



FEMA

SHERBURNE COUNTY, MN COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. 2005-01 Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated October 28, 2003 between Sherburne County and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 2005-01 for Sherburne County 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 Sherburne County. The DFIRM and FIS report will be produced in the FEMA Countywide Format to be delivered in the NAVD 88 format.

A scoping meeting was held at the Sherburne County Government Center on August 10, 2004. All Sherburne County communities and Townships were invited to attend if there were areas of interest regarding floodplain mapping within Sherburne County.

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

AUG 30 2005

Flooding Source	Reach Limits	Reach Length	Detailed Riverine		Detailed Coastal					Limited Detail Study	Redelination of SFHAs Using Effective Profiles	Refine/ Establish Zone A
			Hydrology	Hydraulics	Stillwater	Set up	Wave Height	Wave Runup	Erosion			
{Insert name of flooding source}	Insert upstream and downstream limits	Insert reach length in feet and/or miles	{Check if applicable}	{Check if applicable}								
Rum River	All reaches within Sherburne County	6 miles	N/A	X	N/A	N/A						
Elk River	From Big Elk Lake (outflow) to Lake Orono (Elk River)	40 miles (560 sq. mile watershed area w/in Sherburne County)	X	X	N/A	N/A						
St. Francis River	From the southern boundary of the Sand Dunes State Forest to confluence of Elk River	10 miles (209 sq. mile watershed area within Sherburne County)	X	X	N/A	N/A						

This Flood Map Project will be completed by the following

- Sherburne County;

- A consultant to Sherburne County for H & H modeling (and possibly DFIRM production), hereafter referred to as CTP Contractor, to be chosen through RFP process shortly;
- Michael Baker, Inc. (National Service Provider)

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

Activities	CTP	FEMA
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	X	
Activity 14A – Application of DFIRM Graphic and Database Specifications	X	
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	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:

- Terrain Data Processing Completed
- Field Survey Completed
- Hydrology Completed (draft and final)
- Hydraulics Completed (draft and final)
- DFIRM Mapping (draft and preliminary)

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 2 – Outreach

Responsible Mapping Partner: Sherburne County

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

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

The Sherburne County will work with the Regional Office during the initiation of this activity to determine an Outreach Plan for implementation throughout the Mapping Project. The Regional Office

will have access to many outreach tools that have been developed for this process that can be utilized or customized for your use.

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

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

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

- A report detailing outreach and coordination activities
- Backup or supplemental information used in writing this report
- At the completion of the DFIRM process, Sherburne County will submit a summary of outreach activities and any changes made in the outreach approach based on the actual implementation

Activity 3 - Field Surveys and Reconnaissance

Responsible Mapping Partner: Sherburne County or CTP contractor

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, Sherburne County or CTP contractor 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, Sherburne County or CTP contractor 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. Sherburne County or CTP contractor 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*, Sherburne County or CTP contractor 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. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results; and

- Survey notebook containing cross sections and structural data.
- NSP Format Survey Database or Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the Guidelines and Specifications for Flood Mapping Partners

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

Activity 4 - Topographic Data Development

Responsible Mapping Partner: Sherburne County or CTP contractor

Scope: To supplement the field surveys conducted under Activity 3, Sherburne County or CTP contractor has obtained additional topographic data of the overbank areas of the flooding sources studied to delineate floodplain boundaries. Sherburne County shall gather information on what topographic data is available for the given community and what accuracy and currency it meets. Sherburne County 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: Upon completion of topographic data collection and processing for the Rum, Elk, and St. Francis Rivers, Sherburne County or CTP contractor 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 FEMA can access it for an independent QA/QC review under Activity 5 in accordance with the schedule outlined in Section 6 for this Activity.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Sherburne County or CTP contractor 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. 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 topographic maps;

- Report summarizing methodology and results;

Mass points and breaklines data;

- Digital work maps with contours; and
- 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 5 - Independent QA/QC Review of Topographic Data

Responsible Mapping Partner: CTP Contractor

Scope: CTP Contractor shall establish a review procedure for the topographic data developed in Activity 4 to ensure that the data meets current FEMA standards. 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.

Standards: All work under Activity 5 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 shall make the following products available by uploading the digital data to the Multi-Hazard Information Platform (MIP). 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, then the updated deliverables from Activity 4 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/fum/frm_gsam.pdf.

Activity 6 – Hydrologic Analyses

Responsible Mapping Partner: CTP Contractor

Scope: CTP Contractor shall perform hydrologic analyses for approximately 56 square miles of drainage area for the flooding source(s) listed earlier in this MAS. CTP Contractor shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using accepted practices by FEMA. These flood discharges will be the basis for subsequent hydraulic analyses under Activity 8. In addition, CTP Contractor shall address all concerns or questions regarding Activity 4 that are raised during the independent QA/QC review performed by MN DNR during the QA/QC review under Activity 7.

If Geographic Information System (GIS)-based modeling is used, CTP Contractor 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.

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 the Rum, Elk, and St. Francis Rivers, CTP Contractor 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 MN DNR can access it for an independent QA/QC review under

Activity 7. CTP Contractor shall submit the results of the hydrologic analyses for the remaining flooding sources for a final QA/QC review at the completion of this activity.

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

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events;
- Digital Summary of Discharges Tables presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital draft text for Section 3.1, Hydrologic Analyses, of the FIS report; and
- Digital versions of all backup data used in the analysis, including work maps.
- 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 7 - Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: MN DNR

Scope: MN DNR shall review the technical, scientific, and other information submitted by CTP Contractor 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. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
 - Use of acceptable models;
 - Use of appropriate 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*, MN DNR 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.

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

Activity 8 – Hydraulic Analyses

Responsible Mapping Partner: CTP Contractor

Scope: CTP Contractor shall perform hydraulic analyses for approximately 56 miles of the flooding sources listed earlier in this MAS. The modeling will include the 10-, 2-, 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Activity 6. The hydraulic methods used for this analysis will be HEC-RAS.

CTP Contractor 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.

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

CTP Contractor 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: Upon completion of hydraulic modeling for the Rum, Elk, and St. Francis Rivers as listed previously, CTP Contractor will 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 MN DNR can access it for the independent QA/QC review under Activity 9. CTP Contractor 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*, CTP Contractor shall make the following products available to FEMA submitting it to the FEMA Regional Office, or RMC as directed, via the digital media identified in the paragraph above, if the necessary version of the MIP is unavailable. 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 RASLOT program or similar software;
- Digital Floodway Data Tables for each flooding source that is compatible with the DFIRM database;
- Digital hydraulic modeling (input and output) files;
- Digital tables with range of Manning's "n" values;
- Explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate;
- Digital versions of all backup data used in the analyses;
- Digital versions of draft text for inclusion in the FIS report.
- For GIS-based modeling, deliverables include all input and output data, intermediate data processing products, GIS data layers, and final products in the format of the DFIRM database structure.
- NSP Format Hydraulic Database or Data Delivery consistent with the NSP Data Capture Standards --Appendix N of the Guidelines and Specifications for Flood Mapping Partners

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

Activity 9 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: MN DNR

Scope: MN DNR shall review the technical, scientific, and other information submitted by CTP Contractor 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. 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*, MN DNR 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 Analysis)

Responsible Mapping Partner: CTP Contractor

Scope: CTP Contractor shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries (if required) for the flooding sources for which detailed hydrologic, and/or hydraulic, and/or coastal analyses were performed. CTP Contractor shall incorporate all new 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, CTP Contractor shall incorporate the results of all effective Letters of Map Change (LOMCs) within the revised areas as appropriate. Also, CTP Contractor shall address concerns or questions regarding Activity 10 that are raised by FEMA 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: Sherburne County or CTP Contractor

Scope: Sherburne County or CTP Contractor shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries in detailed study areas for the flooding sources other than those listed earlier in this MAS. Sherburne County or CTP Contractor 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, Sherburne County or CTP Contractor shall evaluate the topographic data to determine if changes are significant enough to invalidate the floodplain boundary and regulatory floodway boundary re-delineations. If so, Sherburne County or CTP Contractor shall contact the FEMA Regional Project Officer identified in Section 12 of this MAS with a recommendation. In addition, Sherburne County or CTP Contractor shall address concerns or questions regarding Activity 10A that are raised by FEMA during the independent QA/QC review under Activity 11.

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

Responsible Mapping Partner: Sherburne County or CTP Contractor

Scope: Sherburne County or CTP Contractor shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources listed earlier in this MAS or in the Scoping Report. Sherburne County or CTP Contractor shall use existing topographic data or the topographic data acquired under Activity 2 to delineate the floodplain boundaries on a digital work map. In addition, Sherburne County or CTP Contractor shall address concerns or questions regarding Activity 10B that are raised by FEMA during the independent QA/QC review under Activity 11.

Sherburne County or CTP Contractor 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 the Rum, Elk, and St. Francis Rivers, Sherburne County or CTP Contractor 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 FEMA 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 described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Sherburne County or CTP Contractor shall make the following products available to by submitting it to the FEMA Regional Office, or RMC as directed, via

the digital media identified in the paragraph above, if the necessary version of the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

- Digital 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.

Digital work maps showing the 1-percent-annual-chance floodplain boundary delineations, flood insurance risk zone labels, and all applicable base map features;

- 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: CTP Contractor

Scope: The CTP Contractor shall establish a review procedure for the floodplain mapping performed under Activities 10, 10A, and 10B to ensure that the results of the analyses performed are accurately represented. 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*, FEMA shall make the following products available by uploading the digital data to MIP, or RMC, 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: Sherburne County or CTP Contractor

Scope: Activity 12 consists of obtaining the digital base map for the project. Sherburne County or CTP Contractor shall provide the digital base map. The required activities are as follows:

- Obtain digital files (raster or vector) of the base map.
- Provide necessary permissions 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*, Sherburne County or CTP Contractor 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 13 – DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: Sherburne County or CTP Contractor

Scope: For all flooding sources except those segments for which updated flood data will be developed under Activities 1 through 11, Sherburne County or CTP Contractor shall convert the information shown on the effective FIRM panels for all incorporated and unincorporated areas of Sherburne County to digital format in conformance with FEMA DFIRM specifications. Sherburne County or CTP Contractor shall use the base map acquired under Activity 12 for the conversion. Sherburne County or CTP Contractor shall digitize 36 FIRM panels. Sherburne County or CTP Contractor also shall incorporate the results of LOMCs issued by FEMA since the date of the current effective FIRM for each affected community.

Also, Sherburne County or CTP Contractor shall address comments and questions regarding Activity 13 that are raised by FEMA during the independent QA/QC review under Activity 13A.

Sherburne County or CTP Contractor shall not digitize the flood theme for those segments of flooding sources for which updated flood data will be developed. Rather, Sherburne County or CTP Contractor shall leave these as “holes” in the digital flood theme that will be filled in as part of Activity 14 using the digital flood data developed under Activities 10, 10A, and 10B.

Standards: All work under Activity 13 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of 36 DFIRM panels, Sherburne County or CTP Contractor shall submit the panels to FEMA for an independent QA/QC review under Activity 11. In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Sherburne County or CTP Contractor 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;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM, including a check that the road and floodplain relationship is maintained for all non-revised areas.

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

Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: CTP Contractor

Scope: The CTP Contractor shall review the DFIRM panels submitted by Sherburne County or CTP Contractor under Activity 13 to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs for the area mapped. If FEMA 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, checking the following:

- Cross sections were properly located and oriented as shown on the FIRM.
- BFEs are properly located and agree with the BFEs shown on the FIRM.
- Regulatory floodway widths agree with the widths shown on the FIRM.
- The 1 and 0.2-percent-annual-chance floodplain boundaries agree with the floodplain boundaries shown on the FIRM and the contour lines, other topographic information, and planimetric information shown on the DFIRM base.

- Flood insurance risk zone designations are indicated properly.
- Road and floodplain relationships are maintained for all unrevised areas.
- DFIRM mapping files meet the GIS file and database format requirements specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those requirements for content and attribution.
- Metadata files describing the DFIRM data include the required information.

Standards: All work under Activity 13A 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 shall make the following products available 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 copy of the DFIRM 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/fm_gsam.pdf.

Activity 14 –DFIRM Production (Merging Revised and Non-Revised Information)

Responsible Mapping Partner: Sherburne County or CTP Contractor

Scope: Upon completion of the floodplain mapping activities for the revised areas (Activities 10, 10A, and/or-10B) and the DFIRM production for non-revised areas (Activity 13), Sherburne County or CTP Contractor shall merge the digital floodplain data into a single, updated DFIRM. This work is to include tie-in of flood hazard information for areas that were not studied as part of the Flood Map Project documented in this MAS. Sherburne County or CTP Contractor also shall tie in the revised and non-revised Flood Profiles, floodplain boundaries, and regulatory floodway boundaries with contiguous communities that were not studied as part of the Flood Map Project documented in this MAS. Sherburne County or CTP Contractor shall coordinate with FEMA and those Mapping Partners responsible for Activities 10, 10A, 10B, and 13, as necessary, to resolve any potential tie-in issues.

Standards: All work under Activity 14 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*, Sherburne County or CTP Contractor 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;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.

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

Activity 14A – DFIRM Production (Application of DFIRM Graphics and Database Specifications)

Responsible Mapping Partner: Sherburne County or CTP Contractor

Scope: Sherburne County or CTP Contractor shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Activity 14. This work shall include adding all required annotation, line pattern, area shading, and map collar information (e.g., map borders, title blocks, legends, notes to user). Sherburne County or CTP Contractor will be preparing the database for this project in the Standard format. The database shall be produced in accordance with Appendix L of the Guides and Specifications for Flood Hazard Mapping Partners. Sherburne County or CTP Contractor shall coordinate with those Mapping Partners responsible for Activities 10, 10A, 10B, 13, and 14, as necessary, to resolve any problems that are identified during Activity 14A.

Standards: All work under Activity 14A 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*, Sherburne County or CTP Contractor shall make the following products available to FEMA by uploading the digital data to the 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. 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 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*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and

- 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.

NSP Format DFIRM Database or Data Delivery consistent with the NSP Data Capture Standards –Appendix N of the Guidelines and Specifications for Flood Mapping Partners

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

Activity 14B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications

Responsible Mapping Partner: CTP Contractor

Scope: Upon completion of the floodplain mapping activities (Activities 10, 10A, and/or 10B) and DFIRM production activities (Activities 13, 14, and 14A), the CTP Contractor shall conduct an internal review of the DFIRM to ensure it meets current FEMA graphic specifications. In addition, the CTP Contractor shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. The CTP Contractor shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QA/QC review. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall ensure that the requirements below are met.

All required DFIRM features are accurately and legibly labeled and follow the examples shown in the FEMA DFIRM specifications. This includes all flood insurance risk zones, BFEs, cross sections, studied streams, mapped political entities, and all roads within and adjacent to the 1-percent-annual-chance floodplains.

All DFIRM features are correctly symbolized with the appropriate symbol, line pattern, or area shading and follow the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

All map collar information is complete, correct, and follows the requirements specified in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

- DFIRM mapping files are in one of the GIS file and database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution.

DFIRM database files are in one of the database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution.

Metadata files describing the DFIRM data include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

The FIS report is prepared in the FEMA Countywide Format as documented in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All work under Activity 14B 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 shall make the following products available by uploading the digital data to the Multi-Hazard Information Platform (MIP). 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 and the results of all automated or manual QA/QC steps taken during the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary.

If the data changed during the QA/QC process, then the updated deliverables from Activities 10, 10A, 10B and Activities 13, 14, and 14A 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/firm_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/firm_gsam.pdf. Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

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

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities															
	1	2	3	4	5	6, 6 A	7, 7 A	8	9	10, 10 A, 10 B	11	12	13, 13A	14, 14A	15	16
General Documentation																
Special Problem Reports		X	X	X	X	X	X	X	X	X	X	X	X	X		
Telephone Conversation Reports		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		
General Correspondence		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		
Miscellaneous Reference Information		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 August 1, 2005, and will be completed no later than August 1, 2007. The mapping activities may be terminated at the option of FEMA or Sherburne County in accordance with the provisions of the Partnership Agreement dated October 28, 2003. 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 Sherburne County for the completion of this Flood Map Project. Sherburne County 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.

Additional work needed to complete project		% of Project	Managed by	FEMA Contribution	CTP Contribution	% Leverage	Total Project Cost
Activity 1	Scoping	%	CTP	\$		%	
Activity 2	Outreach	%	CTP	\$		%	
Activity 3	Field Surveys and Reconnaissance	%	CTP	\$		%	
Activity 4	Topographic Data Development	%	CTP	\$		%	
Activity 5	Independent QA/QC Review of Topographic Data	%	FEMA	\$	\$	%	\$
Activity 6	Hydrologic Analyses	%	FEMA		\$	%	
Activity 7	Independent QA/QC of Hydrologic Analyses	%	CTP (DNR)	\$		%	
8	Hydraulic Analyses	%	FEMA		\$	%	
Activity 9	Independent QA/QC Review of Hydraulic Analyses	%	CTP (DNR)	\$		%	
Activity 10	Floodplain Mapping (Detailed Riverine Analysis)	%	FEMA		\$	%	
Activity 10A	Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated	%	CTP	\$		%	

	Topographic Data)						
Activity 10B	Floodplain Mapping (Refinement or Creation of Zone A)	%	CTP	\$		%	
Activity 11	Independent QA/QC Review of Floodplain Mapping (Revised Areas)	%	FEMA	\$	\$	%	\$
Activity 12	Base Map Acquisition	%	CTP	\$		%	
Activity 13	DFIRM Production (Non-Revised Areas)	%	CTP	\$		%	
Activity 13A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	%	FEMA	\$	\$	%	\$
Activity 14	DFIRM Production (Merge Revised and Non-Revised Information)	%	FEMA		\$	%	
Activity 14A	Application of DFIRM Graphic and Database Specifications	%	FEMA		\$	%	
Activity 15	Preliminary DFIRM and FIS Report Distribution	%		\$	\$	%	\$
Activity 16	Post-Preliminary Processing	%		\$	\$	%	\$
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

Activities	FUNDABLE?
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
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															
	1	2	3	4	5	6, 6A	7, 7A	8	9	10, 10 A, 10 B	11	12	13, 13A	14, 14A	15	16
Applicable Standards	X															
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003	X															
American Congress on Surveying and Mapping Procedures			X	X	X											
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-510), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	X															
Engineer Manual 1110-1-1000, <i>Photogrammetric Mapping</i> (USACE), July 1, 2002	X		X	X	X											
Engineer Manual 1110-2-1003, <i>Hydrographic Surveys</i> (USACE), January 1, 2002	X		X													
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003	X					X	X	X	X							
<i>Content Standard for Digital Geospatial Metadata</i> (Federal Geographic Data Committee),	X	X		X	X					X	X	X	X	X	X	X

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
6A	Coastal Hazard Analyses	Applicable Volume, Section/Subsection, and Appendix Appendix A, Section A.4 Appendix C, Sections C.1 and C.7 Appendices E, F, G, H, M, and N
		Volume 1, Section 1.4 (specifically Subsection 1.4.2.2) Appendix A, Section A.4 Appendices B, D, M, and N

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
7	Independent QA/QC Review of Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendix C, Section C.2 Appendices E, F, G, H, and M
7A	Independent QA/QC Review of Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendices B, D, and M
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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
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 Review of Floodplain Mapping (Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, and M
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)
13	DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
13A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Appendices K, L, M, and N Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M
14	DFIRM Production (Merging Revised and Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K, L, M, and N
14A	DFIRM Production (Application of FEMA Graphics and Database Specifications)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, M, and N
14B	Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, and M
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

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 1 – Scoping		
Activity 2 - Outreach	CTP	8/07
Activity 3 – Field Surveys and Reconnaissance	CTP	6/06
Activity 4 – Topographic Data Development	CTP	6/06
Activity 5 – Independent QA/QC Review of Topographic Data	CTP	9/06
Activity 6 –Hydrologic Analyses	CTP	4/06
Activity 6A –Coastal Flood Hazard Analyses	N/A	N/A
Activity 7–Independent QA/QC Review of Hydrologic Analyses	DNR	6/06
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	N/A	N/A
Activity 8 – Hydraulic Analyses	CTP	8/06
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	DNR	10/06
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)		
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	CTP	11/06
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)		
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	CTP	12/06
Activity 12 – Base Map Acquisition	CTP	10/05
Activity 13 – DFIRM Production (Non-Revised Areas)	CTP	2-07
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	CTP	

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	CTP	4/07
Activity 14A – Application of DFIRM Graphic and Database Specifications	CTP	6/07
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	CTP	8/07
Activity 15 – Preliminary DFIRM and FIS Report Distribution	N/A	N/A
Activity 16 – Post-Preliminary Processing	N/A	N/A

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})

- 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.

SECTION 9—CONTRACTORS

Sherburne County 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 Sherburne County by FEMA, financial reporting requirements for Sherburne County 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.

Sherburne County or CTP contractor 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 shall be through, the Sherburne County office and FEMA through conference calls as necessary.

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

Section 11—PROJECT COORDINATION

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

- Meetings, teleconferences, and videoconferences with FEMA and other Project Team members quarterly or more frequently as necessary;
- Telephone conversations with FEMA and other Project Team members on a scheduled basis (monthly) and an ad hoc basis, as required;
- Updates to the MIP, and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*; and Section 10; and
- E-mail, facsimile transmissions, and letters, as required.

SECTION 12—POINTS OF CONTACT

The points of contact for this Flood Map Project are Lee Traeger, the FEMA Regional Project Officer; Nicola Blake-Bradley (Environmental Specialist, Sherburne County Zoning Department), the Project Manager for Sherburne County; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the any additional assistance of FEMA should be requested through the FEMA Regional Project Officer.

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

Nicola Blake-Bradley

Nicola Blake-Bradley
Project Manager
{Sherburne County, MN}

8/24/05
Date

Kenneth Hentelony

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

9/30/2005
Date