



**City of Corsicana, Navarro County, Texas  
Cooperating Technical Partner  
Mapping Activity Statement**

**Agreement No. 2 - Refinement of Approximate Zone A Boundaries**

In accordance with the Cooperating Technical Partner (CTP) Memorandum of Agreement dated August 3, 2001, between the City of Corsicana, Navarro County, Texas and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement No. 2 is as follows:

**Objective and Scope:** The objective of this Mapping Activity is to refine and/or establish approximate Zone A flood zone boundaries in the City of Corsicana. Analyses will be of the 1% annual chance flood representing existing conditions and will encompass approximately 4 square miles of drainage area and about 4.6 linear miles of flooding. Project will include the following flooding sources for Zone A tasks. 1) Define Zone A BFE's: South Fork of Post Oak Creek, Tributary PO-5, Tributary PO-6, and Town Branch (3.1 linear miles of stream). 2) Re-delineate Approximate Zone A: Tributaries PO-1, PO-2, PO-4 and PO-7 (1.5 linear miles of stream).

**Period of Performance:** This Mapping Activity will begin on October 1, 2001 and will be completed no later than July 1, 2002. This Mapping Activity may be terminated at the option of FEMA or the City of Corsicana in accordance with the provisions of the August 3, 2001, CTP Memorandum of Agreement.

The period of performance will be in accordance with Agreement Article II.

**Funding/Cost-Sharing:** The City of Corsicana "in-kind" contribution to Mapping Activity Statement No. 2 includes hydrologic and hydraulic technical data prepared for the development of the City of Corsicana Flood Protection Planning Study, dated May 2001. Technical data prepared for this study include: Aerial topographic mapping (2-ft. contour interval), HEC-HMS hydrologic modeling for existing and future fully urbanized watershed conditions for the 10-, 50-, 100-, and 500-year flood frequencies, HEC-RAS hydraulic models, and digital topography with hydraulic cross sections and future fully urbanized 100-year flood plain delineations.

FEMA funding will be utilized to map existing condition flood plains and floodways utilizing the City's existing condition hydrology and future condition (future fully urbanized watershed conditions with existing channel and bridges/culverts) hydraulic models. New floodway limits will be established using new hydraulic models for the South Fork of Post Oak Creek, Tributary PO-5, Tributary PO-6, and Town Branch (3.1 linear miles of stream). Floodway encroachments will then be established to satisfy FEMA floodway criteria. Approximate Zone A limits will be determined utilizing the City's hydrology and topographic mapping. Detail hydraulic models will not be prepared for Approximate Zone A limits.

A summary of funding/cost sharing is provided in Attachment "B"

**Standards:** The following standards and documents are relevant to this Mapping Activity:

1% annual chance water-surface elevations for approximate Zone A floodplain mapping will be determined using analyses consistent with the methods detailed in FEMA 265, *Managing Floodplain Development in Approximate Zone A Areas* (April 1995), and Chapter 6 of FEMA 37, *Guidelines and Specifications for Study Contractors* (January 1995). The City of Corsicana may expand on the approaches for analyzing Zone A areas outlined in FEMA 37 and FEMA 265 and/or develop new approaches. Such approaches should be coordinated with the FEMA Regional Project Officer prior to commencement of analysis and mapping.

Computer models used for hydrologic and/or hydraulic analyses will meet the requirements of 44 CFR 65.6(a)(6).

Topographic mapping used to delineate the Zone A floodplains will be of adequate scale and topographic definition to provide reasonable accuracy. Planimetric features will be compatible with the base map (with respect to horizontal accuracy) selected by FEMA for Digital FIRM production. Topographic mapping taken from aerial photogrammetry or surveys will comply with the requirements of Appendix 4 of FEMA 37. The selection of the topographic mapping source to be used will be coordinated with the FEMA Project Officer prior to analysis and mapping.

For areas depicted as Zone A on the effective FIRM that have been altered by the placement of earthen fill, the requirements of 44 CFR 65.5(a) apply.

Work maps depicting the revised Zone A boundaries will comply with the requirements outlined in Chapter 9 of FEMA 37.

Digital mapping submissions will comply with the requirements of Chapter 9 and Appendix 7 of FEMA 37.

Automated data processing and modeling algorithms for GIS-based modeling and mapping will be documented and submitted to ensure that they are consistent with the standards outlined above. Digital data sets (such as elevation, basin, or land use data) will be documented and submitted to FEMA for approval prior to performing the analysis to ensure that they meet minimum requirements. If non-commercial (i.e., custom developed) software is used for the analysis, then full user documentation, technical algorithm documentation, and the software will be submitted to FEMA for review prior to performing this Mapping Activity.

**Products:** The City of Corsicana shall make the following products available:

Topographic work maps depicting the revised 1% annual chance approximate floodplain boundaries, designated as Zone A.

Written summary of the analysis methodologies used.

All back-up data, including supporting calculations and assumptions for any computed 1% annual chance water-surface elevations. If computer models are utilized, input and output should be provided in both hardcopy and digital (CD-ROM, 3.5" diskette, or zip disk) format.

If automated GIS-based models are applied, then all input data, output data, intermediate data processing products, and GIS data layers.

Completed Forms 1 through 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions* (MT-2).

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## Schedule and Milestones:

**Milestone 1:** Products for the first milestone to be provided to the FEMA Project Officer include:

Annotated copies of effective FIRMs depicting proposed revisions and/or Zone A areas to be added.

Documentation of the proposed source of topographic data, scale, contour interval, source/methodology, date of survey/data collection, vertical and horizontal datums, and comparison of planimetric features with the Digital FIRM base map selected for use by FEMA. A written description of the proposed analysis methodology.

Documentation of digital data sets to be used (such as elevation, basin, and land use data). Full user documentation, technical description of methodologies and algorithms, and a copy of the source codes and custom-developed software applications for GIS-based modeling will also be submitted.

**Milestone 2 (Final Product):** Final products to be provided to the FEMA Project Officer include:

Topographic work maps depicting 1% annual chance (Zone A) floodplain boundaries. All supporting computations, including computer model input and output. Completed Forms 1 through 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions (MT-2)*. If GIS-based models are applied, all input and output data, intermediate data processing products, and GIS data layers. A Quality Assurance/Quality Control (QA/QC) report documenting that the results of the independent review of all computational and data processing procedures were independently reviewed will also be submitted.

**Certification:** The following certifications apply to this Mapping Activity (as appropriate): Hydrologic and/or hydraulic analyses and data will be certified by a registered Professional Engineer or Licensed Land Surveyor in accordance with 44 CFR 65.6(f). Topographic information will be certified by a registered Professional Engineer or Licensed Land Surveyor in accordance with 44 CFR 65.5(c).

**Technical Assistance and Resources:** The City of Corsicana will obtain copies of FEMA-issued Letters of Map Change (LOMCs), archived engineering back-up data, and data collected as part of the Mapping Needs Assessment Process from FEMA's Mapping Coordination Contractor (MCC). Specific technical and programmatic support will be provided through FEMA's MCC; such assistance should be requested through the FEMA MCC Project Officer specified in Section 12 of this Mapping Activity Statement.

The City of Corsicana may also consult with the FEMA MCC Project Officer to request support in the areas of selection of data sources, selection of digital data accuracy standards, assessment of vertical data accuracy, selection of data collection methods, selection of sub-contractors, and GIS-based engineering and modeling training.

**Contractors:** The Services of Half Associates, Inc. will be utilized to complete this Mapping Activity Statement. Procurement of subcontractors using Federal funds provided as part of this Mapping Activity will comply with the requirements of 44 CFR 13.36.

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**Quality Assurance/Quality Control (QA/QC) Procedures:** The City of Corsicana will undertake internal QC reviews to ensure that the products described under Section 5 of this Mapping Activity Statement conform with the standards outlined under Section 4 of this Mapping Activity Statement. Additionally, an independent review for compliance with these standards will be undertaken by PBS&J. The QA/QC procedures outlined in Chapter 10 of FEMA 37 should be followed during the development of the approximate Zone A analyses and mapping.

For GIS-based automated modeling, QA/QC activities should ensure automated calculations are reasonable and in compliance with standard flood modeling and mapping approaches. The City of Corsicana will document internal QA/QC procedures to ensure all calculations and data processing were reviewed.

**Reporting:** Reporting requirements will be in accordance with Agreement Articles V & VI.

**Points of Contact:** The FEMA Regional Project Officer is Jack Quarles, PE, and the CTP Project Manager is Connie Standridge, PE, City Engineer or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. If it is necessary, the assistance of FEMA's MCC should be requested through the FEMA Regional Project Officer, Jack Quarles, PE.

Each party has caused this Mapping Activity Statement to be executed by its duly authorized representative.



Connie Standridge, PE, City Engineer  
City of Corsicana, Texas

9/13/01  
Date



Jack Quarles  
Regional Project Officer  
Federal Emergency Management Agency

9-13-01  
Date

September 10, 2001

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