Flood Management Evaluation (FME) for Small Communities

SCOPE OF WORK TEMPLATE

Study Information

1. **GENERAL STUDY INFORMATION**

FME Name:	
Unique 14-digit FME ID Number(s) from the associated RFPG	
Full Name of FME as presented to the RFPG (If different)	
FME Description*	
FME Type*	
Primary Community Contact	
Regional Flood Planning Group (01-15)	
Regional Flood Planning Group Member Contact (for this FME)	
Regional Flood Planning Group Technical Consultant Contact	
Study Location: Latitude/Longitude reflecting the geographic center of the area to be studied. This is the study location and not the location of the entity.	
County/Counties where the Study Area is located	
Description of the need for the study and the expected study benefit. Details on the need for the proposed study (for example, need to address a specific flooding issue, avoid potential stormwater damage, expand capacity, etc.).	

**FME Description and Type should be exactly same as included in the geodatabase described in Exhibit D, Table 25 from RFPG Guidance Document.*

2. **Study Map.** See Attachment A, the map showing the study location and delineation of the study watershed. The map (labeled “Attachment A_NAME”) should show the hydrologic and hydraulic limits of analysis.

3. **Digital Study Shapefile.** Attached an ArcGIS compatible .shp file with the study location. If there are multiple locations, such as for a flood early warning system or local drainage improvements, the area provided is the affected area within the .shp file.

SCOPE OF WORK TASKS

The Scope of Work (SOW) and budget breakdown must include the following numbered/bold Tasks and associated work (as applicable). Additional tasks as needed for community's or a particular FME's specific need may be included. These are minimum requirements of the SOW, additional details for each task may be included in SOW.

All submittals must conform to the content, formatting, and database requirements of Exhibit C Technical Guidelines and Exhibit D Data Submittal Guidelines for Regional Flood Planning from the Regional Flood Planning Group (RFPG) Contract Documents: https://www.twdb.texas.gov/flood/planning/planningdocu/2028/index.asp

1. Project Management and Meetings

a. Contractor must submit Monthly Detailed Progress Reports following TWDB requirements, including at a minimum:

- High-level schedule and budget tracking
- Meeting minutes
- Must be submitted within two weeks of month's end
- Summary of Progress Report must accompany each invoice.

b. Contractor must conduct Monthly Progress Meetings with Community and TWDB, including a Kick-off and Closeout Meeting.

- An agenda must be provided by Contractor with a minimum of one day before the meeting.

c. Public Meetings: Contractor must conduct at least one public meeting. More details to follow in Task 9.

d. Milestone Reporting: Deliverable submissions to TWDB will be required at the following progress milestones:

- 50% (Draft Alternative FMXs identified) by October 23, 2026
- 90% (Draft Report with BCR and Cost Opinion information) by February 26, 2027
- 100% (Final Report for inclusion in Regional Flood Plan) by April 26, 2027

2. **Data Collection and Review**

    a. Efforts to collect data from previous studies performed within the study area must be documented.

        - Including, but not limited to, collection of best available data such as existing studies, models, GIS data, Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) and maps, FEMA Letter of Map Revisions (LOMRs), TWDB Base Level Engineering (BLE) models, master plans, drainage studies and reports, citizen drainage complaint reports, storm damage reports, field survey data, as-built information, other relevant data within the study area, etc.
        - When referencing within the report/progress reports, cite specific figures/data to ensure that these past reports are being properly incorporated and can be verified by TWDB.
        - Data collected will be utilized for modeling efforts. All information from this task will be referenced, cited, and included in the Report deliverable package.
        - Deliverables must include Data Collection correspondence, reports and studies, and a memo summarizing the data collected.

3. **Survey/Field Work**

    a. Work to be performed as necessary.

    b. Include a map of the areas to be surveyed.

    c. The following data will be obtained from survey/field work locations:

        - (Contractor to complete as necessary)

    d. Deliverables must include a Survey report and files.

4. **Coordination with applicable Regional Flood Planning Groups and overlapping projects**, such as, but not limited to other TWDB projects, General Land Office (GLO), Regional Flood Planning Groups (RFPGs), FEMA, and other organizations who may be conducting similar studies within the study area.

    a. Efforts to seek out overlapping projects and coordination must be documented.

    b. Duplicate efforts will not be allowed. Any work of this nature will not be compensated as part of this study. Should there be any duplicate study efforts identified, Consultant will immediately contact TWDB to resolve the issue.

    c. Data must be shared with any surrounding and/or related FIF projects. Data requests from organizations outside of TWDB must be coordinated with TWDB staff.

    d. Communication with applicable RFPGs is required.

    e. Deliverables must include documentation regarding this coordination.

5. **Hydrologic Analysis**

   a. Identify area of analysis in total square miles.

      - Watershed area analyzed must match the area described by the RFPG (See attached Attachment A).

   b. The Contractor must utilize HEC-HMS version 4.8 or newer.

      - Provide justification for use of other Hydrologic analysis software. Additional QA/ QC reporting and model result demonstrations will be required.
      - Third party reviewers for non-HEC models may be required.

   c. Must utilize best-available data for modeling.

   d. Must utilize National Oceanic and Atmospheric Administration (NOAA) Atlas 14 or newer rainfall data.

   e. Must identify all storm events to be analyzed.

      - A minimum of 10%, 2%, 1%, and 0.2% annual chance flood event must be studied.

   f. Deliverables must include HEC-HMS models and a detailed section describing hydrologic analysis results in Report deliverable.

6. **Hydraulic Analysis**

   a. Identify stream miles of analysis.

      - Stream miles studied must match the area shown and described by the Regional Planning Group (See attached Attachment A).

   b. The Contractor must utilize HEC-RAS version 6.1 or newer.

      - Provide justification for the use of other Hydraulic analysis software. Additional QA/ QC reporting and model result demonstrations will be required.
      - Third party reviewers for non-HEC models may be required.

   c. Must utilize best-available data for modeling.

   d. Must identify storm frequency that will be analyzed.

      - A minimum of 10%, 2%, 1%, and 0.2% annual chance flood event must be studied.

   e. Deliverables must include HEC-RAS models and a detailed section describing hydraulic analysis results in Report deliverable.

7. Identification of Flood Problem Areas

a. Identify areas of high flood risk to life and property.

b. Identify what parameters were used to identify flood problem areas (in table form, example: structures/ population/ infrastructure in flood hazard area, low water crossings, loss of life/property).

c. Identify a list of FMXs for consideration to proceed to Alternatives Analysis.

d. Participate with TWDB and Community in selection of FMXs as a subset of those prepared in task 7.c to be considered in Task 8 Alternatives Analysis.

e. Deliverables must include GIS files and a PDF map of the 1% and 0.2% annual chance flood events.

f. The deliverables must also include a Flood Problem Areas description memo identifying problem, location and determination regarding FMX projects selected for Alternatives Analysis.

8. Alternatives Analysis

a. Provide a list/table of alternative solutions with a brief description of each proposed alternative identified in Task 7.

- Identify all alternatives analyzed per location, even those deemed impractical.

b. Reporting results:

- Will describe the results of implementing each of the alternative solutions. The results will include maps detailing structures affected, and existing and proposed inundation extents.
- Display roadway miles impacted.
- Display existing and proposed inundation extents/depth difference grid for the analyzed event.
- Highlight any local and watershed wide impacts on a GIS map.

c. Produce a one-page fact sheet for solution alternatives describing the solution and all assumptions and constraints.

- Include a GIS map of alternative(s) – ensure each alternative is clearly displayed (pipe sizes, detention basin extents/contours, channel improvement extents/contours, etc.)
- Include benefits, costs, assumptions, and constraints (Permitting, ROW, Property that needs to be required, utility conflicts).

d. Identification of water supply benefit, if any, or each alternative recommended.

e. Provide a Spreadsheet entry consistent with the latest “Technical Guidelines for Regional Flood Planning,” Exhibit C to Regional Flood Planning Grant Contracts.

f. Provide a Geodatabase entry consistent with the latest “Data Submittal Guidelines for Regional Flood Planning,” Exhibit D to Regional Flood Planning Grant Contracts.

g. Each feasible flood mitigation alternative evaluated must identify and compare cost and benefits of projects. Quantification of cost will include engineering, permitting, easement and/or property acquisition, capital cost, operation and maintenance, and other costs as applicable. Quantification of benefit of the project will include the following items:

   - Number of structures with reduced 100-year (1% annual chance) flood risk
   - Number of structures removed from 100-year (1% annual chance) flood risk
   - Number of structures removed from 500-year (0.2% annual chance) flood risk
   - Residential structures removed from 100-year (1% annual chance) flood risk
   - Estimated population removed from 100-year (1% annual chance) flood risk
   - Critical facilities removed from 100-year (1% annual chance) flood risk (#)
   - Emergency facilities removed 100-year (1% annual chance) flood risk (#)
   - Number of low water crossings removed from 100-year (1% annual chance) flood risk (#)
   - Estimated length of roads removed from 1% annual flood risk (miles)
   - Estimated reduction in road closure occurrences
   - Estimated length of roads removed from 100-year flood risk (miles)
   - Estimated farm and ranch land removed from 100-year flood risk (acres)
   - Estimated farm and ranch land at 100-year flood risk (acres) should only include farm and ranch land that are negatively impacted by flooding events and should not include land that benefits from floodplains (e.g., rice fields)
   - Estimated reduction in fatalities (if available)
   - Estimated reduction in injuries (if available)
   - Pre-project level-of-service
   - Post-project level-of-service
   - Cost/structure removed
   - Percent nature-based solution (by cost)
   - Negative impact (Y/N)
   - Negative impact mitigation (Y/N)
   - Texas F-SVI
   - Water supply benefit (Y/N)
   - Benefit-cost ratio

h. Include FMP and FMS feature classes and appropriate tables for all recommended FMEs based on a Geodatabase entry consistent with the latest “Data Submittal Guidelines for Regional Flood Planning,” Exhibit D to Regional Flood Planning Grant Contracts.

i. Include FMP and FMS One Page Summary for all recommended FMEs and FMSs as described in Task Item 8.d., above.

j. The recommended flood risk reduction solutions must have no negative effect on neighboring areas in accordance with statutory requirements for regional flood plans (Texas Water Code § 16.062(i) and (j)(2)). Recommended flood risk reduction solutions, including flood mitigation projects, must meet the definition and requirements regarding no negative effect as identified in Exhibit C to the Regional Flood Planning Grant Contracts. The flood mitigation projects identified from this FME study must comply with ‘no negative effect’ to be included in the regional flood plans.

k. The Contractor must perform a Benefit-Cost Analysis for all feasible FMP alternatives.

   - Existing- and proposed-conditioned hydraulic models must be provided.

l. Deliverables must include a List/Table of Alternative Solutions considered and a list of all Alternative Solutions selected. For the Alternative Solutions selected for analysis, deliverables must include: Maps of Alternatives Solutions Results, a One-Pager Fact Sheet for each Alternative Solution analyzed, completed associated Exhibit C Tables (12-14, as applicable), an Exhibit D Geodatabase with completed associated feature classes and/or tables (Tables 12-16, as applicable), a complete No Negative Impact Table, and Benefit-Cost Analysis Calculations.

9. Community Outreach

a. A Public Meeting must be conducted to engage the community during the study.

b. The Public Meeting must occur after the identification of problem areas, identifying feasible FMXs, and after meeting with the sponsoring community. The public meeting must inform people of the study, how the study outcome is expected to benefit the community, and to gather any additional study-related information the public may have, including locations of flood risk.

- Provide hard copy maps for communities to engage and comment on. Communicate any identified flood risks in the study area, present the identified FMXs, discuss how the study outcome will benefit the community, and receive feedback.
- Provide ability for attendees to review draft findings.

c. Deliverables will include Public Meeting Notices, Public Meeting Sign-In Sheets, Presentation Materials, and Community Feedback information.

10. QC/Model Validation

a. Report must be submitted demonstrating internal QC/model validation efforts for this Contract's models, including calibration data used, if any.

- Document reviewer comments, responses, and confirmation that comments were addressed.

b. Report must be submitted demonstrating response to Third Party QA/QC comments for this Contract's models, mapping and geodatabase.

- Document reviewer comments, responses, and confirmation that comments were addressed.

c. Deliverables will include QA/QC reports and documentation regarding the addressed comments.

11. Reporting

a. Must submit Draft Report and Final Report to TWDB, RFPG, and Community for review.
    - Allow for additional time for review and revisions between Draft Report and Final Report submittals.
    - Draft and Final Reports must be submitted via physical hard drive. All report submittals must include a succinct executive summary.

b. All data and tables must follow instructions and templates provided in Exhibits C and D from the Regional Flood Planning Group (RFPG) Contract Documents.

c. The Draft and Final reports must meet the requirements of the most recent version of the TWDB report template, as posted on the agency website.

d. The final report must include a succinct Executive Summary identifying the purpose, methodology, key findings and recommendations of the study.

e. The Draft and Final reports must meet accessibility requirements, as posted on the agency website.

f. The Final report must be submitted via mail after gaining approval from TWDB that the Draft report has been sufficiently updated to satisfy all review requirements.

12. Other Tasks (as necessary)

Task and Expense Budget

TASK BUDGET

Note: Add as many tasks as appropriate for this study*

TASK	DESCRIPTION	AMOUNT
1	ENTER TASK DESCRIPTION	ENTER TASK AMOUNT
2	ENTER TASK DESCRIPTION	ENTER TASK AMOUNT
3	ENTER TASK DESCRIPTION	ENTER TASK AMOUNT
4	ENTER TASK DESCRIPTION	ENTER TASK AMOUNT
5	ENTER TASK DESCRIPTION	ENTER TASK AMOUNT
....	ENTER TASK DESCRIPTION	ENTER TASK AMOUNT
TOTAL		ENTER TOTAL TASK AMOUNTS

* Task numbers and names must match the tasks in the *Scope of Work*.

EXPENSE BUDGET

CATEGORY	AMOUNT
Salaries & Wages[1]	ENTER EXPENSE AMOUNT
Travel[2]	ENTER EXPENSE AMOUNT
Subcontract Services	ENTER EXPENSE AMOUNT
Other Expenses[3]	ENTER EXPENSE AMOUNT
TOTAL*	ENTER TOTAL EXPENSE AMOUNT

*Totals for the Task and Expense Budgets should be the same.

[1] Salaries and Wages is defined as the cost of salaries of engineers, draftspersons, stenographers, surveyors, clerks, laborers, etc., for time directly chargeable to this application.

[2] Travel is limited to the maximum amounts authorized for state employees by the General Appropriations Act, Tex. Leg. Regular Session, 2011, Article IX, Part 5, as amended or superseded

[3] Other Expenses is defined to include expendable supplies, communications, reproduction, and postage directly chargeable to this application.