



COMPLEX SYSTEMS RESEARCH CENTER, UNIVERSITY OF NEW HAMPSHIRE COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. EMB-2005-CA-0847 – Digital Flood Insurance Rate Map Production

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated September 9, 2005 between the Complex Systems Research Center (CSRC), University of New Hampshire, and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. EMB-2005-CA-0847 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 Merrimack County, New Hampshire. The DFIRM and FIS report will be produced in the FEMA Countywide Format.

The following will complete this Flood Map Project:

- Complex Systems Research Center (CSRC), University of New Hampshire.

The activities for this Flood Map Project, including required Quality Assurance/Quality Control (QA/QC) reviews, and the Mapping Partners that will complete them are summarized in Table 1-1. All activities that are to be accomplished by CSRC or contractors to CSRC, including contractors that may be selected after the project startup, are included in the "CTP" column. The sections of this MAS that follow Table 1-1 describe the specific activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map components.

Compliance with Floodplain Boundary Data Quality Standards: The data quality standards documented in Section 7 of the Multi-Year Flood Hazard Identification Plan (MHIP) for Fiscal Year 2004-2008 (Version 1, November 2004) should be used as the basis for producing DFIRMs. It has been determined that DFIRMs that do not meet the quality standards stated above may not be considered toward meeting the Map Mod metrics. The MIP utilities available at the time of study submittals should be run to verify compliance with these data quality standards. Compliance with these standards will help FEMA achieve a Map Modernization goal of providing a reliable, web-based national flood layer in digital GIS format.

The floodplain boundary data quality standards outlined in Table 7-1 of the MHIP should be followed in addition to existing standards specified for floodplain mapping in the Guidelines, including Volume I, Section 1.4 and Appendices C, D, E, F, G, H, K, L, M, and N. Table 7-1 shall be applied to all approximate, existing detailed and new detailed studies for riverine and coastal flooding sources.

Table 1-1. Summary of Project Activities and Assignments

Activities	CTP
Activity 13: DFIRM Production (Non-Revised Areas)	CSRC, CSRC sub-contractor
Activity 13A: Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	CSRC, CSRC sub-contractor
Activity 14A: DFIRM Production (Application of FEMA Graphics and Database Specifications)	CSRC, CSRC sub-contractor
Activity 14B: Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	CSRC, CSRC sub-contractor
Activity 15: Preliminary DFIRM and FIS Report Distribution	CSRC, CSRC sub-contractor

FEMA has developed tools to assist in the development of the flood hazard data studies and the Digital Flood Insurance Rate Maps (DFIRMs). FEMA will, through the NSP, provide all CTPs access to and training in these tools. The use of these tools will assist in the Map Modernization effort and the efficiency of mapping partners.

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

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

- DFIRM Mapping (draft and preliminary).

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

FEMA will be providing download/upload capability for data capture submittals through the MIP. Data submittals uploaded via the MIP will include the same data required prior to the existence of the MIP.

Activity 13 – DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: Complex Systems Research Center (CSRC), University of New Hampshire

Scope: CSRC shall complete processing the preliminary digital information developed from the effective FIRM and Flood Boundary Floodway Map (FBFM) panels for all incorporated and unincorporated areas of Merrimack County in conformance with FEMA DFIRM specifications. A prior CTP agreement between CSRC and FEMA produced the basic spatial data to complete this task. However, these data will require additional processing to generate the seamless, countywide data sets necessary to meet FEMA standards. CSRC shall also incorporate the results of LOMCs issued by FEMA since the date of the current effective FIRM for each affected community.

Also, CSRC shall address all comments and questions regarding Activity 13 that are identified during the independent QA/QC review under Activity 13A.

CSRC and/or its subcontractors shall be responsible for:

- Finalizing the project paneling scheme for the 27 communities in Merrimack County;
- Assembling and edgematching all data necessary for the countywide format;
- Converting all existing flood hazard data from the NGVD29 to NAVD88 in accordance with FEMA's guidelines;
- Insuring that all LOMCs issued since the effective FIRMs are incorporated in the countywide data.

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

Deliverables: Upon completion of the approximately 180 DFIRM panels, CSRC shall submit the panels for an independent QA/QC review. In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, CSRC shall make the following products available to FEMA:

- 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.

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

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

Responsible Mapping Partner: CSRC

Scope: A CSRC sub-contractor shall review the DFIRM panels submitted by CSRC under Activity 13 to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the area mapped and are consistent with current FEMA standards. This work shall include, at a minimum, checking the following:

- Cross sections are properly located and oriented as shown on the FIRMs or FBFMs;
- BFEs (converted to NAVD88) are properly located and agree with the BFEs shown on the FIRMs;
- Regulatory floodway widths agree with the widths shown on the FIRMs or FBFMs;
- 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;
- Contiguous community mismatches have been properly resolved;
- Flood insurance risk zone designations are labeled properly;
- Road and floodplain relationships are maintained for all unrevised areas;
- LOMCs have been properly incorporated;
- DFIRM mapping files meet the GIS file and database format requirements specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those requirements for content and attribution; and
- Metadata files describing the DFIRM data include the required information.

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, CSRC or its sub-contractor shall make the following products available to FEMA:

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary.

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

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

Responsible Mapping Partner: CSRC

Scope: CSRC shall apply the final FEMA DFIRM graphics and database specifications to the DFIRM files produced under Activity 13. 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 users). CSRC shall coordinate with FEMA, as necessary, to resolve any problems that are identified during Activity 14A.

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

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

- 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; and
- NSP Format DFIRM Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards.

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

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

Responsible Mapping Partner: CSRC

Scope: Upon completion of the DFIRM production activities (Activities 13 and 14A), a CSRC sub-contractor shall review the DFIRM to ensure it meets current FEMA graphics specifications. In addition, a CSRC sub-contractor shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. CSRC shall coordinate with FEMA and other Mapping Partners, as necessary, to resolve any problems identified during this QA/QC review. This work shall ensure that the requirements below are met.

- All required DFIRM features are accurately and legibly labeled and follow the examples shown in the FEMA DFIRM specifications. This includes all flood insurance risk zones, BFEs, cross sections, studied streams, mapped political entities, and all roads within and adjacent to the 1-percent-annual-chance floodplains;
- All DFIRM features are correctly symbolized with the appropriate symbol, line pattern, or area shading and follow the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- All map collar information is complete, correct, and follows the requirements specified in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- DFIRM mapping files are in one of the GIS file and database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution;
- DFIRM database files are in one of the database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution;
- Metadata files describing the DFIRM data include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- The FIS report is prepared in the FEMA Countywide Format as documented in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

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

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

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results 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.

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

Activity 15 - Preliminary DFIRM and FIS Report Distribution

Responsible Mapping Partners: FEMA (NSP) or CSRC

Scope: Activity 15 consists of the final preparation, review, and distribution of the Preliminary copies of the DFIRM and FIS report for community official and general public review and comment. The activities to be performed are summarized below.

Preliminary Transmittal Letter Preparation. The CSRC or its sub-contractor shall prepare letters to transmit the Preliminary copies of the DFIRM and FIS report and related enclosures to all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA. The CSRC or its sub-contractor shall also prepare letters to all affected communities notifying them of the availability of the Preliminary copies of the DFIRM and FIS report and related documents, and providing instructions on how to access the digital files.

Preliminary FIS Report Preparation: The CSRC or its sub-contractor shall prepare the FIS report in the FEMA Countywide Format following the FEMA requirements specified in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Final QA/QC Review of Preliminary DFIRM and FIS Report: The NSP 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 NSP shall work with CSRC and FEMA as appropriate to resolve discrepancies identified during the final QA/QC review.

Distribution of Preliminary DFIRM and FIS Report: The CSRC or its sub-contractor shall distribute the Preliminary copies of the DFIRM and FIS report to all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA. The CSRC will also serve the DFIRM and FIS report on a project website, where it will be available for download by the affected communities and other interested parties.

News Release Preparation: The CSRC or its sub-contractor shall prepare news release notifications of BFE changes for all affected communities if appropriate and perform QA/QC reviews of the notifications for accuracy and compliance with FEMA format requirements. CSRC or its sub-contractor shall file the notifications for later submittal to FEMA for review.

Preliminary Summary of Map Actions (SOMA) Preparation: The CSRC or its sub-contractor shall prepare Preliminary SOMAs for all affected communities if appropriate. The SOMAs shall list pertinent information regarding LOMCs that will be affected by the issuance of the DFIRM (i.e., superseded, incorporated, revalidated).

Standards: All work under Activity 15 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the *FEMA Document Control Procedures Manual*, the CSRC shall make the products listed below available to FEMA.

- 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 new or updated data tables and Flood Profiles, shall be prepared;
- Preliminary copies of the DFIRM and FIS report shall be mailed all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

- Digital files of the preliminary DFIRM and FIS report shall be posted to a CSRC project web site for retrieval by the Chief Executive Officer (CEO) and floodplain administrator of each affected community, as well as other interested parties;
- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be mailed with the 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; 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 shall be provided.

SECTION 2—TECHNICAL AND ADMINISTRATIVE SUPPORT DATA SUBMITTALS AND SPECIAL PROBLEM REPORTS

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

All supporting documentation for the activities in this MAS shall be submitted in the TSDN format in accordance with Appendix M of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated April 2003. Appendix M is available for viewing or download on the FEMA Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf. Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities		
	13, 13A	14A	15
General Documentation			
Special Problem Reports	X	X	X
Telephone Conversation Reports	X	X	X
Meeting Minutes/Reports	X	X	X
General Correspondence	X	X	X
Mapping Information	X	X	X
Miscellaneous Reference Information	X	X	X

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

Additionally, the NSP 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 documented in this MAS will begin on January 1, 2006, and will be completed no later than December 31, 2006. The mapping activities may be terminated at the option of FEMA or CSRC in accordance with the provisions of the Partnership Agreement dated September 9, 2005.

Section 4—Funding/Cost-Sharing

FEMA is providing funding, in the amount of _____ CSRC for the completion of the Flood Map Project documented in this MAS. CSRC shall provide resources (in-kind services) valued at \$ _____ in order to complete the assigned activities for this Flood Map Project.

Section 5—Standards

The standards relevant to this MAS are provided in Tables 5-1 and 5-2. Information on the correct volume, appendix, section, or subsection of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* to be referenced for each mapping activity is 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.

In addition, Data Capture Standards referenced in the previous sections are to be applied to the project for the data formats to be submitted to FEMA.

Table 5-1. Applicable Standards for Project Activities

Applicable Standards	Activities		
	13, 13A	14A	15
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003	X	X	X
<i>Content Standard for Digital Geospatial Metadata</i> (Federal Geographic Data Committee), 1998	X	X	X
<i>Document Control Procedures Manual</i> , December 2000			X

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
13	DFIRM Production (Non-Revised Areas)	MHIP, Volume 1, Chapter 7 (specifically Table 7-1) Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M
13A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	MHIP, Volume 1, Chapter 7 (specifically Table 7-1) Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M
14A	DFIRM Production (Application of FEMA Graphics and Database Specifications)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, and M
14B	Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, M, and N
15	Preliminary DFIRM and FIS Report Distribution	Volume 1, Sections 1.4 (specifically Subsections 1.4.2 and 1.4.3) and 1.5 (specifically Subsection 1.5.1) Appendices J, K, L, and M Appendices J, K, L, and M

Section 6—Schedule

The activities documented in this MAS shall be completed in accordance with the project schedule shown in Table 6-1. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner.

Table 6-1. Project Schedule

ACTIVITIES	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 13 – DFIRM Production (Non-Revised Areas)	CSRC, CSRC Sub-contractor	March 31, 2006
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	CSRC, CSRC Sub-contractor	May 31, 2006
Activity 14A – DFIRM Production (Application of DFIRM Graphics and Database Specifications)	CSRC, CSRC Sub-contractor	August 31, 2006
Activity 14B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	CSRC, CSRC Sub-contractor	October 31, 2006
Activity 15 – Preliminary DFIRM and FIS Report Distribution	CSRC, CSRC Sub-contractor	December, 2006

Section 7—Certifications

The following certifications apply to this MAS:

Activity 13 (DFIRM Production {Non-Revised Areas}) and Activity 14A (DFIRM Production {Application of FEMA Graphics and Database Specifications})

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

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

Section 8—Technical Assistance and Resources

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the FEMA Mapping Needs Assessment Process from the NSP, who may be contacted by telephone at 1-877 FEMA MAP (1-877-336-2627).

General technical and programmatic information, such as FEMA 265 and the Quick-2 computer program, can be downloaded from the FEMA Web site (<http://www.fema.gov/fhm/>). Specific technical and

programmatic support may be provided through the NSP; such assistance should be requested through the FEMA Project Officer specified in Section 11 of this MAS.

Project Team members also may consult with the FEMA Regional Project Officer to request support in the areas of selection of data sources, digital data accuracy standards, assessment of vertical data accuracy, data collection methods or subcontractors, and GIS-based engineering and modeling training.

Section 9—Contractors

CSRC intends to use the services of a contractor for several of the primary Flood Map Project activities documented in this MAS. CSRC shall ensure that the procurement for all contractors used for this Flood Map Project complies with the requirements of 44 CFR 13.36.

Section 10—Financial Reporting

Because funding has been provided to CSRC by FEMA for the Flood Map Project documented in this MAS, financial reporting requirements for CSRC will be in accordance with Cooperative Agreement Articles V and VI.

CSRC will meet with the NSP and/or FEMA as needed, but not more than quarterly, to review the progress of the project. These meetings will alternate between FEMA's Regional Office and the CSRC office.

Section 11—Points of Contact

The points of contact for this Flood Map Project are Dean Savramis, the FEMA Regional Project Officer; Fay Rubin, the Project Manager for CSRC; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the assistance of the NSP should be requested through the FEMA Project Officer, Dean Savramis.

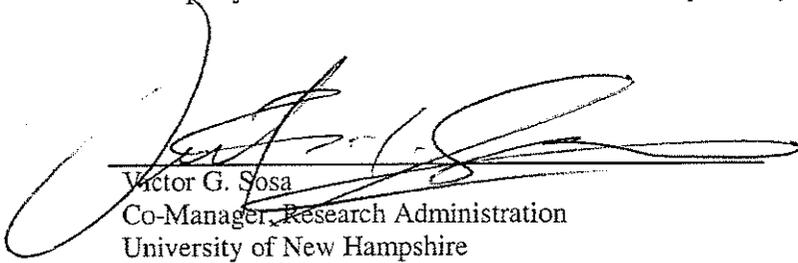
In addition, the NSP is required to coordinate project issues with the responsible Mapping Partner that created the MAS deliverable or portions of the MAS deliverable product and will document all such coordination activities with the CTP and FEMA.

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 may include:

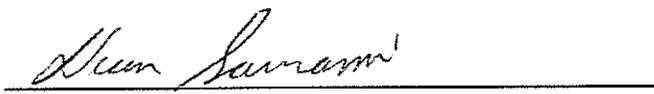
- Meetings, teleconferences, and videoconferences with FEMA and other Project Team members, as required;
- Updates to the MICS, MNUSS database, and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- E-mail, facsimile transmissions, and letters, as required.

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



Victor G. Sosa
Co-Manager, Research Administration
University of New Hampshire

9-9-05
Date



Dean Savramis

9-14-05
Date

Dean Savramis, HIRA Branch
Regional Project Officer
Federal Emergency Management Agency, Region I

Date