Maricopa County, Arizona
Cooperating Technical Partners
Mapping Activity Statement

Agreement #1 - Hydrologic and Hydraulic Analyses and Floodplain Mapping

In accordance with the Cooperating Technical Partners (CTP) Memorandum of Agreement dated 09/12/01, between the Flood Control District of Maricopa County (FCDMC), Arizona and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement #1 is as follows:

1. **Objective and Scope:** The objective of this Mapping Activity is to develop detailed hydrologic and hydraulic analyses and floodplain and floodway mapping in the North Scottsdale, Arizona area. Hydrologic analyses will be completed for approximately 15 square miles of drainage area, and hydraulic analyses and floodplain mapping will be completed for approximately 24 linear miles of flooding, including the following flooding sources: various washes in the North Scottsdale area as shown on the attached Exhibit A.

2. **Period of Performance:** This Mapping Activity will begin on 09/24/01 and will be completed no later than 09/24/02. This Mapping Activity may be terminated at the option of FEMA or the FCDMC in accordance with the provisions of the 09/12/01, CTP Memorandum of Agreement. The period of performance will be in accordance with Agreement Article 11.

3. **Funding/Cost-Sharing:** Funding for this project will be through FEMA grant monies.

4. **Standards:** The following standards and documents are relevant to this Mapping Activity:
   - Detailed hydrologic and hydraulic analyses and floodplain mapping will follow the standards set forth in FEMA 37, *Flood Insurance Guidelines and Specifications for Study Contractors* (January 1995), and Title 44 of the Code of Federal Regulations (CFR), Part 65. FEMA 37 is available at FEMA's Website at http://www.fema.gov/mit/tsd/EN_req.htm. Title 44 of the CFR is available from the U.S. Government Printing Office Website at www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=199944.
   - Computer models used for hydrologic and/or hydraulic analyses will meet the requirements of 44 CFR 65.6(a)(6) and be on FEMA's *Numerical Models Accepted by FEMA for NFIP Usage* (http://www.fema.gov/mit/tsd/EN_modl.htm).
   - Topographic mapping used to delineate floodplains and regulatory floodways 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 Regional Project Manager prior to analysis and mapping.

- Any levee or dike systems to be shown on the FIRM for the affected community(ies) as providing protection from the 1-percent-annual-chance flood will comply with the requirements of 44 CFR 65.10. Chapter 7 of FEMA *37* provides guidelines for evaluating levee and dike systems.
- Flood elevations, floodplain boundaries, and regulatory floodway boundaries will reasonably tie in to non-revised information in accordance with 44 CFR 65.6(a)(2).
- The regulatory floodway will be established in accordance with 44 CFR 65.7, as well as any applicable state and/or community requirements.
- Digital mapping will comply with the requirements of Chapter *9* and Appendix 7 of FEMA 37.
- Digital Elevation Models (DEMs) and field survey data will meet vertical accuracy requirements contained in Appendix 4 of FEMA *37.*

5. **Products:** The FCDMC will make available items outlined in Chapter 11 of FEMA 37 in the Technical Support Data Notebook (TSDN) format. These include:
   - Digital 1- percent-annual-chance floodplain and floodway boundaries;
   - Digital profiles of the 1-percent-annual-chance water-surface elevations, representing existing conditions;
   - Flood Insurance Study (FIS) report;
   - Floodway data tables;
   - Digital copies of all hydrologic and hydraulic modeling (input and output files); and
   - All backup data used in the analyses or mapping.

6. **Schedule and Milestones:**

   Milestone 1 (Scoping Phase): The FCDMC will provide the following products for the to the FEMA Regional Project Manager:
   - Annotated copies of effective FIRMs depicting limits of proposed study.
   - 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 DFIRM base map selected by FEMA for DFIRM production.
   - A written summary of the initial data research, proposed analysis methodologies, and a work plan.
   - Copies of topographic maps depicting proposed cross section locations.

   Milestone 2 (Hydrology Phase): , The FCDMC will provide draft hydrologic analyses in accordance with the TSDN format to the FEMA Regional Project Manager.

   Milestone 3 (Hydraulics Phase): The FCDMC will provide the hydraulic models and sample floodplain mapping in accordance with TSDN format to the FEMA Regional Project Manager include.

   Milestone 4 (Final Products): Final products to be provided to the FEMA Regional Project Manager include:

- The completed TSDN and accompanying data containing the information outlined in Section 5 of this Mapping Activity Statement.
- A QA/QC report documenting the results of the independent review of all computational and data processing procedures.

Final products will be made available in accordance with the Period of Performance described in Section 2 of this Mapping Activity Statement.

7. **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).
   - If fill is to be considered in the mapping to raise land areas to or above the 1% annual chance flood elevation, certification of the fill will be provided in accordance with 44 CFR 65.5(a)(6) by the community's NFIP permit official, a Registered Professional Engineer, or a Licensed Land Surveyor.
   - Any levee systems to be accredited as discussed in Section 4 of this Mapping Activity Statement will be certified in accordance with 44 CFR 65.10(e).

8. **Technical Assistance and Resources:** The FCDMC may obtain copies of FEMA-issued Letters of Map Change, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from FEMA's Flood Map Production Coordination Contractor (MCC). The MCC may be contacted at 1-877 FEMA MAP (1-877-336-2627). General technical and programmatic information, such as FEMA 265, the Quick-2 computer program, and the MT-2 forms, can be downloaded from FEMA's Flood Hazard Mapping website (www.fema.gov./mit/tsd/). Specific technical and programmatic support may 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.

9. **Contractors:** DEI Professional Services, LLC will be the contracted consultant that will be used for this project. Procurement of subcontractors using Federal funds provided as part of this Mapping Activity will comply with the requirements of 44 CFR 13.36.

10. **Quality Assurance/Quality Control (QA/QC) Procedures:** The FCDMC will undertake internal QA/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 the City of Scottsdale, Arizona.

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

12. Points of Contact: The FEMA Regional Project Manager is Ray Lenaburg Ray Lenaburg, and the CTP Project Manager is Michael S. Elegood, P.E. 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 MCC Project Officer, Mike Grimm.

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

9/14/01

Michael S. Ellegood, P.E.
Chief Engineer and General Manager
Flood Control District of Maricopa County

Date

7/19/01

Project Manager
Federal Emergency Management Agency

Date

09/14/01

Mike Austin, State representative

Date

*In States where statutory and/or regulatory requirements require the State's review and/or approval of new flood hazard data, the State will be a signatory to a CTP Mapping Activity Statement.