

**Lorain County, Ohio
Cooperating Technical Partner
Mapping Activity Statement**

Agreement - Hydrologic and Hydraulic Analyses and Floodplain Mapping

In accordance with the Cooperating Technical Partner (CTP) Memorandum of Agreement between Lorain County, Ohio and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement 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 Lorain County, Ohio. Hydrologic analyses will be completed for nine streams with approximately 57 square miles of drainage area, and hydraulic analyses and floodplain mapping will be completed for approximately 30.5 linear miles of flooding, including the following flooding sources: Battenhouse Ditch, Beaver Ditch, Brighton-Camden Main Ditch, Engle Ditch, Gable Ditch, Heider Ditch, Plum Creek, Ridgeway Ditch, and Schroeder Ditch.

Period of Performance: The tasks outlined in this Mapping Activity Statement will begin on September 1, 2001 and will be completed no later than March 31, 2003. This Mapping Activity may be terminated at the option of FEMA or Lorain County in accordance with the provisions of the CTP Memorandum of Agreement. The period of performance will be in accordance with Agreement Article II.

Funding/Cost-Sharing: Lorain County has a previously established cooperative study (January 1, 2000) with the U.S. Geological Survey (USGS) to develop 10-year recurrence-interval flood water-surface elevation profiles and digital floodplain mapping for the nine streams defined in the Objective and Scope.

2. 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, *Guidelines and Specifications for Study Contractors* (January 1995), and Title 44 of the Code of Federal Regulations (CFR), Part 65.
- Appropriate USGS regional peak-flow publications (regression equations) will be used to establish all discharges for all hydrologic analyses. The Corps of Engineers hydraulic model HEC-RAS (version 3.0) will be used for hydraulic analyses.
- Lorain County has recently developed new (March 27, 1999) digital countywide mapping that includes topographic contouring at a 2-foot interval and orthometric photography. This mapping is on NAVD 88 vertical datum and NAD 83 horizontal datum. Quality control checks performed by the USGS (for the nine pertinent areas) on the County's mapping indicated that, for all areas checked, the mapping meets or exceeds Class I mapping standards and therefore, complies with the requirements of Appendix 4 of FEMA 37.
- Flood elevations and floodplain and floodway boundaries will reasonably tie in to nonrevised information in accordance with 44 CFR 65.6 (a) (2).

- The 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.

3. Products: Lorain County's subcontractor, the USGS, will make the following items available as outlined in Chapter 11 of FEMA 37 in the Technical Support Data Notebook (TSDN) format. These include:

- Digital 1% annual chance digital floodplain and floodway boundaries;
- Digital profiles of the 1% annual chance water-surface elevations, representing existing conditions;
- Floodway data tables;
- Digital copies of all hydrologic and hydraulic modeling (input and output files); and
- Data used in the analyses or mapping.

4. Schedule of Tasks:

Scoping (prior to project start):

- The proposal between Lorain County and the USGS will be provided to FEMA. The proposal describes the techniques and methodologies used to conduct the flood profile analyses.

Hydrology (10% completion):

- Appropriate USGS regional peak-flow publications (regression equations) will be used to establish all discharges for all hydrologic analyses.

Hydraulics (100% completion):

- The Corps of Engineers hydraulic model HEC-RAS will be used for hydraulic analyses. All methodologies undertaken and conducted will be described in the TSDN.

Final Products (100% completion): Final products to be provided to the FEMA Project Officer include:

- The completed TSDN and accompanying data containing the information outlined in Section 5 of this Mapping Activity Statement.

Final products will be made available in accordance with the Period of Performance described in Section 1 of this Mapping Activity Statement.

5. 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©.

