Preparation of a Regional Flood Plan chapter summarizing Task 10 activities including review by RFPG and modification of document as necessary.
12. Development and inclusion of Executive Summaries in both draft Regional Flood Plan and final Regional Flood Plan.
13. Production, distribution, and submittal of all draft and final Regional Flood Plan-related planning documents for RFPG, public and agency review, including in hard-copy format when required.
14. Assembling, compiling, and production of the completed draft Regional Flood Plan and Final Regional Flood Plan document(s) that meet all requirements of statute, 31 TAC Chapters 361 and 362, Contract and associated guidance documents.
15. Submittal of the Regional Flood Plan documents in both hard copy and electronic formats to TWDB for review and approval; and all effort required to obtain final approval of the Regional Flood Plan by TWDB.

#### **Other Activities**

1. Review of all Regional Flood Plan-related documents by RFPG members.
2. Development and maintenance of a RFPG website or RFPG-dedicated webpage on the RFPG administrator's website for posting planning group meeting notices, agendas, materials, and plan information.

3. Limited non-labor, direct costs associated with maintenance of the RFPG website.
4. Development of agendas, presentations, and handout materials for the public meetings to provide to the general public.
5. Documentation of meetings to include recorded minutes and/or audio recordings as required by the RFPG bylaws and archiving and provision of minutes to public.
6. Preparation and transmission of correspondence, for example, directly related to public comments on Regional Flood Plan documents.
7. Promoting consensus decisions through conflict resolution efforts including monitoring and facilitation required to resolve issues between and among RFPG members and stakeholders in the event that issues arise during the process of developing the Regional Flood Plan, including mediation between RFPG members, if necessary.
8. RFPG membership solicitation activities.
9. Meeting all posting, meeting, and other public notice requirements in accordance with the open meetings act, statute, and 31 TAC §361.21 and any other applicable public notice requirements.
10. Solicitation, review, and dissemination of public input, as necessary.
11. Any efforts required, but not otherwise addressed in other SOW tasks that may be required to complete an Regional Flood Plan in accordance with all statute and rule requirements.

**Deliverables:**

- A completed Chapter 10 summarizing public participation activities and appendices with public comments and RFPG responses to comments.
- Complete draft Regional Flood Plan and final, adopted Regional Flood Plan documents.
- Any additional deliverables identified in the TWDB Flood Planning guidance documents.