



# FEMA

## Ohio Department of Natural Resources, Division of Water COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

### Mapping Activity Statement No. 1 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated May 14, 2004 between the Ohio Department of Natural Resources and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 1 is as follows.

#### SECTION 1—OBJECTIVE AND SCOPE

The objective of the Flood Map Project documented in this MAS is to develop detailed digital flood hazard data for 14 stream reaches in Ohio. The communities affected by the flood hazards identified in these studies are the City of Athens, Village of Trimble, Athens County unincorporated, Village of Caldwell, Noble County unincorporated, Village of Crooksville, Village of Corning, Perry County unincorporated, Village of Dresden, Village of Frazeytsburg, Muskingum County unincorporated, Jackson County unincorporated, Lawrence County unincorporated, Ross County unincorporated, Village of Vinton, Gallia County unincorporated, Village of New Boston, and City of Portsmouth. The digital flood hazard data will be created in accordance with the FEMA draft DFIRM standards.

The Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in the table below.

Flooding Source	Reach Limit	Detailed Hydrologic Analyses	Detailed Hydraulic Analyses	Limited Detail Study	Refinement or Creation of Zone A	Coastal Analysis	Floodplain Mapping
Sunday Creek	The entire reach within the Village of Corning, Perry Co. - 1.4 miles	X	X				X
Sunday Creek	The entire reach within the Village of Trimble, Athens Co. - 1.0 mile	X	X				X
Moxahala Creek	Village of Crooksville and Perry County from SR 669, upstream to the downstream limit of detailed study from the Crooksville FIS/FIRM - 1.2 miles	X	X				X
Wakatomika Creek	Village of Dresden and Muskingum County, from the 1 <sup>st</sup> RR bridge upstream of the mouth to approx. 1 mile upstream - 1.0 mile	X	X				X
Wakatomika Creek	Village of Frazzysburg and Muskingum County from Shannon Rd. approx. 1.1 mi upstream to Canal Rd. - 1.1 miles	X	X				X
Margaret Creek	City of Athens and Athens County From the mouth, upstream to S.R. 56 - 1.5 miles	X	X				X
Hocking River	Athens County from the downstream limit of detailed study upstream of CR 24A on the Athens County FIRM, 390760 0175 B to a former RR crossing approx. 3.4 mi downstream - 3.4 miles	X	X				X

West Fork Duck Creek	Noble County from the south corporation limits of Belle Valley, downstream to the confluence of Dog Run - 2.5 miles	X	X							X
Pigeon Creek	Jackson County from TR 31 to the 2 <sup>nd</sup> RR crossing downstream of the unincorporated town of Byer - 2.0 miles	X	X							X
Indian-Guyan Creek	Lawrence County from upstream limit of detailed study on the Lawrence County FIRM, 390325 0140 B to approximately 1000' upstream of TR 401 - 1.5 miles	X	X							X
Salt Run	From confluence with West Fork Duck Creek to just upstream of SR 564 - 1.0 mile	X	X							X
Kinnikinnick Creek	From confluence with the Scioto River to just upstream of SR 159 - 1.7 miles	X	X							X
Munn Run	Village of New Boston and City of Portsmouth, Scioto County from US 52 westbound to 600' upstream of Dever St. - 1.2 miles	X	X							X
Raccoon Creek	The entire reach within the Village of Vinton continuing into Gallia County, unincorporated approximately one mile downstream - 3.0 miles	X	X							X

This Flood Map Project will be completed by the following

- The Ohio Department of Natural Resources, Division of Water;
- Baker Engineering, Inc.

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.

Activity 3 – Field Surveys and Reconnaissance	X	
Activity 6 –Hydrologic Analyses	X	
Activity 7–Independent QA/QC Review of Hydrologic Analyses		X
Activity 8 – Hydraulic Analyses	X	
Activity 9 – Independent QA/QC Review of Hydraulic Analyses		X
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	X	
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)		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.

If the CTP chooses not to use these production tools, then the CTP will be required to submit intermediate project data at major milestones in each Mapping Project in accordance with data capture standards. Submitting data in these standards will aid in more efficient quality control reviews, data storage, archiving, and for future study updates.

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

- Hydrology Completed (draft and final)

- Hydraulics Completed (draft and final)
- Coastal Analysis Completed (draft and final)
- DFIRM Mapping (draft)

QA/QC review activities may be performed by CTPs or the NSP at the discretion of FEMA. Please note the NSP will also be performing periodic audits and overall study/project management to ensure study quality.

FEMA will eventually 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 6 – Hydrologic Analyses

**Responsible Mapping Partner:** The Ohio Department of Natural Resources, Division of Water

**Scope:** The Ohio Department of Natural Resources, Division of Water shall perform hydrologic analyses for the drainage areas for the flooding source(s) listed earlier in this MAS. Drainage areas are listed in the table below. The Ohio Department of Natural Resources, Division of Water shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using the methods or computer programs listed below. These flood discharges will be the basis for subsequent hydraulic analyses under Activity 8. In addition, The Ohio Department of Natural Resources, Division of Water shall address all concerns or questions regarding Activity 6 that are raised during the independent QA/QC review performed by FEMA’s NSP under Activity 7.

Community	Watercourse	Drainage Area	Method/computer program
<b>Group A</b>			
Village of Dresden and Muskingum County	Wakatomika Creek	234 sq. mi.	USGS regression equations, data extrapolation for 0.2% event
Village of Frazeyburg and Muskingum County	Wakatomika Creek	155 sq. mi.	USGS regression equations, data extrapolation for 0.2% event
Ross County	Kinnikinnick Creek	38 sq. mi.	USGS regression equations, data extrapolation for 0.2% event
Village of Coming	Sunday Creek	9.7 sq. mi	USGS regression equations, data extrapolation for 0.2% event

<b>Group B</b>			
Village of Caldwell and Noble County	Salt Run	6.2 sq. mi.	USGS Regression Equations, data extrapolation for 0.2% event
	West Fork Duck Creek	56.8 sq. mi.	TR-20, data extrapolation for 0.2% event
Village of Crooksville and Perry County	Moxahala Creek	67.9 sq. mi.	HEC-HMS, data extrapolation for 0.2% event
Lawrence County	Indian-Guyan Creek	62.2 sq. mi.	Flows obtained from FIS
Noble County	West Fork Duck Creek	50.3 sq. mi.	TR-20, data extrapolation for 0.2% event
Village of New Boston and City of Portsmouth	Munn Run	7.3 sq. mi.	HEC-HMS, data extrapolation for 0.2% event
<b>Group C</b>			
City of Athens and Athens County	Margaret Creek	59.8 sq. mi.	TR-20, data extrapolation for 0.2% event
Jackson County	Pigeon Creek	31.4 sq. mi.	HEC-HMS, data extrapolation for 0.2% event
Village of Trimble	Sunday Creek	108 sq. mi.	Bulletin 17B gage analysis
Athens County	Hocking River	1000 sq. mi.	Data extrapolation from FIS data
Village of Vinton and Gallia County	Raccoon Creek	386 sq. mi.	Data extrapolation from FIS data

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

**Deliverables:** Submission of the hydrologic analyses will be separated into three groups as listed above. The submissions will be staggered, by group, so that the independent review under Activity 7 can commence as ODNR continues to work on the remaining studies. Upon completion of hydrologic modeling for "Group A" of the flooding sources listed above, the Ohio Department of Natural Resources, Division of Water shall submit the results to FEMA's NSP for an independent QA/QC review under

Activity 7. The Ohio Department of Natural Resources, Division of Water shall submit the results of the hydrologic analyses for Group B and Group C upon completion of the hydrologic modeling for each group. The anticipated phasing of the submissions is indicated in Section 6 of the MAS. Following receipt of comments from the NSP the Ohio Department of Natural Resources, Division of Water shall submit the results of revised hydrologic analyses for the flooding sources for a final QA/QC review, as necessary, 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*, the Ohio Department of Natural Resources, Division of Water shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events where computer modeling was performed;
- Hardcopies of hand calculations and paper work maps;
- Digital and hardcopy versions of a Summary of Discharges Table presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital and hardcopy versions of draft text for Section 3.1, Hydrologic Analyses, of the FIS report; and
- Digital and hardcopy versions of all backup data used in the analysis, including work maps.
- NSP Format Hydrology Database or Intermediate 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](http://www.fema.gov/pdf/fhm/frm_gsam.pdf).

### **Activity 7 - Independent QA/QC Review of Hydrologic Analyses**

**Responsible Mapping Partner:** FEMA's NSP

**Scope:** FEMA's NSP shall review the technical, scientific, and other information submitted by the Ohio Department of Natural Resources, Division of Water under Activity 6 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
  - Use of acceptable models;
  - Use of appropriate methodology(ies);
  - Correctly applied methodology(ies)/model(s), including QC of input parameters;
  - Comparison with gage data and/or regression equations, if appropriate; and

Comparison with discharges for contiguous reaches or flooding sources.

- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

**Standards:** All work under Activity 7 shall be performed in accordance with the standards specified in Section 5 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*, FEMA's NSP shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

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

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at [http://www.fema.gov/pdf/fhm/frm\\_gsam.pdf](http://www.fema.gov/pdf/fhm/frm_gsam.pdf).

## Activity 8 – Hydraulic Analyses

**Responsible Mapping Partner:** The Ohio Department of Natural Resources, Division of Water

**Scope:** The Ohio Department of Natural Resources, Division of Water shall perform hydraulic analyses for approximately 24 miles of the flooding sources listed earlier in this MAS. The modeling will include the 10-, 2-, 1-, and 0.2-percent-annual-chance event based on peak discharges computed under Activity 6. The hydraulic methods used for this analysis will utilize the US Army Corps of Engineers HEC-RAS program.

The Ohio Department of Natural Resources, Division of Water shall use cross-section and field data collected by the Ohio Department of Natural Resources, Division of Engineering to perform the hydraulic analyses. The surveyed cross-section data may be supplemented with contour data from USGS 7.5 minute quadrangle maps if necessary for determination of the 0.2-percent-annual-chance event. In some cases community-provided topographic data may be used to supplement the information obtained from the field surveys. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources. Flood elevations shall be based on the NAVD 88 vertical datum.

The Ohio Department of Natural Resources, Division of Water 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 Ohio Department of Natural Resources, Division of Water shall provide explanations for unresolved messages from the CHECK-RAS program, as appropriate. In addition, the Ohio Department of Natural Resources, Division of Water shall address all concerns or questions regarding Activity 8 that are raised by FEMA's NSP during the independent QA/QC review under Activity 9.

The Ohio Department of Natural Resources, Division of Water 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.

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

**Deliverables:** Submission of the hydraulic analyses will be separated into three groups as listed in Activity 6 above. The submissions will be staggered, by group, so that the independent review under Activity 9 can commence as ODNR continues to work on the remaining studies. Upon completion of hydraulic modeling for "Group A" of the flooding sources listed above, the Ohio Department of Natural Resources, Division of Water shall submit the results to FEMA's NSP for an independent QA/QC review under Activity 9. The Ohio Department of Natural Resources, Division of Water shall submit the results of the hydraulic analyses for Group B and Group C upon completion of the hydraulic modeling for each group. The anticipated phasing of the submissions is indicated in Section 6 of the MAS. Following receipt of comments from the NSP the Ohio Department of Natural Resources, Division of Water shall submit the results of revised hydraulic analyses for the flooding sources for a final QA/QC review, as necessary, 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*, the Ohio Department of Natural Resources, Division of Water shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Digital profiles of the 10-, 2-, 1-, and 0.2-percent-annual-chance water-surface elevations representing existing conditions using the FEMA RASPLLOT program or similar software;
- Digital and hardcopy versions of the Floodway Data Table for each flooding source that is compatible with the DFIRM database;
- Digital and hardcopy versions of all hydraulic modeling (input and output) files;  
Digital and hardcopy versions of table with range of Manning's "n" values;
- Explanations for unresolved messages from the CHECK-RAS program, as appropriate;
- Digital and hardcopy versions of all backup data used in the analyses;
- Digital and hardcopy versions of draft text for inclusion in the FIS report.
- NSP Format Hydraulic Database or Intermediate 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](http://www.fema.gov/pdf/fhm/frm_gsam.pdf).

### **Activity 9 - Independent QA/QC Review of Hydraulic Analyses**

**Responsible Mapping Partner:** FEMA's NSP

**Scope:** FEMA's NSP shall review the technical, scientific, and other information submitted by the Ohio Department of Natural Resources, Division of Water 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. 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-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*, FEMA's NSP shall make the following products available to FEMA:

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

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at: [http://www.fema.gov/pdf/fhm/frm\\_gsam.pdf](http://www.fema.gov/pdf/fhm/frm_gsam.pdf).

## **Activity 10 - Floodplain Mapping (Detailed Riverine Analysis)**

**Responsible Mapping Partner:** The Ohio Department of Natural Resources, Division of Water

**Scope:** The Ohio Department of Natural Resources, Division of Water 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 hydraulic analyses were performed. The Ohio Department of Natural Resources, Division of Water shall incorporate all new or revised hydrologic and hydraulic modeling and shall use contour information obtained from the USGS 7.5 minute quadrangle maps, supplemented with cross-section data acquired from the Ohio Department of Natural Resources, Division of Engineering to delineate the floodplain and regulatory floodway boundaries on a digital work map. In some cases community-provided topographic data may be used to supplement the contour information obtained from USGS. In addition, the Ohio Department of Natural Resources, Division of Water shall address all concerns or questions regarding Activity 10 that are raised by FEMA's NSP during the independent QA/QC review under Activity 11.

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

**Deliverables:** Submission of the floodplain mapping will be separated into three groups as listed in Activity 6 above. The submissions will be staggered, by group, so that the independent review under Activity 11 can commence as ODNR continues to work on the remaining studies. Upon completion of floodplain mapping for "Group A" of the flooding sources listed above, the Ohio Department of Natural Resources, Division of Water shall submit the results to FEMA's NSP for an independent QA/QC review under Activity 11. The Ohio Department of Natural Resources, Division of Water shall submit the results of the floodplain mapping for Group B and Group C upon completion of the floodplain mapping for each group. The anticipated phasing of the submissions is indicated in Section 6 of the MAS. Following receipt of comments from the NSP the Ohio Department of Natural Resources, Division of Water shall submit the results of revised floodplain mapping for the flooding sources for a final QA/QC review, as necessary, 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*, the Ohio Department of Natural Resources, Division of Water shall make the following products available to FEMA 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;  
Digital mapping files in draft DFIRM format, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the digital mapping data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of study areas showing all detailed flood hazard information at a suitable scale;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the digital flood hazard data;
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined under Activity 11; and
- An explanation for the use of existing topography for the studied reaches, if appropriate.

- NSP Format Mapping Database or Intermediate 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](http://www.fema.gov/pdf/fhm/frm_gsam.pdf).

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

**Responsible Mapping Partner:** FEMA's NSP

**Scope:** FEMA's NSP shall review the floodplain mapping submitted by the Ohio Department of Natural Resources, Division of Water under Activity 10 to ensure that the results of the analyses performed are accurately represented. 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 draft DFIRM format 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*, FEMA's NSP shall make the following products available to FEMA:

- 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.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at [http://www.fema.gov/pdf/fhm/fhm\\_gsam.pdf](http://www.fema.gov/pdf/fhm/fhm_gsam.pdf).

## SECTION 2—TECHNICAL AND ADMINISTRATIVE SUPPORT DATA SUBMITTAL

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

All supporting documentation for the activities in this Mapping Activity Statement shall be submitted in the TSDN format in accordance with Appendix M of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated April 2003. Appendix M is available for viewing or download on the FEMA Web site at [http://www.fema.gov/pdf/fhm/fhm\\_gsam.pdf](http://www.fema.gov/pdf/fhm/fhm_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					
	6	7	8	9	10	11
General Documentation						
Special Problem Reports	X	X	X	X	X	X
Telephone Conversation Reports	X	X	X	X	X	X
Meeting Minutes/Reports	X	X	X	X	X	X
General Correspondence	X	X	X	X	X	X
Engineering Analyses						
Hydrologic Analyses	X	X	X	X	X	X
Hydraulic Analyses	X	X	X	X	X	X

Key to Cross-Section Labeling	X	X	X	X	X	X
Draft FIS Report	X	X	X	X		
Mapping Information					X	X
Miscellaneous Reference Information	X	X	X	X	X	X

### SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin on August 1, 2004, and will be completed no later than August 22, 2005. The mapping activities may be terminated at the option of FEMA or the Ohio Department of Natural Resources, Division of Water in accordance with the provisions of the Partnership Agreement dated May 14, 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

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## 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](http://www.fema.gov/fhm/dl_cgs.shtm).

**Table 5-1. Applicable Standards for Project Activities**

	Activities
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Applicable Standards	6	7	8	9	10	11
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , February 2002	X	X	X	X	X	X
American Congress on Surveying and Mapping (ACSM) procedures						
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-58), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997						
EM 1000-1-1000, <i>Photogrammetric Mapping</i> , March 31, 1993						
EM 1110-2-1003, <i>Hydrographic Surveys</i> , October 31, 1994						
Numerical Models Accepted by FEMA for NFIP Usage, January 11, 2002	X	X	X	X		
<i>Content Standards for Digital Geospatial Metadata</i> (Federal Geographic Data Committee, 1998)					X	X
<i>Document Control Procedures Manual</i> , December 2000						

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection and Appendix
6	Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix C, Sections C.1 and C.7 Appendices E, F, G, H, and M
7	Independent QA/QC Review of Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) 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 C, Sections C.3 and C.7 Appendices B, E, F, G, H, and M
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
10	Floodplain Mapping (Detailed Riverine or Coastal Analysis)	Appendices B, E, F, G, H, and M Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendices K, L, and M Appendix C, Sections C.4 and C.6

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
11	Independent QA/QC Review of Floodplain Mapping (Revised Areas)	Appendices K, L, and M

Mapping Activity Statement No. {MAS.No.}  
 {Insert Partner Name}

## 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)	Group A	Group B	Group C
		DATE DUE	DATE DUE	DATE DUE
Activity 6 –Hydrologic Analyses	ODNR, DOW	8/20/04	9/10/04	10/15/04
Activity 7–Independent QA/QC Review of Hydrologic Analyses	FEMA, NSP	10/01/04	10/22/04	11/26/04
Activity 8 – Hydraulic Analyses	ODNR, DOW	1/07/05	2/04/05	3/04/05
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	FEMA, NSP	2/18/05	3/18/05	4/15/05
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	ODNR, DOW	5/27/05	6/10/05	7/01/05
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	FEMA, NSP	7/08/05	7/22/05	8/12/05

## SECTION 7—CERTIFICATIONS

The following certifications apply to this MAS:

### Field Surveys and Reconnaissance

All survey work for these studies was performed by the Ohio Department of Natural Resources, Division of Engineering, with assistance from Division of Water project engineers, under the responsible charge of a licensed Professional Surveyor Registered in the state of Ohio.

### Task 6 (Hydrologic Analyses), Task 8 (Hydraulic Analyses), Task 10 (Floodplain Mapping– Detailed Riverine Analysis)

- A Registered Professional Engineer will certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).

### Task 10 (Floodplain Mapping– Detailed Riverine Analysis), Task 11 (Independent QA/QC Review of Floodplain Mapping {Revised Areas})

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

## **SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES**

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from the MCC or NSP. The MCC may be contacted by telephone at 800-697-7275 x227 until the archives and data are transitioned to the NSP. The Regional Management Center of the NSP can be reached at 312-707-8770.

General technical and programmatic information, such as FEMA 265 and the Quick-2 computer program, can be downloaded from the FEMA Web site ([www.fema.gov/mit/tsd/](http://www.fema.gov/mit/tsd/)). Specific technical and programmatic support may be provided through the MCC or NSP; such assistance should be requested through the FEMA Project Officer specified in Section 11 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.

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## **SECTION 9—CONTRACTORS**

No contractors will be used for completion of the tasks outlined in this Mapping Activity Statement.

## **SECTION 10—REPORTING**

### **FINANCIAL REPORTING:**

Because funding has been provided to Ohio Department of Natural Resources, Division of Water by FEMA, financial reporting requirements for Ohio Department of Natural Resources, Division of Water 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.

Ohio Department of Natural Resources, Division of Water 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 Ohio Department of Natural Resources, Division of Water 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. Ohio Department of Natural Resources, Division of Water shall work with the FEMA Project Officer to establish an acceptable protocol for entry of project information into the Monitoring of Contracted Studies (MICS) database at the beginning of each project. Ohio Department of Natural Resources, Division of Water will update MICS quarterly. If this report proves to be sufficient, the Assistance Officer may waive the written quarterly 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 Ohio Department of Natural Resources, Division of Water staff have been provided access and passwords to MICS. The PO will also provide project-naming conventions for MICS. Once access is provided, MICS (including a tutorial) may be found at: <https://mics.fema.gov>. As the Mapping Information Portal (MIP) project management modules become available and ultimately replace MICS, the MIP tracking tools will be used for this reporting.

## **Section 11—PROJECT COORDINATION**

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

- Meetings, teleconferences, and videoconferences with FEMA and other Project Team members as required;
  - Telephone conversations with FEMA and other Project Team members on a scheduled basis and an ad hoc basis, as required;
  - Updates to the Monitoring Information on Contracted Studies system (MICS), Mapping Needs Update Support System database, and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- E-mail, facsimile transmissions, and letters, as required.

## **SECTION 12—POINTS OF CONTACT**

The points of contact for this Flood Map Project are Mary Jo Mullen, the FEMA Regional Project Officer; and George Meyers, the Project Manager for Ohio Department of Natural Resources, Division of Water; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the assistance of the MCC or NSP should be requested through the FEMA Project Officer, Mary Jo Mullen.

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

  
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Richard S. Bartz  
Chief  
Ohio Department of Natural Resources, Division of Water

7-6-2009  
Date

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

7-14-2009  
Date