



FEMA

**Indiana Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT**

Mapping Activity Statement No. 05-09 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated April 29, 2004 between the Indiana Department of Natural Resources and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 05-09 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 Madison County, Indiana. The DFIRM and FIS report will be produced in the FEMA Countywide Format. This elevation information in the DFIRM and FIS will be based on the North American Vertical Datum of 1988.

The Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in the table below. . Scoping has been completed for this project and this table reflects the input of all communities and mapping partners.

Table 1

Flooding Source	Reach Limits	Reach Length	Detailed Riverine		Leverage Study	Redeline-ation of SFHAs Using Effective Profiles	Refine/ Establish Zone A
			Hydrology	Hydraulics			
Lick Creek	Hamilton County line to US 38	19.89					X
Mud Creek	Hamilton County line to CR 700 West	4.68					X
Thorpe Creek	Hamilton County line to CR 700 West	2.39					X

Foster Branch	Mouth to State Road 132	4.22	X	X			
Boland Ditch	end of detailed study to 38 th Street	1.35		X			
White River	Hamilton County line to Delaware County Line	22.67			X		
Big Duck Creek	South P Street to North J Street	2.44				X	
Fall Creek	Reformatory Road to end of detailed study	5.41				X	
Little Duck Creek	South P Street to South 29 th Street	0.72				X	
Killbuck Creek	Mouth to Cross Street	1.66				X	
Pipe Creek	Fairview Street Alexandria City Limits	1.71				X	
Pipe Creek	Highland Avenue CR 850 North	0.59				X	
Prairie Creek	Mouth to end of detailed study	1.9				X	

This Flood Map Project will be completed by the following

- The Indiana Department of Natural Resources, Division of Water (IDNR);
- FEMA;
- Clark Dietz, Inc. (CDI) ;
- Prision Enterprises Network (PEN);
- PBS & J (IDIQ); and
- Michael Baker Engineering (NSP)

The CTP shall notify FEMA or the NSP, as directed by FEMA, 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, depending on the need expressed by IDNR or necessity of FEMA's involvement.

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 below. 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.

Activities	CTP	FEMA
Activity 1 – Scoping		
Activity 2 - Outreach		
Activity 3 – Field Surveys and Reconnaissance	X	
Activity 4 – Topographic Data Development	X	
Activity 5 – Independent QA/QC Review of Topographic Data		
Activity 6 –Hydrologic Analyses	X	
Activity 6A –Coastal Flood Hazard Analyses		
Activity 7–Independent QA/QC Review of Hydrologic Analyses		
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses		
Activity 8 – Hydraulic Analyses	X	
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	X	
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	X	
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	X	
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	X	
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	X	
Activity 12 – Base Map Acquisition)	X	
Activity 13 – DFIRM Production (Non-Revised Areas)		
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		

Activities	CTP	FEMA
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)		
Activity 14A – Application of DFIRM Graphic and Database Specifications		
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications		
Activity 15 – Preliminary DFIRM and FIS Report Distribution	X	
Activity 16 – Post-Preliminary Processing	X	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)
- Terrain Data Processing Completed
- Field Survey Completed
- Hydrology Completed (draft and final)
- Hydraulics Completed (draft and final)
- Coastal Analysis Completed (draft and final)
- 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 4 - Topographic Data Development

Responsible Mapping Partner: IDNR / Madison County

Scope: To supplement the field surveys conducted under Activity 3, IDNR shall obtain additional topographic data of the overbank areas of the flooding sources studied to delineate floodplain boundaries. IDNR shall gather information on what topographic data is available for the given community and what accuracy and currency it meets. IDNR shall use the best available topographic data meeting FEMA standards or as directed by the Regional Project Officer.

Standards: All work under Activity 4 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR shall also make the following products available to FEMA by submitting it to the FEMA Regional Office, or RMC as directed, via the digital media identified in the paragraph above, if the necessary version of the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

- Digital topographic maps;
- Report summarizing methodology and results;
- Mass points and breaklines data;
- Digital work maps with contours;
- Checkpoint analyses to assess the accuracy of data, including Root Mean Square Error calculations to support vertical accuracy;
- Identification of remote-sensing data voids and methods used to supplement data voids;
- National Geodetic Survey data sheets for Network Control Points used to control remote- sensing and ground surveys
- Certification from County that the data meets the required accuracy standards in FEMA's Consolidated Guidelines and Specifications
- Metadata compliant with Federal Geographic Data Committee standards
- NSP Format Terrain 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: Indiana Department of Natural Resources

Scope: The Indiana Department of Natural Resources shall perform hydrologic analyses for approximately 15.7 square miles of drainage area for the flooding source(s) listed earlier in this MAS. The Indiana Department of Natural Resources shall calculate peak flood discharges for the 1-, and 0.2-percent-annual-chance storm events using the HEC-HMS computer program.

By a Memorandum of Understanding of May 6, 1976, the U. S. Soil Conservation Service (now known as the Natural Resources Conservation Service), the U. S. Geological Survey (USGS), the Corps of Engineers, (Louisville, Detroit and Chicago Districts), and the Indiana Department of Natural Resources mutually agreed to coordinate discharge-frequency values for use in water resources investigations and planning activities in the State of Indiana. The method by which this coordination is achieved is described in the Memorandum. This coordination process will serve as the QA/QC for the hydrologic analysis in lieu of Activity 7.

If Geographic Information System (GIS)-based modeling is used, the Indiana Department of Natural Resources 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 non-commercial (i.e., custom-developed) software is used for the analysis, then The Indiana Department of Natural Resources 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 of this MAS.

Deliverables: Upon completion of hydrologic modeling for Foster Branch, the Indiana Department of Natural Resources shall upload the digital data to the MIP or submit by using other digital media if the necessary version of the MIP is unavailable.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the Indiana Department of Natural Resources shall make the following products available to FEMA by submitting it to the FEMA Regional Office, or RMC as directed, via the digital media identified in the paragraph above, if the necessary version of 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.

- Digital copies of all hydrologic modeling (input and output) files for the 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.
- 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.

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: Indiana Department of Natural Resources and their contractor, Clark Dietz, Inc.

Scope: Clark Dietz, Inc. shall perform hydraulic analyses for approximately 5.57 miles of the flooding sources listed earlier in this MAS. The modeling will include the 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Activity 6. The hydraulic method used for this analysis will be HEC-RAS.

Clark Dietz, Inc. 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.

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

Clark Dietz, Inc. 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 non-commercial (i.e., custom-developed) software is used for the analyses, then Clark Dietz, Inc. shall provide full user documentation, technical algorithm documentation, and software to FEMA for review before performing the hydraulic analyses

Additionally, the IDNR has completed a leverage study for the White River that will be incorporated into this remapping effort.

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

Deliverables: Upon completion of hydraulic modeling for Foster Branch and Boland Ditch, Clark Dietz, Inc. upload the digital data to the MIP or submit by using other digital media if the necessary version of the MIP is unavailable, so that the Indiana Department of Natural Resources can access it for the independent QA/QC review under Activity 9. Clark Dietz, Inc. 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*, Clark Dietz, Inc. shall make the following products available to FEMA submitting it to the FEMA Regional Office, or RMC as directed, via the digital media identified in the paragraph above, if the necessary version of the MIP is unavailable. .

- Digital profiles of the 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/firm_gsam.pdf.

Activity 9 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: Indiana Department of Natural Resources

Scope: The Indiana Department of Natural Resources shall review the technical, scientific, and other information submitted by Clark Dietz, Inc. 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 the Indiana Department of Natural Resources 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 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the Indiana Department of Natural Resources 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, or RMC as directed, if the necessary version of 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.
- 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.

Activity 10 - Floodplain Mapping (Detailed Riverine or Coastal Analysis)

Responsible Mapping Partner: Indiana Department of Natural Resources and their contractor, Clark Dietz, Inc.

Scope: Clark Dietz, Inc. shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries (if required) for the flooding sources for which detailed hydrologic, and/or hydraulic, and/or coastal analyses were performed. Clark Dietz, Inc. shall incorporate all new, leveraged or revised hydrologic, hydraulic, and/or coastal modeling and shall use the topographic data acquired under Activity 4 to delineate the floodplain and regulatory floodway boundaries on a digital work map. In addition, Clark Dietz, Inc. shall incorporate the results of all effective Letters of Map Change (LOMCs) within the revised areas as appropriate. Also, Clark Dietz, Inc. shall address all concerns or questions regarding Activity 10 that are raised by the Indiana Department of Natural Resources during the independent QA/QC review under Activity 11.

Activity 10A - Floodplain Mapping (Redelineation of Detailed Floodplain Boundaries Using Updated Topographic Data)

Responsible Mapping Partner: Indiana Department of Natural Resources and their contractor, Clark Dietz, Inc.

Scope: Clark Dietz, Inc. shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries and coastal high hazard zones (if required) for the flooding sources listed earlier in this MAS. Clark Dietz, Inc. shall use the topographic data acquired under Activity 4 to delineate the floodplain and regulatory floodway boundaries as appropriate on a digital work map. If the new topographic data do not reflect the same hydraulic characteristics as in effective study, Clark Dietz,

- Review the flood insurance risk zones as shown on the work maps to ensure they are labeled properly.
- Review the DFIRM mapping files to ensure they were prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- Review the metadata files to ensure they include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All work under Activity 11 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the Indiana Department of Natural Resources shall make the following products available to FEMA by uploading the digital data to MIP or submitting it to the FEMA Regional Office, or RMC as directed, if the necessary version of 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 QA/QC review, noting any deficiencies in or agreeing with the mapping results;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated work map with all questions and/or concerns indicated, if necessary.
- If the data changed during the QA/QC process, then the updated deliverables from Activity 10, 10A and 10B 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.

Activity 12 - Base Map Acquisition

Responsible Mapping Partner: Indiana Department of Natural Resources

Scope: Activity 12 consists of obtaining the digital base map for the project. The base map information shall be obtained from Madison County. The Indiana Department of Natural Resources shall provide the digital base map for use by all of the various partners. The required activities are as follows:

- Obtain digital files (raster or vector) of the base map.
- Secure necessary permissions from the map source to allow FEMA's use and distribution of hardcopy and digital map products using the digital base map, free of charge.
- Certify that the digital data meets the minimum standards and specifications that FEMA requires for DFIRM production.
- Populate the DFIRM database with the information required by FEMA.

Standards: All work under Activity 12 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, The Indiana Department of Natural Resources shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Written certification that the digital data meet the minimum standards and specifications and
- Documentation that FEMA can use the digital base map.

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

Activity 15 - Preliminary DFIRM and FIS Report Distribution

Responsible Mapping Partners: Indiana Department of Natural Resources

Scope: Activity 15 consists of the final preparation, review, and distribution of the Preliminary copies of the DFIRM and FIS report for community official and general public review and comment. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. The activities to be performed are summarized below.

Preliminary FIS Compilation. The Indiana Department of Natural Resources shall merge new and effective FIS text, tables, and profiles and produce one countywide FIS report.

Preliminary Transmittal Letter Preparation. The Indiana Department of Natural Resources shall prepare letters and transmit the Preliminary copies of the DFIRM and FIS report and related enclosures to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA. This letter may be prepared for FEMA only or FEMA and Indiana Department of Natural Resources signature.

Final QA/QC Review of Preliminary DFIRM and FIS Report: The Indiana Department of Natural Resources shall perform a final QA/QC review of the Preliminary DFIRM and FIS report, including all data tables, Flood Profiles, and other components of the FIS report. The QA/QC review procedures shall be consistent with the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Discrepancy Resolution: The Indiana Department of Natural Resources shall work to resolve discrepancies identified during the final QA/QC review.

Distribution of Preliminary DFIRM and FIS Report: The Indiana Department of Natural Resources shall distribute the Preliminary copies of the DFIRM and FIS report to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

News Release Preparation: The Indiana Department of Natural Resources shall prepare news release notifications of BFE changes for all affected communities if appropriate and perform QA/QC reviews of the notices for accuracy and compliance with FEMA format requirements. The Indiana Department of Natural Resources shall file the notifications for later submittal to FEMA for review.

Preliminary Summary of Map Actions (SOMA) Preparation: The Indiana Department of Natural Resources shall prepare Preliminary SOMAs for all affected communities if appropriate. The SOMA shall

Processing of Letter of Final Determination: PBS & J shall work with FEMA and the Indiana Department of Natural Resources to establish the effective date for the DFIRM and FIS report, and shall prepare a Letter of Final Determination (LFDs) for each affected community for FEMA review in accordance with the FEMA *Document Control Procedures Manual*. They also shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs and enclosures upon receipt of authorization from FEMA.

Processing of Final DFIRM and FIS Report for Printing: The Indiana Department of Natural Resources shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to the FEMA Map Service Center for printing by the U.S. Government Printing Office. The NSP shall prepare the appropriate paperwork to accompany the DFIRM and FIS report (including Print Processing Worksheet, Printing Requisition Forms, and Community Map Actions Form) and transmittal letters to the community CEOs.

Revalidation Letter Processing. PBS & J shall prepare and distribute letters for FEMA signature to the community CEOs and floodplain administrators to notify the affected communities about LOMCs for which determinations will remain in effect after the DFIRM and FIS report become effective.

Archiving Data: The Indiana Department of Natural Resources shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until they are transmitted to the FEMA Engineering Study Data Package Facility. In addition, the Indiana Department of Natural Resources will maintain copies of all data for a period of no less than 3 years.

Standards: All work under Activity 16 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the FEMA *Document Control Procedures Manual*, FEMA's Contractor and/or the Indiana Department of Natural Resources shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Documentation that the news releases were published in accordance with FEMA requirements;
- Documentation that the appropriate *Federal Register* notices (Proposed and Final Rules) were published in accordance with FEMA requirements;
- Draft and final Special Correspondence (and all associated enclosures, backup data, and other related information) for FEMA review and signature as appropriate;
- Draft and final Appeal and Protest acknowledgment, additional data, and resolution letters (and all associated enclosures, backup data, and other related information) for FEMA review and signature as appropriate;
- Draft and final LFDs (and all associated enclosures, backup data, and other related information) for FEMA review and signature;
- DFIRM negatives and final FIS report materials, including all updated data tables and Flood Profiles;
- Paperwork for the final DFIRM and FIS report materials;

- Transmittal letters for the printed DFIRM and FIS report;
- LOMC Revalidation Letters;
- Complete, organized archived technical and administrative support data
- Complete, organized and archived case file and flood elevation docket

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 download on the FEMA Web site 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.

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	4	5	6, 6 A	7, 7 A	8	9	10, 10 A, 10 B	11	12	13, 13A	14, 14A	15	16
General Documentation																
Special Problem Reports	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Telephone Conversation Reports	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Meeting Minutes/Reports	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
General Correspondence	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Engineering Analyses																
Hydrologic Analyses			X			X	X	X	X	X	X					
Hydraulic Analyses			X			X	X	X	X	X	X					
Key to Cross-Section Labeling			X			X	X	X	X	X	X					
Key to Transect Labeling			X			X	X	X	X	X	X					
Draft FIS Report						X	X	X	X							
Mapping Information	X	X		X	X					X	X	X	X	X	X	X
Miscellaneous Reference Information	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin on July 1, 2005, and will be completed no later than June 30, 2007. The mapping activities may be terminated at the option of FEMA or the Indiana Department of Natural Resources in accordance with the provisions of the Partnership Agreement dated April 29, 2004. 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

FEMA is providing funding, in the amount of _____) to the Indiana Department of Natural Resources for the completion of this Flood Map Project. The Indiana Department of Natural Resources 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. The CTP Leverage listed below includes in-kind services and blue book values for acquired information (i.e. base map data, hydrologic and hydraulic analyses, etc.).

Additional work needed to complete project		% of Project	Managed by	FEMA Contribution	CTP Contribution	% Leverage	Total Project Cost
Activity 4	Topographic Data Development	37%	IDNR	\$0	\$0	100%	\$1,000,000
Activity 6	Hydrologic Analyses	1%	IDNR			75%	\$100,000
Activity 8	Hydraulic Analyses	15%	Clark Dietz			75%	\$1,500,000
Activity 9	Independent QA/QC Review of Hydraulic Analyses	1%	IDNR		\$0	0%	\$100,000
Activity 9	Independent QA/QC Review of Hydraulic Analyses (Leverage)	5%	Clark Dietz	\$500,000	\$0	0%	\$500,000
Activity 10	Floodplain Mapping (Detailed Riverine or Coastal Analysis)	8%	Clark Dietz			76%	\$1,000,000
Activity 10A	Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	10%	Clark Dietz		\$0	0%	\$1,000,000
Activity 10B	Floodplain Mapping (Refinement or Creation of Zone A)	12%	Clark Dietz		\$0	0%	\$1,200,000
Activity 11	Independent QA/QC Review of Floodplain Mapping (Revised Areas)	1%	IDNR		\$0	0%	\$100,000

Activities	FUNDABLE?
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															
	1	2	3	4	5	6, 6A	7, 7A	8	9	10, 10 A, 10 B	11	12	13, 13A	14, 14A	15	16
Applicable Standards																
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003			X		X	X	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, <i>Photogrammetric Mapping</i> (USACE), July 1, 2002			X		X											
Engineer Manual 1110-2-1003, <i>Hydrographic Surveys</i> (USACE), January 1, 2002			X													
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003						X				X	X	X				
<i>Content Standard for Digital Geospatial Metadata</i> (Federal Geographic Data Committee),					X										X	X

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
		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
10	Floodplain Mapping (Detailed Riverine or Coastal Analysis)	Volume 1, Section 1.4 (specifically Subsection 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, M, and N
10A	Floodplain Mapping (Redefinition Using Effective Flood Profiles and Updated Topographic Data)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.3) Appendix C, Section C.6 (specifically Subsection C.6.1.3) Appendices K, L, M, and N
10B	Floodplain Mapping (Refinement or Creation of Zone A)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendices K, L, M, and N
11	Independent QA/QC	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.3)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
	Review of Floodplain Mapping (Revised Areas)	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
12	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)
15	Preliminary DFIRM and FIS Report Distribution	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
16	Post-Preliminary Processing	Volume 1, Section 1.5 (specifically Subsection 1.5.2) Appendices J, K, L, and M

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

- 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.

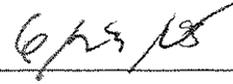
SECTION 12—POINTS OF CONTACT

The points of contact for this Flood Map Project are Mary Jo Mullen, the FEMA Regional Project Officer; David Knipe, the Project Manager for the Indiana Department of Natural Resources; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, 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.



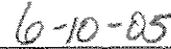
Todd P. Tande
Deputy Director
Indiana Department of Natural Resources



Date



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



Date