Map MODERNIZATION

Federal Emergency Management Agency

FEMA's Flood Hazard Mapping Program

Guidelines and Specifications *for* Flood Hazard Mapping Partners

Appendix I: Project Scoping Toolbox

FEDERAL EMERGENCY MANAGEMENT AGENCY

www.fema.gov/fhm/dl_cgs.shtm

April 2003

Summary of Changes for Appendix I,

Scoping Guidance and Tools

The Summary of Changes below details changes that have been made to Appendix I subsequent to the initial publication of these Guidelines in February 2002. These changes represent new or updated guidance for Flood Hazard Mapping Partners.

Date	Affected Section(s)/ Section(s)	Description of Changes
April 2003	All	Added a broad description of the Scoping process. Added a table to show correlations between Scoping templates and associated actions in the Monitoring Information on Contracted Studies database. Also added flags to each related Section of Appendix I.
April 2003	I.1.2	Added a new subsection to explain and present the Mapping Needs Assessment Worksheet template.
April 2003	I.2.5	Revised the Community Partner Memorandum of Agreement template to more closely match the CTP Partnership Agreement template.
April 2003	I.2.8	Inserted the current CTP Partnership Agreement template.
April 2003	I.3.1	Revised the standard language for the Statement of Work (SOW) template to more closely agree with the current language for the CTP Mapping Activity Statement (MAS) template.
April 2003	I.3.1	Expanded the discussion of the template to clarify the requirements for each portion of the SOW and/or MAS rather than just introducing a template.
April 2003	I.3.2	Added a new subsection to establish the requirements for the CTP MAS and include the current MAS template.

Appendix I

Scoping Guidance and Tools

A Flood Map Project includes everything required to produce a new or revised flood map: initial identification of mapping needs, scoping the project, conducting flood hazard analyses (i.e., hydrologic and hydraulic analyses), converting manually produced maps to digital format, merging revised and non-revised flood hazard data, providing due process (i.e., Preliminary and post-Preliminary processing), and printing and distribution. These Flood Map Project activities are described generally in Volume 1 and in greater detail in Appendices A through M of these Guidelines. This Appendix provides additional guidance for Project Scoping. Project Scoping begins after community mapping needs have been assessed and the Federal Emergency Management Agency (FEMA) has decided to initiate a flood map creation or update.

The foundation for Project Scoping is the assessment of community mapping needs (flood data update and/or digital conversion) completed during the Mapping Needs Assessment Process, which is described in Volume 1, Section 1.2, and Volume 3, Section 3.8, of these Guidelines. During the Project Scoping phase, all aspects of the project are considered and planned for, and a tailored scope of work for the Mapping Partners is developed. Project Scoping ends when activities for map production have been assigned to the Project Team members.

The guidance for Project Scoping provided in this Appendix is intended to enable FEMA and its Flood Hazard Mapping Partners to achieve a "best value" for completing a Flood Map Project by prioritizing and addressing a community's flood mapping needs, and distributing the work based on the strengths and capabilities of all available resources. Comprehensive Project Scoping will ensure that the plan for a Flood Map Project considers all factors, such as Cooperating Technical Partners (CTP) capabilities. (See Volume 3, Section 3.18 of these Guidelines for additional information on the CTP Program.)

This Appendix provides a variety of tools to assist the FEMA Lead and other Project Team members during the Project Scoping phase of a Flood Map Project. Project Team members shall use the "toolbox" of templates, checklists, and forms presented in this Appendix to record activities throughout the Project Scoping phase.

This Appendix is organized in accordance with the Project Scoping discussion in Volume 1, Section 1.3 of these Guidelines. Primary-level sections of this Appendix are as follows:

- Section I.1, Pre-Scoping Meeting activities;
- Section I.2, Scoping Meeting activities; and
- Section I.3, Post-Scoping Meeting activities.

Many of the activities can take place concurrently and are not contingent on the completion of previous tasks. The FEMA Lead, working in close coordination with the Project Management Team, has the flexibility of tailoring the scoping process to fit the needs of the project. For

example, for smaller-scope flood hazard studies, the FEMA Lead may wish to combine, scale back, or eliminate certain scoping activities.

FEMA developed the Monitoring Information on Contracted Studies (MICS) management tool to record and track the progress of Flood Map Projects through their lifecycle. The subsections throughout this Appendix may include references to the MICS database, flagged by the superscript MICS in the subsection header line (see subsection I.1.3 for an example). These references are intended to alert the Project Team that information related to the subject activity shall be tracked in MICS.

Please note: *Mapping Partners will be assigned roles and responsibilities for purposes of MICS data entry at the Scoping Meeting. FEMA shall provide assigned Project Team members unfamiliar with MICS tools for self-instruction in the use of the system and those assigned Project Team members shall be required to update MICS periodically. Additional information about MICS may be found in Volume 1, Section 1.1.7 and Volume 3, Section 3.2.9 of these Guidelines.*

The following table provides a list of all the Scoping tools described in this Appendix, and indicates whether a direct correlation to a MICS data entry task exists.

	Scoping Tool Name	Associated MICS Data Entry Task?
Pre-Scoping Activities	Initial Community Contact - Record of Communication Template	--
	MNUSS Data Worksheet	--
	Project Management Plan Template	Yes
	Initial Project Conference Call Agenda/Meeting Minutes Template	--
	Effective Map and Report Summary Template	--
	Available Data Inventory Template	--
	Potential Obstacles to Project Completion Checklist	--
	Draft Scope of Project Template	--
	Draft Scope of Project Conference Call Agenda/ Meeting Minutes Template	--
Scoping Activities	Scoping Meeting Item Checklist Template	--
	Document Transmittal Letter Template	--
	Scoping Meeting Attendance Sheet Template	--
	Scoping Meeting Agenda/Meeting Minutes Template	--
	Task Assignment and Scheduling Worksheet Template	Yes
	Flood Map Project Process Flowchart	--
	Community Partner Memorandum of Agreement Template	--
	Cooperating Technical Partners Program Partnership Agreement Template	--
Post-Scoping Activities	Statement of Work Template	Yes
	Cooperating Technical Partners Program Mapping Activity Statement Template	Yes
	Time and Cost Template for FEMA-Contracted Flood Map Projects	Yes
	Time and Cost Template for Cooperating Technical Partners Program Flood Map Projects	Yes
	Notice to Proceed Letter Template	--

I.1 Pre-Scoping Meeting Activities [February 2002]

The templates, checklists, and forms that the FEMA Lead and other Project Team members shall use to record activities before the Project Scoping Meeting are summarized in Subsections I.1.1 through I.1.8.

I.1.1 Initial Community Contact – Record of Communication Template [February 2002]

FEMA designed the Initial Community Contact—Record of Communication Template, shown on page I-5, to record the activities involved with planning the initial community contact and recording the topics covered during telephone call(s) with the community. If more than one community is contacted, the FEMA Lead or other assigned FEMA staff shall prepare a separate form for each community.

Community/Flood Map Project:	
Date:	**Case No.:**
Recorder:	
Name of Community Contact:	
Agency/Organization	
Telephone Number:	
E-Mail Address:	
Facsimile Number:	
Topics To Cover:	
• Purpose of the Flood Map Project {Insert notes.}	
• Community's Perception of Mapping Needs {Insert notes.}	
• Target Schedule for Completing the Project {Insert notes.}	
• Possibility of Community Contributing as a Cooperative Technical Partner {Insert notes.}	
• Other Discussion Topics {Insert notes.}	
• Community's Engineering, Planning, and GIS Capabilities - How advanced are they? - Where do they reside in the community's organization? {Insert notes.}	

I.1.2 Mapping Needs Update Support System Data Worksheet [April 2003]

FEMA designed the Mapping Needs Update Support System (MNUSS) Data Worksheet to aid with the collection of mapping needs data for future entry in the MNUSS database. The MNUSS database was designed to help FEMA identify those communities in most need of a mapping update by serving as a data warehouse of flood hazard data for all participating NFIP communities. The MNUSS database uses these data to rank each community in order from most in need of an update to the least in need.

The assigned Mapping Partner shall complete a MNUSS Data Worksheet for each flooding source located within a community being studied, before the Scoping Meeting. The MNUSS Data Worksheet can be obtained from FEMA's Internet site at http://www.fema.gov/pdf/fhm/mn_wksht.pdf.

I.1.3 Project Management Plan Template MICS [April 2003]

FEMA designed the Project Management Plan Template, shown on pages I-7 to I-13, to record activities associated with the preliminary Project Management Plan, such as establishing specific project protocols and management objectives for the entire Project. After the Project Management Team has been formed, each team member will be provided with a copy of the preliminary Project Management Plan. The Project Management Plan is a "living" document that the Project Management Team shall update, with information added when necessary, as a Flood Map Project progresses.

Project Management Plan

{Insert Name of Project[1]}

Prepared by:

{Insert Name(s) of Author(s)}

{Insert Initial Date}

{Insert Revision Date}

{Insert Revision Date}

{Insert Revision Date}

[1] Follow the naming conventions in the online MICS Guidance Document

Project Management Team Contact Information

Project Management Team Member	Organization	Contact Information	
{Insert name of FEMA Lead.}	{Insert organization or agency.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name FEMA Headquarters Engineer.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name of Other Project Team Member.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name of Other Project Team Member.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name of Other Project Team Member .}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			

Project Team Contact Information

Project Team Member	Organization	Contact Information	
{Insert name and address.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name and address.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name and address.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name and address.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name and address.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name and address.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			
{Insert name and address.}	{Insert organization or agency name.}	Phone:	
		Fax:	
		E-mail:	
{Insert team member's role in this project.}			

Introduction

The general objectives for this Flood Map Project are to:

Use this table to list or describe the overall objectives of the project (check all that apply).	
	Convert map panels (revised and unrevised) to digital format.
	Update the {floodplain and/or floodway} for the subject flooding source to reflect new {hydrologic and/or hydraulic} conditions (e.g., recent development, new flood-control structures, changes in stream morphology, etc.).
	Incorporate previously unmapped or revised map features, such as [{specify; e.g., new roads, Elevation Reference Marks, corporate boundaries, Letters of Map Change (LOMCs).}]
	Create new FIRM for previously unmapped areas.
	Perform a detailed study for area that was previously studied by approximate methods or not studied.
	Other primary objectives. {Add any other primary objectives.}

The remainder of this Project Management Plan establishes project coordination protocols and outlines the general management activities required to meet these objectives.

1. Description of Flood Map Project

{Provide a brief description of the project area.}

2. Communication Protocols

{List and/or describe communication protocols between and among Project Management Team and Project Team Members; e.g., e-mail, project-specific Web site. Note: Insist on consistent and clear documentation methods for all project communications.}

3. Milestones and Reporting Requirements

The major milestones and intermediate milestones are identified in the table below. Fill in the major milestones first; this will help provide a schedule and framework. As the project progresses, fill in the intermediate milestones. (Major milestones are shaded gray.)

Milestones		Target Date	Completion Date
Pre-Scoping Meeting Activities	Form Project Management Team		
	Initial Community Contact		
	Prepare Preliminary Project Management Plan		
	Initial Project Conference Call with Community		
	Form Project Team		
	Complete Research		
	Prepare Draft Scope of Project		
	Hold Draft Scope of Project Conference Call		
	Distribute Background Information		
Scoping Meeting	**Hold Scoping Meeting**		
Post-Scoping Meeting Activities	Document Scoping Meeting		
	Develop Task Order(s), Statement(s) of Work, and/or Mapping Activity Statement(s) and Distribute to Project Team Members		
	Project Team Members Submit T&C Estimates		
	Update MNUSS		
	Issue Task Orders, Statements of Work, Mapping Activity Statements, and Notices to Proceed		
	Acquire Base Map		

Milestones		Target Date	Completion Date
Flood Data Update	**Acquire Necessary Topographic and Field Data**		
	Perform Independent QA/QC Review of Topographic Data		
	Complete Hydrologic Analyses		
	Perform Independent QA/QC Review of Hydrologic Analyses		
	Complete Hydraulic Analyses		
	Perform Independent QA/QC Review of Hydraulic Analyses		
	Complete Digital Floodplain Mapping		
	Perform Independent QA/QC Review of Floodplain Mapping		
Digital Conversion	Complete Digital Flood Insurance Rate Map (DFIRM) Production (Non-Revised areas)		
	Merge Revised and Non-Revised Information		
	Implement DFIRM Graphic and Database Specifications		
	Distribute Preliminary DFIRM and FIS Report		
Post-Preliminary Processing	Hold Final Coordination Meeting		
	Initiate 90-Day Appeal Period		
	Issue Letter of Final Determination		
	Distribute Final DFIRM and FIS Report		

4. Outreach Strategy

{Describe outreach strategy to be implemented for the project; e.g., press releases, targeted mailings, Congressional briefings, public affairs, Television/Radio, or "Letters to the Editor" from FEMA Director. Note that guidance on performing this outreach is currently under development by the FEMA Emergency Preparedness & Response Directorate, Mitigation Division, Program Outreach Branch.}

5. Other Ongoing and Related Activities or Projects

{List all on-going and related activities or projects. Describe how activity or project relates and/or ties in with the project.}

6. Quality Assurance/Quality Control (QA/QC) Approach and/or Requirements

{Describe QA/QC approach and/or requirements for this project; (e.g., assigned Mapping Partner performs independent QA/QC review of hydrologic analyses performed by CTP). Include a description of the roles and responsibilities of the various Project Team members in quality assurance.}

7. Retention and Maintenance of Records

{Describe procedures to be followed for retention and maintenance of all records and data related to this project.}

8. Project Completion Activities

Project Completion Activity	Completion Date
{Insert all Project Completion Activities; e.g., Updating MNUSS, Finalizing Vouchers, Holding Final Meeting. Note: Insert new table row for each activity.}	{Insert Date.}

I.1.4 Initial Project Conference Call Agenda/Meeting Minutes Template [February 2002]

FEMA designed the Initial Project Conference Call Agenda/Meeting Minutes Template, shown on page I-15 to document the agenda and results of the initial Project conference call to the community (ies). If more than one call is conducted, the FEMA Lead or other assigned FEMA staff shall use a separate form for each community.

Community/Flood Map Project:		
Date:	**Case No.:**	
FEMA Lead:		
Participants: **1.** **6.** **2.** **7.** **3.** **8.** **4.** **9.** **5.** **10.**		
Agenda Items		**Estimated Time**
1. Introduce Project Management Team		
{Insert minutes.}		
2. Provide overview of proposed project, including: • Purpose of project; • Potential flooding sources that have been identified so far (including limits of project); and • Why community/flooding sources were chosen for project.		
{Insert minutes.}		
3. Discuss community's assessment of flood mapping needs		
{Insert minutes.}		
4. Discuss potential data sources (e.g., digital base maps, on-going projects, and data collection efforts)		
{Insert minutes.}		
5. Identify other key players (e.g., regional or State agencies)		
{Insert minutes.}		
6. Discuss community's capabilities and interest in becoming a CTP		
{Insert minutes.}		
7. Other topics of discussion		
{Insert minutes.}		
8. Outline schedule of future activities		
{Insert minutes.}		
9. Summary/Action Items		
{Insert minutes.}		

I.1.5 Effective Map and Report Summary Template [February 2002]

FEMA designed the Effective Map and Report Summary Template, shown on pages I-17 to I-22, for the assigned Project Team member to use in recording the results of research of effective information. As discussed in Volume 1, Subsection 1.3.2.6 of these Guidelines, findings from a search of the FEMA library storage facility for effective Flood Insurance Rate Map (FIRM) panels and Flood Insurance Study (FIS) reports and other flood hazard data or existing study data and the results of other research are to be documented on this template.

Effective Map and Report Summary

{Insert Name of Project}

{Insert Community Name - Complete Separate Summary for Each Community.}

{Insert Date}

Prepared by:

{Insert Name(s) of Author(s)}

Introduction

{Insert paragraph describing the purpose of this Effective Map and Report Summary document. If more than one community is involved in the project, provide a summary for each.}

1. Library Research

A. General Effective Information

Date of the Effective Flood Insurance Rate Map (FIRM): {Insert date}

Number of effective FIRM panels: {Insert number of panels and list by number; e.g., 99009C0025D}

Format of the effective FIRM (check all that apply):

- ❑ Manual
- ❑ Digital
- ❑ Countywide
- ❑ Map Initiatives

Type of flooding (check all that apply): ❑ Riverine ❑ Coastal ❑ Alluvial ❑ Lacustrine

{Attach effective FIRM, Flood Insurance Study (FIS) report, Flood Boundary and Floodway Map (FBFM), and/or Flood Hazard Boundary Map.}

B. Base Map Information

Provide the following for the base map(s) used for the effective FIRM.

Base Map Source	Date	Scale
{Insert base map source}	{Insert date}	{Insert scale}

C. Summary of Map Actions

Letters of Map Change (LOMCs)				
The Letters of Map Revision, Letters of Map Revision Based on Fill, and Letters of Map Amendment listed below have been issued and are currently effective.				
LOMC Type	Case No.	Effective Date	Project Identifier	Panel

D. Summary of Flood-Control Structures

{Provide an inventory of effective flood control structures (levees/dams) and their certification status.}

{Provide any relevant information on file regarding post-disaster investigations in the proposed study area.}

E. Flooding Source: {Insert name of flooding source; use one "Flooding Source" table for each flooding source studied in detail.}

Type (check one):

☐ Detailed Riverine ☐ Approximate Riverine

☐ Coastal ☐ Floodplain Redelineation

☐ Limited Detail ☐ Alluvial Fan

☐ Lacustrine

☐ Other Type_____

Miles/Square Miles:[1] _____

Downstream Starting Point Upstream Ending Point

Latitude (decimal degrees): _____ Latitude (decimal degrees): _____

Longitude (decimal degrees): _____ Longitude (decimal degrees): _____

Please check the boxes below if this flooding source includes levees or unusual floodway situations

☐ Levees (please document non-compliance with Section 65.10 of the NFIP Regulations in the Comments section)

☐ Floodway (please document any unusual floodway analysis or mapping issues in the Comments section)

[1] Miles of the river study.

Analysis Type	Method	Date	Digital Copy Available?	Reach Limits
Hydrology			❑ Yes ❑ No	
Hydraulics			❑ Yes ❑ No	
Coastal			❑ Yes ❑ No	

Topographic Source for Floodplain Delineation	{Insert Topographic Source.}
Data Source for Cross-Section Data	{Insert Data Source.}

Comments:

2. Mapping Needs Update Support System (MNUSS) Research Summary

A. Flood Data Update Needs

List Need Type(s): {Insert type of need.}

B. Map Maintenance Needs

List Need Type(s): {Insert type of need.}

(Attach a printout of the MNUSS Community Need Reports.)

3. Mapping Needs Assessment Results

Was a separate Mapping Needs Assessment performed? ❑ Yes ❑ No

If so, when? {Insert date of Mapping Needs Assessment.}

Why? {Insert description of why the Mapping Needs Assessment was performed.}

Summary of Mapping Needs Assessment Findings:

{Provide a summary of the findings of the Mapping Needs Assessment.}

(Attach completed Mapping Needs Assessment Worksheet.)

4. Attachments {Include all apply and others as appropriate.}

- Scoping Map
- Relevant future file information
- MNUSS Community Need Reports:
- Mapping Needs Assessment Worksheet
- Effective FIRM panels
- Effective FBFM panels
- FIS report

I.1.6 Available Data Inventory Template [February 2002]

FEMA designed the Available Data Inventory Template, shown on pages I-24 to I-32, to record the results of research of all available data including, but not limited to, available base map information, topographic data, flood hazard data and hydrologic and hydraulic information and data. The assigned Project Team member shall use this template to document the agencies contacted, date, name of person contacted, telephone number, and the result of the research.

Available Data Inventory

{Insert Name of Project}

{Insert Date}

Prepared by:

{Insert Name(s) of Author(s)}

This checklist is used to inventory base map, topographic, and hydrologic and hydraulic data, and floodplain mapping information and data available or currently underway that may be useful for this project. (Also, use the "Effective FIRM Summary" and the "Potential Obstacles to Project Completion Checklist.")

Use the checklist below to help solicit the information you will need to answer the key questions.

Base Map Information

Are U.S. Geological Survey (USGS) Digital Orthophoto Quadrangles (DOQs) available for this community or county? ❑ Yes ❑ No

{Insert notes.}

What community base map data are available? From whom?

{Insert notes.}

What is the source of the base map data and how were the data created?

{Insert notes.}

Are the owners of the data willing to allow FEMA to release the base map data to the public with the DFIRMs? ❑ Yes ❑ No

If you checked "No," to the above question you do not need to complete the rest of the Base Map Information section of this checklist.

Contact Information for Data Source	
Name:	
Organization:	
Telephone No.:	
E-Mail Address:	
Facsimile No.:	

{Insert notes.}

If the base map data are in vector format and the owner is not willing to release the data, will the owner allow FEMA to make a raster image of the vector base map data and release that? ❑ Yes ❑ No

{Insert notes.}

Base Map Information (Continued)

Do the data cover the entire community or county being restudied (not just the streams being studied)? ❑ Yes ❑ No

{Insert notes.}

Are the data available now? If not, what is the projected completion date? ❑ Yes ❑ No

{Insert notes.}

What is the accuracy or resolution of each data set or type?

{Insert notes.}

When were the base map data created, last updated, or reviewed for update needs?

Created	Last Updated	Reviewed
{Insert date.}	{Insert date.}	{Insert date.}

{Insert notes.}

Is the base map in the process of being revised? If yes, what is being done and when will it be completed? ❑ Yes ❑ No

{Insert notes.}

What projection, horizontal datum, and vertical datum were used for the base map datasets?

Projection	Horizontal Datum	Vertical Datum
{Insert notes.}	{Insert notes.}	{Insert notes.}

In what file format(s) are the data available?

{Insert notes.}

How are the data tiled?

{Insert notes.}

Is a data dictionary or metadata available? ❑ Yes ❑ No

{Insert notes.}

Base Map Information (Continued)

What feature types do the base map datasets contain? (Check all that apply.)

- ❑ Roads
  - ❑ Centerlines
  - ❑ Edge of pavement
  - ❑ Right of way
  - ❑ Digital orthophotos

  {Insert notes.}
- ❑ Road Names
  - ❑ Stored as attributes in database
  - ❑ Placed as graphic elements for plotting. At what scale(s)?

  {Insert notes.}
- ❑ Railroads/railroad names

  {Insert notes.}
- ❑ Airports

  {Insert notes.}
- ❑ Rivers, streams, lakes, shorelines, coastlines

  {Insert notes.}
- ❑ Are political boundaries (corporate, county, extraterritorial, etc.) current? ❑ Yes ❑ No

  {Insert notes.}
- ❑ Parks, military reservations, Native American lands

  {Insert notes.}
- ❑ Range, township, and section lines

  {Insert notes.}
- ❑ Building footprints

  {Insert notes.}
- ❑ Parcels

  {Insert notes.}

Base Map Information (Continued)

❑ Bridges

{Insert notes.}

❑ Flood-control structures (e.g., culverts, levees, dams, weirs, floodwalls, jetties)

{Insert notes.}

❑ What bench marks, Elevation Reference Marks (ERMs), or other vertical control data are available for the community, county, or study area?

{Insert notes.}

Topographic Information

What elevation data are available?

{Insert notes.}

What is the source of the topographic data (how were the data created)?

{Insert notes.}

Do the data cover the floodplains for the flooding sources in the entire community or county being restudied? ❑ Yes ❑ No

{Insert notes.}

Are the data available now? If not, what is the projected completion date? ❑ Yes ❑ No

{Insert notes.}

What is the accuracy or resolution of the topographic data?

{Insert notes.}

When were the topographic data created, last updated, or reviewed for update needs?

Created	Last Updated	Reviewed
{Insert date.}	{Insert date.}	{Insert date.}

{Insert notes.}

Topographic Information (Continued)

What projection, horizontal datum, and vertical datum were used for the topographic data?

Projection	Horizontal Datum	Vertical Datum
{Insert notes.}	{Insert notes.}	{Insert notes.}

{Insert notes.}

In what format(s) are the data available?

{Insert notes.}

Contours	Digital Elevation Model (DEM)	Digital Terrain Model (DTM)	Triangulated Irregular Network (TIN)
{Insert contour interval.}	{Insert horizontal and vertical resolutions.}	{Insert notes.}	{Insert notes.}

{Insert notes.}

Flood Hazard Data

Are digital flood hazard data available? If so, from whom? ❑ Yes ❑ No

{Insert notes.}

Have flood hazard data that have been converted to digital format been compared to the effective FIRMs to ensure that base map to flood hazard relationships have been preserved? ❑ Yes ❑ No

{Insert notes.}

What was the source of the digital flood hazard data and how were the data created?

{Insert notes.}

Do any new data tie in to the existing effective information? ❑ Yes ❑ No

{Insert notes.}

Do the data cover the entire community or county being restudied? ❑ Yes ❑ No

{Insert notes.}

Flood Hazard Data (Continued)

Are the data available now? If not, what is the projected completion date? ❑ Yes ❑ No

{Insert notes.}

What is the accuracy or resolution of each data set or type?

{Insert notes.}

When were the data created, last updated, or reviewed for update needs?

{Insert notes.}

Created	Last Updated	Reviewed
{Insert date.}	{Insert date.}	{Insert date.}

{Insert notes.}

Are Letters of Map Change (LOMCs) included in any digital datasets? ❑ Yes ❑ No

{Insert notes.}

What projection, horizontal datum, and vertical datum were used for the flood hazard datasets?

{Insert notes.}

Projection	Horizontal Datum	Vertical Datum
{Insert notes.}	{Insert notes.}	{Insert notes.}

In what file format(s) are the data available?

{Insert notes.}

How are the data tiled?

{Insert notes.}

Is a data dictionary or metadata available? ❑ Yes ❑ No

{Insert notes.}

Have flood hazard data that have been converted to digital format been compared to the effective FIRMs to ensure that base map to flood hazard relationships have been preserved? ❑ Yes ❑ No

{Insert notes.}

Flood Hazard Data (Continued)

What feature types do the flood hazard datasets contain? (Check all that apply.)

- ❑ 1-percent- annual-chance flood hazard areas

  {Insert notes.}

- ❑ 0.2-percent–annual-chance flood hazard areas

  {Insert notes.}

- ❑ Regulatory floodways

  {Insert notes.}

- ❑ Coastal Barrier Resources System areas

  {Insert notes.}

- ❑ Alluvial fans

  {Insert notes.}

- ❑ Base flood elevations, velocities, or depths

  {Insert notes.}

- ❑ Cross sections

  {Insert notes.}

- ❑ ERMs

  {Insert notes.}

- ❑ Letters of Map Change

  {Insert notes.}

- ❑ Are data for other flood frequencies available? ❑ Yes ❑ No

  {Insert notes.}

Do the flood hazard boundaries need to be fitted to newer or more detailed stream locations and/or topography than was used for the existing FIRM(s)? ❑ Yes ❑ No

{Insert notes.}

Are new hydrologic and hydraulic models available? If yes, describe below. ❑ Yes ❑ No

{Insert notes.}

Do hydrologic and hydraulic models need inclusion? ❑ Yes ❑ No

{Insert notes.}

Flood Hazard Data (Continued)

Were the hydrologic and hydraulic data developed using automated modeling and mapping techniques? If so, describe them. ❑ Yes ❑ No

{Insert notes.}

Are digital files containing data needed for hydrologic or hydraulic modeling (e.g., land use or soils) available? ❑ Yes ❑ No

{Insert notes.}

Are supplemental data (e.g., photographs, etc.) available? ❑ Yes ❑ No

{Insert notes.}

Are supplemental data in digital format? ❑ Yes ❑ No

{Insert notes.}

Are there levees in this community? ❑ Yes ❑ No

{Insert notes.}

If levees are present, do they provide protection from the 1-percent-annual-chance flood event? ❑ Yes ❑ No

{Insert notes.}

Is U.S. Army Corps of Engineers certification available for these levees? ❑ Yes ❑ No

{Insert notes.}

Do the coastal analyses reflect primary frontal dunes? ❑ Yes ❑ No

{Insert notes.}

Do the coastal analyses reflect wave heights? ❑ Yes ❑ No

{Insert notes.}

Does the community maintain hydrologic and hydraulic analyses that reflect future conditions? ❑ Yes ❑ No

{Insert notes.}

Are other hazard data available? If yes, what are they? ❑ Yes ❑ No

{Insert notes.}

Are elevation certificates for flood-prone structures available in a database or other electronic format? ❑ Yes ❑ No

{Insert notes.}

I.1.7 Potential Obstacles to Project Completion Checklist [February 2002]

FEMA designed the Potential Obstacles to Project Completion Checklist, shown on pages I-34 to I-39, to record identified potential obstacles to the completion of a Flood Map Project, as well as to record creative solutions and/or alternatives to minimize or avoid potential obstacles. The assigned Project Team member shall check the type of obstacle identified, and then fill in the necessary information. The checklist is a "living" document that the assigned Project Team member is to update throughout the entire lifecycle of the Project, when necessary.

Potential Obstacles to Project Completion Checklist

Community Name	{Insert Community Name.}
Project Management Team	{List Project Management Team Members.}
Date Created	{Insert checklist completion date.}
Date Revised	{Insert checklist revision date.}
Date Revised	{Insert checklist revision date.}
Date Revised	{Insert checklist revision date.}

❑	**Unable To Adequately Address Needs with Available Funding**
	Minimum Project Needs • {Insert needs.}
	Estimated Funding Required • {Provide estimated funding level required.}
	Possible Solutions or Alternatives • {List and/or discuss possible solutions or alternatives.}
	Comments: {Insert additional comments.}
	Resolution • {Describe the resolution for this issue.}
	Can the project proceed? ❑ Yes ❑ No

❑ **Base Map Availability**

- ❑ U.S. Geological Survey Digital Orthophoto Quadrangles not available
- ❑ Local base map not available
- ❑ Local base map does not meet FEMA minimum requirements in the following areas (see Appendix A of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* for additional information):
  - ❑ Resolution
  - ❑ Horizontal Accuracy
  - ❑ Horizontal Reference System
  - ❑ Data Sources
  - ❑ Currency
  - ❑ Coverage
  - ❑ Availability
  - ❑ Restrictions on Use
  - ❑ Contents
  - ❑ Thematic Separation of Data
  - ❑ File Format

❑ Data Structure ❑ Metadata
Comments: {Insert notes.}
Possible Solutions or Alternatives • {List and/or discuss possible solutions or alternatives for base map availability issues.}
Resolution • {Describe the resolution for this issue.}
Can the project proceed? ❑ Yes ❑ No

❑

Hydrologic or Hydraulic Issues
Hydrologic or Hydraulic Issues • {List and/or discuss any hydrologic & hydraulic issues that could threaten the success of the project.}
Possible Solutions or Alternatives • {List and/or discuss possible solutions or alternatives for each hydrologic & hydraulic issue.}
Comments: {Insert additional comments.}
Resolution • {Describe the resolution for this issue.}
Can the project proceed? ❑ Yes ❑ No

❑ **Community Concerns**
Community Needs, Concerns, and/or Preferences • {List and/or describe any community needs, concerns, and/or preferences.}
Other Potential Community-Related Obstacles • {Discuss and/or describe any other obstacles posed by the community.}
Possible Solutions or Alternatives • {List and/or discuss possible solutions or alternatives to community-related issues.}
Comments: {Insert additional comments.}
Resolution • {Describe the resolution for this issue.}
Can the project proceed? ❑ Yes ❑ No

❑ **Reliance on Other Studies or Data**
Relationship to the Proposed Flood Project • {Describe how the dependent ongoing study or studies tie in with the proposed Flood Map Project.} • {Describe if, how, and why the dependent ongoing study or studies could delay the proposed Flood Map Project.} • {Describe data that will not be available within the project's scheduling constraints; e.g., topographic mapping.}

Possible Solutions • {List and/or discuss possible solutions or ways to work around this obstacle. For example, if the dependent on-going study or studies are a source of data for the proposed Flood Map Project, are there alternative sources of data?}
Comments: {Insert additional comments.}
Resolution • {Describe the resolution for this issue.}
Can the project proceed? ❑ Yes ❑ No

❑

Project Priority
Change in Priority • {List any possible changes in the priority for this project.}
Needs Update • {Discuss any updates to the needs that may affect the priority.}
Possible Solutions or Alternatives • {Describe appropriate course of action should priorities change.}
Comments: {Insert additional comments.}
Resolution • {Describe the resolution for this issue.}
Can the project proceed? ❑ Yes ❑ No

❑	**Other Considerations**
	Federal/State/Non-Governmental Organizations • {Describe and/or discuss any politically motivated considerations that could delay/impede the project.}
	Programmatic • {Describe and/or discuss any programmatic considerations that could delay/impede the project.}
	Disaster-Related • {Describe and/or discuss any disaster-related issues or considerations that could delay/impede the project.}
	Legal • {Describe and/or discuss any legal considerations that could delay/impede the project.}
	Other • {Describe and/or discuss any additional considerations that could delay/impede the project.}
	Possible Solutions or Alternatives • {Describe any possible solutions or alternatives.}
	Comments: {Insert additional comments.}
	Resolution • {Describe the resolution for this issue.}
	Can the project proceed? ❑ Yes ❑ No

I.1.8 Draft Scope of Project Template [April 2003]

FEMA designed the Draft Scope of Project Template, shown on pages I-41 to I-47, to record the elements of the draft Scope of Project. The draft Scope of Project is based on mapping needs determined during the Mapping Needs Assessment Phase of the Flood Map Project and/or the research portion of the Scoping Phase of the Flood Map Project. The draft Scope of Project is a "living" document that the FEMA Lead and other Project Team members are to update, when necessary.

Scope of Project

{Insert Name of Project}

{Insert Date}

{Insert Revision Date}

{Insert Revision Date}

{Insert Revision Date}

{Insert Revision Date}

{Insert Name(s) of Author(s)}

Introduction

{Insert paragraph describing the purpose of this project. The purpose statement should include a summary of the research and outreach activities completed. Note in the purpose statement that the project is subject to change due to community priorities and funding availability.}

1. Needs List

Mapping Need	Need Type	Source of Need
{Insert brief summary of need; e.g., "Restudy of Mill Brook" or "Convert Maps to DFIRM." Add new table row for each need.}	{Insert either "Flood Data Update" or "Map Maintenance."}	{Explain how the need was identified; e.g., community, MAPPING PARTNER Research, etc.}

2. DFIRM Production

Check all that apply:

❑ Countywide ❑ Community-Based

❑ Incorporate Letters of Map Change

❑ Digitize Effective Information for Non-Revised Flooding Sources

Counties/Communities:

Countywide:

1) County Name: _____

FIPS code (if available): _____

Affected Communities:

All Communities in County ☐

Restudy of the following Communities[2] ☐

Community Name	CID

2) County Name: _____

FIPS code (if available): _____

Affected Communities:

All Communities in County ☐

Restudy of the following Communities ☐

Community Name	CID

[5] List all community names in this county that will be included in this Flood Map Project. Also include their corresponding CIDs if available.

Community-based:

1) Community Name: _____

CID (if available): _____

2) Community Name: _____

CID (if available): _____

3) Community Name: _____

CID (if available): _____

4) Community Name: _____

CID (if available): _____

A. Proposed Paneling Scheme

{Describe and discuss the proposed paneling scheme for this project. Attach an index.}

B. Base Map

{Indicate the sources for base maps to be used for the project.}

Source	Date	Scale	Contour Interval	Coverage
{Insert source of base map. Note: Add table row for each source.}	{Insert date.}	{Insert scale.}	{Insert contour interval.}	{Describe coverage.}

{Additional comments}

C. Option Choices

❑ Resolve external mismatches

❑ Incorporate Physical Map Revision or Existing Data Studies

❑ Fit existing Flood Profiles to updated topographic data

❑ Expand database to include:

- {List what will be included in expanded database.}

❑ Fit Zone As to updated topographic data

❑ Map unmapped communities

❑ Convert to North American Vertical Datum of 1988

❑ Convert to metric

❑ Add supplemental images:

{Examples: Scanned Documents, Engineering Study Data Package, Technical Support Data Notebook, etc.}

- ❑ Replace ERMs with National Geodetic Survey bench marks
- ❑ Include future conditions mapping
- ❑ Include erosion mapping
- ❑ Include other hazards (specify below)

  {Specify other hazards.}
- ❑ Other community options (specify below:

  {Specify other community options.}

3. Description of Project Area (Add flooding source tables as needed)

<u>Flooding Source</u>: (Insert Name}

Hazard Identification Method		**Data Collection**	
Hydrology	Hydraulics	Field Surveys for Cross Sections and Structures	Topographic Data (Include Scale and Contour Interval)

<u>Flooding Source</u>: (Insert Name}

Hazard Identification Method		**Data Collection**	
Hydrology	Hydraulics	Field Surveys for Cross Sections and Structures	Topographic Data (Include Scale and Contour Interval)

<u>Flooding Source</u>: (Insert Name}

Hazard Identification Method		**Data Collection**	
Hydrology	Hydraulics	Field Surveys for Cross Sections and Structures	Topographic Data (Include Scale and Contour Interval)

I.1.9 Draft Scope of Project Conference Call Agenda/ Meeting Minutes Template [February 2002]

FEMA designed the Draft Scope of Project Conference Call/Agenda Meeting Minutes Template, shown on pages I-43 and I-44, to record the results of the conference call that the FEMA Lead will hold with the community once research has been completed and the draft Scope of Project has been prepared. If more than one conference call is conducted or more than one community is contacted, the FEMA Lead or other assigned FEMA staff shall prepare a separate form for each call.

Draft Scope of Project Conference Call Agenda/Meeting Minutes

Community/Flood Map Project:		
Date:	**Case No.:**	
FEMA Lead:		
Participants:		
1.	6.	
2.	7.	
3.	8.	
4.	9.	
5.	10.	
Agenda Items		**Estimated Time:**
1. Introductions/Roll-Call		
{Insert minutes .}		
2. Overview of Agenda for Conference Call		
{Insert minutes.}		
3. Summary of Research Methods		
{Review how the draft Scope of Project was developed.}		
4. Discuss Draft Scope of Project: • Flooding sources to be studied • Flood hazard identification methods to be used • Data collection needs and methods • Proposed paneling scheme • Base map • DFIRM options • Digital Conversion of Existing Data		
{Insert minutes.}		

Agenda Items	**Estimated Time:**
5. Schedule Scoping Meeting and Identify Attendees	
{Insert minutes.}	
6. Summary of Action Items	
{Insert minutes.}	

I.2 Scoping Meeting Activities [February 2002]

The templates, checklists, and forms that the FEMA Lead and other Project Team members shall use to record activities during the Project Scoping Meeting are summarized in Subsections I.2.1 through I.2.8.

I.2.1 Scoping Meeting Item Checklist Template [February 2002]

FEMA designed the Scoping Meeting Item Checklist Template, shown on pages I-51 to I-53, for the FEMA Lead to use in recording what items the individual Project team members must bring to the Scoping Meeting. The FEMA Lead or other designated FEMA staff shall complete this checklist before the Scoping Meeting is held.

The following items are considered essential for the Scoping Meeting:

Item	Responsible Team Member
Flood Insurance Study Report(s)	
Flood Insurance Rate Map Panel(s)	
U.S. Geological Survey Topographic Quadrangle(s)	
Best Available Community Base Map(s)	
Effective Map and Report Summary	
Available Data Inventory	
Scoping Map	
Draft Scope of Project	
Scoping Meeting Agenda/Minutes Form and Other Relevant Scoping Meeting Tools	

Bring the following items, if available:

Available	Item	Responsible Team Member
❑ Yes ❑ No	Aerial Photographs and/or Digital Orthophoto Quarter Quadrangle Images	
❑ Yes ❑ No	Aerial Topography	
❑ Yes ❑ No	Pertinent Reports/Studies/Plans (e.g., Federal Agency Reports, Master Drainage Plans)	
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		

The following community resources should also be available for the Scoping Meeting:

Available	Item	Responsible Team Member
❑ Yes ❑ No	Community Master Plan(s)	
❑ Yes ❑ No	As-Built Plans	
❑ Yes ❑ No	Drainage Master Plans	
❑ Yes ❑ No	Street Maps	
❑ Yes ❑ No	Zoning Maps	
❑ Yes ❑ No	Floodplain Ordinance(s)	
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		
❑ Yes ❑ No		

I.2.2 Document Transmittal Letter Template [February 2002]

FEMA designed the Document Transmittal Letter Template, shown on pages I-56 and I-57, for the FEMA Lead, FEMA Assistance Officer (AO), or FEMA Contracting Officer (CO) to use in distributing the Scoping Meeting Item Checklist and background information on the Flood Map Project to all individuals that will attend the Scoping Meeting.

Federal Emergency Management Agency
Region {Insert Regional Office Number}

{Date}

{Name of Community Official}
{Community Official's Title}
{Address 1}
{Address 2}
{Community, State ZIP code}

Dear {Name of Community Official}:

We have scheduled your community's Flood Map Project Scoping Meeting for {INSERT DATE OF SCOPING MEETING}. The meeting will be held at {INSERT TIME AND LOCATION OF MEETING}. Details regarding attendees, how you can prepare for the meeting, and what you will need to bring are listed below.

Flood Map Project:	{Insert Name of the Flood Map Project.}
Case No.:	{Insert Case Number.}
FEMA Lead:	{Insert Name of FEMA Lead}
Attendees:	{Insert names of all attendees.}

The following are attachments to this letter:

- Scoping Meeting Agenda
- Revised Draft Scope of Project
- Project Management Plan

The Project Management Team will bring the following items:

- {Add items, as necessary.}

Your community has agreed to provide the following for the Flood Map Project Scoping Meeting:

- As-Built Construction Plans:
- Development Proposals
- Topographic Mapping
- Community Master Plan
- Street Maps
- Zoning Maps
- Floodplain Ordinances

We look forward to working with the community officials of {Insert Community Name} to ensure that the goals of this Flood Map Project are met. This will allow {Insert Community Name } to administer effective floodplain management programs. If you have any questions, please do not hesitate to contact the Director, Mitigation Division of the FEMA Region {Insert Region Number} Office, at {Telephone}, or {Insert Name of FEMA HQ Engineer} at our Headquarters Office in Washington, D.C., at {Insert Telephone Number}, or by facsimile at {Insert Fax Number}.

Sincerely,

{Insert Name and Title of FEMA Lead and/or Contracting Officer}

cc: {FEMA HQ Engineer}, FEMA Headquarters

{OTHER PROJECT TEAM MEMBERS, AS NECESSARY}

Attachments

I.2.3 Scoping Meeting Attendance Sheet Template [February 2002]

FEMA designed the Scoping Meeting Attendance Sheet Template, shown on page I-59, for the FEMA Lead or other designated FEMA staff to use in recording the name, title, organization/affiliation, and contact information for the Project Team members and other individuals that attend the Scoping Meeting.

Community/Flood Map Project:				
Date/Time:		**Case No.:**		
FEMA Lead:		**Location of Meeting:**		
Name	**Title**	**Organization/ Affiliation**	**Telephone/Fax**	**E-Mail Address**
			(P) (F)	
			(P) (F)	
			(P) (F)	
			(P) (F)	
			(P) (F)	
			(P) (F)	

I.2.4 Scoping Meeting Agenda/Meeting Minutes Template [February 2002]

FEMA designed the Scoping Meeting Agenda/Meeting Minutes Template, shown on page I-61, for the FEMA Lead or other designated FEMA staff to use in documenting the agenda and results of the Scoping Meeting. The estimated times listed in the template are simply a guideline to assist in running the meeting.

Scoping Meeting Agenda/Meeting Minutes

Community/Flood Map Project:	
Date/Time:	**Case No.:**
FEMA Lead:	**Location of Meeting:**
Participants:	
1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Agenda Items	**Estimated Time**
Introduction/Sign-In Sheet	10 minutes
{Insert minutes.}	
Overview of Scoping Meeting Agenda	5 minutes
{Insert minutes.}	
National Flood Insurance Program Overview	10 minutes
{Insert minutes.}	
Needs List Development	15 to 45 minutes
{Insert minutes.}	
Scope of Project Refinement	30 to 45 minutes
{Insert minutes.}	
Community and Partner Agreement Discussion	15 minutes
{Insert minutes.}	
Summary of Action Items	5 minutes
{Insert minutes.}	
Total Time:	**1¾ to 2½ hours**

I.2.5 Task Assignment and Scheduling Worksheet Template [April 2003]

MICS

FEMA designed the Task Assignment and Scheduling Worksheet Template, shown on page I-63, to document task assignments made at the Scoping Meeting to Project Team members and to develop a schedule for the Flood Map Project. The assigned Project Team member that records this information shall refer to the Flood Map Project Process flowchart in Subsection I.2.6 and mark any components that will not be included as not applicable under the column entitled "Responsible Mapping Partner."

Task Assignment and Scheduling Worksheet

Case No. _____

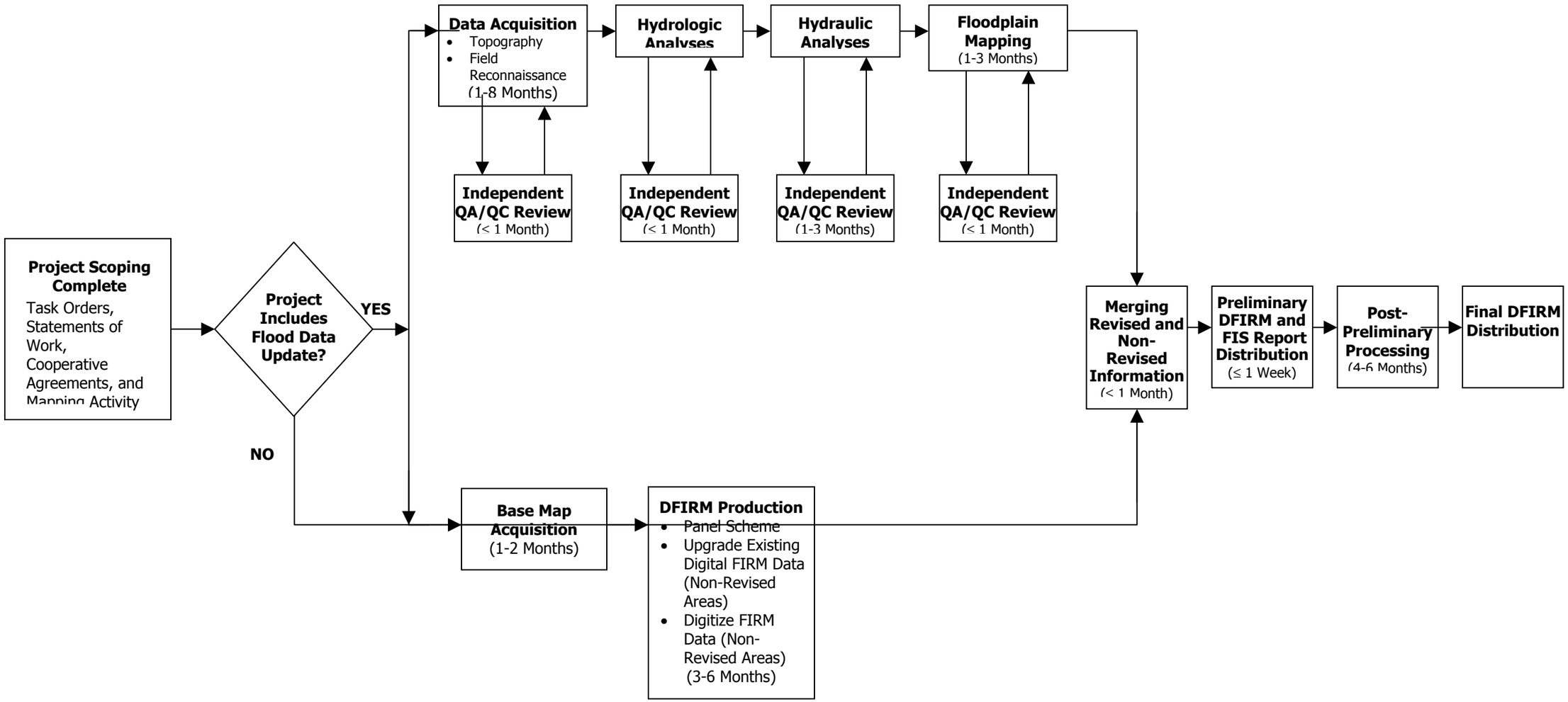
(See also the Flood Map Project Process flowchart.
Mark any components that will not be included as "N/A" under "Responsible Mapping Partner.")

Community/Flood Map Project:			
Map Project Component	**Responsible Mapping Partner**	**Target Due Date**	**Typical Timeframe**
Field Surveys and Reconnaissance			1-8 months
Topographic Data Development			1-8 months
Independent QA/QC Review of Topographic Data			≤ 1 month
Hydrologic Analyses			1-6 months
Independent QA/QC Review of Hydrologic Analyses			≤ 1 month
Hydraulic Analyses			2-8 months
Independent QA/QC Review of Hydraulic Analyses			1-3 months
Floodplain Mapping (Revised Areas)			1-3 months
Independent QA/QC Review of Floodplain Mapping (Revised Areas)			≤ 1 month
Base Map Acquisition			1-2 months
DFIRM Production (Non-Revised Areas)			3-6 months
DFIRM Production (Merge Effective and Revised Information)			≤ 1 month
Application of DFIRM Graphics and Database Specifications			≤ 1 month
Independent QA/QC Review of Final DFIRM Product			≤ 1 month
Preliminary DFIRM and FIS Report Distribution			≤ 1 week
Post-Preliminary Processing			4-6 months
Final DFIRM and FIS Report Distribution			

I.2.6 Flood Map Project Process Flowchart [February 2002]

FEMA designed the Flood Map Project Process flowchart, shown on page I-65, as a tool that the FEMA Lead and all Project Team members shall use for developing the Flood Map Project schedule at the Scoping Meeting.

Flood Map Project Process



Note: Many of these steps can be conducted concurrently. Initiation of most steps is not necessarily contingent on the completion of previous steps.

I.2.7 Community Partner Memorandum of Agreement Template

[February 2002]

FEMA designed the Community Partner Memorandum of Agreement Template, shown on pages I-68 and I-69, to assist the FEMA Lead and/or AO in developing an agreement between FEMA and a community that will participate in a Flood Map Project. FEMA and the community will sign this Agreement when a community will be contributing work or base map data, but will not be participating in the Cooperating Technical Partners initiative.

If the community will not be participating in the Project by contributing work or data, FEMA will sign a Community Partner Memorandum of Agreement with the community to:

- Document the good faith efforts to collaboratively assess the community's needs;
- Develop an appropriate Scope of Project; and
- Develop and publicize the updated map that results from the Flood Map Project.

Federal Emergency Management Agency
Community Partner Memorandum of Agreement

AGREEMENT is made on {Insert Date}, by these parties: {Insert community partner name(s)} and the Federal Emergency Management Agency (FEMA).

BECAUSE the National Flood Insurance Program (NFIP), established by the National Flood Insurance Act of 1968, has several purposes, the most significant being:

- To better indemnify individuals from losses through the availability of flood insurance;
- To reduce future flood damages through community floodplain management regulations; and
- To reduce costs for disaster assistance and flood control.

BECAUSE a critical component of this program is the identification and mapping of the nation's floodplains to create a broad-based awareness of the flood hazard and to provide the data necessary for community floodplain management programs and to actuarially rate flood insurance;

BECAUSE FEMA administers the NFIP and is authorized by §1360 of the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4101), to establish and update flood-risk zone data in floodplain areas.

BECAUSE, in the identification of flood-prone areas, FEMA is authorized to consult with, receive information from, and enter into agreements or other arrangements with the head of any State, regional, or local agency in order to identify these flood-prone areas;

BECAUSE FEMA encourages strong Federal, State, regional, and local partnerships for the purposes of reducing flood losses and disaster assistance; and FEMA and its State, regional, and local partners have determined that it is advantageous to encourage and formalize greater cooperation in the flood hazard identification and mapping processes;

BECAUSE {Insert community partner name(s)} participates in the NFIP, and {Insert name of community representative}, has been deemed by FEMA to be in good standing in the NFIP; and

BECAUSE {Insert community partner name(s)} {Insert has or have} expressed a desire to cooperate with FEMA in the flood hazard identification process and has worked with FEMA to identify and prioritize {Insert community partner name(s). Note name is possessive here.} flood mapping needs and develop a scope of study to produce an updated digital flood map.

NOW, THEREFORE, it is mutually agreed that the parties enter into this agreement to work together to produce an updated, digital flood map for {Insert name(s) of community}.

_____ _____

{Insert name of community authorized representative} Date

{Insert title of CTP authorized representative}

_____ _____

{Insert name of FEMA authorized representative} Date

{Insert title of FEMA authorized representative}

I.2.8 Cooperating Technical Partners Program Partnership Agreement Template [April 2003]

FEMA designed the Cooperating Technical Partners (CTP) Program Partnership Agreement Template, shown on pages I-71 to I-73, to assist the FEMA Lead and/or AO in developing an agreement with a community, regional agency, or State agency that chooses to participate in the CTP Program. Additional information on the CTP Program may be found on the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/fhm/ctp_main.shtm.

This Partnership Agreement is a broad statement of principle, emphasizing the value of the NFIP's three components of insurance, floodplain management, and mapping. Through this Partnership Agreement, FEMA and the community, regional agency, or State agency acknowledge the fundamental importance of flood hazard identification in the successful reduction of future flood losses and commit to the flood hazard identification effort.

Federal Emergency Management Agency
Cooperating Technical Partners
Partnership Agreement

AGREEMENT is made on {Insert Date}, by these parties: {Insert partner name(s)} and the Federal Emergency Management Agency (FEMA).

BECAUSE the National Flood Insurance Program (NFIP), established by the National Flood Insurance Act of 1968, has several purposes, the most significant being:

- To better indemnify individuals from losses through the availability of flood insurance;
- To reduce future flood damages through community floodplain management regulations; and
- To reduce costs for disaster assistance and flood control.

BECAUSE a critical component of the NFIP is the identification and mapping of the nation's floodplains to create a broad-based awareness of the flood hazard and to provide the data necessary for community floodplain management programs and to actuarially rate flood insurance;

BECAUSE FEMA administers the NFIP and is authorized by §1360 of the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4101), to establish and update flood-risk zone data in floodplain areas.

BECAUSE, in the identification of floodprone areas, FEMA is authorized to consult with, receive information from, and enter into agreements or other arrangements with the head of any State, regional, or local agency in order to identify these floodprone areas;

BECAUSE FEMA encourages strong Federal, State, regional, and local partnerships for the purposes of reducing flood losses and disaster assistance; and FEMA and its State, regional, and local partners have determined that it is advantageous to encourage and formalize greater cooperation in the flood hazard identification and mapping processes;

BECAUSE {Insert community partner name(s)} participates in the NFIP and has been deemed by FEMA to be in good standing in the NFIP; and

OR

BECAUSE {Insert regional or State agency partner name(s)} shares flood protection and/or floodplain management responsibilities with communities that participate in the NFIP and those communities have been deemed by FEMA to be in good standing in the NFIP; and

BECAUSE {Insert partner name(s)} {Insert has or have} expressed a desire to cooperate with FEMA in the flood hazard identification process and {Insert has or have} worked with FEMA to identify and prioritize {Insert partner name(s) Note name is possessive here} flood mapping needs and develop a scope of study to produce an updated, digital flood map; and

BECAUSE {Insert partner name(s)} {Insert has or have} expressed a desire to perform certain functions in the flood hazard identification process and {Insert has or have} provided evidence that {Insert it or they} {Insert has or have} sufficient technical capability and will dedicate the resources necessary to perform those functions.

NOW, THEREFORE, It is mutually agreed that the parties enter into this Agreement to work together to produce an updated, digital flood map for {Insert name(s) of community and/or partner(s)}.

1. CONSULTATIONS

The parties shall consult with each other to fully integrate each other's contributions into flood hazard identification efforts. Questions regarding the execution of the Agreement will be resolved by an implementation committee consisting of a FEMA representative and a representative of {Insert partner name(s)}. In States where statutory and/or regulatory requirements require State review and/or approval of new flood hazard data, a State representative also will serve on the implementation committee, as appropriate.

2. EVALUATION AND REPORTING

The parties shall annually review the partnership created by this Agreement to determine and document the activities undertaken to maintain accurate flood hazard data and to revise the Agreement as necessary.

3. RESOURCE COMMITMENT

The parties agree to commit the appropriate and available human, technical, and financial resources sufficient to coordinate effectively with all entities impacted by flood hazard identification efforts to implement this Agreement.

4. STANDARDS

Unless otherwise agreed to by the parties, all flood hazard identification activities will be accomplished in accordance with the standards documented in *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated February 2002, and subsequent updates.

5. SPECIFIC INITIATIVES OR PROJECTS

Specific initiatives or projects to be performed under this Agreement are to be documented in Mapping Activity Statement(s), which will be attached to this Agreement when signed. The parties will be obligated to perform as described in the signed Mapping Activity Statement(s).

6. TERM

The respective duties, responsibilities, and commitments of the parties in this Agreement shall begin on the date this Agreement is signed by the parties and may be periodically renewed, revised, or terminated at the option of any of the parties. The parties agree that a 60-day notice shall be given prior to the termination of this Agreement.

THEREFORE, each Mapping Partner has caused this Agreement to be executed by its duly authorized representatives on the date this Agreement is signed.

_____ _____

{Insert name of CTP authorized representative} Date

{Insert title of CTP authorized representative}

_____ _____

{Insert name of FEMA authorized representative} Date

{Insert title of FEMA authorized representative}

_____ _____

{Insert name of State authorized representative} Date

{Insert title of State authorized representative}

(In States where statutory and/or regulatory requirements require State review and/or approval of new flood hazard data, the State must be a signatory to a community's Agreement. Otherwise, delete State signature line).

I.3 Post-Scoping Meeting Activities [February 2002]

The templates, checklists, and forms that the FEMA Lead and other Project Team members shall use to record activities after the Project Scoping Meeting are summarized in Subsections I.3.1, I.3.2, and I.3.3.

I.3.1 Statement of Work Template MICS [April 2003]

FEMA designed the Statement of Work (SOW) Template (pages I-76 to I-109) to assist the FEMA Lead in documenting task assignments and standards for FEMA-contracted Flood Map Projects that are not being undertaken under a CTP Program Partnership Agreement. The FEMA Lead shall prepare one SOW for an entire Flood Map Project, covering all of the tasks that apply to that Flood Map Project. The tasks that will generally be included in a FEMA-contracted Flood Map Project are listed below. The FEMA Lead and the rest of the Project Team shall revise the SOW as appropriate to include tasks that are not listed below (e.g., alluvial fan flood hazard analyses, shallow flooding analyses).

- Task 1—Field Surveys and Reconnaissance;
- Task 2—Topographic Data Development;
- Task 3—Independent QA/QC Review of Topographic Data;
- Task 4—Hydrologic Analyses;
- Task 4A—Coastal Hazard Analyses
- Task 5—Independent QA/QC Review of Hydrologic Analyses;
- Task 5A—Independent QA/QC Review of Coastal Hazard Analyses;
- Task 6—Hydraulic Analyses;
- Task 7—Independent QA/QC Review of Hydraulic Analyses;
- Task 8—Floodplain Mapping (Detailed Riverine or Coastal Analysis);
- Task 8A—Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data);

- Task 8B—Floodplain Mapping (Refinement or Creation of Zone A);
- Task 9—Independent QA/QC Review of Floodplain Mapping (Revised Areas);
- Task 10—Base Map Acquisition;
- Task 11—DFIRM Production (Non-Revised Areas);
- Task 11A—Independent QA/QC Review of DFIRM Production (Non-Revised Areas)
- Task 12—DFIRM Production (Merging Effective and Revised Information);
- Task 12A—Application of DFIRM Graphic and Database Specifications
- Task 12B—Independent QA/QC Review of DFIRM
- Task 13—Preliminary DFIRM and FIS Report Distribution;
- Task 14—Post-Preliminary Processing; and

By using the template, the Project Team shall ensure the resulting SOW clearly identifies the responsible Project Team member(s) assigned to complete each Project task and the standards that each Project Team member shall meet for completion of each task and delivery of final products. The matrix of standards in the "Applicable Standards" section of the template (page I-98), subject to change when these Guidelines are updated, is a guide.

Mapping Partners are strongly encouraged to use the listed references to standards to identify key sections of these Guidelines applicable to the task, but not limit their familiarity with these Guidelines to those sections. Final decisions regarding the standards to be met shall be made by the FEMA Lead in consultation with the rest of the Project Management Team.

Statement of Work

{Insert Name of Project}

{Insert Community Name or Agreement Number}

{Insert Date}

INTRODUCTION

The Flood Map Project described in this Statement of Work (SOW) shall be completed in accordance with Contract No. {Insert contract number}, dated {Insert date contract signed} The purpose of this Flood Map Project is to develop a Digital Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for {Insert name of community(ies) or county}. The DFIRM and FIS report will be produced in the FEMA {Countywide or Community-Based}Format.

<Delete this text and the table below if the project includes only conversion of maps to DFIRM>. In addition the Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in the following table:

Flooding Source	Reach Limits	Hydrology	Hydraulics	Floodplain Mapping	Redelineation of SFHAs Using Effective Profiles	Refine/ Establish Zone As
{Insert name of flooding source}	{Insert reach limits}	{Check if applicable}	{Check if applicable}	{Check if applicable}	{Check if applicable}	{Check if applicable}

The following will complete this Flood Map project:

- {Insert name of Mapping Partner No. 1};
- {Insert name of Mapping Partner No. 2}; and
- FEMA Flood Map Production Coordination Contractor (MCC).

The tasks and who will complete them are summarized in Section 1 of this SOW.

SECTION 1—SCOPE OF WORK

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

<Include only those tasks listed below that apply to this Flood Map Project>

Table 1-1. Summary of Project Tasks and Assignments

Tasks	Mapping Partner No. 1	Mapping Partner No. 2	FEMA (MCC)
Task 1 – Field Surveys and Reconnaissance			
Task 2 – Topographic Data Development			
Task 3 – Independent QA/QC Review of Topographic Data			
Task 4 –Hydrologic Analyses			
Task 4A –Coastal Flood Hazard Analyses			
Task 5–Independent QA/QC Review of Hydrologic Analyses			
Task 5A–Independent QA/QC Review of Coastal Hazard Analyses			
Task 6 – Hydraulic Analyses			
Task 7 – Independent QA/QC Review of Hydraulic Analyses			
Task 8 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)			
Task 8A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)			
Task 8B – Floodplain Mapping (Refinement or Creation of Zone A)			
Task 9 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)			
Task 10 – Base Map Acquisition			
Task 11 – DFIRM Production (Non-Revised Areas)			
Task 11A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)			

Tasks	Mapping Partner No. 1	Mapping Partner No. 2	FEMA (MCC)
Task 12 – DFIRM Production (Merge Revised and Non-Revised Information)			
Task 12A – Application of DFIRM Graphic and Database Specifications			
Task 12B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications			
Task 13 – Preliminary DFIRM and FIS Report Distribution			
Task 14 – Post-Preliminary Processing			

Task 1 - Field Surveys and Reconnaissance

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: To supplement any field reconnaissance conducted during the scoping phase of this project, {Insert name of responsible Mapping Partner} 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, {Insert name of responsible Mapping Partner} 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. {Insert name of responsible Mapping Partner} also shall coordinate with other Mapping Partners that are collecting topographic data under Task 2.

<Add additional details regarding the scope of this task, as appropriate>

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

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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Task 2 - Topographic Data Development

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: To supplement the field surveys conducted under Task 1 of this SOW, {Insert name of responsible Mapping Partner} shall obtain additional topographic data of the overbank areas of the flooding sources studied to delineate floodplain boundaries. Specifically, {Insert name of responsible Mapping Partner} shall generate new topographic data for {Insert name of Insert name of flooding souce(s)} using {Insert method for collecting additional topopgrahic data}. {Insert name of responsible Mapping Partner} also shall coordinate with other team members conducting field surveys under Task 1 of this SOW.

<Optional paragraph if automated H&H is used>For this task, {Insert name of responsible Mapping Partner} also shall develop topographic maps and/or Digital Elevation Models (DEMs) for the subject flooding sources using the data collected under Tasks 1 and 2. In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Task 2 that are raised by {Insert name of responsible Mapping Partner}during the independent QA/QC review under Task 3.

<Add additional details regarding the scope of this task, as appropriate>

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

Deliverables: Upon completion of topographic data collection and processing for {Insert flooding sources}, this data will be submitted to {Insert name of Mapping Partner responsible for QA/QC review of the topographic data} for independent review under Task 3 of this SOW. Data for the remaining flooding sources will be submitted for an independent QA/QC review at the completion of this task.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:<Add, modify or delete deliverables below, as necessary>

- Hardcopy topographic maps;
- Report summarizing methodology and results;
- Triangular Irregular Network (TIN) data on CD-ROM;
- Checkpoint analyses to assess the accuracy of TIN data including Root Mean Square Error calculations to support vertical accuracy;
- Identification of remote sensing data voids and methods used to supplement data voids; and
- National Geodetic Survey data sheets for Network Control Points used to control remote-sensing and ground surveys.

Task 3 - Independent QA/QC Review of Topographic Data

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the mapping data generated by {Insert Mapping Partner responsible for conducting the topographic information} under Task 2 to ensure that this information is consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM.

<Add additional details regarding the scope of this task, as appropriate>

Standards: All work under Task 3 shall be performed in accordance with the standards specified in Section 5 of this SOW.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Task 4 – Hydrologic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform hydrologic analyses for approximately {Insert number of square miles} square miles of drainage area for the flooding source(s) listed in the Introduction portion of this SOW. {Insert name of responsible Mapping Partner} shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using the {Insert name of program} computer program. These flood discharges will be the basis for subsequent hydraulic analyses under Task 6. In addition, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding Activity 4 that are raised during the independent QA/QC review performed by {Insert name of responsible Mapping Partner} under Task 5.

<Optional paragraph for GIS-based modeling> If GIS-based modeling is used, {Insert name of responsible Mapping Partner} shall document automated data processing and modeling algorithms and provide them to FEMA to ensure they are consistent with the standards outlined above. Digital datasets (such as elevation, basin, or land use data) are to be documented and provided to FEMA for approval before performing the hydrologic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analysis, then {Insert name of responsible Mapping Partner} shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

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

Deliverables: Upon completion of hydrologic modeling for {Insert flooding sources; specifiy a subset of all flooding sources being analyzed}, {Insert name of responsible Mapping Partner} shall submit the

results to {Insert name of Mapping Partner responsible for QA/QC review} for independent review under Task 5. {Insert name of responsible Mapping Partner} shall submit the results of the hydrologic analyses for the remaining flooding sources for a final QA/QC review at the completion of this task.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:<Add, modify or delete deliverables below, as necessary>

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events;
- Digital and hardcopy versions of the 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.

<Optional for GIS-based modeling> For GIS-based modeling, deliverables include all input and output data, intermediate data processing products, and GIS data layers.

Task 4A – Coastal Flood Hazard Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform coastal flood hazard analyses for approximately {Insert Number of Transects} transects along {Insert Number of Miles} miles of shoreline, including the following coastal flooding sources: {Insert names of flooding source(s) or include and reference table}. These analyses are to include: {Insert all that apply to this activity (e.g., Stillwater Elevations (SWEL) determinations, wave setup, wave height analyses, erosion analyses and wave runup)}. In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Task 4A that are raised by {Insert name of responsible Mapping Partner for Task 5A} during the independent QA/QC review under Task 5A.

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

Deliverables: Upon completion of the analyses for {Insert flooding sources; specifiy a subset of all flooding sources being analyzed}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Task 5A} for independent review under Task 5A. The results of the analyses for the remaining flooding sources are to be submitted for QA/QC review at the completion of this task.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

- Draft digital and hard copy versions of work maps showing the 1- and 0.2-percent-annual chance floodplain boundaries, Base Flood Elevations (BFEs), and flood insurance risk zones;

- Digital wave envelope profiles for each transect representing the 1-percent-annual-chance stillwater and wave crest elevations and ground profile conditions;
- Digital and hardcopy versions of FIS report materials;
- Draft work maps showing each transect located accordingly;
- Digital and hardcopy versions of all coastal modeling (input and output files); and
- Digital and hardcopy versions of any other supporting computations.

In addition, {Insert name of responsible Mapping Partner} shall submit a coastal study technical documentation notebook with all backup data, description of methodology, and input and output files used in the analyses and mapping as discussed in Appendix D of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Task 5 - Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the technical, scientific, and other information submitted by {Insert name of Mapping Partner responsible for Task 4} under Task 4 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

<Delete or add tasks below, as necessary>

- Review submittal for technical and regulatory adequacy, completeness of required information, application/certification forms, 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 Task 5 shall be performed in accordance with the standards specified in Section 5 of this SOW.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:<Add, modify or delete deliverables below, as necessary>

- 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.

Task 5A - Independent QA/QC Review of Coastal Hazard Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the technical, scientific, and other information submitted by {Insert Mapping Partner responsible for conducting the coastal hazard analysis} under Task 4A 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 is to include, at a minimum, the activities listed below:

<Delete or add tasks below, as necessary>

- Review submittal for technical and regulatory adequacy, completeness of required information, application/certification forms, and supporting data and documentation. The technical review is to focus on the following:
  - Use of acceptable models;
  - Use of appropriate methodology(ies); and
  - Correctly applied methodology(ies)/model(s), including QC of input parameters.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for 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 Task 5A shall be performed in accordance with the standards specified in Section 5 of this SOW.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

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

Task 6 – Hydraulic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform hydraulic analyses for approximately {Insert number of miles} miles of the flooding sources listed in the Introduction of this SOW. The modeling will include the 10-, 2-, 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Task 4. The hydraulic methods used for this analysis will include {Insert the hydraulic methods to be used. Include a table if multiple methods are used.}.

{Insert name of responsible Mapping Partner} shall use the cross-section and field data collected under Task 1 to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

{Insert name of responsible Mapping Partner} shall use the FEMA CHECK-2 or CHECK-RAS checking program to check the reasonableness of the hydraulic analyses. To facilitate the independent QA/QC review under Activity 7, the {Insert name of responsible Mapping Partner} shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding Task 6 that are raised by {Insert name of responsible Mapping Partner for Task 7} during the independent QA/QC review under Task 7.

<Optional paragraph for GIS-based modeling> {Insert name of responsible Mapping Partner} 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. datasets . Digital datasets are to be documented and provided to FEMA for approval before performing the hydraulic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analyses, then {Insert name of responsible Mapping Partner} shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydraulic analyses

<Add additional details regarding the scope, as appropriate>

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

Deliverables: Upon completion of hydraulic modeling for {Insert flooding sources; specifiy a subset of all flooding sources being analyzed.}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Task 7} for independent review under Task 7. The results of the hydraulic analyses for the remaining flooding sources are to be submitted for a final QA/QC review at the completion of this task.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- Digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing conditions using FEMA's RASPLOT 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-2 or 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 Section 3.2, Hydraulic Analyses, of the FIS report.

<Optional for GIS-based modeling> 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.

Task 7 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall review the technical, scientific, and other information submitted by {Insert name of responsible Mapping Partner for Task 6} under Task 6 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

<Delete or add tasks below, as necessary>

- Review submittal for technical and regulatory adequacy, completeness of required information, application/certification forms, 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 programs 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 Task 7 shall be performed in accordance with the standards specified in Section 5 of this SOW.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Task 8 - Floodplain Mapping (Detailed Riverine or Coastal Analysis)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall delineate the d 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. {Insert name of responsible Mapping Partner} shall incorporate all new or revised hydrologic, hydraulic, and/or coastal modeling and shall use topographic information acquired under Task 2 to delineate the floodplain and regulatory floodway boundaries on a digital work map. In addition, {Insert responsible Mapping Partner} shall incorporate the results of all effective Letters of Map Change within the revised areas as appropriate. Also, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding Task 8 that are raised by{Insert name of responsible Mapping Partner for Task 9} during the independent QA/QC review under Task 9.

<Add additional details regarding the scope of this task, as appropriate>

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

Deliverables: Upon completion of floodplain mapping for {Insert flooding sources; specify a subset of all flooding sources being remapped}, {Insert name of responsible Mapping Partner} shall submit the results {Insert name of responsible Mapping Partner for Task 9} for an independent review under Task 9. The mapping for the remaining flooding sources is to be submitted for a final QA/QC review at the completion of this task.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- <For Coastal Areas—delete if not for coastal area>Digital work map showing the Coastal High Hazard Area (V Zone) delineated along {Indicate either Atlantic Ocean, Gulf of Mexico, Great

Lakes, Pacific Ocean, or other.} shorelines, transect locations, BFEs, and flood insurance risk zone designation labels;

- 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;
- 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;
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined under Task 9; and
- An explanation for the use of existing topography for the studied reaches, if appropriate.

Task 8A - Floodplain Mapping (Redelineation of Detailed Floodplain Boundaries Using Updated Topographic Data)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries (if required) for the flooding sources listed in the Introduction to this SOW. {Insert name of responsible Mapping Partner} shall use topographic information acquired under Task 2 to delineate the floodplain and regulatory floodway boundaries as appropriate on a digital work map. In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Task 8A that are raised by {Insert name of responsible Mapping Partner for Task 9} during the independent QA/QC review under Task 9.

<Add additional details regarding the scope of this task, as appropriate>

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

Deliverables: Upon completion of floodplain mapping for {Insert flooding sources; specify a subset of all flooding sources being remapped}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Task 9} for an independent review under Task 9. The mapping for the remaining flooding sources is to be submitted for a final QA/QC review at the completion of this task.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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;
- 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;
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined under Task 9; and
- An explanation for the use of existing topography for the studied reaches, if appropriate.

Task 8B - Floodplain Mapping (Refinement or Creation of Zone A)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources listed in the Introduction to this SOW. {Insert name of responsible Mapping Partner} shall use topographic information acquired under Task 2 to delineate the floodplain boundaries on a digital work map. In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Task 8B that are raised by{Insert name of responsible Mapping Partner for Task 9} during the independent QA/QC review under Task 9.

<Add additional details regarding the scope of this task, as appropriate>

Standards: All work under Task 8B shall be performed in accordance with the standards specified in Section 5 of this SOW. {Insert responsible Mapping Partner}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 before analysis and mapping begin.

Deliverables: Upon completion of floodplain mapping for {Insert flooding sources; specify a subset of all flooding sources being remapped}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Task 9} for an independent QA/QC review under Task 9. The mapping for the remaining flooding sources is to be submitted for a final QA/QC review at the completion of this task.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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 Task 9;
- Hardcopy and digital versions of input and output for any computer programs that were used;
- 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.

If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

Task 9 - Independent QA/QC Review of Floodplain Mapping (Revised Areas)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall review the floodplain mapping submitted by {Insert name(s) of responsible Mapping Partner(s) for Tasks 8, 8A, and 8B} under Tasks 8, 8A, and 8B to ensure that the results of the analyses performed are accurately represented on the work maps. This work shall include, at a minimum, the activities listed below.

<Add, modify or delete tasks below, as necessary>

- For the coastal flood hazard analyses, review the setup and runup height elevations shown on the work map to ensure they agree with those shown on the data table(s), and stillwater elevations are shown where coastal and riverine flooding studied in detail join.
- 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 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 Task 9 shall be performed in accordance with the standards specified in Section 5 of this SOW.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review, noting any deficiencies and providing recommendations to resolve them 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.

Task 10 - Base Map Acquisition

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Task 10 consists of obtaining the digital base map, {specify which one}, for the project {Insert name of responsible Mapping Partner} shall provide the digital base map. The required activities are as follows:

<Add, modify or delete tasks below, as necessary>

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

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

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

Task 11 – DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: For all flooding sources except those segments specified in the Introduction to this SOW (that will have updated flood data developed under Tasks 1 through 9), {Insert name of responsible Mapping Partner} shall convert the information shown on the effective FIRM and Flood Boundary Floodway Map (FBFM) panels for all incorporated and unincorporated areas of {Insert county name} County to digital format in conformance with FEMA DFIRM specifications. {Insert name of responsible Mapping Partner} shall use the base map acquired under Task 10 for the conversion. The scope of Task 11 covers the digitization of {Insert number of panels} FIRM panels and {Insert number of panels} FBFM panels. {Insert name of responsible Mapping Partner} also shall incorporate the results of Letters of Map Change (LOMCs) issued by FEMA since the date of the current effective FIRM for each affected community. {Insert name of responsible Mapping Partner} shall not digitize the flood theme for the flooding sources specified in the Introduction under Task 11. Rather, {Insert name of responsbile Mapping Partner} shall leave these as "holes" in the digital flood theme that will be filled in as part of Task 12 using the digital flood data developed under Tasks 8, 8A, and 8B.

<Add additional details regarding the scope of this task, as appropriate>

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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, including a check that the road and floodplain relationship is maintained for all non-revised areas.

Task 11A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the DFIRM panels submitted by {Insert name of responsible Mapping Partner for Task 11} under Task 11 to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the area mapped. This work shall include, at a minimum, checking the following:

<Add, modify or delete tasks below, as necessary>

- Cross sections were properly located and oriented as shown on the FIRM or FBFM.
- BFEs are properly located and agree with the BFEs shown on the FIRM.
- Regulatory floodway widths agree with the widths shown on the FIRM or FBFM.
- 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.
- For coastal studies, setup and runup height elevations shown on the work map agree with those shown on the data table(s), and stillwater elevations are shown where coastal and riverine flooding studied in detail join.
- Zone designations are indicated properly.

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies and providing recommendations to resolve them 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.

Task 12 – DFIRM Production (Merging Effective and Revised Information)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Upon completion of the floodplain mapping tasks (Tasks 8, 8A, and/or 8B) for the revised flooding sources and the DFIRM production for non-revised areas (Task 11), {Insert name of responsible Mapping Partner} shall merge the digital floodplain data into a single, updated Digital FIRM. 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 SOW. {Insert name of responsible Mapping Partner} 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 this SOW. {Insert name of responsible party} shall coordinate with those Mapping Partners responsible for Tasks 8, 8A, 8B, and 11, as necessary, to resolve any potential tie-in issues.

<Add additional details regarding the scope of this task, as appropriate>

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Task 12A – DFIRM Production (Application of DFIRM Graphic and Database Specifications)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Activity 12. 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). {Insert name of responsible party} shall coordinate with those Mapping Partners responsible for Tasks 8, 8A, 8B, 11, and 12, as necessary, to resolve any problems that are identified during Task 12A.

<Add additional details regarding the scope of this task, as appropriate>

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Task 12B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Upon completion of the floodplain mapping tasks (Tasks 8, 8A, and/or 8B and DFIRM production tasks (Tasks 11, 12, and 12A), {Insert name of responsible Mapping Partner} shall review the DFIRM to ensure it meets current FEMA graphic specifications. In addition, {Insert name of responsible Mapping Partner} shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. {Insert name of responsible Mapping Partner} shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QA/QC review.

This work shall include 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 hazard 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 *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 *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.*

<Add additional details regarding the scope of this task, as appropriate>

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies and providing recommendations to resolve them 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.

Task 13 - Preliminary DFIRM and FIS Report Distribution

Responsible Mapping Partners: {Insert names of responsible Mapping Partners}

Scope: Task 13 consists of the final preparation, review and distribution of the Preliminary copies of the DFIRM and FIS report for community and public review and comment. The activities to be performed are summarized below.

<Add, modify or delete tasks below, as necessary>

Preliminary Transmittal Letter Preparation. The MCC shall prepare letters to transmit the Preliminary copies of the DFIRM and FIS report and related enclosures to the community, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

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

Discrepancy Resolution: The MCC shall work with the community and FEMA as appropriate to resolve discrepancies identified during the final QA/QC review.

Distribution of Preliminary DFIRM and FIS Report: The MCC shall distribute the Preliminary copies of the DFIRM and FIS report to the community, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

News Release Preparation: The MCC shall prepare news release notifications of BFE changes and perform QA/QC reviews of the notices for accuracy and compliance with FEMA format requirements. The MCC shall file the notifications for later submittal to FEMA for review.

Preliminary Summary of Map Actions (SOMA) Preparation: The MCC shall prepare Preliminary SOMAs for all affected communities if appropriate. The SOMA shall list pertinent information regarding Letters of Map Change that will be affected by the issuance of the DFIRM (i.e., superseded, incorporated, revalidated).

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the FEMA *Document Control Procedures Manual* {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- Preliminary transmittal letters shall be prepared. These letters and any additional letters requested by FEMA shall be prepared in accordance with the current version of the FEMA *Document Control Procedures Manual.*
- Preliminary copies of the DFIRM and FIS report, including all updated data tables and Flood Profiles shall be mailed to the Chief Executive Officer (CEO) and floodplain administrator of each community, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.
- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be provided as appropriate.
- Revised DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- Revised DFIRM database files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- Revised metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM shall be provided.

Task 14 - Post-Preliminary Processing

Responsible Mapping Partners: {Insert names of responsible Mapping Partners}

Scope: Task 14 consists of finalizing the DFIRM and FIS report after the Preliminary copies of the DFIRM and FIS report have been issued for public review and comment. The activities to be performed are summarized below.

<Add, modify or delete tasks below, as necessary>

Initiation of Statutory 90-Day Appeal Period: When required, upon completion of a 30-day community comment period and/or final coordination meeting with the affected communities, the {Insert names of responsible Mapping Partners} shall arrange for and verify that the following activities are completed in accordance with the current version of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*:

- Proposed BFE determination letters are sent to the community CEOs and floodplain administrators.
- News release notifications of BFE changes are published in prominent newspapers with local circulation.
- The appropriate notices (Proposed Rules) are published in the *Federal Register*.

Resolution of Appeals and Protests: {Insert names of responsible Mapping Partners} shall support FEMA in reviewing and resolving appeals and protests received during the 90-day appeal period. For each appeal and protest, the following activities shall be conducted as appropriate:

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

The {Insert names of responsible Mapping Partner} shall mail all associated correspondence upon authorization by FEMA.

Preparation of Special Correspondence: {Insert names of responsible Mapping Partners} shall support FEMA in responding to comments not received within the 90-day appeal period (referred to as "special correspondence"), including drafting responses for FEMA review when appropriate and finalizing responses when requested by FEMA. The {Insert names of responsible Mapping Partner} also shall mail the final correspondence (and enclosures if appropriate) and distribute appropriate copies of the correspondence and enclosures upon receipt of authorization from FEMA.

Revision of FIRM and FIS Report: If necessary, the {Insert names of responsible Mapping Partners} shall work together to revise the DFIRM and FIS report at the direction of the FEMA Regional Project Officer and distribute Revised Preliminary copies of the DFIRM and FIS report.

Final SOMA Preparation: The {Insert names of responsible Mapping Partner} shall prepare Final SOMAs for the affected communities as appropriate.

Processing of Letter of Final Determination: The {Insert names of responsible Mapping Partner} shall work with FEMA to establish the effective date for the DFIRM and FIS report, and shall prepare a Letter of Final Determination (LFDs) for each affected community for FEMA review in accordance with the FEMA *Document Control Procedures Manual*. The {Insert names of responsible Mapping Partner} also shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs and enclosures upon receipt of authorization from FEMA.

Processing of Final DFIRM and FIS Report for Printing: The {Insert names of responsible Mapping Partner} shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to the FEMA Map Service Center for printing by the U.S. Government Printing Office. The {Insert names of responsible Mapping Partner} also shall prepare the appropriate paperwork to accompany the DFIRM and FIS report (including Print Processing Worksheet, Printing Requisition Forms, and Community Map Actions Form) and transmittal letters to the community CEOs.

Revalidation Letter Processing. The {Insert names of responsible Mapping Partner} shall prepare and distribute letters to the community CEOs and floodplain administrators to notify the affected communities about Letters of Map Change for which determinations will remain in effect after the DFIRM and FIS report become effective.

Archiving Data: The {Insert names of responsible Mapping Partner} shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until they are transmitted to the FEMA Engineering Study Data Package Facility.

Standards: All work under Task 14 shall be performed in accordance with the standards specified in Section 5 of this SOW.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the FEMA *Document Control Procedures Manual* {Insert names of responsible Mapping Partners} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

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

- DFIRM negatives and final FIS report materials, including all updated data tables and Flood Profiles;
- Paperwork for the final DFIRM and FIS report materials;
- Transmittal letters for the printed DFIRM and FIS report;
- Letter of Map Change Revalidation Letters if appropriate; and
- Complete, organized archived technical and administrative support data

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 Mapping Activity Statement 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, Subsection M.2.1 of FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated February 2002. Appendix M is available for viewing or download on the FEMA Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

If any issues arise that could affect the completion of an activity within the proposed scope or budget, the responsible Mapping Partner shall complete a Special Problem Report (SPR) as soon as possible after the issue is identified and submitted to FEMA. The SPR should 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*.)

Additionally, {Insert name of responsible Mapping Partner} shall collect and maintain a set of products for all Activities and shall compile a comprehensive TSDN for the entire project.

SECTION 3—PERIOD OF PERFORMANCE

The activities documented in this SOW will be begin on **{Insert project start state},** and will be completed no later than **{Insert project end date}.**

Table 2-1. Project Tasks and Applicable TSDN Sections

TSDN Section	Tasks													
	1	2	3	4, 4 A	5, 5 A	6	7	8, 8A, 8B	9	10	11, 11 A	12, 12A	13	14
General Documentation														
Special Problem Reports	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
Meeting Minutes/Reports	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
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
Miscellaneous Reference Information	X			X	X	X	X	X	X	X	X	X	X	X

SECTION 4—SCHEDULE

The tasks documented in this SOW shall be completed in accordance with the 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.

Tasks	RESPONSIBLE PARTNER(S)	DATE DUE
Task 1 – Field Surveys and Reconnaissance		
Task 2 – Topographic Data Development		
Task 3 – Independent QA/QC Review of Topographic Data		
Task 4 –Hydrologic Analyses		
Task 4A –Coastal Flood Hazard Analyses		
Task 5–Independent QA/QC Review of Hydrologic Analyses		
Task 5A–Independent QA/QC Review of Coastal Hazard Analyses		
Task 6 – Hydraulic Analyses		
Task 7 – Independent QA/QC Review of Hydraulic Analyses		
Task 8 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)		
Task 8A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)		
Task 8B – Floodplain Mapping (Refinement or Creation of Zone A)		
Task 9 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)		
Task 10 – Base Map Acquisition		
Task 11 – DFIRM Production (Non-Revised Areas)		
Task 11A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		
Task 12 – DFIRM Production (Merge Revised and Non-Revised Information)		
Task 12A – Application of DFIRM Graphic and Database Specifications		
Task 13 – Preliminary DFIRM and FIS Report Distribution		
Task 14 – Post-Preliminary Processing		

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 FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* (February 2002) 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.

SECTION 6—CERTIFICATIONS

The following certifications apply to this Mapping Activity Statement:

Activity 1 (Field Surveys and Reconnaissance)

A Registered Professional Engineer or Licensed Land Surveyor will 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 2 (Hydrologic Analyses). Activity 4 (Hydraulic Analyses), and Activity 6 (Floodplain Mapping– Detailed Riverine Analysis)

- A Registered Professional Engineer or Licensed Land Surveyor will certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).
- A Registered Professional Engineer or Licensed Land Surveyor will 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 6 (Floodplain Mapping – Detailed Riverine Analysis), Activity 9 (DFIRM Production – Non-Revised Areas), Activity 10 (DFIRM Production – Merging Effective and Revised Information), and Activity 10A (Application of DFIRM Database and Graphic Specifications)

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

Activity 10 (Base Map Acquisition and Preparation)

- A community official or responsible party will provide written certification that the digital data meet FEMA's minimum standards and specifications.
- The responsible Mapping Partner will provide documentation that the digital base map can be used by FEMA.

Table 5-1. Applicable Standards for Project Tasks

	Activities													
Applicable Standards	**1**	**2**	**3**	**4, 4A**	**5, 5A**	**6**	**7**	**8, 8A, 8B**	**9**	**10**	**11, 11A**	**12, 12A**	**13**	**14**
Guidelines and Specifications for Flood Hazard Mapping Partners, February 2002	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
American Congress on Surveying and Mapping (ACSM) procedures	**X**													
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-58), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	**X**													
EM 1000-1-1000, *Photogrammetric Mapping*, March 31, 1993	**X**													
EM 1110-2-1003, *Hydrographic Surveys*, October 31, 1994	**X**													
Numerical Models Accepted by FEMA for NFIP Usage, January 11, 2002				**X**	**X**	**X**	**X**							
Content Standards for Digital Geospatial Metadata (Federal Geographic Data Committee, 1998)								**X**	**X**	**X**	**X**	**X**	**X**	**X**
Document Control Procedures Manual, December 2000												**X**	**X**	**X**

Table 5-2. Project Tasks and Applicable Sections of *Guidelines and Specifications for Flood Hazard Mapping Partners*

Task Number	Task Description	Guidelines Volume, Section/Subsection, and Appendix
1	Field Surveys and Reconnaissance	Volume 1, Sections 1.2, 1.3, 1.4 (specifically Subsection 1.4.2.1)
		Appendix A, Sections A.5, A.6, A.7, and A.8
		Appendices B, C, and M
2	Topographic Data Development	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1)
		Appendix A, Sections A.2 and A.3
		Appendix M
3	Independent QA/QC Review of Topographic Data	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.1)
		Appendix A, Sections A.2, A.3, A.7 (specifically Subsection A.7.5), and A.8 (specifically Subsection A.8.6)
		Appendix M
4	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
4A	Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.2.2)
		Appendix A, Section A.4
		Appendices B, D, and M
5	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
5A	Independent QA/QC	Volume 1, Section 1.4 (specifically Subsection 1.4.1)

Task Number	Task Description	Guidelines Volume, Section/Subsection, and Appendix
	Review of Coastal Hazard Analyses	Appendix A, Section A.4
		Appendices B, D, H, and M
6	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
7	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
8	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
		Appendices K, L, and M
8A	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)
		Appendices K. L, and M
8B	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, and M

Task Number	Task Description	Guidelines Volume, Section/Subsection, and Appendix
9	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 Appendices D, K, L, and M
10	Base Map Acquisition and Preparation	Volume 1, Sections 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsection 1.4.3) Appendices A and B
11	DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.2) Appendices K, L, and M
11A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsection 1.4.3) Appendices K, L, and M
12	DFIRM Production (Merge Revised and Non-Revised Information)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K and L
12A	Application of DFIRM Graphic and Database Specifications	Volume 1, Section 1.4 (specifically Subsection 1.4.3) Appendices K and L Appendices K, L, and M
12B	Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	Volume 1, Section 1.4 (specifically Subsection 1.4.3) Appendices K, L, and M

Task Number	Task Description	Guidelines Volume, Section/Subsection, and Appendix
13	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
14	Post-Preliminary Processing	Volume 1, Section 1.5 Appendices J, K, L, and M

SECTION 7—TECHNICAL ASSISTANCE AND RESOURCES

{Insert name of Mapping Partner} may obtain copies of FEMA-issued Letters of Map Change, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from the {Insert name of responsible Mapping Partner}, who may be contacted by telephone at {Insert telephone number of responsible Mapping Partner} or by facsimile at {Insert fax number of responsible Mapping Partner}.

General technical and programmatic information, such as FEMA 265, the Quick-2 computer program, and the MT-2 forms, can be downloaded from the FEMA Web site (http://www.fema.gov/fhm). Specific technical and programmatic support may be provided through the {Insert name of responsible Mapping Partner}; such assistance should be requested through the FEMA Project Officer specified in Section 11 of this SOW.

{Insert name of Mapping Partner}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 8—SUBCONTRACTORS

{Insert name of Mapping Partner}does not plan to retain the services of subcontractors for this project. If subcontractors are to be used, {Insert name of Mapping Partner}shall notify the FEMA Regional Project Officer and Contracting Officer in accordance with the terms of the contract referenced in the Introduction to this SOW.

SECTION 9—FINANCIAL REPORTING

WEST Consultants shall provide financial reports to the FEMA Regional Project Officer and Contracting Officer in accordance with the terms of Contract No. EMS-2001-CO-0068, dated September 26, 2001.

SECTION 10—POINTS OF CONTACT

The points of contact for this Flood Map Project are {Insert name of Regional Project Officer}, the FEMA Regional Project Officer; {Insert name of Mapping Partner Project Manager}, the Project Manager {Insert name of Mapping Partner}; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the assistance of the {Insert name of Mapping Partner} should be requested through the Project Officer, {Insert name of Mapping Partner's Project Officer}.

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:

<Add/delete/modify coordination activities, as necessary>

- Meetings, teleconferences, and videoconfernces with FEMA and other Project Team members {specify frequency or dates for meetings};
- Telephone conversations with FEMA and other Project Team members on a scheduled basis {specify schedule for calls} and an ad hoc basis, as required;
- Updates to the MICS system, 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.

I.3.2 Cooperating Technical Partners Program Mapping Activity Statement Template MICS [April 2003]

FEMA designed the Mapping Activity Statement (MAS) Template (pages I-112 to I-148) to assist the FEMA Lead in documenting task assignments and standards for Flood Map Projects that are being undertaken under a CTP Program Partnership Agreement. The FEMA Lead shall prepare one MAS for an entire Flood Map Project, covering all of the tasks that apply to that Flood Map Project. The mapping that are likely to be included in a CTP Flood Map Project are listed below. The FEMA Lead and the rest of the Project Team shall revise the MAS as appropriate to include mapping activities that are not listed below (e.g., alluvial fan flood hazard analyses, shallow flooding analyses).

- Activity 1—Field Surveys and Reconnaissance;
- Activity 2—Topographic Data Development;
- Activity 3—Independent QA/QC Review of Topographic Data;
- Activity 4—Hydrologic Analyses;
- Activity 4A—Coastal Hazard Analyses
- Activity 5—Independent QA/QC Review of Hydrologic Analyses;
- Activity 5A—Independent QA/QC Review of Coastal Hazard Analyses;
- Activity 6—Hydraulic Analyses;
- Activity 7—Independent QA/QC Review of Hydraulic Analyses;
- Activity 8—Floodplain Mapping (Detailed Riverine or Coastal Analysis);
- Activity 8A—Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data);
- Activity 8B—Floodplain Mapping (Refinement or Creation of Zone A);
- Activity 9—Independent QA/QC Review of Floodplain Mapping (Revised Areas);

- Activity 10—Base Map Acquisition;
- Activity 11—DFIRM Production (Non-Revised Areas);
- Activity 11A—Independent QA/QC Review of DFIRM Production (Non-Revised Areas)
- Activity 12—DFIRM Production (Merging Effective and Revised Information);
- Activity 12A—Application of DFIRM Graphic and Database Specifications
- Activity 12B—Independent QA/QC Review of DFIRM
- Activity 13—Preliminary DFIRM and FIS Report Distribution; and
- Activity 14—Post-Preliminary Processing.

By using the template, the Project Team shall ensure the resulting MAS clearly identifies the responsible Project Team member(s) assigned to complete each mapping activity and the standards that each Project Team member shall meet for completion of each activity and delivery of final products.

Mapping Partners are strongly encouraged to use the listed references to standards in Table 5-2 to identify key sections of these Guidelines applicable to a particular mapping activity, but not limit their familiarity with these Guidelines to those sections. Final decisions regarding the standards to be met shall be made by the FEMA Lead in consultation with the rest of the Project Management Team.

{Insert MAS No.}

Cooperating Technical Partners Program

Mapping Activity Statement

Mapping Activity Statement No. {Insert MAS No.} – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated{Insert CTP Partnership Agreement date} between {Insert CTP Name} and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. {Insert MAS No.}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 {Insert county or community name(s)} The DFIRM and FIS report will be produced in the FEMA {Countywide or Community-Based}Format.

<Delete this text and the table below if the project includes only conversion of maps to DFIRM>. In addition the Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in the following table:

Flooding Source	Reach Limits	Hydrology	Hydraulics	Floodplain Mapping	Redelin-eation of SFHAs Using Effective Profiles	Refine/ Establish Zone As
{Insert name of flooding source}	{Insert reach limits}	{Check if applicable}	{Check if applicable}	{Check if applicable}	{Check if applicable}	{Check if applicable}

This Flood Map project will be completed by the following:

- {Insert CTP name};
- {Insert name of CTP contractor, if applicable};
- {Insert name of FEMA Study Contractor (SC), if applicable}, the FEMA Study Contractor (SC) for this Flood Map Project; and
- {Insert name of FEMA MCC},FEMA Flood Map Production Coordination Contractor (MCC).

The activities to be completed, and who they will be completed by, are summarized in Section 1 of this MAS.

The activities for this Flood Map Project, including required QA/QC (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.

<Include only those activities listed below that apply to this Flood Map Project>

Table 1-1. Summary of Project Activities and Assignments

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

Activities	CTP	FEMA (SC)	FEMA (MCC)
Activity 12A – Application of DFIRM Graphic and Database Specifications			
Activity 12A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications			
Activity 13 – Preliminary DFIRM and FIS Report Distribution			
Activity 14 – Post-Preliminary Processing			

Activity 1 - Field Surveys and Reconnaissance

Responsible Mapping Partner: {Insert name of responsible Mapping Partner} Scope: To supplement any field reconnaissance conducted during the scoping phase of this project, {Insert name of responsible Mapping Partner} 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, {Insert name of responsible Mapping Partner} 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. {Insert name of responsible Mapping Partner} also shall coordinate with other Mapping Partners that are collecting topographic data under Activity 2.

<Add additional details regarding the scope of this activity, as appropriate>

Standards: All work under Activity 1 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA :

<Add, modify or delete deliverables below, as necessary>

- 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.

Activity 2 - Topographic Data Development

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: To supplement the field surveys conducted under Activity 1, {Insert name of responsible Mapping Partner} shall obtain additional topographic data of the overbank areas of the flooding sources studied to delineate floodplain boundaries. Specifically, {Insert name of responsible Mapping Partner} shall generate new topographic data for {Insert name of Insert name of flooding souce(s)} using {Insert method for collecting additional topopgrahic data}. {Insert name of responsible Mapping Partner} also shall coordinate with other team members conducting field surveys under Activity 1.

<Optional paragraph if automated H&H is used>For this activity, {Insert name of responsible Mapping Partner} also shall develop topographic maps and/or Digital Elevation Models (DEMs) for the subject flooding sources using the data collected under Activities 1 and 2. In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Activity 2 that are raised by {Insert name of responsible Mapping Partner}during the independent QA/QC review under Activity 3 .

<Add additional details regarding the scope of this activity, as appropriate>

Standards: All work under Activity 2 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 {Insert flooding sources}, this data will be submitted to {Insert name of Mapping Partner responsible for QA/QC review of the topographic data} for independent review under Activity 3 . Data for the remaining flooding sources will be submitted for an independent 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:<Add, modify or delete deliverables below, as necessary>

- Hardcopy topographic maps;
- Completed Form No. 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions* (MT-2), which is available from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/fhm/dl_mt-2.shtm.
- Report summarizing methodology and results;
- Triangular Irregular Network (TIN) data on CD-ROM;
- Checkpoint analyses to assess the accuracy of TIN data including Root Mean Square Error calculations to support vertical accuracy;
- Identification of remote sensing data voids and methods used to supplement data voids; and
- National Geodetic Survey data sheets for Network Control Points used to control remote- sensing and ground surveys.

Activity 3 - Independent QA/QC Review of Topographic Data

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the mapping data generated by {Insert Mapping Partner responsible for conducting the topographic information} under Activity 2 to ensure that this information is consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM.

<Add additional details regarding the scope of this activity, as appropriate>

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 TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Activity 4 – Hydrologic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform hydrologic analyses for approximately {Insert number of square miles} square miles of drainage area for the flooding source(s) listed in the Introduction portion of this MAS . {Insert name of responsible Mapping Partner} shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using the {Insert name of program} computer program. These flood discharges will be the basis for subsequent hydraulic analyses under Activity 6. In addition, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding Activity 4 that are raised during the independent QA/QC review performed by {Insert name of responsible Mapping Partner} under Activity 5..

<Optional paragraph for GIS-based modeling> If GIS-based modeling is used, {Insert name of responsible Mapping Partner} shall document automated data processing and modeling algorithms and provide them to FEMA to ensure they are consistent with the standards outlined above. Digital datasets (such as elevation, basin, or land use data) are to be documented and provided to FEMA for approval before performing the hydrologic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analysis, then {Insert name of responsible Mapping Partner} shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

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

Deliverables: Upon completion of hydrologic modeling for {Insert flooding sources; specifiy a subset of all flooding sources being analyzed}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of Mapping Partner responsible for QA/QC review} for independent review under Activity 5. {Insert name of responsible Mapping Partner} 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:<Add, modify or delete deliverables below, as necessary>

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events;
- Digital and hardcopy versions of the 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.

<Optional for GIS-based modeling> For GIS-based modeling, deliverables include all input and output data, intermediate data processing products, and GIS data layers.

Activity 4A – Coastal Flood Hazard Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform coastal flood hazard analyses for approximately {Insert Number of Transects} transects along {Insert Number of Miles} miles of shoreline, including the following coastal flooding sources: {Insert names of flooding source(s) or include and reference table}. These analyses are to include: {Insert all that apply to this activity (e.g., Stillwater Elevations (SWEL) determinations, wave setup, wave height analyses, erosion analyses and wave runup)}.In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Activity 4A that are raised by {Insert name of responsible Mapping Partner for Activity 5A} during the independent QA/QC review under Activity 5A .

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

Deliverables: Upon completion of the analyses for {Insert flooding sources; specifiy a subset of all flooding sources being analyzed}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Activity 5A} for independent review under Activity 5A. The results of the analyses for the remaining flooding sources are to be submitted for 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

- Draft digital and hard copy versions of work maps showing the 1- and 0.2-percent-annual chance floodplain boundaries, Base Flood Elevations (BFEs), and flood insurance risk zones;
- Digital wave envelope profiles for each transect representing the 1-percent-annual-chance stillwater and wave crest elevations and ground profile conditions;
- Digital and hardcopy versions of FIS report materials;
- Draft work maps showing each transect located accordingly;
- Digital and hardcopy versions of all coastal modeling (input and output files); and
- Digital and hardcopy versions of any other supporting computations.

In addition, {Insert name of responsible Mapping Partner} shall submit a coastal study technical documentation notebook with all backup data, description of methodology, and input and output files used in the analyses and mapping as discussed in Appendix D of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Activity 5 - Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the technical, scientific, and other information submitted by {Insert name of Mapping Partner responsible for Activity 4} under Activity 4 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

<Delete or add activities below, as necessary>

- Review submittal for technical and regulatory adequacy, completeness of required information, application/certification forms, 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 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:<Add, modify or delete deliverables below, as necessary>

- 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.

Activity 5A - Independent QA/QC Review of Coastal Hazard Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the technical, scientific, and other information submitted by {Insert Mapping Partner responsible for conducting the coastal hazard analysis} under Activity 4A 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 is to include, at a minimum, the activities listed below:

<Delete or add activities below, as necessary>

- Review submittal for technical and regulatory adequacy, completeness of required information, application/certification forms, and supporting data and documentation. The technical review is to focus on the following:
  - Use of acceptable models;
  - Use of appropriate methodology(ies); and
  - Correctly applied methodology(ies)/model(s), including QC of input parameters.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for 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 5A 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

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

Activity 6 – Hydraulic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform hydraulic analyses for approximately {Insert number of miles} miles of the flooding sources listed in the Introduction of this MAS. The modeling will include the 10-, 2-, 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Activity 4. The hydraulic methods used for this analysis will include {Insert the hydraulic methods to be used. Include a table if multiple methods are used.}.

{Insert name of responsible Mapping Partner} shall use the cross-section and field data collected under Activity 1 to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

{Insert name of responsible Mapping Partner} shall use the FEMA CHECK-2 or CHECK-RAS checking program to check the reasonableness of the hydraulic analyses. To facilitate the independent QA/QC review under Activity 7, the {Insert name of responsible Mapping Partner} shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding Activity 6 that are raised by {Insert name of responsible Mapping Partner for Activity 7} during the independent QA/QC review under Activity 7.

<Optional paragraph for GIS-based modeling> {Insert name of responsible Mapping Partner} shall document automated data processing and modeling algorithms for GIS-based modeling and provide them to FEMA for review to ensure they are consistent with the standards outlined above. . Digital datasets are to be documented and provided to FEMA for approval before performing the hydraulic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analyses, then {Insert name of responsible Mapping Partner} shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydraulic analyses

<Add additional details regarding the scope, as appropriate>

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 hydraulic modeling for {Insert flooding sources; specifiy a subset of all flooding sources being analyzed.}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Activity 7} for independent review under Activity 7. The results of the hydraulic analyses for the remaining flooding sources are 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- Digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing conditions using FEMA's RASPLOT 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-2 or 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 Section 3.2, Hydraulic Analyses, of the FIS report.

<Optional for GIS-based modeling> 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.

Activity 7 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall review the technical, scientific, and other information submitted by {Insert name of responsible Mapping Partner for Activity 6} under Activity 6 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

<Delete or add activities below, as necessary>

- Review submittal for technical and regulatory adequacy, completeness of required information, application/certification forms, 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 programs 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 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Activity 8 - Floodplain Mapping (Detailed Riverine or Coastal Analysis)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall delineate the d 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. {Insert name of responsible Mapping Partner} shall incorporate all new or revised hydrologic, hydraulic, and/or coastal modeling and shall use topographic information acquired under Activity 2 to delineate the floodplain and regulatory floodway boundaries on a digital work map. In addition, {Insert responsible Mapping Partner} shall incorporate the results of all effective Letters of Map Change within the revised areas as appropriate. Also, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding Activity 8 that are raised by{Insert name of responsible Mapping Partner for Activity 9} during the independent QA/QC review under Activity 9.

<Add additional details regarding the scope of this activity, as appropriate>

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 floodplain mapping for {Insert flooding sources; specify a subset of all flooding sources being remapped}, {Insert name of responsible Mapping Partner} shall submit the results {Insert name of responsible Mapping Partner for Activity 9 } for an independent review under Activity 9. 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- <For Coastal Areas—delete if not for coastal area>Digital work map showing the Coastal High Hazard Area (V Zone) delineated along {Indicate either Atlantic Ocean, Gulf of Mexico, Great

Lakes, Pacific Ocean, or other.} shorelines, transect locations, BFEs, and flood insurance risk zone designation labels;

- 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;
- 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;
- 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.

Activity 8A - Floodplain Mapping (Redelineation of Detailed Floodplain Boundaries Using Updated Topographic Data)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries (if required) for the flooding sources listed in the Introduction to this SOW. {Insert name of responsible Mapping Partner} shall use topographic information acquired under Activity 2 to delineate the floodplain and regulatory floodway boundaries as appropriate on a digital work map. In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Activity 8A that are raised by {Insert name of responsible Mapping Partner for Activity 9} during the independent QA/QC review under Activity 9.

<Add additional details regarding the scope of this activity, as appropriate>

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

Deliverables: Upon completion of floodplain mapping for {Insert flooding sources; specify a subset of all flooding sources being remapped}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Activity 9} for an independent review under Activity 9. 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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;
- 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;
- 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.

Activity 8B - Floodplain Mapping (Refinement or Creation of Zone A)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources listed in the Introduction to this SOW. {Insert name of responsible Mapping Partner} shall use topographic information acquired under Activity 2 to delineate the floodplain boundaries on a digital work map. In addition, {Insert responsible Mapping Partner} shall address all concerns or questions regarding Activity 8B that are raised by{Insert name of responsible Mapping Partner for Activity 9} during the independent QA/QC review under Activity 9 .

<Add additional details regarding the scope of this activity, as appropriate>

Standards: All work under Activity 8B shall be performed in accordance with the standards specified in Section 5 of this MAS. {Insert responsible Mapping Partner}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 before analysis and mapping begin.

Deliverables: Upon completion of floodplain mapping for {Insert flooding sources; specify a subset of all flooding sources being remapped}, {Insert name of responsible Mapping Partner} shall submit the results to {Insert name of responsible Mapping Partner for Activity 9} for an independent QA/QC review under Activity 9. 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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 9;
- Hardcopy and digital versions of input and output for any computer programs that were used;
- 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.

If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

Activity 9 - Independent QA/QC Review of Floodplain Mapping (Revised Areas)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall review the floodplain mapping submitted by {Insert name(s) of responsible Mapping Partner(s) for Activities 8, 8A, and 8B} under Activities 8, 8A, and 8B to ensure that the results of the analyses performed are accurately represented on the work maps. This work shall include, at a minimum, the activities listed below.

<Add, modify or delete activities below, as necessary>

- For the coastal flood hazard analyses, review the setup and run-up height elevations shown on the work map to ensure they agree with those shown on the data table(s), and stillwater elevations are shown where coastal and riverine flooding studied in detail join.
- 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 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 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review, noting any deficiencies and providing recommendations to resolve them 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.

Activity 10 - Base Map Acquisition

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Activity 10 consists of obtaining the digital base map, {specify which one}, for the project {Insert name of responsible Mapping Partner} shall provide the digital base map. The required activities are as follows:

<Add, modify or delete activities below, as necessary>

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

Standards: All work under Activity 10 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

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

Activity 11 – DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: For all flooding sources except those segments specified in the Introduction to this SOW (that will have updated flood data developed under Activities 1 through 9), {Insert name of responsible Mapping Partner} shall convert the information shown on the effective FIRM and Flood Boundary Floodway Map (FBFM) panels for all incorporated and unincorporated areas of {Insert county name} County to digital format in conformance with FEMA DFIRM specifications. {Insert name of responsible Mapping Partner} shall use the base map acquired under Activity 10 for the conversion. The scope of Activity 11 covers the digitization of {Insert number of panels} FIRM panels and {Insert number of panels} FBFM panels. {Insert name of responsible Mapping Partner} also shall incorporate the results of Letters of Map Change (LOMCs) issued by FEMA since the date of the current effective FIRM for each affected community. {Insert name of responsible Mapping Partner} shall not digitize the flood theme for the flooding sources specified in the Introduction under Activity 11. Rather, {Insert name of responsbile Mapping Partner} shall leave these as "holes" in the digital flood theme that will be filled in as part of Activity 12 using the digital flood data developed under Activities 8, 8A, and 8B.

<Add additional details regarding the scope of this activity, as appropriate>

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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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, including a check that the road and floodplain relationship is maintained for all non-revised areas.

Activity 11A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert responsible Mapping Partner} shall review the DFIRM panels submitted by {Insert name of responsible Mapping Partner for Activity 11} under Activity 11 to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the area mapped. This work shall include, at a minimum, checking the following:

<Add, modify or delete activities below, as necessary>

- Cross sections were properly located and oriented as shown on the FIRM or FBFM.
- BFEs are properly located and agree with the BFEs shown on the FIRM.
- Regulatory floodway widths agree with the widths shown on the FIRM or FBFM.
- 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.
- For coastal studies, setup and run-up height elevations shown on the work map agree with those shown on the data table(s), and stillwater elevations are shown where coastal and riverine flooding studied in detail join.
- Zone designations are indicated properly.

Standards: All work under Activity 11A 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies and providing recommendations to resolve them 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.

Activity 12 –DFIRM Production (Merging Revised and Non-Revised Information)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Upon completion of the floodplain mapping activities (Activities 8, 8A, and/or 8B) for the revised flooding sources and the DFIRM production for non-revised areas (Activity 11), {Insert name of responsible Mapping Partner} shall merge the digital floodplain data into a single, updated Digital FIRM. 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 SOW. {Insert name of responsible Mapping Partner} 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 this MAS. {Insert name of responsible party} shall coordinate with those Mapping Partners responsible for Activities 8, 8A, 8B, and 11, as necessary, to resolve any potential tie-in issues.

<Add additional details regarding the scope of this activity, as appropriate>

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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Activity 12A – DFIRM Production (Application of DFIRM Graphics and Database Specifications)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Activity 12. 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). {Insert name of responsible party} shall coordinate with those Mapping Partners responsible for Activities 8, 8A, 8B, 11, and 12, as necessary, to resolve any problems that are identified during Activity 12A.

<Add additional details regarding the scope of this activity, as appropriate>

Standards: All work under Activity 12A 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- 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.

Activity 12B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Upon completion of the floodplain mapping activities (Activities 8, 8A, and/or 8B and DFIRM production activities (Activities 11, 12, and 12A), {Insert name of responsible Mapping Partner} shall review the DFIRM to ensure it meets current FEMA graphic specifications. In addition, {Insert name of responsible Mapping Partner} shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. {Insert name of responsible Mapping Partner} shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QA/QC review.

This work shall include 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 hazard 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 *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 *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.*

<Add additional details regarding the scope of this activity, as appropriate>

Standards: All work under Activity 12B 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*, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies and providing recommendations to resolve them 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.

Activity 13 - Preliminary DFIRM and FIS Report Distribution

Responsible Mapping Partners: {Insert names of responsible Mapping Partners}

Scope: Activity 13 consists of the final preparation, review and distribution of the Preliminary copies of the DFIRM and FIS report for community and public review and comment. The activities to be performed are summarized below.

<Add, modify or delete activities below, as necessary>

Preliminary Transmittal Letter Preparation. The MCC shall prepare letters to transmit the Preliminary copies of the DFIRM and FIS report and related enclosures to the community, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

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

Discrepancy Resolution: The MCC shall work with {Insert names of responsible Mapping Partner(s)} and FEMA as appropriate to resolve discrepancies identified during the final QA/QC review.

Distribution of Preliminary DFIRM and FIS Report: The MCC shall distribute the Preliminary copies of the DFIRM and FIS report to the community, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

News Release Preparation: The MCC shall prepare news release notifications of BFE changes and perform QA/QC reviews of the notices for accuracy and compliance with FEMA format requirements. The MCC shall file the notifications for later submittal to FEMA for review.

Preliminary Summary of Map Actions (SOMA) Preparation: The MCC shall prepare Preliminary SOMAs for all affected communities, if appropriate. The SOMA shall list pertinent information regarding Letters of Map Change that will be affected by the issuance of the DFIRM (i.e., superseded, incorporated, revalidated).

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the FEMA *Document Control Procedures Manual* {Insert name of responsible Mapping Partner} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

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

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

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

- Revised DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.

- Revised DFIRM database files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.

- Revised metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.

- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM shall be provided.

Activity 14 - Post-Preliminary Processing

Responsible Mapping Partners: {Insert names of responsible Mapping Partners}

Scope: Activity 14 consists of finalizing the DFIRM and FIS report after the Preliminary copies of the DFIRM and FIS report have been issued for public review and comment. The activities to be performed are summarized below.

<Add, modify or delete activities below, as necessary>

Initiation of Statutory 90-Day Appeal Period: When required, upon completion of a 30-day community comment period and/or final coordination meeting with the affected communities, the {Insert names of responsible Mapping Partners} shall arrange for and verify that the following activities are completed in accordance with the current version of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*:

- Proposed BFE determination letters are sent to the community CEOs and floodplain administrators.
- News release notifications of BFE changes are published in prominent newspapers with local circulation.
- The appropriate notices (Proposed Rules) are published in the *Federal Register*.

Resolution of Appeals and Protests: {Insert names of responsible Mapping Partners} shall support FEMA in reviewing and resolving appeals and protests received during the 90-day appeal period. For each appeal and protest, the following activities shall be conducted as appropriate:

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

The {Insert names of responsible Mapping Partner} shall mail all associated correspondence upon authorization by FEMA.

Preparation of Special Correspondence: {Insert names of responsible Mapping Partners} shall support FEMA in responding to comments not received within the 90-day appeal period (referred to as "special correspondence"), including drafting responses for FEMA review when appropriate and finalizing responses when requested by FEMA. The {Insert names of responsible Mapping Partner} also shall mail the final correspondence (and enclosures if appropriate) and distribute appropriate copies of the correspondence and enclosures upon receipt of authorization from FEMA.

Revision of FIRM and FIS Report: If necessary, the {Insert names of responsible Mapping Partners} shall work together to revise the DFIRM and FIS report at the direction of the FEMA Regional Project Officer and distribute Revised Preliminary copies of the DFIRM and FIS report.

Final SOMA Preparation: The {Insert names of responsible Mapping Partner} shall prepare Final SOMAs for the affected communities as appropriate.

Processing of Letter of Final Determination: The {Insert names of responsible Mapping Partner} shall work with FEMA to establish the effective date for the DFIRM and FIS report, and shall prepare a Letter of Final Determination (LFDs) for each affected community for FEMA review in accordance with the FEMA *Document Control Procedures Manual*. The {Insert names of responsible Mapping Partner} also shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs and enclosures upon receipt of authorization from FEMA.

Processing of Final DFIRM and FIS Report for Printing: The {Insert names of responsible Mapping Partner} shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to the FEMA Map Service Center for printing by the U.S. Government Printing Office. The {Insert names of responsible Mapping Partner} also shall prepare the appropriate paperwork to accompany the DFIRM and FIS report (including Print Processing Worksheet, Printing Requisition Forms, and Community Map Actions Form) and transmittal letters to the community CEOs.

Revalidation Letter Processing. The {Insert names of responsible Mapping Partner} shall prepare and distribute letters to the community CEOs and floodplain administrators to notify the affected communities about Letters of Map Change for which determinations will remain in effect after the DFIRM and FIS report become effective.

Archiving Data: The {Insert names of responsible Mapping Partner} shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until they are transmitted to the FEMA Engineering Study Data Package Facility.

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* and the requirements documented in Section 1 and Appendix A of the FEMA *Document Control Procedures Manual* {Insert names of responsible Mapping Partners} shall make the following products available to FEMA:

<Add, modify or delete deliverables below, as necessary>

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

- DFIRM negatives and final FIS report materials, including all updated data tables and Flood Profiles;
- Paperwork for the final DFIRM and FIS report materials;
- Transmittal letters for the printed DFIRM and FIS report;
- Letter of Map Change Revalidation Letters if appropriate; and
- Complete, organized archived technical and administrative support data

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 Mapping Activity Statement 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, Subsection M.2.1 of FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated February 2002. Appendix M is available for viewing or download on the FEMA Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

If any issues arise that could affect the completion of an activity within the proposed scope or budget, the responsible Mapping Partner shall complete a Special Problem Report (SPR) as soon as possible after the issue is identified and submitted to FEMA. The SPR should 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*.)

Additionally, {Insert name of responsible Mapping Partner} shall collect and maintain a set of products for all Activities and shall compile a comprehensive TSDN for the entire project.

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin on{Insert start date}, and will be completed no later than {Insert end date}. The mapping activities may be terminated at the option of FEMA or {Insert CTP name} in accordance with the provisions of the Partnership Agreement dated{Insert Partnership Agreement date}.

SECTION 4—FUNDING/COST-SHARING

FEMA is providing funding, in the amount of {Insert amount of funding provided by FEMA through a Cooperative Agreement}, to {Insert CTP Name}for the completion of this Flood Map Project. {Insert CTP Name} shall provide any additional resources required to complete the assigned activities for this Flood Map Project.

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities													
	1	2	3	4, 4A	5, 5A	6	7	8, 8A, 8B	9	10	11, 11A	12, 12A	13	14
General Documentation														
Special Problem Reports	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
Meeting Minutes/Reports	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
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
Miscellaneous Reference Information	X			X	X	X	X	X	X	X	X	X	X	X

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 FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* (February 2002) to be referenced for each mapping activity are summarized in Table 5-2.

These Guidelines are available for viewing or download from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/fhm/dl_cgs.shtm.

Table 5-1. Applicable Standards for Project Activities

	Activities													
Applicable Standards	**1**	**2**	**3**	**4, 4A**	**5, 5A**	**6**	**7**	**8, 8A, 8B**	**9**	**10**	**11, 11A**	**12, 12A**	**13**	**14**
Guidelines and Specifications for Flood Hazard Mapping Partners, February 2002	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
American Congress on Surveying and Mapping (ACSM) procedures	**X**													
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-58), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	**X**													
EM 1000-1-1000, *Photogrammetric Mapping*, March 31, 1993	**X**													
EM 1110-2-1003, *Hydrographic Surveys*, October 31, 1994	**X**													
Numerical Models Accepted by FEMA for NFIP Usage, January 11, 2002				**X**	**X**	**X**	**X**							
Content Standards for Digital Geospatial Metadata (Federal Geographic Data Committee, 1998)								**X**	**X**	**X**	**X**	**X**	**X**	**X**
Document Control Procedures Manual, December 2000												**X**	**X**	**X**

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
1	Field Surveys and Reconnaissance	Volume 1, Sections 1.2, 1.3, 1.4 (specifically Subsection 1.4.2.1)
		Appendix A, Sections A.5, A.6, A.7, and A.8
		Appendices B, C, and M
2	Topographic Data Development	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1)
		Appendix A, Sections A.2 and A.3
		Appendix M
3	Independent QA/QC Review of Topographic Data	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.1)
		Appendix A, Sections A.2, A.3, A.7 (specifically Subsection A.7.5), and A.8 (specifically Subsection A.8.6)
		Appendix M
4	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
4A	Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.2.2)
		Appendix A, Section A.4
		Appendices B, D, and M
5	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
5A	Independent QA/QC Review of Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1)
		Appendix A, Section A.4

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
	Analyses	Appendices B, D, H, and M
6	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
7	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
8	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
		Appendices K, L, and M
8A	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)
		Appendices K. L, and M
8B	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, and M

Activity Number	Activity Description	Guidelines Volume, Section/Subsection, and Appendix
9	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 Appendices D, K, L, and M
10	Base Map Acquisition and Preparation	Volume 1, Sections 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsection 1.4.3) Appendices A and B
11	DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.2) Appendices K, L, and M
11A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsection 1.4.3) Appendices K, L, and M
12	DFIRM Production (Merge Revised and Non-Revised Information)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K and L
12A	Application of DFIRM Graphic and Database Specifications	Volume 1, Section 1.4 (specifically Subsection 1.4.3) Appendices K and L Appendices K, L, and M
12B	Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	Volume 1, Section 1.4 (specifically Subsection 1.4.3) Appendices K, L, and M

Activity Number	Activity Description	Guidelines Volume, Section/Subsection, and Appendix
13	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
14	Post-Preliminary Processing	Volume 1, Section 1.5 Appendices J, K, L, and M

SECTION 6—SCHEDULE

The activities documented in this MAS shall be completed in accordance with the schedule below

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 1 – Field Surveys and Reconnaissance		
Activity 2 – Topographic Data Development		
Activity 3 – Independent QA/QC Review of Topographic Data		
Activity 4 –Hydrologic Analyses		
Activity 4A –Coastal Flood Hazard Analyses		
Activity 5–Independent QA/QC Review of Hydrologic Analyses		
Activity 5A–Independent QA/QC Review of Coastal Hazard Analyses		
Activity 6 – Hydraulic Analyses		
Activity 7 – Independent QA/QC Review of Hydraulic Analyses		
Activity 8 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)		
Activity 8A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)		
Activity 8B – Floodplain Mapping (Refinement or Creation of Zone A)		
Activity 9 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)		
Activity 10 – Base Map Acquisition		
Activity 11 – DFIRM Production (Non-Revised Areas)		
Activity 11A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		
Activity 12 – DFIRM Production (Merge Revised and Non-Revised Information)		
Activity 12A – Application of DFIRM Graphic and Database Specifications		
Activity 13 – Preliminary DFIRM and FIS Report Distribution		
Activity 14 – Post-Preliminary Processing		

If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner.

SECTION 7—CERTIFICATIONS

The following certifications apply to this MAS:

Activity 1 (Field Surveys and Reconnaissance)

A Registered Professional Engineer or Licensed Land Surveyor will 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 2 (Hydrologic Analyses). Activity 4 (Hydraulic Analyses), and Activity 6 (Floodplain Mapping– Detailed Riverine Analysis)

- A Registered Professional Engineer or Licensed Land Surveyor will certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).
- A Registered Professional Engineer or Licensed Land Surveyor will 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 6 (Floodplain Mapping – Detailed Riverine Analysis), Activity 9 (DFIRM Production – Non-Revised Areas), Activity 10 (DFIRM Production – Merging Effective and Revised Information), and Activity 10A (Application of DFIRM Database and Graphic Specifications)

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

Activity 10 (Base Map Acquisition and Preparation)

- A community official or responsible party will provide written certification that the digital data meet FEMA's minimum standards and specifications.
- The responsible Mapping Partner will provide documentation that the digital base map can be used by FEMA.

SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES

{Insert CTP name} may obtain copies of FEMA-issued Letters of Map Change, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from the {Insert name of responsible Mapping Partner}, who may be contacted by telephone at {Insert telephone number of responsible Mapping Partner} or by facsimile at {Insert fax number of responsible Mapping Partner}.

General technical and programmatic information, such as FEMA 265, the Quick-2 computer program, and the MT-2 forms, can be downloaded from the FEMA Web site (http://www.fema.gov/fhm). Specific technical and programmatic support may be provided through the {Insert CTP name}; such assistance should be requested through the FEMA Project Officer specified in Section 11 of this MAS.

{Insert CTP name}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

{Insert CTP name} intends to use the services of {Insert name of CTP contractor} as a contractor for this Flood Map Project. {Insert CTP name}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_01/44cfr13_01.html.

SECTION 10—FINANCIAL REPORTING

Financial reporting requirements will be in accordance with Cooperative Agreement Articles V and VI.

SECTION 11—POINTS OF CONTACT

The points of contact for this Flood Map Project are {Insert name of Regional Project Officer}, the FEMA Regional Project Officer; {Insert name of CTP Project Manager}, the Project Manager {Insert CTP name}; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the assistance of the {Insert name of Mapping Partner} should be requested through the Project Officer, {Insert name of Mapping Partner's Project Officer}.

SECTION 12—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:

<Add/delete/modify coordination activities, as necessary>

- Meetings, teleconferences, and videoconfernces with FEMA and other Project Team members {specify frequency or dates for meetings};
- Telephone conversations with FEMA and other Project Team members on a scheduled basis {specify schedule for calls} and an ad hoc basis, as required;
- Updates to the MICS system, 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.

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

_____	_____
{Insert CTP Project Managername} Project Manager {Insert CTP name}	Date
_____	_____
{Insert FEMA Regional Project Manager's name} Regional Project Officer Federal Emergency Management Agency	Date
_____	_____
{Insert FEMA HQ Project Officer's name} Project Officer Federal Emergency Management Agency	Date
_____	_____
{Insert name of State authorized representative} {Insert title of State authorized representative}	Date

<In States where statutory and/or regulatory requirements require the State's review and/or approval of new flood hazard data, the State will be a signatory to a community's agreement. Otherwise, delete the State representative signature line>

I.3.3 Time and Cost Template for FEMA-Contracted Flood Map Projects MICS [April 2003]

FEMA designed the Time and Cost Estimate Template (pages I-150 to I-154) for Project Team members to use in preparing time and cost estimates for a Flood Map Project. Non-FEMA Project Team members shall develop time and cost estimates for assigned tasks. As part of the time and cost estimates, Project Team members also shall establish schedules for the assigned work. These individual schedules shall comply with the overall Flood Map Project schedule agreed-upon during the Scoping Meeting and documented in the SOW, or changes shall be submitted to the FEMA Lead and the rest of the Project Team for approval.

Time and Cost Estimate

Note that this form contains proprietary/privileged information and should be made available only to the FEMA Lead and/or FEMA Project Officer. {Each member of the Project Team completes pertinent sections of the form for tasks assigned in the Project SOW and submits it to the FEMA Lead.}

<table>
<tr><td colspan="2">1. Project Team Member:</td><td colspan="2">2. Community and/or County:</td></tr>
<tr><td>3. State:</td><td>4. Study Type:</td><td>5. Proposed Starting Date:</td><td>6. Completion Date:</td></tr>
<tr><td colspan="4">PLANNED WORK
PART I – DETAILED STUDY</td></tr>
<tr><td>7. Length of Stream(s):</td><td>8. Length of Coastline:</td><td>9. Community Area:</td><td>10. No. of Hydraulic Structures:</td></tr>
<tr><td colspan="2">11. No. of Valley Cross Sections:
Existing:_____ New:_____
Average Cost (New) $:_____</td><td colspan="2">12. Source(s):
Existing:_____
_____
_____</td></tr>
<tr><td colspan="4">PART II – APPROXIMATE STUDY</td></tr>
<tr><td>13. Length of Stream(s):</td><td colspan="3">14. Cost per Stream Mile $: _____
Estimated Cost $: _____</td></tr>
<tr><td colspan="4">PART III –FLOODPLAIN BOUNDARY REDELINEATION</td></tr>
<tr><td>15. Length of Stream(s):</td><td colspan="3">16. Cost per Stream Mile $:
Estimated Cost $: _</td></tr>
<tr><td colspan="4">PART IV – MAPPING INFORMATION</td></tr>
<tr><td>17. No. of Revised Map Panels:_____</td><td>18. No. of Converted Map Panels:_____</td><td colspan="2">19. Base Map Source(s):_____
_____
_____</td></tr>
</table>

PART IV – SUMMARY OF COST ESTIMATE			
A. LABOR CATEGORY (Fill in only for assigned tasks and mark others as "N/A.")	**Hourly Rate**	**Hours**	**Dollar Amount**
Task 1 – Field Surveys and Reconnaissance			
Task 2 – Topographic Data Development			
Task 3 – Independent QA/QC Review of Topographic Data			
Task 4 – Hydrologic Analyses			
Task 4A – Coastal Hazard Analyses			
Task 5 – Independent QA/QC Review of Hydrologic Analyses			
Task 5A – Independent QA/QC Review of Coastal Hazard Analyses			
Task 6 – Hydraulic Analyses			
Task 7 – Independent QA/QC Review of Hydraulic Analyses			
Task 8 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)			
Task 8A – Floodplain Mapping (Redelineation Using Effective Profiles and Updated Topographic Data)			
Task 8B – Floodplain Mapping (Refinement or Creation of Zone A)			
Task 9 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)			
Task 10 – Base Map Acquisition			
Task 11 – DFIRM Production (Non-Revised Areas)			
Task 11A– Independent QA/QC Review of DFIRM Production (Non-Revised Areas)			
Task 12 – DFIRM Production (Merge Revised and Non-Revised Information)			
Task 12A– Application of DFIRM Graphic and Database Specifications)			
Task 12B– Independent QA/QC Review of DFIRM Meeting Graphic and Database Specifications)			
Task 13 – Preliminary Map and Report Distribution			
Task 14 – Post-Preliminary Processing			

B. BURDEN			
Total Direct Labor Cost $		x Rate =	$
C. DIRECT MATERIAL (Show Basis of Estimate)			$
D. TRAVEL MILEAGE Miles x Rate $ = No. of Trips _____ PER DIEM No. of Days _____ x Rate $ _____ =			$
E. SUBCONTRACTORS (Separate cost basis justification for each attached)			$
F. OTHER DIRECT COST (Basis for estimate attached)			$
G. GENERAL ADMINISTRATIVE COST			
Total Direct Labor Cost	$	x Rate =	$
H. FEE (Where applicable)			$
TOTAL ESTIMATED COSTS			$
REMARKS:			

PART V – PROJECT SCHEDULE (Fill in only for Assigned Tasks, Mark Others as "N/A.")			
Task Number	**Name**	**Start Date**	**End Date**
1	Field Surveys and Reconnaissance		
2	Topographic Data Development		
3	Independent QA/QC Review of Topographic Data		
4	Hydrologic Analyses		
4A	Coastal Hazard Analyses		
5	Independent QA/QC Review of Hydrologic Analyses		
5A	Independent QA/QC Review of Coastal Hazard Analyses		
6	Hydraulic Analyses		
7	Independent QA/QC Review of Hydraulic Analyses		
8	Floodplain Mapping (Revised Areas)		
8A	Floodplain Mapping (Redelineation Using Effective Profiles and Updated Topographic Data)		
8B	Floodplain Mapping (Refinement or Creation of Zone A)		
9	Independent QA/QC Review of Floodplain Mapping (Revised Areas)		
10	Base Map Acquisition		
11	DFIRM Production (Non-Revised Areas)		
11A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		
12	DFIRM Production (Merge Effective and Revised Information)		
12A	Application of DFIRM Graphic and Database Specifications		
12B	Independent QA/QC Review of DFIRM Meeting Graphic and Database Specifications)		

PART V – PROJECT SCHEDULE (Fill in only for Assigned Tasks, Mark Others as "N/A.")			
Task Number	**Name**	**Start Date**	**End Date**
13	Preliminary DFIRM and FIS Report Distribution		
14	Post-Preliminary Processing		
Name and Title of Person Preparing Estimate		Phone Number	Date

I.3.4 Time and Cost Template for Cooperating Technical Partners Program Flood Map Projects MICS [April 2003]

FEMA designed the Time and Cost Estimate Template (pages I-156 to I-160) for Project Team members to use in preparing time and cost estimates for a CTP Flood Map Project. Non-FEMA Project Team members shall develop time and cost estimates for assigned activities. As part of the time and cost estimates, Project Team members also shall establish schedules for the assigned work. These individual schedules shall comply with the overall Flood Map Project schedule agreed-upon during the Scoping Meeting and documented in the MAS, or changes shall be submitted to the FEMA Lead and the rest of the Project Team for approval.

Time and Cost Estimate

This form contains proprietary/privileged information and should be made available only to the FEMA Lead and/or FEMA Project Officer. {Each member of the Project Team completes pertinent sections of the form for tasks assigned in the Project SOW and submits it to the FEMA Lead.}

<table>
<tr><td colspan="2">1. Project Team Member:</td><td colspan="2">2. Community and/or County:</td></tr>
<tr><td>3. State:</td><td>4. Study Type:</td><td>5. Proposed Starting Date:</td><td>6. Completion Date:</td></tr>
<tr><td colspan="4">PLANNED WORK
PART I – DETAILED STUDY</td></tr>
<tr><td>7. Length of Stream(s):</td><td>8. Length of Coastline:</td><td>9. Community Area:</td><td>10. No. of Hydraulic Structures:</td></tr>
<tr><td colspan="2">11. No. of Valley Cross Sections:
Existing:_ New:
Average Cost (New) $:_</td><td colspan="2">12. Source(s):
Existing</td></tr>
<tr><td colspan="4">PART II – APPROXIMATE STUDY</td></tr>
<tr><td>13. Length of Stream(s):</td><td colspan="3">14. Cost per Stream Mile $:
Estimated Cost $:</td></tr>
<tr><td colspan="4">PART III – FLOODPLAIN BOUNDARY REDELINEATION</td></tr>
<tr><td>15. Length of Stream(s):</td><td colspan="3">16. Cost per Stream Mile $:
Estimated Cost $: _</td></tr>
<tr><td colspan="4">PART IV – MAPPING INFORMATION</td></tr>
<tr><td>17. No. of Revised Map Panels:_____</td><td>18. No. of Converted Map Panels:_____</td><td colspan="2">19. Base Map Source(s):</td></tr>
</table>

PART IV – SUMMARY OF COST ESTIMATE			
A. LABOR CATEGORY (Fill in only for assigned activities and mark others as "N/A.")	**Hourly Rate**	**Hours**	**Dollar Amount**
Activity 1 – Field Surveys and Reconnaissance			
Activity 2 – Topographic Data Development			
Activity 3 – Independent QA/QC Review of Topographic Data			
Activity 4 – Hydrologic Analyses			
Activity 4A – Coastal Hazard Analyses			
Activity 5 – Independent QA/QC Review of Hydrologic Analyses			
Activity 5A –Independent QA/QC Review of Coastal Hazard Analyses			
Activity 6 – Hydraulic Analyses			
Activity 7 – Independent QA/QC Review of Hydraulic Analyses			
Activity 8 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)			
Activity 8A –Floodplain Mapping (Redelineation Using Effective Profiles and Updated Topographic Data)			
Activity 8B –Floodplain Mapping (Refinement or Creation of Zone A)			
Activity 9 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)			
Activity 10 –Base Map Acquisition			
Activity 11 – DFIRM Production (Non-Revised Areas)			
Activity 11A– Independent QA/QC Review of DFIRM Production (Non-Revised Areas)			
Activity 12 – DFIRM Production (Merge Revised and Non-Revised Information)			
Activity 12A– Application of DFIRM Graphic and Database Specifications)			
Activity 12B– Independent QA/QC Review of DFIRM Meeting Graphic and Database Specifications)			
Activity 13 – Preliminary Map and Report Distribution			
Activity 14 –Post-Preliminary Processing			

B. BURDEN			
Total Direct Labor Cost $		x Rate _ =	$
C. Direct Material (Basis for Estimate Attached)			$
D. Travel MILEAGE Miles _____ x Rate $ _____ = $ _____ No. of Trips _____ PER DIEM No. of Days _____ x Rate $ _____ = $ _____			
E. Subcontractors (Separate cost basis justification for each attached)			$ _____
F. Other Direct Cost (Basis for estimate attached)			$ _____
G. General Administrative Cost			
Total Direct Labor Cost	$ _____	x Rate _____ =	$ _____
H. Fee (Where applicable)			$ _____
TOTAL ESTIMATED COSTS			$ _____
Remarks:			

PART V – PROJECT SCHEDULE (Fill in only for Assigned Tasks, Mark Others as "N/A.")			
Activity Number	**Name**	**Start Date**	**End Date**
1	Field Surveys and Reconnaissance		
2	Topographic Data Development		
3	Independent QA/QC Review of Topographic Data		
4	Hydrologic Analyses		
4A	Coastal Hazard Analyses		
5	Independent QA/QC Review of Hydrologic Analyses		
5A	Independent QA/QC Review of Coastal Hazard Analyses		
6	Hydraulic Analyses		
7	Independent QA/QC Review of Hydraulic Analyses		
8	Floodplain Mapping (Revised Areas)		
8A	Floodplain Mapping (Redelineation Using Effective Profiles and Updated Topographic Data)		
8B	Floodplain Mapping (Refinement or Creation of Zone A)		
9	Independent QA/QC Review of Floodplain Mapping (Revised Areas)		
10	Base Map Acquisition		
11	DFIRM Production (Non-Revised Areas)		
11A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		
12	DFIRM Production (Merging Effective and Revised Information)		
12A	Application of DFIRM Graphic and Database Specifications		
12B	Independent QA/QC Review of DFIRM Meeting Graphic and Database Specifications)		

PART V – PROJECT SCHEDULE (Fill in only for Assigned Tasks, Mark Others as "N/A.")			
Activity Number	**Name**	**Start Date**	**End Date**
13	Preliminary DFIRM and FIS Report Distribution		
14	Post-Preliminary Processing		
Name and Title of Person Preparing Estimate		Phone Number	Date

I.3.5 Notice to Proceed Letter Template **[February 2002]**

The FEMA AO or CO shall use the Notice to Proceed Letter Template (page I-162) to prepare the Notice to Proceed letter. The Notice to Proceed Letter distributes the final Scope of Work or Mapping Activity Statement to the Project Team members and notifies them to proceed accordingly.

Federal Emergency Management Agency
{Insert Address of FEMA Office}

{Date}

{Name}
{Address2}
{Address3}
{Address4}
{Address5}

{Flood Map Project Title}
{Community(ies)}

{Salutation}:

With this letter, you are authorized to begin your portion of the work necessary to complete the {Insert Flood Map Project Title} for the above-referenced community(ies).

Enclosed is a final copy of the Project Management Plan for the project, which provides details on your portion of the work including the Statement of Work, Time- and Cost-Estimate, project time schedules, and project deliverables.

We look forward to working with your <choose one {Firm/Agency/Community--For CTPs} and the community officials of {Insert Name of Community}, as well as other {Insert Name of State} communities, to ensure that the goals of this Flood Map Project are met. This will allow {Insert Name of Community} to administer a more effective floodplain management program.

Sincerely,

{Insert Name of Contracting Officer or FEMA Lead}

{Insert Title of Contracting Officer or FEMA Lead }

cc: {Insert FEMA HQ Engineer Name}, FEMA Headquarters

{Insert Other Project Team Members, as necessary}

Enclosure