FEMA

Indiana Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. 05-04 – 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. 05-04 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 Delaware 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	Redelin-eation of SFHAs Using Effective Profiles	Refine/ Establish Zone A
			Hydrology	Hydraulics			
Muncie Creek	Mouth to Norfolk & Western RR	4.97	X	X			
White River	Madison County Line to Randolph County Line	30.29			X		
Jakes Creek	Mouth to Conrail RR	8.49				X	

Bell Creek	Mouth to Henry County Line	6.22					X
Mud Creek (Trib to Killbuck Creek)	Mouth to CR 200 East	5.18					X
Pipe Creek	Madison County Line to CR 600 West (3rd Crossing)	6.84					X
Yeager Finley Manard Ditch	Mouth to CR 600 North	3.68					X
Shoemaker Ditch	Mouth to CR 800 West	4.06					X
Stewart Ditch	Mouth to CR 600 West	2.05					X
Stoney Creek	Randolph County Line to Henry County Line	3.59					X
Stoney Creek	Mouth to Randolph County Line	0.6					X
Williams Creek	Mouth to Henry County Line	5.33					X
Mississinewa River	CR 800 North to Detailed Study (Albany)	6.31					X
Mississinewa River	Grant County Line to Detailed Study (Eaton)	6.99					X
Mud Creek	Mouth to CR 100 North	5.57					X
Buck Creek	Mouth to Henry County Line	14.84					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)

- Prison Enterprises Network (PEN)
- PBS & J (IDIQ); and
- Michael Baker Engineering (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 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	

Activities	CTP	FEMA
Activity 13 – DFIRM Production (Non-Revised Areas)		
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		
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 3 - Field Surveys and Reconnaissance

Responsible Mapping Partner: Indiana Department of Natural Resources

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 of this MAS.

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 necessary version of the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

- 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 4 - Topographic Data Development

Responsible Mapping Partner: IDNR / Delaware 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 10 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 Muncie Creek, 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 the 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 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: IDNR, and their contractor Clark Dietz, Inc.

Scope: Clark Dietz, Inc. shall perform hydraulic analyses for approximately 4.92 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 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 throughout the county 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 Muncie Creek, 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 the RMC as directed, via the digital media identified in the paragraph above, if the necessary version of 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-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: 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 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: IDNR, 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 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: IDNR, 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, Inc. shall evaluate the topographic data to determine if changes are significant enough to invalidate the floodplain boundary and regulatory floodway boundary redelineations. If so, Clark Dietz, Inc. shall contact the FEMA Regional Project Officer identified in Section 12 of this MAS with a recommendation. In addition, Clark Dietz, Inc. shall address all concerns or questions regarding Activity 10A that are raised by the Indiana Department of Natural Resources during the independent QA/QC review under Activity 11.

Activity 10B - Floodplain Mapping (Refinement or Creation of Zone A)

Responsible Mapping Partner: IDNR, and their contractor Clark Dietz, Inc.

Scope: Clark Dietz, Inc. shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources listed earlier in this MAS or in the Scoping Report. Clark Dietz, Inc. shall use existing topographic data or the topographic data acquired under Activity 4 to delineate the floodplain boundaries on a digital work map. In addition, Clark Dietz, Inc. shall address all concerns or questions regarding Activity 10B that are raised by the Indiana Department of Natural Resources during the independent QA/QC review under Activity 11.

Clark Dietz, Inc. 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 identified in Section 12 of this MAS before analysis and mapping begin.

Standards: All work under Activity 10, 10A, and 10B shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables for Activities 10 / 10A / 10B: Upon completion of floodplain mapping for all flooding sources listed in Table 1, Clark Dietz, Inc. shall 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 11. The mapping for the remaining flooding sources is to be submitted for a final QA/QC review at the completion of this activity.

In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Clark Dietz, Inc. shall make the following products available to by submitting it to the FEMA Regional Office, or the 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 work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
- 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 floodplain mapping tasks;
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined under Activity 9; and
- An explanation for the use of existing topography for the studied reaches, if appropriate.
- Written summary of the analysis methodologies;
- Any backup or supplemental information, including supporting calculations and assumptions for any computed 1-percent-annual-chance water-surface elevations used in the mapping required for the independent QA/QC review under Activity 11;

- Digital versions of input and output for any computer programs that were used;
- NSP Format Mapping Database or Data Delivery consistent with the NSP Data Capture Standards –Appendix N of the Guidelines and Specifications for Flood Mapping Partners
- If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

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

Activity 11 - Independent QA/QC Review of Floodplain Mapping (Revised Areas)

Responsible Mapping Partner: Indiana Department of Natural Resources

Scope: The Indiana Department of Natural Resources shall review the floodplain mapping submitted by Clark Dietz, Inc. under Activities 10, 10A, and 10B to ensure that the results of the analyses performed are accurately represented. 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 cross sections for proper location and orientation on the work map and agreement with the Floodway Data Table.
- Review the BFEs shown on the work map for proper location and agreement with the results of the hydraulic modeling.
- Review the regulatory floodway widths for agreement with the widths shown in the Floodway Data Table and the results of the hydraulic modeling.
- Review the floodplain boundaries for agreement with the flood elevations shown in the Floodway Data Table and the contour lines and other topographic information shown on the work maps.
- Review the floodplain widths at cross sections as shown on the work maps to ensure they match the Floodway Data Table.
- Review the floodplain boundaries as shown on the work maps to ensure they match the Flood Profiles.
- 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 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 Delaware 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 list pertinent information regarding LOMCs that will be affected by the issuance of the DFIRM (i.e., superseded, incorporated, revalidated).

Standards: All work under Activity 15 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.* The Indiana Department of Natural Resources shall make the products listed below available to FEMA in accordance with the schedule outlined in Section 6 for this Activity.

- Preliminary transmittal letters shall be prepared and transmitted. These letters and any additional letters requested by FEMA shall be prepared in accordance with the current version of the FEMA Document Control Procedures Manual.

- Preliminary copies of the DFIRM and FIS report, including all updated data tables and Flood Profiles shall be mailed to the Chief Executive Officer (CEO) and /or floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others, as directed by FEMA.

- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be provided as appropriate.

- Revised DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided by uploading the digital data to the MIP or submitting it by using other digital media if the necessary version of the MIP is unavailable.

- Revised DFIRM database files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided by uploading the digital data to the MIP or submitting it by using other digital media if the necessary version of the MIP is unavailable.

- Revised metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided by uploading the digital data to the MIP or submitting it by using other digital media if the necessary version of the MIP is unavailable.

- 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 shall be provided.

Activity 16 - Post-Preliminary Processing

Responsible Mapping Partners: Indiana Department of Natural Resources, FEMA and their contractor PBS&J

Scope: Activity 16 consists of finalizing the DFIRM and FIS report after the Preliminary copies of the DFIRM and FIS report have been issued to community officials and the public for 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.

Initiation of Statutory 90-Day Appeal Period: When required, upon completion of final coordination meeting with the all communities in the project area, FEMA and/or PBS & J shall arrange for and verify that the following activities are completed in accordance with the current version of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*:

- Proposed BFE determination letters are sent to the community CEOs and floodplain administrators.

- News release notifications of BFE changes are published in prominent newspapers with local circulation in accordance with 44 CFR.

- PBS & J shall prepare the appropriate notices (Proposed Rules) are are to be published in the *Federal Register*. PBS & J shall then deliver those notices to FEMA for publication.

- When the Indiana Department of Natural Resources holds public meetings to present and discuss the results of this Flood Map Project, FEMA may attend the meetings and assist where possible if requested, or as FEMA deems necessary.

Resolution of Appeals and Protests: The Indiana Department of Natural Resources shall review and resolve appeals and protests received during the 90-day appeal period. For each appeal and protest, the following activities shall be conducted as appropriate:

- Initial processing and acknowledgment of submittal;
- Technical review of submittal;
- Preparation of letter(s) requesting additional supporting data;
- Performance of revised analyses; and
- Preparation of a draft resolution letter for cosignature with FEMA and the Indiana Department of Natural Resources and revised DFIRM and FIS report materials for FEMA review.

PBS&J, the NSP and/or the Indiana Department of Natural Resources shall mail all associated correspondence upon authorization by FEMA.

Preparation of Special Correspondence: The Indiana Department of Natural Resources shall support FEMA in responding to comments not received within the 90-day appeal period (referred to as "special correspondence"), including drafting responses for FEMA review when appropriate and finalizing responses for cosignature. The Indiana Department of Natural Resources also shall mail the final correspondence (and enclosures if appropriate) and distribute appropriate copies of the correspondence and enclosures upon receipt of authorization from FEMA.

Revision of FIRM and FIS Report: If necessary, the Indiana Department of Natural Resources shall work together with FEMA to revise the DFIRM and FIS report and shall distribute Revised Preliminary copies of the DFIRM and FIS report to the CEO and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

Final SOMA Preparation: IDNR shall prepare Final SOMAs for the affected communities as appropriate.

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, 6A	7, 7A	8	9	10, 10A, 10B	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.). More detailed leverage information will be determined during the detailed scoping process and reported back to FEMA at that time.

[NOTE: See general comments regarding updating/revising leverage]

Additional work needed to complete project		% of Project	Managed by	FEMA Contribution	CTP Contribution	% Leverage	Total Project Cost
Activity 3	Field Surveys and Reconnaissance	2%	IDNR				
Activity 4	Topographic Data Development	26%	IDNR	$0			
Activity 6	Hydrologic Analyses	1%	IDNR				
Activity 8	Hydraulic Analyses	15%	Clark Dietz				
Activity 9	Independent QA/QC Review of Hydraulic Analyses	1%	IDNR		$0	0%	
Activity 9	Independent QA/QC Review of Hydraulic Analyses (Leverage)	5%	Clark Dietz		$0	0%	
Activity 10	Floodplain Mapping (Detailed Riverine or Coastal Analysis)	8%	Clark Dietz				
Activity 10A	Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	12%	Clark Dietz		$0	0%	
Activity 10B	Floodplain Mapping (Refinement or Creation of Zone A)	20%	Clark Dietz		$0	0%	
Activity 11	Independent QA/QC Review of	3%	IDNR		$0	0%	

	Floodplain Mapping (Revised Areas)						
Activity 12	Base Map Acquisition	6%	IDNR	$0		0%	
Activity 15	Preliminary DFIRM and FIS Report Distribution	0%	IDNR (05)		$0	0%	
Activity 16	Post-Preliminary Processing	2%	IDNR		$0	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
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

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

1998																
Document Control Procedures Manual, December 2000															X	X
44 Code of Federal Regulations Part 66 and 67																

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
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
4	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
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

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 (Redelineation 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)

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.

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 3 – Field Surveys and Reconnaissance	IDNR	9/30/2005
Activity 4 – Topographic Data Development	IDNR	
Activity 6 –Hydrologic Analyses	IDNR	9/30/2005
Activity 8 – Hydraulic Analyses	CDI	12/31/2005
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	IDNR	3/31/2006
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis) Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data) Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	CDI	3/31/2006
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	IDNR	3/31/2006
Activity 12 – Base Map Acquisition	IDNR	9/30/2005
Activity 15 – Preliminary DFIRM and FIS Report Distribution	IDNR	6/30/2006
Activity 16 – Post-Preliminary Processing	IDNR	6/30/2007

SECTION 7—CERTIFICATIONS

Activity 3 (Field Surveys and Reconnaissance) and Activity 4 (Topographic Data Development)

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), Activity 10 (Floodplain Mapping– Detailed Riverine or Coastal Analysis), Activity 10A (Floodplain Mapping {Redelineation Using Effective Flood Profiles and Updated Topographic Data}), and Activity 10B (Floodplain Mapping {Refinement or Creation of Zone A})

SECTION 9—CONTRACTORS

The Indiana Department of Natural Resources intends to use the services of Clark Dietz, Inc. as a contractor for this Flood Map Project. The Indiana Department of Natural Resources 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 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 Indiana Department of Natural Resources by FEMA, financial reporting requirements for the Indiana Department of Natural Resources will be in accordance with Cooperative Agreement Articles V and VI.

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.

The Indiana Department of Natural Resources 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 Indiana Department of Natural Resources 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. The Indiana Department of Natural Resources shall work with the FEMA Project Officer to establish an acceptable protocol for reporting of project information at the beginning of each project. The Indiana Department of Natural Resources will update the Multi-Hazard Information Platform (MIP) on a monthly basis. If the necessary version of 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 Indiana Department of Natural Resources 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:

- 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).
- Any levee systems to be accredited will be certified in accordance with 44 CFR 65.10(e).

Activity 10 (Floodplain Mapping– Detailed Riverine or Coastal Analysis), Activity 10A (Floodplain Mapping {Redelineation Using Effective Flood Profiles and Updated Topographic Data}), and Activity 10B (Floodplain Mapping {Refinement or Creation of Zone A}), Activity 11 (Independent QA/QC Review of Floodplain Mapping {Revised Areas}), Activity 13 (DFIRM Production {Non-Revised Areas}), Activity 14 (DFIRM Production {Merging Revised and Non-Revised Information}), and Activity 14A (DFIRM Production {Application of FEMA Graphics and Database Specifications})

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

Activity 12 (Base Map Acquisition and Preparation)

- A community official or responsible party shall provide written certification that the digital data meet FEMA minimum standards and specifications.
- The responsible Mapping Partner shall provide documentation that the digital base map can be used by FEMA. Please note that uploading base map data to the MIP does not constitute agreement that the digital base map can be used by FEMA. Documentation that the digital base map can be used by FEMA will still be required.

Certifications must be made at the time the intermediate data is submitted. For example, if hydrologic data is submitted, certification will be required at the time it is submitted.

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 the NSP, who may be contacted through 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 Web site (http://www.fema.gov./fhm/). Specific technical and programmatic support may be provided through the NSP; such assistance should be requested through the FEMA Project Officer specified in Section 12 of this MAS.

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.

- Meetings, teleconferences, and videoconfernces with FEMA and other Project Team members quarterly;
- 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 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

6/23/05
Date

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

6-10-05
Date