FEMA

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. IDNR05-21 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data for Will County, Illinois

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated 4-28-04 between the Illinois Department of Natural Resources (hereafter called the IDNR) and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. IDNR05-21 is as follows.

SECTION 1—OBJECTIVE AND SCOPE

The objective of the Flood Map Project documented in this MAS is to develop a updated hydrologic and hydraulic data to be used in the Digital Flood Insurance Rate Map (DFIRM) production effort to be completed by the partners under current and future map production MAS agreements. The majority of the work to be completed under this MAS are for streams identified in Table 1-1. Mapping will use the Universal Transverse Mercator (UTM) coordinate system NAD83 horizontal datum, and North American Vertical Datum (NAVD) of 1988.

The scope of work and subsequent cost estimate for the work in this Mapping Activity Statement is based upon the information provided to IDNR in the Pre-Scoping Reports produced by Baker Engineering, Inc. The Pre-Scoping Reports provided to IDNR include studied stream miles (Zone AE floodplain with and without floodway), unstudied stream miles (Zone A floodplain), Letters of Map Change (LOMC) that must be addressed in this map project, and all effective Flood Insurance Studies (FIS). Should stream miles, LOMC's or number of FIS vary significantly from those reported in the Pre-Scoping Reports, IDNR shall prepare and deliver to FEMA a Special Problem Report (SPR) noting estimated costs differentials due to the change in scope of work. The DFIRM panel layout and map scales shown in the attached graphic were prepared by the Illinois State Water Survey.

The data to be developed will resolve known discrepancies between existing FEMA mapping and current conditions and detailed studies of areas previously unstudied or with approximate studies that are, or soon will be, in areas with high development pressure. Since portions of the areas to be studied/restudied are not yet identified, scoping will be required. The majority of the work to be completed under this MAS will be for streams in Will County. This MAS will include coordination with the digital conversion efforts being conducted by the partners under additional MAS agreements.

It is recognized that the full scope of work for each flooding source listed in this MAS for Will County may be modified during the scoping process. On the basis of the known physical changes and engineering judgment the following areas have been identified for restudy.

Table 1-1

Flooding Source	Reach Limits & Length	Detailed Hydrologic Analyses	Detailed Hydraulic Analyses
Marley Creek	Areas impacted by urbanization	X	X
Jackson Creek	Areas impacted by urbanization	X	X
Prairie Creek	Areas impacted by urbanization	X	X
Forked Creek	Areas impacted by urbanization	X	X

This project will be completed by IDNR with assistance from FEMA and the NSP.

This Flood Map Project will be completed by the following

- The Project Team for Will County;
- Illinois Department of Natural Resources
- FEMA Region V; and
- Baker Corporation, under contract to FEMA's as National Service Provider (NSP).

The CTP shall notify FEMA and the NSP by e-mail of all meetings with community officials at least one week prior to the meeting (with as much notice as possible). FEMA and/or the NSP may or may not attend the community meetings

The activities for this Flood Map Project, including required Quality Assurance/Quality Control (QA/QC) reviews, and the Mapping Partners that will complete them are summarized in the Table 1-2. The sections of this MAS that follow the table below describe the specific activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map components.

Table 1-2

Activities	CTP	NSP	FEMA
Activity 1 – Scoping	X	X	X
Activity 2 – Outreach	X	X	X
Activity 3 – Field Surveys and Reconnaissance	X		

Activities	CTP	NSP	FEMA
Activity 6 –Hydrologic Analyses	X		
Activity 7–Independent QA/QC Review of Hydrologic Analyses	X		
Activity 8 – Hydraulic Analyses	X		
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	X		

FEMA has developed tools to assist in the development of the flood hazard data studies and the Digital Flood Insurance Rate Maps (DFIRMs) if the CTP wishes to use them. FEMA will, through the NSP, provide all CTPs access to and training in these tools. The tools available at this time include WISE software and the DFIRM production tools. The use of these tools will improve the Map Modernization and efficiency of all mapping partners.

The Data Capture Standard submittals will be required at the following study milestones:

- Project Scoping (as specified),
- DFIRM Mapping (draft and preliminary).

QA/QC review activities may be performed by CTPs or the NSP at the discretion of FEMA. If the CTP will be utilizing their staff or contractors to do the QA/QC review, this should be identified during scoping. The CTP will need to submit their QA/QC plan with checklist to the Regional Project Officer for approval. Please note the NSP will also be performing periodic audits and overall study/project management to ensure study quality.

FEMA will be providing download/upload capability for intermediate data submittals through the Management Information Portal (MIP). Data submittals uploaded via the MIP, will include the same data required prior to the existence of the MIP.

Activity 1 – Scoping

Responsible Mapping Partner: IDNR

Scope: This task involves collecting data from a variety of sources including community surveys, other Federal and State Agencies, local units of government, NFIP State Coordinators, Community Assistance Visits (CAV's) and FEMA archives.

Data collection will include obtaining the best available base map materials (corporate limits, roads, orthophotos, etc) along with stream centerline files. The acquired data will be imported into the scoping tool and used during the Scoping Task. In the Scoping Tool all streams should have unique names, the limits of the effective FEMA studies will be identified, LOMC areas should be identified, and community requests should be identified. This task also includes populating the streamlines with existing pipeline and scoped studies currently underway. At the request of the CTP, the FEMA Region through a regional task order may direct the NSP to assist with the collection of pre-scoping data and population of the Scoping Tool.

In cooperation with the FEMA Region, a Project Team will be established consisting of personnel from IDNR, Will County, and community officials within the county. The Project Team will be responsible for the activities identified in Activity 1of this Statement of Work including but not limited to identifying and acquiring Base Map information relevant to this MAS, coordinating meeting dates and locations for Project Scoping and Post Preliminary presentation of the DFIRMS, and generally assisting with the completion of tasks identified in this Statement of Work.

Preliminary Research Activities can be separated into two categories—researching effective information and researching available data for the Flood Map Project. The following tasks shall be completed by the NSP prior to the Scoping Meeting to research effective information: inventory the FEMA archives for effective FIRM panels, FRFM panels, FIS reports, and other flood hazard data or existing study data; populate relevant areas of the Scoping Tool; and develop a Scoping Map. *Costs associated with library retrieval of effective information have not been included in this MAS.* If the CTP is charged for library retrieval performed by the NSP it will necessitate a revision to this MAS. IDNR will collect information from the CAV and CAC files; and upload it to the Scoping Tool.

The following tasks shall be completed in accordance with Activity 1 to research available data for the Will County Flood Map Project: identify available base map information; identify available topographic data; identify available flood hazard data; and identify other available hydrologic and hydraulic information.

IDNR will co-ordinate, set-up, and conduct the Scoping Meeting with the assistance of the Project Team. This includes identifying a time, place, and all participants. The purpose of this meeting is to present current mapping information to local officials and coordinate on identification and prioritization of study areas. IDNR shall be responsible for compiling the necessary information for the meeting. These items may include: FIS and FIRM for affected communities; USGS quads for the study area; best available community base map(s); effective FIRM summary; Available Data Inventory; Scoping Map; Scoping Meeting Agenda/Minutes form; Aerial photos/topographic mapping if available; existing drainage studies or other H&H data; Community master plan(s)/Drainage Master Plan(s); Zoning Maps; Street Maps; As-built plans; and Floodplain Ordinance(s).

The CTP Management Team shall review the mapping needs list resulting from the Scoping Meeting, review the research findings, and make selections of proposed methods for obtaining/producing flood data. Any additions or changes to the activities listed in this MAS shall be discussed with all Project Team Members. All needs shall also be prioritized. In general, highest priority shall be given to the following areas: areas of dense existing or anticipated development, including areas where new road crossings have been constructed over stream(s); areas affected by flood-control structures and/or channelization; areas where natural physical changes in the floodplain have been significant (due to subsidence or extreme erosion, for example); areas that were studied by approximate methods and unmapped areas, especially those with development pressure; areas where the community has experienced flooding outside mapped floodplains, with severe damage to buildings and/or infrastructure; areas where mapped flood hazards do not match those shown on contiguous FIRMs (unless those FIRMs are not considered to be accurate); and areas where flood data (BFE's, floodplains, and regulatory floodways) are likely to be changed by a restudy.

Based on the discussion of mapping needs, IDNR and the FEMA Project Officer will finalize the areas to be included in the project and areas identified as future mapping needs (based on recommendations provided by the Project Team). Areas to be studied by detailed and approximate methods shall be

identified. The following issues will be discussed and refined: Review and Refinement of Flood Hazard Identification Methodologies; Review of existing studies not yet submitted as LOMR; Review of Proposed Paneling Scheme; Review and Refinement of Base and Topographic Map Source; and Finalization of Map Production and Database Options.

Standards: All work under Activity 1 shall be performed in accordance with the standards specified in Section 5.

Deliverables:

- The Final Scoping Report will be delivered in accordance with the schedule outlined in Section 6 for this Activity to the Regional Project Officer for approval.

- IDNR shall make available to FEMA upon request copies of all digital files obtained that are not proprietary and lists of files that may be available at a later date; a summary of the mapping needs identified in the Scoping Meeting; and Scoping Tool project files.

Activity 2 – Outreach

Responsible Mapping Partner: IDNR and FEMA (NSP)

Scope: The outreach activities for a Flood Map Project can best be understood as a process that begins during the Project Scoping phase and continues through the Map Production and Post-preliminary phases. A regulatory overview of required activities is followed by a description of tools that can be used in working with stakeholders to keep them informed and to solicit their input.

The overarching goal for conducting outreach is to create a climate of understanding and ownership of the mapping process at the State and local levels. Well-planned outreach activities can reduce political stress, confrontation in the media, and public controversy, which can arise from lack of information, misunderstanding, or misinformation. These outreach activities also can assist FEMA and other members of the Project Team in responding to congressional inquiries.

The IDNR will work with the Regional Office during the initiation of this activity to determine an Outreach Plan for implementation throughout the Mapping Project. The Regional Office will have access to many outreach tools that have been developed for this process that can be utilized or customized for your use.

By proactively reaching out to all key stakeholders as early in the Flood Map Project as possible, the maps can be used to their full potential. The likelihood of appeals may also be reduced or eliminated. Specific activities shall include, but are not limited to the following.

- ✓ Establishing two-way communication to address the needs of, inform and obtain feedback from, the stakeholders. Communication will take the form of community meetings, informational mailings, email, and a website posting of each county's Preliminary DFIRM panels for public viewing and comments.

- ✓ Ensuring compliance with due process requirements.
- ✓ Interacting with technical representatives to ensure production of accurate and up-to-date maps.
- ✓ Enhancing ownership by communities.
- ✓ Tracking, monitoring, and evaluating outreach activities and adjusting efforts according to ongoing feedback and evolving project needs.

All communication with local governments will be done in accordance with Title 44 Code of Federal Regulations Part 66.

Standards: All work under Activity 2 shall be performed in accordance with the standards specified in Section 5.

Deliverables: Upon determination of an Outreach and Coordination Approach the IDNR shall deliver the following to the FEMA Regional Project Officer in accordance with the schedule outlined in Section 6 for this Activity:

- A report detailing outreach and coordination activities
- Backup or supplemental information used in writing this report

At the completion of the DFIRM process, IDNR will submit a summary of outreach activities and any changes made in the outreach approach based on the actual implementation

Activity 3 - Field Surveys and Reconnaissance

Responsible Mapping Partner: IDNR

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, IDNR shall conduct a detailed field reconnaissance of the specific study area to determine conditions along the floodplain(s), types and numbers of hydraulic and/or flood-control structures, apparent maintenance or lack thereof of existing hydraulic structures, locations of cross sections to be surveyed, and other parameters needed for the hydrologic and hydraulic analyses.

In addition to the initial field reconnaissance, IDNR shall conduct field surveys, including obtaining channel and floodplain cross sections, identifying or establishing Temporary Bench Marks, and obtaining the physical dimensions of hydraulic and flood-control structures. IDNR also shall coordinate with other Mapping Partners that are collecting topographic data under Activity 4.

Standards: All work under Activity 3 shall be performed in accordance with the standards specified in Section 5.

Deliverables: In accordance with the Technical Support Data Notebook (TSDN) format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results; and
- Survey notebook containing cross sections and structural data.
- NSP Format Survey Database or Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the Guidelines and Specifications for Flood Mapping Partners

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 6 – Hydrologic Analyses

Responsible Mapping Partner: IDNR

Scope: IDNR shall perform hydrologic analyses for the areas listed in the Section 1 which contribute to the flooding sources in the Section 1. IDNR shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using the HEC-1 or HEC-HMS computer program. If existing effective hydrology is available for any of the areas, IDNR may update the same model to reflect current watershed conditions. These flood discharges will be the basis for subsequent hydraulic analyses under Activity 8. In addition, IDNR shall address all concerns or questions regarding Activity 4 that are raised during the independent QA/QC review performed by IDNR during the QA/QC review under Activity 7.

If Geographic Information System (GIS)-based modeling is used, IDNR shall document automated data processing and modeling algorithms and provide them to FEMA to ensure they are consistent with the standards outlined above. Digital datasets (such as elevation, basin, or land use data) are to be

documented and provided to FEMA for approval before performing the hydrologic analyses to ensure the datasets meet minimum requirements. If propriety data sets are available for use by IDNR, but not for distribution, IDNR shall provide documentation of the datasets to FEMA for approval before performing the hydrologic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analysis, then IDNR shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

Standards: All work under Activity 6 shall be performed in accordance with the standards specified in Section 5.

Deliverables: Upon completion of hydrologic modeling for the flooding sources mentioned in Section 1, IDNR shall upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable, so that IDNR can access it for an independent QA/QC review under Activity 7. IDNR shall submit the results of the hydrologic analyses for the remaining flooding sources for a final QA/QC review at the completion of this activity.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR shall make the following products available to FEMA by submitting it to the FEMA Regional Office via the digital media identified in the paragraph above, if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, IDNR may submit the paper in addition to a scanned version of the paper for the digital record.

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events;
- Digital Summary of Discharges Tables presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital draft text for Section 3.1, Hydrologic Analyses, of the FIS report; and
- Digital versions of all backup data used in the analysis, including work maps, with the exception of approved proprietary data.
- NSP Format Hydrology Database or Data Delivery consistent with the NSP Data Capture Standards –Appendix N of the Guidelines and Specifications for Flood Mapping Partners
- For GIS-based modeling, deliverables shall include all input and output data, intermediate data processing products, and GIS data layers with the exception of approved proprietary data.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 7 - Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: IDNR

Scope: IDNR shall review the technical, scientific, and other information submitted by IDNR under Activity 6 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM. If IDNR utilizes a contractor to perform the QA/QC, the contractor shall not be the same one who performed the original analyses. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
  - Use of acceptable models;
  - Use of appropriate methodologies;
  - Correctly applied methodologies/model(s), including QC of input parameters;
  - Comparison with gage data and/or regression equations, if appropriate; and
  - Comparison with discharges for contiguous reaches or flooding sources.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 7 shall be performed in accordance with the standards specified in Section 5.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

- A Summary Report that describes the findings of the independent QA/QC review and
- Recommendations to resolve any problems that are identified during the independent QA/QC review.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 8 – Hydraulic Analyses

Responsible Mapping Partner: IDNR

Scope: IDNR shall perform hydraulic analyses for areas described in Section 1. The modeling will include the 10-, 2-, 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Activity 6. The HEC-RAS computer program will be used to complete any new hydraulic analysis for this study. If deemed acceptable, the Unet Model may be used in areas containing significant unsteady hydraulics. In any areas with existing studies, the effective models may be updated or at the discretion of IDNR be converted to Hec-RAS.

IDNR shall use the cross-section and field data collected under Activity 3 to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

IDNR shall use the FEMA CHECK-2 or CHECK-RAS checking program to check the reasonableness of the hydraulic analyses. To facilitate the independent QA/QC review under Activity 9, the IDNR shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, IDNR shall address all concerns or questions regarding Activity 6 that are raised by IDNR during the independent QA/QC review under Activity 9.

IDNR shall document automated data processing and modeling algorithms for GIS-based modeling and provide them to FEMA for review to ensure they are consistent with the standards outlined above. Digital datasets are to be documented and provided to FEMA for approval before performing the hydraulic analyses to ensure the datasets meet minimum requirements. . If propriety data sets are available for use by IDNR, but not for distribution, IDNR shall provide documentation of the datasets to FEMA for approval before performing the hydraulic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analyses, then IDNR shall provide full user documentation, technical algorithm documentation, and software to FEMA for review before performing the hydraulic analyses

Standards: All work under Activity 8 shall be performed in accordance with the standards specified in Section 5.

Deliverables: Upon completion of hydraulic modeling for the flooding sources listed in Table 1-1, IDNR will upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable, so that IDNR can access it for the independent QA/QC review under Activity 9. IDNR shall submit the results of the hydraulic analyses for the remaining flooding sources for a final QA/QC review at the completion of this activity.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR shall make the following products available to FEMA submitting it to the FEMA Regional Office via the digital media identified in the paragraph above, if the MIP is unavailable. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

- Digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing conditions using the FEMA RASPLOT program or similar software;
- Digital Floodway Data Tables for each flooding source that is compatible with the DFIRM database;
- Digital hydraulic modeling (input and output) files;
- Digital tables with range of Manning's "n" values;
- Explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate;
- Digital versions of all backup data used in the analyses;
- Digital versions of draft text for inclusion in the FIS report.
- For GIS-based modeling, deliverables include all input and output data, intermediate data processing products, GIS data layers, and final products in the format of the DFIRM database structure.
- NSP Format Hydraulic Database or Data Delivery consistent with the NSP Data Capture Standards –Appendix N of the Guidelines and Specifications for Flood Mapping Partners

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 9 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: IDNR

Scope: IDNR shall review the technical, scientific, and other information submitted by IDNR under Activity 8 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to revise the FIRM. If IDNR utilizes a contractor to perform the QA/QC, the contractor shall not be the same one who performed the original analyses. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
  - Use of acceptable model(s);
  - Starting water-surface elevations;
  - Cross-section geometry;
  - Manning's "n" values and expansion/contraction coefficients;
  - Bridge and culvert modeling;
  - Flood discharges;
  - Regulatory floodway computation methods; and
  - Tie-in to upstream and downstream non-revised Flood Profiles.
- Use the CHECK-2 or CHECK-RAS program as appropriate to flag potential problems and focus review efforts.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for hydraulic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 9 shall be performed in accordance with the standards specified in Section 5.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

IDNR

- A Summary Report that describes the findings of the independent QA/QC review; and
- Recommendations to resolve any problems that are identified during the independent QA/QC review.
- If the data changed during the QA/QC process under Activity 7 or this Activity, then the updated and verified deliverables from Activity 6 and 8 will be resubmitted at this time.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

SECTION 2—TECHNICAL AND ADMINISTRATIVE SUPPORT DATA SUBMITTAL

The Project Team members for this Flood Map Project that have responsibilities for activities included in this MAS shall comply with the data submittal requirements summarized below.

All supporting documentation for the activities in this Mapping Activity Statement 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 is available for viewing or downloading on the FEMA Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf. Table 2-1 highlights those sections of the TSDN that apply to each mapping activity.

If any issues arise that could affect the completion of an activity within the proposed scope or budget, the responsible Mapping Partner shall complete a Special Problem Report (SPR) as soon as possible after the issue is identified and submitted to FEMA. The SPR is to describe the issue and propose possible resolutions. (For additional information on SPRs, refer to Appendix M, Subsection M.2.1.1 of *Guidelines and Specifications for Flood Hazard Mapping Partners*.)

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities															
	1	2	3			6,	7,	8	9							
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							
Engineering Analyses																
Hydrologic Analyses			X			X	X	X	X							
Hydraulic Analyses			X			X	X	X	X							
Key to Cross-Section Labeling			X			X	X	X	X							
Key to Transect Labeling			X			X	X	X	X							
Draft FIS Report						X	X	X	X							
Mapping Information	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 July, 15 2005, and will be completed no later than 11-30-06. The mapping activities may be terminated at the option of FEMA or IDNR in accordance with the provisions of the Partnership Agreement dated 4-28-04. If these Mapping Activities are terminated; the remaining funds from uncompleted activities, provided by FEMA for this Mapping Activity Statement, will be returned to FEMA.

SECTION 4—FUNDING/LEVERAGE

[redacted] for the completion of this Flood Map Project. IDNR shall provide any additional resources required to complete the assigned activities for 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. More detailed leverage information will be determined during the detailed scoping process and reported back to FEMA at that time.

Additional work needed to complete project		% of Project	Managed by	FEMA Contribution	CTP Contribution	% Leverage	Total Project Cost
Activity 1	Scoping	9.4%	IDNR	[redacted]			
Activity 2	Outreach	1.1%	IDNR				
Activity 3	Field Surveys and Reconnaissance	7.3%	IDNR				
Activity 6	Hydrologic Analyses	37.0%	IDNR				
Activity 7	Independent QA/QC of Hydrologic Analyses	0.8%	IDNR				
Activity 8	Hydraulic Analyses	43.6%	IDNR				
Activity 9	Independent QA/QC Review of Hydraulic Analyses	0.8%	IDNR				
		100.0%	TOTALS				

FEMA funds identified above are available to be used for the following activities*:

Activities	FUNDABLE?
Activity 1 – Scoping	Yes, up to 10% of total cost
Activity 2 - Outreach	Yes, up to 10% of total cost
Activity 3 – Field Surveys and Reconnaissance	Yes
Activity 4 – Topographic Data Development	No, unless approval given during scoping phase by Regional PO

Activities	FUNDABLE?
Activity 5 – Independent QA/QC Review of Topographic Data	No, unless approval given during scoping phase by Regional PO
Activity 6 –Hydrologic Analyses	Yes
Activity 6A –Coastal Flood Hazard Analyses	Yes
Activity 7–Independent QA/QC Review of Hydrologic Analyses	Yes
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	Yes
Activity 8 – Hydraulic Analyses	Yes
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	Yes
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	Yes
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	Yes
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	Yes
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	Yes
Activity 12 – Base Map Acquisition	No
Activity 13 – DFIRM Production (Non-Revised Areas)	Yes
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Yes
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	Yes
Activity 14A – Application of DFIRM Graphic and Database Specifications	Yes
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	Yes
Activity 15 – Preliminary DFIRM and FIS Report Distribution	Yes
Activity 16 – Post-Preliminary Processing	Yes

*This table is for information purposes only

SECTION 5—STANDARDS

The standards relevant to this Mapping Activity Statement 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 are available for viewing or download from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/fhm/dl_cgs.shtm.

Table 5-1. Applicable Standards for Project Activities

	Activities															
Applicable Standards	**1**	**2**	**3**			**6**	**7**	**8**	**9**							
Guidelines and Specifications for Flood Hazard Mapping Partners, April 2003	X	X	X			X	X	X	X							
American Congress on Surveying and Mapping Procedures	X		X													
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-510), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	X		X													
Engineer Manual 1110-1-1000, *Photogrammetric Mapping* (USACE), July 1, 2002	X		X													
Engineer Manual 1110-2-1003, *Hydrographic Surveys* (USACE), January 1, 2002	X		X													
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003	X					X	X	X	X							
Content Standard for Digital Geospatial Metadata (Federal Geographic Data Committee), 1998	X	X														
Document Control Procedures Manual, December 2000	X	X														

44 Code of Federal Regulations Part 66 and 67		X														

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
1	Scoping	Appendix I, Scoping Report document attached in Appendix A to this Mapping Activity Statement
2	Outreach	44 Code of Federal Regulations Part 66 and 67
3	Field Surveys and Reconnaissance	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
6	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, M, and N

Table 5-2. Project Activities and Applicable Portions of FEMA Guidelines and Specifications (Cont'd)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
7	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
8	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
		Appendices B, E, F, G, H, M and N
9	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
		Appendices B, E, F, G, H, and M

SECTION 6—SCHEDULE

The activities documented in this MAS shall be completed in accordance with the project schedule Table 6.1. 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

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 1 – Scoping	IDNR, NSP, FEMA	
Activity 2 - Outreach	IDNR, NSP, FEMA	Ongoing
Activity 3 – Field Surveys and Reconnaissance	IDNR	November 30, 2006
Activity 6 –Hydrologic Analyses	IDNR	November 30, 2006
Activity 7–Independent QA/QC Review of Hydrologic Analyses	IDNR	November 30, 2006
Activity 8 – Hydraulic Analyses	IDNR	November 30, 2006
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	IDNR	November 30, 2006

SECTION 7—CERTIFICATIONS

Activity 3 (Field Surveys and Reconnaissance)

A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic data, in accordance with 44 CFR 65.5(c). Certification of topographic data by the American Society for Photogrammetry and Remote Sensing is also acceptable.

Activity 6 (Hydrologic Analyses). Activity 8 (Hydraulic Analyses),

- A Registered Professional Engineer shall certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).
- A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic information in accordance with 44 CFR 65.5(c).

Section 8—Technical Assistance and Resources

The IDNR may consult with the FEMA Regional Project Officer to request support in the area of post-preliminary processing from the National Service Provider. Certain subtasks in Activity 1 described earlier in this MAS have been designated as the responsibility of the NSP. If it is determined that these tasks fall outside of the scope of the NSP work agreement with FEMA, then further discussion and negotiation will be necessary between the CTP and FEMA .

SECTION 9 --Contractors

The IDNR does not intend to use the services of a contractor for the Flood Map Project documented in this Mapping Activity Statement. The IDNR shall ensure that the procurement for all contractors, if any are 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 U.S. Government Printing Office Web site at http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html.

SECTION 10—REPORTING

FINANCIAL REPORTING:

Because funding has been provided to the IDNR by FEMA, financial reporting requirements 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 Mapping Activity Statement.

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 Cooperative Technical Partner (CTP)/Map Modernization Project Quarterly Report located in Appendix B of this Mapping Activity Statement. The Project Officer, as needed, may request additional information on status.

IDNR may meet with the NSP and/or FEMA more frequently (up to bi-weekly 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.

Where specific actions are funded by FEMA, the reporting requirements will be in accordance with the FEMA Cooperative Agreement. IDNR shall work with the FEMA Project Officer to establish an acceptable protocol for reporting of project information at the beginning of each project. IDNR will update the Multi-Hazard Information Platform (MIP) on a monthly basis. If the MIP is not available, the information shall be submitted to the Regional Management Center (RMC). If this report proves to be sufficient, the Assistance Officer may waive the written monthly reports thereafter (reference 44 CFR Part 13.40, *Monitoring and Reporting Program Performance*). However, this shall not affect the financial reporting requirements (reference 44 CFR Part 13.41, *Financial Reporting*). The PO shall ensure that key IDNR staff have been provided access and passwords to the MIP. The PO will also provide project-naming conventions for the MIP.

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 monthly basis;
- Telephone conversations with FEMA and other Project Team members on a scheduled basis monthly 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 Section 10; 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 the CTP; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the any additional assistance of FEMA should be requested through the FEMA Regional Project Officer.

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

Gary Clark, Director
Office of Water Resources
Illinois Department of Natural Resources

7/19/2005
Date

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

July 6, 2005
Date