



FEMA

Illinois Department of Natural Resources COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. IDNR06-10 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data for Kane County, Illinois

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated April 28, 2004 between the Illinois Department of Natural Resources (IDNR) and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. IDNR06-10 is as follows:

SECTION 1—OBJECTIVE AND SCOPE

The objective of the Flood Map Project documented in this MAS is to develop a Digital Flood Insurance Rate Map (DFIRM) and Flood Insurance Study (FIS) report for Kane County, Illinois. The DFIRM and FIS report will be produced in the FEMA Countywide format. The mapping will use the Universal Transverse Mercator (UTM) projection, North American horizontal Datum (NAD) of 1983, and the North American Vertical Datum (NAVD) of 1988.

Table 1.1 Flood Mapping Project Activities

Activities	CTP or IDIQ	FEMA (or its Contractor)
Floodplain Mapping (Detailed Riverine or Coastal Analysis, Redelineation Using Effective Flood Profiles and Updated Topographic Data ¹ , Refinement or Creation of Zone A, Redelineation (digitization) of Non-Revised Areas ¹ , Merge Revised and Non-Revised Information)	X	
Independent QA/QC Review of Floodplain Mapping	X	

Floodplain Mapping

Responsible Mapping Partner: Illinois Department of Natural Resources

Scope for Merging Revised and Non-Revised Information: Kane County, Department of Environmental Management, authorized hydrologic and hydraulic studies for Blackberry Creek, Indian Creek, and Sleepy & Jelkes Creeks. These flood studies were reported as near completion at the Kane County Scoping Meeting held March 11, 2005. Kane County Department of Environmental Management Director, Tim Harbaugh, requested that these studies be included in the Map Modernization project to prepare DFIRMs for the County. Kane County was notified that these studies would have to be submitted for review and approval before they could be included in the DFIRM production. The technical data have been submitted to the IDNR Office of Water Resources and to date the hydrology portion of these studies has been approved. The floodway analysis for submitted for Blackberry Creek and Indian Creek watersheds have been reviewed and approved.

These pending studies were discussed during Executive Team meetings with FEMA representatives and there was general agreement that they should be included in the DFIRM mapping for Kane County. The Kane County DFIRM production has been delayed so as to accommodate inclusion of these studies.

The information submitted to the INDR Office of Water Resources for Illinois' regulatory review has been subsequently transferred to the Map Modernization project. The data were not submitted in the TSDN format. Upon review of the study information it has been determined that additional technical work is needed to meet FEMA publication standards.

- QA/QC of work maps to ensure cross section placement agrees with models submitted.
- FIS Discharge data tables
- Floodway Data Tables
- Flood Profiles
- FIS text
- The Indian and Sleepy/Jelkes Creeks must be converted to NAVD 1988.
- Archival of models, maps, reports in digital format.

New hydrology and updated hydraulic models were prepared thus a comparison to the effective model or duplicate effective model is not applicable.

Below is a summary of the various stream for which updated hydrology and hydraulics have been prepared, the approximate stream miles involved, the type of models used in the updated studies.

The updated study of Sleepy Jelkes included the combination of minor revisions to the Sleepy hydrologic model and a new HEC-1 hydrologic model for Jelkes Creek. The combined HEC-RAS model included approximately 6.0 miles of the streams previously studied.

The Indian Creek hydraulic model was completed in two pieces, part with HEC-RAS and part with FEQ. An approximate total 10.7 miles of the stream were modeled, including Indian Creek, South Tributary, Selmartin Creek, Indian Creek Tributary B and Tollway Tributary. The model extends the studied reach of the South Tributary.

The Blackberry Creek study modeled approximately 53 miles of stream along Blackberry Creek, Tributary F, Tributary D, Tributary C, Prestbury Tributary, Lake Run and East Run in HEC-RAS.

Additional funding is requested to accomplish the tasks noted above so that the updated study information can be incorporated in the DFIRMs as requested by Kane County. The additional work would not include a detailed third party evaluation of the models as they have been approved for floodplain mapping in Illinois. (Illinois standards exceed the NFIP requirements.) The work is needed to package the information for inclusion in the DFIRM and FIS.

Upon completion of the floodplain mapping activities for the revised and non-revised areas, Illinois Department of Natural Resources shall merge the digital floodplain data into a single, updated DFIRM. This work is to include tie-in of flood hazard information for areas that were not studied as part of the Flood Map Project documented in this MAS. Illinois Department of Natural Resources also shall tie in the revised and non-revised Flood Profiles, floodplain boundaries, and regulatory floodway boundaries with contiguous communities that were not studied as part of the Flood Map Project documented in this MAS. Illinois Department of Natural Resources shall coordinate with FEMA and any additional Mapping Partners responsible for other components of Floodplain Mapping, as necessary, to resolve any potential tie-in issues.

Illinois Department of Natural Resources shall incorporate the results of all effective LOMCs for all affected communities on the DFIRM. Also, Illinois Department of Natural Resources shall address all concerns or questions regarding Floodplain Mapping that are raised by Illinois Department of Natural Resources during the independent QA/QC review.

Standards: All Floodplain Mapping work shall be performed in accordance with the standards specified in Section 5 - Standards. Mapping quality standards should be consistent with Procedure Memorandum No. 38, dated September 2, 2005. Illinois Department of Natural Resources may expand on the approaches for analyzing Zone A areas outlined in *Guidelines and Specifications for Flood Hazard Mapping Partners* and in FEMA 265, *Managing Floodplain Development in Approximate Zone A Areas* (April 1995), and/or develop new approaches. Such approaches must be coordinated with the FEMA Regional Project Officer before analysis and mapping begin.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, and upon completion of floodplain mapping for all flooding sources in Kane County. Illinois Department of Natural Resources shall upload the digital data to the MIP or submit by using other digital media so that it can access it for the independent QA/QC review. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. The mapping for the remaining flooding sources including any non-revised digital panels and all merged revised and non-revised floodplain mapping data is to be submitted for a final QA/QC review at the completion of this activity. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. The MIP shall be updated for status reporting not less than prescribed 3-month periods and when the activity is complete. Where paper documentation is required by State Law for Professional certifications, this form of documentation may be submitted in addition to a scanned version for the digital record.

- DFIRM mapping files prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM;
- Any backup or supplemental information including supporting calculations and assumptions used in the mapping required for the independent QA/QC review of Hydrologic, Coastal and /or Hydraulic Analyses and Floodplain Mapping;
- An explanation for the use of existing topography for the studied reaches, if appropriate.
- Written summary of the analysis methodologies;
- Digital versions of input and output for any hydrologic and/or hydraulic computer programs that were used;
- Format Mapping Database or Data Delivery consistent with the Data Capture Standards– Appendix N of the *Guidelines and Specifications for Flood Hazard Mapping Partners*;

Appendix M and Appendix N may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

SECTION 2—TECHNICAL AND ADMINISTRATIVE SUPPORT DATA SUBMITTAL

The CTP for this Flood Map Project that has responsibilities for activities included in this {MAS} shall comply with the data submittal requirements summarized below.

All supporting documentation for the activities in this MAS shall be submitted in the TSDN format in accordance with Appendix M of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated April 2003. Appendix M may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/pdf/fhm/frm_gsam.pdf. Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities						
	Scoping	Base Map	Flood-plain Mapping (and Re-delineation)	QA/QC of FP Mapping	DFIRM Database	Preliminary Map Products	Post-Preliminary
General Documentation							
Special Problem Reports	X	X	X	X	X	X	X
Telephone Conversation Reports	X	X	X	X	X	X	X
Meeting Minutes/ Reports	X	X	X	X	X	X	X
General Correspondence	X	X	X	X	X	X	X
Draft FIS Report		X					
Mapping Information	X		X	X	X	X	X
Miscellaneous Reference Information	X	X	X	X	X	X	X

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin on August 31, 2006, and will be completed no later than November, 2006. The mapping activities may be terminated at the option of FEMA or IDNR in accordance with the provisions of the Partnership Agreement dated April 28, 2004. If these mapping activities are terminated; the remaining funds from uncompleted activities, provided by FEMA for this MAS, will be returned to FEMA.

SECTION 4—FUNDING/LEVERAGE

FEMA is providing funding, in the amount of _____, to IDNR for the completion of this Flood Map Project. During the scoping process, additional needs may be identified. Activities associated with any additional needs would be performed based on availability of additional funds. The CTP Leverage listed below includes in-kind services and blue book values for acquired information (i.e. base map data, hydrologic and hydraulic analysis, etc.). More detailed leverage information will be determined during the detailed scoping process and reported back to FEMA at that time.

Funding for Project	FEMA Contribution	CTP Contribution	% Leverage	Total Project Cost
TOTAL FUNDING AMOUNTS				

SECTION 5—STANDARDS

The standards relevant to this MAS are provided in Tables 5-1 and 5-2. Information on the correct volume, appendix, section, or subsection of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* to be referenced for each mapping activity are summarized in Table 5-2.

These guidelines may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

Table 5-1. Applicable Standards for Project Activities

Applicable Standards	Activities														
	Scoping	Field Survey	Topo Data	QA/QC Topo Data	Base Map	Hydrology/Coastal	QA/QC Hydrology/Coastal	Hydraulic Analysis	QA/QC of Hydraulic Analysis	Floodplain Mapping (inc. Redelineation)	QA/QC Flood-plain Mapping	DFIRM Dbase	QA/QC DFIRM Database	Preliminary Map Products	Post-Preliminary Processing
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
American Congress on Surveying and Mapping Procedures	X	X	X	X											
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-510), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	X	X	X	X											
Engineer Manual 1110-1-1000, <i>Photogrammetric Mapping</i> (USACE), July 1, 2002	X	X	X	X											
Engineer Manual 1110-2-1003, <i>Hydrographic Surveys</i> (USACE), January 1, 2002	X	X													
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003	X				X	X	X	X	X						
<i>Content Standard for Digital Geospatial Metadata</i> (Federal Geographic Data Committee), 1998	X		X	X						X	X	X	X	X	X
<i>Document Control Procedures Manual</i> , December 2000	X													X	X
<i>44 Code of Federal Regulations Part 66 and 67</i>	X													X	

Table 5-2. Project Activities and Applicable Portions of FEMA Guidelines and Specifications

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Scoping	Appendix I, Scoping Report document attached in Appendix A to this Mapping Activity Statement; 44 Code of Federal Regulations Part 66 and 67
Field Survey	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1)
	Appendix A, Sections A.4, A.5, A.6, A.7, and A.8
	Appendix F, Section F.3
	Appendices B, C, and M
Topographic Data Development	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1)
	Appendix A, Sections A.2 , A.3, A.7, and A.8
	Appendix M
Independent QA/QC Review of Topographic Data	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.1)
	Appendix A, Sections A.2, A.3, A.7 (specifically Subsection A.7.5), and A.8 (specifically Subsection A.8.6)
	Appendix M
Base Map Acquisition and Preparation	Volume 1, Section 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsections 1.4.3.1 and 1.4.3.2)
	Appendix A, Section A.1 (specifically Subsection A.1.1)
Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4)
	Appendix A, Section A.4
	Appendix C, Sections C.1 and C.7
	Appendices E, F, G, H, and M

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Independent QA/QC Review of Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendix C, Section C.2 Appendices E, F, G, H, and M
Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Sections C.3 and C.7
Independent QA/QC Review of Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Section C.5
Levee Evaluation (if appropriate)	Appendix H Procedure Memorandum 34 (and related PMs) 44 CFR 65.2, 44 CFR 65.10
Coastal Hazard Analyses	Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Section C.5 Appendices B, D, and M
Independent QA/QC Review of Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendices B, D, and M

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Floodplain Mapping	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendix C, Sections C. 4 and C.6 (specifically Subsection C.6.1.3) Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, and M
Perform Redelineation	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendix C, Section C.6 (specifically Subsection C.6.1.3) Appendices K, L, and M
Independent QA/QC Floodplain Mapping (including Redelineation/Digitization)	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, and M
Independent QA/QC Review of DFIRM Database and Graphic Specs	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, and M
Production of Preliminary Map Products	Volume 1, Sections 1.4 (specifically Subsections 1.4.2 and 1.4.3) and 1.5 (specifically Subsection 1.5.1) Appendices J, K, L, and M
Post-Preliminary Processing	Volume 1, Section 1.5 (specifically Subsection 1.5.2) Appendices J, K, L, and M

SECTION 6—SCHEDULE

The activities documented in this MAS shall be completed in accordance with the project schedule below. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner.

Table 6.1 Mapping Activities Schedule

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Floodplain Mapping: <ul style="list-style-type: none"><li data-bbox="256 705 760 737">• Merging Revised and Unrevised Areas	IDNR	Nov. 1, 2006

SECTION 7—CERTIFICATIONS

Floodplain Mapping, Independent QA/QC Review of Floodplain Mapping and DFIRM Database

The DFIRM metadata files shall include a description of the horizontal and vertical accuracy of the DFIRM base map and floodplain information.

SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from FEMA and/or your Regional Project Officer.

General technical and programmatic information, such as FEMA 265 and the Quick-2 computer program, can be downloaded from the FEMA website at <http://www.fema.gov/fhm/>. Specific technical and programmatic support may be provided through FEMA and/or its contractor; such assistance should be requested through the FEMA Project Officer specified in Section 12 – Points of Contact.

Project Team members also may consult with the FEMA Regional Project Officer to request support in the areas of selection of data sources, digital data accuracy standards, assessment of vertical data accuracy, data collection methods or subcontractors, and GIS-based engineering and modeling training.

SECTION 9—CONTRACTORS

IDNR intends to use the services of a contractor for this Flood Map Project to produce photographic negatives of map panels for the MSC. IDNR shall ensure that the procurement for all contractors used for this Flood Map Project complies with the requirements of 44 CFR 13.36.

Part 13 may be downloaded in PDF or text format from the United States Government Printing Office website at http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html.

SECTION 10—REPORTING

FINANCIAL REPORTING:

Because funding has been provided to IDNR by FEMA, financial reporting requirements for IDNR will be in accordance with Cooperative Agreement Articles V and VI.

IDNR shall provide financial reports to the FEMA Regional Project Officer and Assistance Officer in accordance with the terms of the signed Cooperative Agreement for this MAS.

STATUS REPORTING:

Status reports will be submitted on a quarterly basis in accordance with the financial reporting submittals. At a minimum, these reports will include a summary of the work as outlined in the CTP/Map Modernization Project Quarterly Report located in Appendix B of this MAS. The Project Officer, as needed, may request additional information on status.

IDNR may meet with FEMA and/or its contractor up to bi-weekly, or more frequently if needed, to review the progress of the project in addition to the quarterly financial and status submittals. These meetings will alternate between FEMA's Regional Office, the IDNR office, and conference calls, as necessary.

Section 11—Project Coordination

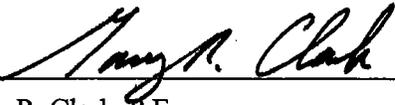
Throughout the project, all members of the Project Team will coordinate, as necessary, to ensure the products meet the technical and format specifications required and contain accurate, up-to-date information. Coordination activities shall include:

- Meetings, teleconferences, and video conferences with FEMA and other Project Team members on a quarterly basis;
- Telephone conversations with FEMA and other Project Team members on a scheduled basis weekly and an ad hoc basis, as required;
- Updates to the MIP and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- E-mail, facsimile transmissions, and letters, as required.

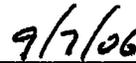
SECTION 12—POINTS OF CONTACT

The points of contact for this Flood Map Project are Lee Traeger, the FEMA Regional Project Officer; John Bishop, the Project Manager for IDNR; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, any additional FEMA assistance should be requested through the FEMA Regional Project Officer.

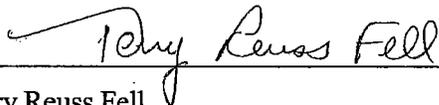
Each party has caused this MAS to be executed by its duly authorized representative.



Gary R. Clark, P.E.
Director
Office of Water Resources
Illinois Department of Natural Resources



Date



Terry Reuss Fell
Branch Chief
Hazard Identification and Risk Assessment Branch
Federal Emergency Management Agency, Region 5



Date