



## COLORADO WATER CONSERVATION BOARD COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

### Mapping Activity Statement No. 11 – Incorporation of Existing Studies into Digital Flood Insurance Rate Map

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated July 15, 2002, between the Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 10 is as follows.

#### Section 1: Objective and Scope

The objective of the Flood Map Project documented in this MAS is *to incorporate existing studies into the Digital Flood Insurance Rate Map (DFIRM) and Flood Insurance Study (FIS) report for Montezuma County and Incorporated Areas including the City of Cortez, the Town of Dolores, and the Town of Mancos.*

Within 30 days of this agreement, FEMA's National Service Provider (NSP) shall input the scope of work into the FEMA Scoping Tool. This includes information concerning community ordinance data, local GIS data availability, and the flood reach data for existing and proposed conditions. The FEMA Scoping Tool documentation can be found at <http://www.hazards.gov/resources/scoping.htm>.

The CTP shall notify FEMA and the NSP by e-mail of all meetings with community officials at least one week prior to the meeting. FEMA and/or the NSP may or may not attend the community meetings.

The following will complete this Flood Map Project:

- CWCB;
- Anderson Consulting Engineers; and
- Michael Baker, Jr., Inc., FEMA NSP.

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 CWCB or contractors to CWCB, including contractors that may be selected after the project startup, are included in the "CTP" column. All activities that are to be accomplished by FEMA or FEMA's NSP are included in the FEMA/NSP column. The sections of this MAS that follow Table 1-2 describe the specific activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map components.

Table 1-2. Summary of Project Activities and Assignments

Activities	CTP	FEMA/NSP
Activity 1: Pre-Scoping		
Activity 2: Scoping		
Activity 3: Field Surveys and Reconnaissance		
Activity 4: Topographic Data Development		
Activity 5: Independent QA/QC Review of Topographic Data		
Activity 6: Hydrologic Analyses		
Activity 7: Independent QA/QC Review of Hydrologic Analyses		
Activity 8: Hydraulic Analyses		
Activity 9: Independent QA/QC Review of Hydraulic Analyses		
Activity 10: Floodplain Mapping (Detailed Riverine or Coastal Analysis)		
Activity 10A: Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)		
Activity 10B: Floodplain Mapping (Refinement or Creation of Zone A)		
Activity 11: Independent QA/QC Review of Floodplain Mapping (Revised Areas)		
Activity 12: Base Map Acquisition		
Activity 13: DFIRM Production (Non-Revised Areas)		
Activity 13A: Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		
Activity 14: DFIRM Production (Merging Revised and Non-Revised Information)	X	
Activity 14A: DFIRM Production (Application of FEMA Graphics and Database Specifications)	X	
Activity 14B: Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications		X
Activity 15: Preliminary DFIRM and IIS Report Distribution		
Activity 16: Post-Preliminary Processing		
Activity 17: Outreach	X	

**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. 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.

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:

- Project Scoping (as specified);
- Terrain Data Processing Completed;
- Field Survey Completed;
- Hydrology Completed (draft and final);
- Hydraulics Completed (draft and final);
- Coastal Analysis Completed (draft and final); and
- DFIRM Mapping (draft and preliminary).

Although the scoping activity is not specifically included in this table, CTPs performing scoping activities will be required to submit scoping-related data in accordance with the data capture standards.

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

Responsible Mapping Partner: CWCB

Scope: Upon completion of the floodplain mapping activities for the revised areas *which include those areas included in the Dolores Valley Restudy and the City of Cortez's restudy efforts*, CWCB shall merge the digital floodplain data into *the single, updated DFIRM*. This work includes the tie-in of flood hazard information for areas that were not studied as part of the Flood Map Project documented in this MAS. CWCB also shall tie in the revised and non-revised Flood Profiles, floodplain boundaries, and regulatory floodway boundaries with contiguous communities that were not studied as part of the Flood Map Project documented in this MAS. CWCB shall coordinate with FEMA and those Mapping Partners responsible for Activities 10, 10A, 10B, and 13, as necessary, to resolve any potential tie-in issues.

*The areas to be incorporated into the DFIRM include:*

- \* *Dolores River (USACE study) from the western end of the Town of Dolores to the confluence with Priest Gulch, approximately 28 miles,*
- \* *West Dolores River (USACE study) from the confluence with Dolores River to the northern county boundary, approximately 3 miles,*
- \* *Priest Gulch (USACE study) from the confluence with Dolores River to the northern county boundary, approximately 3 miles,*
- \* *Cornett Heights Tributary to Hartman Draw (Cortez study) from the corporate limits to the end, approximately 0.5 mile,*
- \* *South-Central Tributary to McElmo (Cortez study) from the corporate limits to the end, approximately 1 mile,*
- \* *Carpenter Wash Tributary to Hartman Draw AKA McElmo Creek Tributary 12.2 (Cortez study) from the corporate limits to the end, approximately 2 miles,*
- \* *Glade Draw Tributary AKA McElmo Creek Tributary 11 (Cortez study), from the corporate limits to the end, approximately 1.5 miles, and,*
- \* *Denny Lake AKA McElmo Creek Tributary 7 (Cortez study) within the corporate limits, approximately 0.5 mile.*

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*, CWCB 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
- Documentation that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.

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

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

Responsible Mapping Partner: CWCB

Scope: CWCB shall apply the final FEMA DFIRM graphics and database specifications to the DFIRM files produced under Activity 14. This work shall include adding all required annotation, line pattern, area shading, and map collar information (e.g., map borders, title blocks, legends, notes to users). CWCB shall coordinate with FEMA and those Mapping Partners responsible for Activities 10, 10A, 10B, 13, and 14, as necessary, to resolve any problems that are identified during Activity 14A.

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, CWCB 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/firm\\_gsana.pdf](http://www.fema.gov/pdf/fhm/firm_gsana.pdf).

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

Responsible Mapping Partner: FEMA/NSP

Scope: Upon completion of the floodplain mapping activities (Activities 10, 10A, and/or 10B) and DFIRM production activities (Activities 13, 14, and 14A), FEMA/NSP shall review the DFIRM to ensure it meets current FEMA graphics specifications. In addition, FEMA/NSP shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. FEMA/NSP 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*.

*This review will be performed in a timely manner so as to eliminate impact to the project schedule.*

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

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

- 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](http://www.fema.gov/pdf/fhm/frm_gsam.pdf).

## Activity 17—Outreach

### Task 17 – Outreach and Coordination

Responsible Entity: CWCB

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

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

By proactively reaching out to all key stakeholders as early in the Flood Map Project as possible, the maps can be used to their full potential. The likelihood of appeals may also be reduced or eliminated. Specific responsible Mapping Partner activities shall include, but are not limited to:

- Establishing two-way communication to address the needs of, inform and obtain feedback from, the stakeholders;
- Ensuring compliance with due process requirements;
- Interacting with technical representatives to ensure production of accurate and up-to-date maps;
- Enhancing ownership by communities; and
- Tracking, monitoring, and evaluating outreach activities and adjusting efforts according to ongoing feedback and evolving project needs.

Standards: All work conducted under this task shall conform to the standards specified for this task in Section 5, “Applicable Standards” of this MAS. In the event of any contradictions between the MAS and the standards, the standards shall control.

Deliverables: Upon Completion of Outreach and Coordination the responsible Mapping Partner shall deliver the following to the FEMA Regional Project Officer in accordance with the delivery dates specified in task orders:

- Documentation detailing the outreach and coordination activities; and
- Backup or supplemental information used in writing this report.

**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](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															
	1	2	3	4	5	6 6 A	7 7 A	8	9	10 10 A 10 B	11	12	13 13A	14 14A	15	16
General Documentation																
Special Problem Reports	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Telephone Conversation Reports	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Meeting Minutes/Reports	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
General Correspondence	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Engineering Analyses																
Hydrologic Analyses			X			X	X	X	X	X	X					
Hydraulic Analyses			X			X	X	X	X	X	X					
Key to Cross Section Labeling			X			X	X	X	X	X	X					
Key to Transect Labeling			X			X	X	X	X	X	X					
Draft FIS Report						X	X	X	X							
Mapping Information	X	X		X	X						X	X	X	X	X	X

Miscellaneous Reference Information	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
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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 August 1, 2005, and will be completed no later than September 30, 2008. The mapping activities may be terminated at the option of FEMA or CWCB in accordance with the provisions of the Partnership Agreement dated July 15, 2002.

**Section 4—Funding/Cost-Sharing**

FEMA is providing funding, in the amount of \$ \_\_\_\_\_, to CWCB for the completion of the Flood Map Project documented in this MAS. CWCB shall provide \_\_\_\_\_ for the effort required 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 are summarized in Table 5-2. These Guidelines are available for viewing or download from the FEMA Flood Hazard Mapping Web site at [http://www.fema.gov/fhm/dl\\_cgs.shtm](http://www.fema.gov/fhm/dl_cgs.shtm).

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															
	1	2	3	4	5	6, 6A	7, 7A	8	9	10, 10A, 10B	11	12	13, 13A	14, 14A	15	16
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
American Congress on Surveying and Mapping Procedures	X	X	X	X	X											
Global Positioning System (GPS) Surveys, National Geodetic Survey (NGS-510), "Guidelines for Establishing GPS-Derived Ellipsoid Heights" November 1997	X	X	X	X	X											
Engineer Manual 1110-1-1000, <i>Photogrammetric Mapping</i> (USACE), July 1, 2002	X	X	X	X	X											
Engineer Manual 1110-2-1008, <i>Hydrographic Surveys</i> (USACE), January 1, 2002	X	X	X													
"Numerical Models Accepted by FEMA for NEIP Usage," Updated April 2003	X	X				X	X	X	X							
<i>Content Standard for Digital Geospatial Metadata</i> (Federal Geographic Data Committee), 1998	X	X		X	X					X	X	X	X	X	X	X
<i>Document Control Procedures Manual</i> , December 2000	X	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	Pre-Scoping	Volume 1, and Appendix I
2	Scoping	Volume 1, and Appendix I
3	Field Surveys and Reconnaissance	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1) Appendix A, Sections A.4, A.5, A.6, A.7, and A.8 Appendix F, Section F.3 Appendices B, C, M, and N
4	Topographic Data Development	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1) Appendix A, Sections A.2, A.3, A.7, and A.8 Appendix M and N
5	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
6	Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix A, Section A.4 Appendix C, Sections C.1 and C.7 Appendices E, F, G, H, M, and N
6A	Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.2.2) Appendix A, Section A.4 Appendices B, D, M, and N

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
7	Independent QA/QC Review of Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendix C, Section C.2 Appendices E, F, G, H, and M
7A	Independent QA/QC Review of Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendices B, D, and M
8	Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Sections C.3 and C.7 Appendices B, E, F, G, H, M, and N
9	Independent QA/QC Review of Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Section C.5 Appendices B, E, F, G, H, and M
10	Floodplain Mapping (Detailed Riverine or Coastal Analysis)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, M, and N

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
10A	Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.3) Appendix C, Section C.6 (specifically Subsection C.6.1.3) Appendices K, L, M, and N
10B	Floodplain Mapping (Refinement or Creation of Zone A)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendices K, L, and M
11	Independent QA/QC Review of Floodplain Mapping (Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, and M
12	Base Map Acquisition and Preparation	Volume 1, Section 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsections 1.4.3.1 and 1.4.3.2) Appendix A, Section A.1 (specifically Subsection A.1.1)
13	DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M
13A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
14	DFIRM Production (Merging Revised and Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K, L, 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
16	Post-Preliminary Processing	Volume 1, Section 1.5 (specifically Subsection 1.5.2) Appendices J, K, L, and M

**Section 6—Schedule**

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

<b>ACTIVITIES</b>	<b>RESPONSIBLE PARTNER(S)</b>	<b>DATE DUE</b>
Activity 1 – Pre-Scoping		
Activity 2 – Scoping		
Activity 3 – Field Surveys and Reconnaissance		
Activity 4 – Topographic Data Development		
Activity 5 – Independent QA/QC Review of Topographic Data		
Activity 6 – Hydrologic Analyses		
Activity 7 – Independent QA/QC Review of Hydrologic Analyses		
Activity 8 – Hydraulic Analyses		
Activity 9 – Independent QA/QC Review of Hydraulic Analyses		
Activity 10 – Floodplain Mapping (Detailed Riverine)		
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)		
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)		
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)		
Activity 12 – Base Map Acquisition		
Activity 13 – DFIRM Production (Non-Revised Areas)		
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		
Activity 14 – DFIRM Production (Merging Revised and Non-Revised Information)	CWCB	4/30/06
Activity 14A – DFIRM Production (Application of DFIRM Graphics and Database Specifications)	CWCB	5/30/06

ACTIVITIES	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 14B - Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications		6/30/06
Activity 15 - Preliminary DFIRM and FIS Report Distribution		
Activity 16 - Post-Preliminary Processing		
Activity 17 - Outreach	CWCB	ongoing

**Section 7—Certifications**

The following certifications apply to this MAS:

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

A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic data, in accordance with 44 CFR 65.5(c). Certification of topographic data by the American Society for Photogrammetry and Remote Sensing is also acceptable.

**Activity 6 (Hydrologic Analyses), Activity 8 (Hydraulic Analyses), Activity 10 (Floodplain Mapping— Detailed Riverine or Coastal Analysis), Activity 10A (Floodplain Mapping {Redelineation Using Effective Flood Profiles and Updated Topographic Data}), and Activity 10B (Floodplain Mapping {Refinement or Creation of Zone A})**

- A Registered Professional Engineer shall certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f);
- A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic information in accordance with 44 CFR 65.5(c); and
- Any levee systems to be accredited will be certified in accordance with 44 CFR 65.10(e).

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

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

**Activity 12 (Base Map Acquisition and Preparation)**

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

agreement that the digital base map can be used by FEMA. Documentation that the digital base map can be used by FEMA will still be required.

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

#### **Section 8—Technical Assistance and Resources**

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the FEMA Mapping Needs Assessment Process from the NSP, who may be contacted by telephone at 720-514-1110 or by facsimile at 720-514-1120.

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**

CWCB intends to use the services of Anderson Consulting Engineers as a contractor for the Flood Map Project documented in this MAS. CWCB 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\\_02/44cfr13\\_02.html](http://www.access.gpo.gov/nara/cfr/waisidx_02/44cfr13_02.html).

#### **Section 10—Financial Reporting**

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

CWCB will meet with the NSP and/or FEMA *as needed* to review the progress of the project. These meetings will alternate between FEMA's Regional Office and the CWCB office.

CWCB will provide to the NSP regular updates for each of the mapping activity statements. This may, at FEMA's discretion be a spreadsheet template to be completed or the Monitoring Information on Contracted Studies (MICS) system may be used. It may include dollars spent, hours spent, and percent complete of each major Flood Map Project activity (e.g., field survey, terrain, hydrology) on a county basis. Specific reporting requirements will be finalized as a part of the scoping meeting.

#### **Section 11—Points of Contact**

The points of contact for this Flood Map Project are Dan Carlson, the FEMA Regional Project Officer; Karen Price, the Colorado Map Mod Coordinator for the CWCB; 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, Kevin Long.

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 needed*;
- Telephone conversations with FEMA and other Project Team members *as needed*;
- 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.



Rod Kuharich *RB*  
Director  
Colorado Water Conservation Board

5-31-05

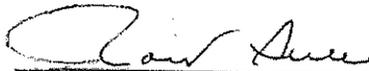
Date



Karen Amrhein Price  
Colorado Map Mod Coordinator  
Project Manager  
Colorado Water Conservation Board

May 30, 2005

Date



Robert Ives  
HIRA Branch Chief  
Federal Emergency Management Agency, Region VII

5/6/05

Date



Kevin Long *KL*  
Project Officer  
Federal Emergency Management Agency

5-31-05

Date



Dave Jula  
Michael Baker Jr., Inc.  
National Service Provider

5-31-05

Date