

Memorandum

To: PPO Subcommittee

Re: Cooperating Technical Partners Grant Application and Agreements for Floodplain Mapping update in Douglas and Sarpy Counties

Date: May 30, 2008

From: Paul Woodward, Water Resources Engineer

In August 2006, the Board approved a floodplain map scoping project agreement and grant application with FEMA to study and determine what floodplains need updating in Douglas, Sarpy, Washington and Dakota County. This effort is part of an ongoing Cooperating Technical Partner (CTP) program with FEMA to create and maintain accurate, up-to-date flood hazard data within the District.

To complete this scoping, the District hired HDR Engineering in February 2007. Since then, HDR, District staff and FEMA have held meetings with all the communities and counties to receive their input on what local needs they have for new or updated floodplain maps. Based on a prioritized list of needs for Douglas and Sarpy Counties, HDR prepared the attached County Maps and Mapping Activities Statement (MAS) which outlines the work to be completed by the District in return for receiving the grant from FEMA. The result of this proposed project will be county-wide Digital Flood Insurance Rate Maps (DFIRM) and Flood Insurance Study (FIS) report for Douglas and Sarpy Counties including the following updates:

- ☐ Inclusion of new base flood elevations for the Missouri River along with Carter Lake.
- ☐ Papillion Creek, Big Papillion Creek, Little Papillion Creek, and their tributary streams up to 1 square mile of drainage area will be remapped or newly mapped as Zone AE with base flood elevations corresponding to the current and future one-percent annual chance flood (100 –year). A total stream length of 112 miles is estimated for this creek system. This will include tributaries such as Cole Creek, Saddle Creek and Mud Creek.
- ☐ West Papillion Creek and its tributary streams not previously updated in 2008 and draining up to 1 square mile of drainage will be newly mapped as Zone AE. A total stream length of 38 miles is estimated for this creek system. This includes tributaries upstream of Zorinsky Lake and Wehrspann Lake.

Congress has provided funding to the U.S. Army Corps of Engineers Omaha District (USACE) to complete this project. A total of \$1.9 million will be allocated for the project with \$900,000 being distributed in fiscal year 2008 and the remainder over the next two fiscal years. Based on Time and Cost Estimates for the Douglas and Sarpy Counties project, the total estimated cost is \$2,423,400 and the anticipated funding from FEMA is \$375,000, and will be used to cover technical reviews of the data prepared by the USACE. USACE funding will be \$1.9 million dollars and the additional funds, if needed, in the amount of \$148,400 would be funded by the District through an agreement with the USACE.

This project has begun as of May 1, 2008 and a proposed schedule is attached.

- **It is recommended that the Subcommittee recommend to the Board that the following resolution be adopted:**

BE IT RESOLVED by the Board of Directors of the Papio-Missouri River Natural Resources District, that the District should apply to the Federal Emergency Management Agency (FEMA) under the FEMA Cooperating Technical Partners (CTP) Program, for CTP grants in the maximum obtainable amount (presently estimated to be \$375,000) towards the cost of activities needed to produce digital floodplain maps for Douglas and Sarpy Counties, and should apply for technical assistance, training, data and other assistance available from FEMA under the CTP Program to support such mapping activities; and, be it further resolved, that the General Manager of the District is hereby authorized to carry out the Douglas and Sarpy Counties Floodplain Mapping project and to execute, for and on behalf of the District, Applications for Federal Assistance for such FEMA CTP grants, a CTP Cooperative Agreement with FEMA, CTP Mapping Activity Statements, and such other applications, assurances, certificates, reports and other documents, and amendments thereto, as the General Manager determines necessary to obtain such CTP grants and other mapping activity assistance from FEMA.



FEMA

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. 5

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated April 11, 2003 between Papio-Missouri River Natural Resources District (Papio-Missouri River NRD) and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 5 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 Douglas and Sarpy Counties. All processes and deliverables shall be completed in accordance to the Federal Emergency Management Agency's (FEMA's) *Guidelines and Specifications for Flood Hazard Mapping Partners* (G&S) and effective Procedure Memoranda (PMs). The DFIRM and FIS report will be produced in the FEMA County-wide format. In addition, the Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in Table 1.1, Flooding Sources to be Studied.

The DFIRM and FIS report will be produced in the FEMA Countywide format in the North American Vertical Datum of 1988 (NAVD88). (Refer to PM 41 for exceptions.)

Table 1.1 - Flooding Source(s) to be Studied

Flooding Source	Reach Limits	Reach Length (Miles)	Detailed Riverine		Redelineati on of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics		
Missouri River	From Sarpy/Cass to Washington/ Douglas County lines	34.5	X	X		
Carter Lake	Lake area	2.9			X	
Big Papillion Creek/Papillion Creek and its Tributaries						
New Port Landing	Lake area	1.0			X	
Standing Bear Lake	Lake area	2.9			X	
Candlewood Lake	Lake area	0.5			X	
Big Papillion Creek/Papillion Creek	Mouth to Douglas/ Washington County line	30.8	X	X		

Flooding Source	Reach Limits	Reach Length (Miles)	Detailed Riverine		Redelineati on of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics		
ROB Unnamed Tributary to Papillion Creek	Mouth to 1 sm drainage threshold or along Fairview Rd and U.S. Hwy. 75 to ≈ Platteview Rd.	1.9	X	X		
ROB Unnamed Tributary to Papillion Creek	Mouth to 1 sm drainage threshold or west of U.S. Hwy. 75 to ≈ 29th St.	1.2	X	X		
LOB Unnamed Tributary to Papillion Creek	Mouth to 1 sm drainage threshold or ≈ U.S. Hwy. 75 to near Kirby	1.5	X	X		
Betz Road Ditch	Mouth to 1 sm drainage threshold	2.2	X	X		
Mud Creek	Mouth to 1 sm drainage threshold	6.9	X	X		
ROB Unnamed Tributary to Mud Creek	Mouth to 1 sm drainage threshold or ≈ along 21st St.	0.7	X	X		
ROB Unnamed Tributary to Mud Creek	Mouth to 1 sm drainage threshold or near Childs	0.1	X	X		
Big Elk Creek	Mouth to 1 sm drainage threshold	1.9	X	X		
ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or north of Cornhusker to ≈ 65th St	0.8	X	X		
Cooper Creek	Mouth to 1 sm drainage threshold	0.7	X	X		
Thompson Creek	Mouth to 1 sm drainage threshold	1.0	X	X		
LOB Unnamed Tributary to Thompson Creek	Mouth to 1 sm drainage threshold	0.6	X	X		
LOB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or Karen Street Addition near 60th & Q Sts	0.9	X	X		
Ralston Creek	Mouth to 1 sm drainage threshold	1.2	X	X		
ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or F St Drainage	1.5	X	X		

Flooding Source	Reach Limits	Reach Length (Miles)	Detailed Riverine		Redelineati on of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics		
ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or Frederick St Drainage ≈ 92nd to 96th Sts.	0.6	X	X		
Rockbrook Creek	Mouth to 1 sm drainage threshold	1.3	X	X		
ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or Lamp Park - 109th to 117th Sts. near Farnam	0.8	X	X		
ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or Eagle Run Drainage	1.8	X	X		
ROB Unnamed Tributary to ROB Unnamed Tributary of Big Papillion Creek	Mouth to 1 sm drainage threshold or within Eagle Run Drainage	0.2	X	X		
ROB Unnamed Tributary to Big Papillion Creek	Downstream of Standing Bear Lake or from mouth to Standing Bear Lake	1.0	X	X		
LOB Unnamed Tributary to ROB Unnamed Tributary to Big Papillion Creek	Tailwater of Standing Bear Lake to 1 sm drainage threshold	0.8	X	X		
ROB Unnamed Tributary to ROB Unnamed Tributary to Big Papillion Creek	Tailwater of Standing Bear Lake to 1 sm drainage threshold	0.5	X	X		
LOB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or ≈ between 144th to 132nd Sts	1.9	X	X		
LOB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or ≈ Rainwood Rd/147th St to ≈ Pawnee Rd	2.6	X	X		
ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or from ≈ Bennington Rd to ≈ State St	1.9	X	X		
ROB Unnamed Tributary to Big Papillion Creek	Upstream of Newport Landing (DS 6) to 1 sm drainage threshold or ≈ between 180th & 192nd Sts.	1.0	X	X		
Butterflat Creek	Mouth to Douglas/Washington County line	0.8	X	X		

Flooding Source	Reach Limits	Reach Length (Miles)	Detailed Riverine		Redelineati on of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics		
ROB Unnamed Tributary to Big Papillion Creek	Mouth to Douglas/ Washington County line and Douglas/Washington County line to 1 sm drainage threshold or ≈ between 200th & 216th Sts	2.5	X	X		
LOB Unnamed Tributary to ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or ≈ 204th St.	0.4	X	X		
ROB Unnamed Tributary to ROB Unnamed Tributary to Big Papillion Creek	Mouth to 1 sm drainage threshold or ≈ 214th St.	0.5	X	X		
Little Papillion Creek and its Tributaries						
Cunningham Lake	Lake area	5.1			X	
Little Papillion Creek	Mouth to Cunningham Lake	12.1	X	X		
Little Papillion Creek	Tailwater of Cunningham Lake to Douglas/Washington County line	1.0	X	X		
LOB Unnamed Tributary to Little Papillion Creek	Mouth to 1 sm drainage threshold or ≈ along H St.	1.1	X	X		
Saddle Creek	Mouth to 1 sm drainage threshold	4.2	X	X		
LOB Unnamed Tributary to Saddle Creek	Mouth to 1 sm drainage threshold	0.6	X	X		
ROB Unnamed Tributary to Little Papillion Creek	Mouth to 1 sm drainage threshold or Elmwood Subdivision drainage	1.5	X	X		
Cole Creek	Mouth to 1 sm drainage threshold	4.6	X	X		
ROB Unnamed Tributary to Little Papillion Creek	Mouth to 1 sm drainage threshold or along Charles Street Drain in Meadowbrook Area between Maple and Dodge Sts.	0.6	X	X		
ROB Unnamed Tributary to Little Papillion Creek	Mouth to 1 sm drainage threshold or near 90th Street drainage near Maple St.	1.4	X	X		

Flooding Source	Reach Limits	Reach Length (Miles)	Detailed Riverine		Redelineati on of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics		
Thomas Creek	Mouth to Douglas/ Washington County line	7.2	X	X		
LOB Unnamed Tributary to Little Papillion Creek	Mouth to 1 sm drainage threshold or near Ida Street	0.5	X	X		
LOB Unnamed Tributary to Little Papillion Creek	Tailwater of Cunningham Lake to 1 sm drainage threshold or ≈ between 84th St. and near Rainwood	0.4	X	X		
LOB Unnamed Tributary to Little Papillion Creek	Tailwater of Cunningham Lake to 1 sm drainage threshold or ≈ between 90th and 81st Sts.	0.9	X	X		
ROB Unnamed Tributary to Little Papillion Creek	Tailwater of Cunningham Lake to 1 sm drainage threshold or ≈ between 100th St. to ≈ Pawnee Rd	1.1	X	X		
LOB Unnamed Tributary to Little Papillion Creek	Mouth to Douglas/ Washington County line	0.5	X	X		
West Papillion Creek and its Tributaries						
West Papillion Creek	Extend Existing Detailed Zone AE Mapping from ≈ 216th St to 1 sm threshold	1.3	X	X		
ROB Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold ≈ 39th St. to Capehart Rd	2.4	X	X		
LOB Unnamed Tributary to ROB Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold ≈ along Maass Rd	0.4	X	X		
Midland Creek	Extend Existing Detailed Zone AE Mapping ≈ Shadow Lake to 1 sm drainage threshold	1.2	X	X		
Walnut Creek	Tailwater of Walnut Creek Reservoir ≈ Schram Rd to 1 sm drainage threshold	0.2	X	X		
LOB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold or ≈ along 100th St	1.0	X	X		
ROB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold or near Millard Airport	0.2	X	X		

Flooding Source	Reach Limits	Reach Length (Miles)	Detailed Riverine		Redelineati on of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics		
LOB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold near 146th St	0.7	X	X		
Boxelder Creek	Tailwater of Zorinsky Lake to 1 sm threshold or between 192nd to 210th Sts	1.9	X	X		
ROB Unnamed Tributary to Boxelder Creek	Mouth to 1 sm drainage threshold or Whitehawk (Zorinsky 3) tributary or ≈ 192nd to 210th Sts	3.5	X	X		
LOB Unnamed Tributary to Boxelder Creek	Mouth to 1 sm drainage threshold or ≈ 204th to 217th Sts.	1.4	X	X		
ROB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold or near Frances	0.2	X	X		
LOB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold or between Bob Boozer and 153rd St or mouth near 166th St	0.4	X	X		
ROB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold or ≈ 171st to 184th Sts	1.6	X	X		
LOB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold or ≈ along 180th St or ≈ between Blondo and Fort Sts	3.0	X	X		
LOB Unnamed Tributary to West Papillion Creek	Mouth to 1 sm drainage threshold or ≈ between 202nd & Fort Sts	2.1	X	X		
ROB Unnamed Tributary to South Papillion Creek	Tailwater of Wehrspann Lake to 1 sm drainage threshold	4.3	X	X		
ROB Unnamed Tributary to ROB Unnamed Tributary to South Papillion Creek	Tailwater of Wehrspann Lake to 1 sm drainage threshold ≈ along 168th St	0.6	X	X		
LOB Unnamed Tributary to ROB Unnamed Tributary to South Papillion Creek	Mouth to 1 sm drainage threshold or ≈ 180th to 192nd Sts	0.9	X	X		
LOB Unnamed Tributary to South Papillion Creek	Mouth (≈ 162nd St) to 1 sm drainage threshold	1.5	X	X		

Flooding Source	Reach Limits	Reach Length (Miles)	Detailed Riverine		Redelineati on of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics		
ROB Unnamed Tributary to South Papillion Creek	Mouth to 1 sm drainage threshold or near 174th St and Giles	0.8	X	X		
LOB Unnamed Tributary to South Papillion Creek	Mouth to 1 sm drainage threshold or between ≈ 180th to Harrison Sts	1.4	X	X		
ROB Unnamed Tributary to South Papillion Creek	Mouth to 1 sm drainage threshold or from ≈ 192nd to 198th Sts	1.2	X	X		
North Branch West Papillion Creek	Extend existing remapped AE to 1 sm threshold or from ≈ 188th to ≈ 216th Sts	2.4	X	X		
LOB Unnamed Tributary to North Branch West Papillion Creek	Mouth to 1 sm drainage threshold or ≈ along Blondo St	0.4	X	X		
ROB Unnamed Tributary to North Branch West Papillion Creek	Mouth to 1 sm drainage threshold or between 184th and 204th Sts	2.3	X	X		

This Flood Map Project will be completed by the following Mapping Partner(s):

- Papio-Missouri River NRD;
- CTP Study Contractor; and
- National Service Provider.

The Mapping Partner shall notify FEMA and/or its contractor by e-mail of all meetings with community officials at least two weeks prior to the meeting (with as much notice as possible). FEMA and/or its contractor may or may not attend the community meetings.

The activities for this Flood Map Project, including any required Quality Control (QC) reviews as outlined in Procedure Memorandum (PM) 42, and the Mapping Partners that will complete them are summarized in Table 1.2, Flood Mapping Project Activities. The sections of this MAS that follow the table below describe the specific mapping activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map deliverables.

TASK ASSIGNMENTS

FY08 MAS/SOW Template Version 7.1 Region VII
Mapping Activity Statement No. 5
Papio-Missouri River NRD

For those counties that include the Missouri and/or Mississippi Rivers, Papio-Missouri River NRD will incorporate data developed from the USACE's Upper Mississippi River System Flow Frequency Study (UMRSFFS) and stored on the MIP. Refer to **Exhibit A** for a listing of counties that will include UMRSFSS-based data and **Exhibit B** for a listing of data. Papio-Missouri River NRD shall coordinate directly with the RMC to confirm what data is currently, or will be, available on the MIP.

Papio-Missouri River NRD is responsible for the implementation of a Quality Assurance plan for all assigned activities. The Papio-Missouri River NRD will submit a Summary Report that describes and provides the results of all automated or manual QA review steps. The report should include the process for all assigned activities.

The Regional Office has reviewed the counties for accredited levees on the Flood Insurance Rate Map. In coordination with the USACE, the Region has determined the PAL classification for each levee accredited on the FIRM. The classification is summarized in Table 1.3. The Papio-Missouri River NRD assigned the floodplain mapping task will include the appropriate note for the associated PM 43 classification.

In those cases where the effective map does not include a shaded Zone X area on the landward side of the levee, the Papio-Missouri River NRD will delineate the shaded Zone X area based on the elevation of the 1% of annual occurrence flood and existing topographic data.

Only accredited levees, or levees with a provisional accreditation, are to be depicted on the FIRM. Other levees, including non-accredited levee shown on the effective FIRM, are not to be included.

If the PAL Classification for a levee changes during the course of the project, FEMA will contact the Papio-Missouri River NRD to discuss the need to revise the statement of work.

Table 1.3 – Levee PAL Classification

County	Levee Name	Provisionally Accredited Levee Classification	Additional Mapping Required
Douglas	Omaha Flood Protection Program	B	Yes
Douglas	Waterloo ¹	B	No
Sarpy	R-613	B	No
Sarpy	R-616	B	No

1. Village of Waterloo PAL agreement effective January 10, 2008

FEMA has developed tools to assist in the development of the flood hazard data studies and DFIRMs for the CTP to use. Use of the tools is optional. Training and access to the tools should be arranged through the Regional Management Center. The tools available at this time include WISE software and the DFIRM production tools, both available through the Mapping Information Platform (MIP).

Independent QC review activities will be performed by FEMA's contractor at the discretion of FEMA.

FEMA will provide download/upload capability for intermediate data submittals through the MIP. A metadata file complying with the FEMA NFIP Metadata Profile Specifications must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. FEMA has provided the Metadata Manager (MetaMan) Tool in the Citrix environment to convert the .txt metadata files to .xml format. In addition, MetaMan will check the metadata file according to the correct schema for the task for compliance with the FEMA NFIP Metadata Profile.

Metadata files are to be included with each of the following four activities that must satisfy Data Capture Standards (DCS): Perform Field Survey, Develop Topographic Data, Develop Hydrologic Data, and Develop Hydraulic Data. In addition, a DCS QA report is required for all DCS tasks. FEMA has provided the DCS Validator Tool in WISE in the Citrix environment to generate the QA report, and must be used whether or not WISE was used to create the DCS data. The DCS QA report can be either passing or failing, but a failing report must be validated by the RMC for allowable errors. The task will advance in the MIP studies workflow as long as the report has been uploaded and named correctly.

Metadata files are also to be included with each of the following non-DCS activities: Acquire Base Map Data, Perform Floodplain Mapping, Develop DFIRM Database, Produce Preliminary Map Products, and Produce Map Products. The metadata profiles are available from FEMA. The FEMA NFIP Metadata Profiles follow the Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata, but define some specific domains and business rules to make the metadata more useful to FEMA and its mapping partners. The metadata profile should be obtained from FEMA or its contractor to assure compliance.

DFIRM-related tasks require a passing QC Report from FEMA's National DFIRM database auto-validation tool for Quality Review (QR) #1, #2, and #5 as described in PM 42. Training materials for this step are available on the MIP at MIP User Care>Training Materials.

As each activity is completed, the data must be submitted to the via one of the methods described in the Data Submission Upload and Validation Quick Reference Guide (QRG) which is available on the MIP at MIP User Care>Guides & Documentation.

The Papio-Missouri River NRD assigned the activity will respond to any comments generated as a result of the mandatory quality control checks by the National Service Provider (NSP). The NSP QC process is nationally funded and required on each flood insurance study. The NSP QC process includes the following activities:

- **Validate Content Submission.** Validation of submitted data for Perform Field Survey, Develop Topographic Data, Develop Hydrologic Data, Develop Hydraulic Data, Acquire Base Map Data, Perform Floodplain Mapping, Develop DFIRM Database, and Produce Preliminary Map Products tasks (including verifying presence of all required deliverables per MAS/SOW).
- **QR #1.** Performed after the Develop DFIRM Database task.
- **QR #s 2 and 3.** Performed after the Produce Preliminary Map Products task.
- **QR #4.** Performed after the Create Base Flood Elevation (BFE) Notices step in the MIP workflow during Post Preliminary Processing.
- **QR #5.** Performed after the Produce Final Map Products task during Post Preliminary Processing.
- **QR #6.** Performed after the Prepare LFD Docket step in the MIP workflow during Post Preliminary Processing.
- **QR #7.** Performed after the Submit MSC Deliverable step in the MIP workflow during Post Preliminary Processing.

In cooperation with the FEMA Project Officer, a Project Management Team (PMT) will be established by the Papio-Missouri River NRD consisting of representatives from the Papio-Missouri River NRD, and it's CTP Study Contractor, FEMA's regional engineer, the Regional Management Center, and other appropriate parties. The PMT will be responsible for coordinating the activities identified in this MAS. The FEMA Region will be provided with documentation identifying the established PMT.

The MIP shall be updated for status reporting of each of the data development activities within the Manage Data Development task, not less than every thirty days, when the activity is complete, and include leverage data. Similarly, the Manage Preliminary Map Production and Manage Post Preliminary Processing tasks shall be updated monthly when the producer is performing work on a task in those modules. The "Manage" tasks will be open and accepting updates for up to 90 days after the completion of the last producer task in each module. The MIP shall also be populated with appropriate leverage information regarding who paid for the data provided and the amount of data used by the Flood Map Project.

Work completed as part of this MAS will be in accordance with the April 2003 *Guidelines and Specifications for Flood Hazard Mapping Partners (G&S)*. The G&S may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm. Occasionally, the G&S are modified and revised by Procedure Memorandums. Procedure Memorandums 9-11, 13, 15, 17-20, 23, 24, 29, 31- 44 are incorporated into this MAS. When new Procedure Memorandums are released, the Mapping Partner will coordinate with the Regional Project Officer to determine impacts on work and schedule. http://www.fema.gov/plan/prevent/fhm/gs_memos.shtm

OUTREACH

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.

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 Management Team in responding to congressional inquiries.

The Papio-Missouri River NRD will work with the Regional Project Officer during the initiation of this activity to determine an Outreach Plan for implementation throughout the mapping project. The Regional Project Officer will have access to many outreach tools and materials developed for this process that can be utilized or customized. Volume 1 of the *Guidelines and Specifications for Flood Hazard Mapping Partners* provides specific outreach goals that may be considered.

The Papio-Missouri River NRD and it's Study Contractor shall attend a final meeting in Douglas and Sarpy Counties following the issuance of the Preliminary FIRM and FIS.

Prior to the initiation of the project, the Papio-Missouri River NRD will notify the CEO of all incorporated communities and the county of the project scope and schedule. The notification letter shall also include the appointment of the Consultation Coordination Officer (CCO). The FEMA Project Officer will provide the name of the CCO. A hardcopy of the community notification shall be provided to the FEMA Project Officer for inclusion in the Docket File.

All communication with local governments will be done in accordance with 44 CFR Part 66.

Deliverables: Upon determination of an Outreach and Coordination Approach, the Papio-Missouri River NRD shall deliver the following to the FEMA Regional Project Officer:

- A report detailing outreach and coordination activities; and
- Hardcopy of the community notification.

Perform Field Survey

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, Papio-Missouri River NRD 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.

Papio-Missouri River NRD 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. Papio-Missouri River NRD also shall coordinate with other Mapping Partners that are involved in the Topographic Data Development process.

Papio-Missouri River NRD shall address all concerns or questions regarding the field survey that are raised during the NSP's Validate Content Submission Process.

Standards: All Field Survey work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results;
- Survey notebook containing cross sections and structural data;
- Documentation of the Datum, (Refer to Procedure Memorandum 41);
- Digital version of draft text for inclusion in the FIS report;
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications;
- Survey Database or Data Delivery consistent with the *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- A DCS QA Report, 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 as outlined in the approved QA/QC Plan.

MIP workflow steps: Perform Field Survey, Rework Data Development Task (if needed as a result of Independent QC).

Corresponding QC steps: Validate Content Submission (NSP core task order).

Develop Topographic Data

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: Papio-Missouri River NRD shall obtain additional topographic data of the overbank areas of the flooding sources. These data will be used for hydrologic analysis, hydraulic analysis, floodplain boundary delineation and/or testing of floodplain boundary standard compliance. Papio-Missouri River NRD shall gather information on what topographic data is available for the given community and what accuracy and currency it meets. Papio-Missouri River NRD shall use a topographic data that is better than that of the original study. In coordination with the partner who performed scoping, ensure that the FEMA Geospatial Data Coordination Policy and Implementation Guide is followed and the data obtained or to be produced are documented properly

For this activity, Papio-Missouri River NRD also shall generate the data collected under this Topographic Data Development task and via field surveys to create a best available digital elevation model for the subject flooding sources. In addition, Papio-Missouri River NRD shall address all concerns or questions regarding the topographic data development and processing that are raised by the National Service Provider during the independent QC review. Papio-Missouri River NRD should confirm with the COTR the automated appropriate data model(s) (i.e. contours, Digital Elevation Models (DEMs), TIN, mass points and breaklines) for the intended use of the data.

For those counties that include the Missouri and/or Mississippi Rivers, Papio-Missouri River NRD will incorporate data developed from the USACE's Upper Mississippi River System Flow Frequency Study (UMRSFFS) and stored on the MIP. Refer to **Exhibit A** for a listing of counties that will include UMRSFFS-based data and **Exhibit B** for a listing of data. Papio-Missouri River NRD shall coordinate directly with the RMC to confirm what data is currently, or will be, available on the MIP.

Topographic data prepared for the UMRFFS Study for the Missouri River and the tag vector contours (TVC) for Douglas and Sarpy Counties has been processed and satisfy FEMA's Data Capture Standards.

Papio-Missouri River NRD shall use topographic data for the areas described in the Summary of Topographic Data table. The source of the topographic data should be indicated as well. Papio-Missouri River NRD also shall coordinate with other team members conducting field surveys. Contour interval and/or accuracy for the topographic data shall be selected based on the current FEMA requirements as documented in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

For this activity, Papio-Missouri River NRD also shall develop topographic maps and/or Digital Elevation Models for the subject flooding sources using the data collected under this Topographic Data Development process and via field surveys. In addition, Papio-Missouri River NRD shall address all concerns or questions regarding the topographic data development that are raised by National Service Provider during the independent QC review, or during the PM42 defined Validation Process.

Summary of Topographic Data

County	Description	Source
Douglas and Sarpy counties	In April 2004, Horizons, Inc. of Rapid City, SD acquired digital imagery for Douglas, Washington, and Sarpy counties in Nebraska. Approximately 935 square miles were covered with LiDAR. The limits of the LiDAR conducted under FEMA's standards and guidelines are along West Papillion Creek and several of its tributaries with a width describing approximately the existing 0.2-percent annual chance floodplain.	Government supplied, available from Metropolitan Area Planning Agency. Contact Paul Mullen, Executive Director
Douglas and Sarpy counties	Missouri River bluff area topographic mapping obtained for USACE, Upper Mississippi River System Flow Frequency Study (UMRFFS) - 4-foot contour mapping	Government supplied, available from RMC 7 (meets DCS)

Standards: All Topographic Data Development work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP so that National Service Provider can access it for an Independent QC review. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

- Digital contour data;
- Report summarizing methodology and results;
- Mass points and breaklines data;
- Gridded digital elevation model data
- TIN data
- Checkpoint analyses to assess the accuracy of data, including Root Mean Square Error calculations to support vertical accuracy;
- Identification of data voids and methods used to supplement data voids;
- National Geodetic Survey data sheets for Network Control Points used to control remote-sensing and ground surveys;

- A metadata complying with the FEMA NFIP Metadata Profile Specifications;
- A DCS QA Report, 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 as outlined in the approved QA/QC Plan.

MIP workflow step equivalent: Develop Topographic Data, Rework Data Development Task (if needed as a result of Independent QC).

Concurrent steps: Validate Content Submission (NSP core Task Order), Perform Independent QC for Topographic Data (if funded by Region VII).

Perform Independent QC Review of Topographic Data

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: Papio-Missouri River NRD shall review the mapping data generated for Papio-Missouri River NRD under Develop Topographic Data to ensure that these data are consistent with FEMA standards and standard engineering practice, and are sufficient to prepare the DFIRM. If Papio-Missouri River NRD utilizes a contractor to perform the QA, the contractor must be a different contractor than who performed the original analyses. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer.

Standards: All Topographic Data Development work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP, through the Load Studies Data Artifacts portlet under the Data Upload tab under Tools & Links. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

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

MIP workflow step equivalent: Perform Independent QC for Topographic Data.

Concurrent steps: Develop Topographic Data, Validate Content Submission (NSP core Task Order), Rework Data Development Task (if needed as a result of Independent QC).

Base Map Acquisition and Preparation

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: Base Map Acquisition consists of obtaining the digital base map, with aerial photos (raster), for the project and as necessary, preparing the base map for use. Papio-Missouri River NRD shall provide the digital base map. The table below contains a summary of the base map selected for each county. The required activities are as follows:

- Obtain digital files (raster or vector) of the base map. In coordination with the partner who performed scoping, insure that the FEMA Geospatial Data Coordination Policy and Implementation Guide is followed.

- 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.
- Review and supplement the content of the acquired base map to comply with the requirements of the G&S.
- For the base map components that have a mandatory data structure, convert the base map data to the format required in the G&S.
- Certify that the digital data meets the minimum standards and specifications that FEMA requires for DFIRM production.

In addition, Papio-Missouri River NRD shall address all concerns or questions regarding the base map that are raised during the Independent QC review performed by National Service Provider, or during the NSP's Validate Content Submission Process.

Summary of Base Map

County	Description	Source
Douglas and Sarpy counties	2007 Digital Aerial Photography	Government supplied, available from Metropolitan Area Planning Agency. Contact Paul Mullen, Executive Director
Douglas and Sarpy counties	Corporate Boundaries	Government supplied. Douglas County available from www.dogis.org and Sarpy County available from www.sarpy.com
Douglas and Sarpy counties	ETJ	Government supplied. Douglas County available from www.dogis.org and Sarpy County available from www.sarpy.com
Douglas and Sarpy counties	Roads	Government supplied. Douglas County available from www.dogis.org and Sarpy County available from www.sarpy.com

Standards: All Base Map Acquisition work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP so that National Service Provider can access it for an Independent QC. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

- Written certification that the digital data meet the minimum standards and specifications;
- Documentation that FEMA can use the digital base map;
- Digital base map files that comply with the G&S requirements
- Digital versions of draft text for inclusion in the FIS report;
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications; and

- Documentation of the Datum, if appropriate.

MIP workflow step equivalent: Acquire Base Map.

Concurrent steps: Validate Content Submission (NSP core Task Order), Perform Independent QC for Base Map (if funded by Region VII).

Perform Independent QC Review of Base Map

Responsible Mapping Partner: National Service Provider

Scope: National Service Provider shall review the base map acquired by Papio-Missouri River NRD to ensure it includes data consistent with FEMA standards and sufficient to include on the DFIRM.

Standards: All Independent QC work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, National Service Provider shall make the following products available to FEMA by uploading the digital data to the MIP, through the Load Studies Data Artifacts portlet under the Data Upload tab under Tools & Links. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

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

MIP workflow step equivalent: Perform Independent QC for Base Map.

Concurrent steps: Develop Topographic Data, Validate Content Submission (NSP core Task Order), Rework Data Development Task (if needed as a result of Independent QC).

Perform Hydrologic Analyses

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: Papio-Missouri River NRD shall perform hydrologic analyses for the flooding source(s) listed in Table 1.1. For streams studied by detailed methods the Papio-Missouri River NRD shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events representing existing and future full build-out conditions using the method indicated in the table below. In addition, Papio-Missouri River NRD shall address all concerns or questions regarding the hydrologic analyses that are raised during the Independent QC review performed by National Service Provider, or during the NSP's Validate Content Submission Process.

If GIS-based modeling is used, Papio-Missouri River NRD shall document automated data processing and modeling algorithms, and provide the data to FEMA to ensure these 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 Papio-Missouri River NRD shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

For those counties that include the Missouri and/or Mississippi Rivers, Papio-Missouri River NRD will incorporate data developed from the USACE's Upper Mississippi River System Flow Frequency Study (UMRSFFS) and stored on the MIP. Refer to **Exhibit A** for a listing of counties that will include UMRSFSS-based data and **Exhibit B** for a listing of data Papio-Missouri River NRD shall coordinate directly with the RMC to confirm what data is currently, or will be, available on the MIP.

Summary of Hydrologic Analysis

County Name	Method	Square Miles of New Detailed Hydrology
Douglas and Sarpy Counties	HEC-HMS	400

The Mapping Partner will compare the calculated, or computed, discharge with discharge determined from reliable gage data, if any. This comparison will only be done at locations where the two discharge values are considered representative of the same flooding source. Results of this comparison will be used in making a professional judgment for determining the discharge to be used for the hydraulic analysis.

Standards: All Hydrologic Analyses work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP so that National Service Provider can access it for an Independent QC review. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

For stream studied by detail methods, Papio-Missouri River NRD shall provide the following deliverables:

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events representing existing and future full build-out conditions;
- Digital versions of the Summary of Discharges Table presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital draft text for Hydrologic Analyses Section of the FIS report; and
- Digital versions of all backup data used in the analysis including work maps.

For all streams, Papio-Missouri River NRD shall provide the following deliverables:

- Brief summary report documenting the study area, methodologies, assumptions, and any other pertinent information related to the engineering analysis performed.
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications;
- Hydrology Database or Data Delivery consistent with the Data Capture Standards;
- A DCS QA Report;
- 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 as outlined in the approved QA/QC Plan; and
- For GIS-based modeling, deliverables shall include all input and output data, intermediate data processing products, and GIS data layers.

MIP workflow step equivalent: Perform Hydrologic Analyses, Rework Data Development Task (if needed as a result of Independent QC).

Concurrent steps: Validate Content Submission (NSP core Task Order), Perform Independent QC for Hydrologic Analyses (if funded by Region VII).

Perform Independent QC Review of Hydrologic Analyses

Responsible Mapping Partner: National Service Provider

Scope: National Service Provider shall review the technical, scientific, and other information submitted by Papio-Missouri River NRD specific to the hydrologic analyses to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice, and are sufficient to prepare the DFIRM. If National Service Provider utilizes a contractor to perform the Independent QC, the contractor must be a different contractor than who performed the original analyses. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
 - Use of acceptable models;
 - Use of appropriate methodology(ies);
 - Correctly applied methodology(ies)/model(s), including QC of input parameters;
 - Comparison with gage data and/or regression equations, if appropriate; and
 - Comparison with discharges for contiguous reaches or flooding sources.
- Maintain records of all contacts, reviews, recommendations, and actions and make the data readily available to FEMA;
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for three years from the date a funding recipient submits its final expenditure report to FEMA, and once the study is effective all associated data should be submitted to the FEMA library); and

Standards: All Independent QC work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: : In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, National Service Provider shall make the following products available to FEMA by uploading the digital data to the MIP, through the Load Studies Data Artifacts portlet under the Data Upload tab under Tools & Links. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

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

MIP workflow step equivalent: Perform Independent QC for Hydrologic Analyses.

Concurrent steps: Perform Hydrologic Analyses, Validate Content Submission (NSP core Task Order), Rework Data Development Task (if needed as a result of Independent QC).

Perform Hydraulic Analyses

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: For the streams identified in Table 1.1 that will be studied by detailed methods, Papio-Missouri River NRD will perform hydraulic analyses for approximately 147 miles. The modeling will include the 10%, 2%, 1% and 0.2% annual chance storm events representing existing and full build-out conditions based on peak discharges computed in the Perform Hydrologic Analyses Task. The hydraulic methods used for this analysis will include HEC-RAS computer program. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

Papio-Missouri River NRD shall use the cross-section and field data collected during Perform Field Survey and the topographic data collected during the Develop Topographic Data to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

Papio-Missouri River NRD shall use the FEMA CHECK-2 or CHECK-RAS checking program to verify the reasonableness of the hydraulic analyses. To facilitate the Independent QC review, Papio-Missouri River NRD shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, Papio-Missouri River NRD shall address all concerns or questions regarding the hydraulic analyses that are raised by National Service Provider during the Independent QC review, or during the NSP's Validate Content Submission Process.

Papio-Missouri River NRD shall document automated data processing and modeling algorithms for GIS-based modeling and provide the data to FEMA for review to ensure these 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 Papio-Missouri River NRD shall provide full user documentation, technical algorithm documentation, and software to FEMA for review before performing the hydraulic analyses.

For those counties that include the Missouri and/or Mississippi Rivers, Papio-Missouri River NRD will incorporate data developed from the USACE's Upper Mississippi River System Flow Frequency Study (UMRSFFS) and stored on the MIP. Refer to **Exhibit A** for a listing of counties that will include UMRSFSS-based data and **Exhibit B** for a listing of data Papio-Missouri River NRD shall coordinate directly with the RMC to confirm what data is currently, or will be, available on the MIP.

Summary of Hydraulic Analysis

County Name	Method	Total Miles of New Detailed or Approximate Hydraulics
Douglas and Sarpy counties	HEC-RAS	147

Standards: All Hydraulic Analyses work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP so that National Service Provider can access it for an Independent QC review. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications*

for Flood Hazard Mapping Partners must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

For streams studied by detailed methods, Papio-Missouri River NRD shall provide the following deliverables:

- Digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing and future full build-out conditions using the FEMA RASPLLOT program or similar software;
- Digital versions of the Floodway Data Table for each flooding source that is compatible with the DFIRM database;
- Digital work map showing the 1- percent-annual-chance representing existing and future full build-out conditions floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, and with base map used from the Acquire Base Map Task ;
- Explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate; and
- Digital versions of draft text for inclusion in the FIS report.

For all flood sources, Papio-Missouri River NRD shall provide the following deliverables:

- Digital versions of all hydraulic modeling (input and output) files;
- Digital versions of a table showing ranges of Manning’s “n” values;
- Digital versions of all backup data used in the analyses;
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications;
- Hydraulic Database or Data Delivery consistent with the Data Capture Standards of the *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- A DCS QA Report;
- A Summary Report that describes and provides the results of all automated or manual QA review steps taken during the preparation of the DFIRM as outlined in the approved QA Plan; and
- 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.

MIP workflow step equivalent: Perform Hydraulic Analyses, Rework Data Development Task (if needed as a result of Independent QC).

Concurrent steps: Validate Content Submission (NSP core Task Order), Perform Independent QC for Hydraulic Analyses (if funded by Region VII).

Perform Independent QC Review of Hydraulic Analyses

Responsible Mapping Partner: National Service Provider

Scope: National Service Provider shall review the technical, scientific, and other information submitted by Papio-Missouri River NRD under Hydraulic Analysis to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice, and are sufficient to revise the FIRM. If National Service Provider utilizes a contractor to perform the QC, the contractor must be a different contractor than who performed the original analyses. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
 - Use of acceptable model(s);
 - Starting water-surface elevations;
 - Cross-section geometry;
 - Manning’s “n” values and expansion/contraction coefficients;
 - Bridge and culvert modeling;
 - Flood discharges;
 - Regulatory floodway computation methods; and
 - Tie-in to upstream and downstream non-revised Flood Profiles.
- Use the CHECK-2 or CHECK-RAS program, as appropriate, to flag potential problems and focus review efforts.
- Maintain records of all contacts, reviews, recommendations, and actions and make the data readily available to FEMA.
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for three years from the date a funding recipient submits its final expenditure report to FEMA, and once the study is effective all associated data should be submitted to the FEMA library); and
-

Standards: All Independent QC work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, National Service Provider shall make the following products available to FEMA by uploading the digital data to the MIP, through the Load Studies Data Artifacts portlet under the Data Upload tab under Tools & Links. Additionally, the Technical Support Data Notebook format described in Appendix M of the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

- A Summary Report that describes the findings of the Independent QC review;
- Recommendations to resolve any problems that are identified during the Independent QC review;

MIP workflow step equivalent: Perform Independent QC for Hydraulic Analyses.

Concurrent steps: Perform Hydraulic Analyses, Validate Content Submission (NSP core Task Order), Rework Data Development Task (if needed as a result of Independent QC).

Perform Floodplain Mapping

Responsible Mapping Partner: Papio-Missouri River NRD

For those counties that include the Missouri and/or Mississippi Rivers, Papio-Missouri River NRD will incorporate data developed from the USACE’s Upper Mississippi River System Flow Frequency Study (UMRSFSS) and stored on the MIP. Refer to **Exhibit A** for a listing of counties that will include UMRSFSS-based data and **Exhibit B** for a listing of data. Papio-Missouri River NRD shall coordinate directly with the RMC to confirm what data is currently, or will be, available on the MIP.

Scope for Detailed Riverine: Papio-Missouri River NRD shall delineate the 1-percent-annual-chance floodplain boundaries representing existing and future full build-out conditions and the regulatory floodway boundaries (if required) for the flooding sources for which detailed hydrologic and hydraulic analyses were performed. Papio-Missouri River NRD shall incorporate all new or revised hydrologic and

hydraulic modeling and shall use the topographic data acquired under Develop Topographic Data to delineate the floodplain and regulatory floodway boundaries on a digital work map.

Scope for Non-revised Areas: For all flooding sources except those segments for which updated flood data will be developed, Papio-Missouri River NRD shall convert the information shown on the effective FIRM and FBFM panels for all incorporated and unincorporated areas to digital format in conformance with FEMA DFIRM specifications. Papio-Missouri River NRD shall use the acquired base map for the conversion. Papio-Missouri River NRD shall not digitize the flood theme for those segments of flooding sources for which updated flood data will be developed.

Scope for Merging Revised and Non-Revised Information: Upon completion of the floodplain mapping activities for the revised and non-revised areas, Papio-Missouri River NRD shall merge the digital floodplain data into a single, updated DFIRM. This work is to include tie-in of flood hazard information for areas that were not studied as part of the Flood Map Project documented in this MAS. Papio-Missouri River NRD 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. Papio-Missouri River NRD shall coordinate with FEMA and any additional Mapping Partners responsible for other components of Perform Floodplain Mapping, as necessary, to resolve any potential tie-in issues.

DFIRM Panel Summary

County Name	Number of DFIRM panels
Douglas County	79
Sarpy County	45

Papio-Missouri River NRD shall incorporate the results of all effective Letters of Map Change (LOMCs) within the revised areas as appropriate. Only those LOMCs visible at the published map scale shall be included.

Papio-Missouri River NRD shall address all concerns or questions regarding Floodplain Mapping that are raised by National Service Provider during the Independent QC review, or during the NSP's Validate Content Submission Process.

Papio-Missouri River NRD shall contact the Regional Office regarding the current accreditation status of levees listed in Table 1.3, and any levee(s) identified subsequently, so that they will be shown appropriately on the FIRM panel(s) and with all applicable notes to users.

Papio-Missouri River NRD shall compare the effective FIRMs to the in-progress mapping to determine if any studies originally contained within a single jurisdiction will be plotted outside that jurisdiction's political boundaries when mapped in countywide format (this would include incorporating LOMRs). Papio-Missouri River NRD shall alert the Regional Office and the NSP using comments in the MIP about any instances where there is a BFE that needs to be published in the Federal Register and receive an appeal period. The communities that will have BFE changes, or will see the BFE for the first time, shall be listed in the Comments box on the Review screen in the Perform Floodplain Mapping task.

Standards: All Floodplain Mapping work shall be performed in accordance with the standards specified in Section 5 - Standards. Mapping quality standards must be consistent with Procedure Memorandum No. 38, dated October 17, 2007. Papio-Missouri River NRD will perform self-certification audits for the

Floodplain Boundary Standards, as described in PM 38 and all subsequent revisions, for all flood hazard areas.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, and upon completion of floodplain mapping for the counties identified in Table 1.1, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP so that National Service Provider can access it for the Independent QC review. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal. The mapping for the remaining flooding sources including any non-revised digital panels and all merged revised and non-revised floodplain mapping data is to be submitted for a final QC review at the completion of this activity.

- Digital work map showing the 1- percent-annual-chance floodplain boundary representing existing and full build-out condition delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone designation labels, and all applicable base map features;
- Draft DFIRM database prepared in accordance with the requirements in G&S;
- DFIRM mapping files prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM as outlined in the approved QA/QC Plan;
- Any backup or supplemental information including supporting calculations and assumptions used in the mapping required for the Independent QC review of Hydrologic and /or Hydraulic Analyses and Floodplain Mapping;
- An explanation for the use of existing topography for the studied reaches, if appropriate.
- Written summary of the analysis methodologies;
- Digital versions of draft FIS report, Floodway Data Tables and updated profiles including all profiles and tables converted appropriate datum, as well as any other necessary items for the finalization of the preliminary FIS;
- Digital versions of input and output for any computer programs that were used;
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications; and
- If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

MIP workflow step equivalent: Perform Floodplain Mapping, Rework Data Development Task (if needed as a result of Independent QC).

Concurrent steps: Validate Content Submission (NSP core Task Order), Perform Independent QC for Floodplain Mapping (if funded by Region VII).

Perform Independent QC Review of Floodplain Mapping

Responsible Mapping Partner: National Service Provider

Scope: National Service Provider shall review the floodplain mapping submitted by Papio-Missouri River NRD under Perform Floodplain Mapping to ensure that the results of the analyses performed are accurately represented; the redelineation of existing data on new, updated topography is appropriate; and

to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the unrevised areas that are mapped. If National Service Provider utilizes a contractor to perform the QA, the contractor must be a different contractor than who performed the original floodplain mapping. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

- Review the cross sections for proper location and orientation on the work map and agreement with the Floodway Data Table.
- Review the BFEs shown on the work map for proper location and agreement with the results of the hydraulic modeling.
- Review the regulatory floodway widths for agreement with the widths shown in the Floodway Data Table and the results of the hydraulic modeling.
- Review the floodplain boundaries for agreement with the flood elevations shown in the Floodway Data Table, the contour lines, and other topographic information shown on the work maps.
- Review the floodplain widths at cross sections as shown on the work maps to ensure the data matches the Floodway Data Table.
- Review the floodplain boundaries as shown on the work maps to ensure the data matches the Flood Profiles.
- For non-revised floodplain areas, the 1- and 0.2-percent-annual-chance floodplain boundaries agree with the floodplain boundaries shown on the FIRM, the contour lines, other topographic information, and planimetric information shown on the DFIRM base.
- Road and floodplain relationships are maintained for all unrevised areas.
- Review the flood insurance risk zones as shown on the work maps to ensure the data are labeled properly.
- Review the DFIRM mapping files to ensure the data were prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- Review the metadata file to ensure the data includes all required information shown in the FEMA NFIP Metadata Profiles.

Standards: All Independent QC work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, National Service Provider shall make the following products available to FEMA by uploading the digital data to MIP, through the Load Studies Data Artifacts portlet under the Data Upload tab under Tools & Links. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

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

MIP workflow step equivalent: Perform Independent QC for Floodplain Mapping.

Concurrent steps: Perform Floodplain Mapping, Validate Content Submission (NSP core Task Order), Rework Data Development Task (if needed as a result of Independent QC).

Develop DFIRM Database

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: Papio-Missouri River NRD shall prepare the database, produced during Perform Floodplain Mapping in accordance with the *Guides and Specifications for Flood Hazard Mapping Partners*, for upload to the MIP. Papio-Missouri River NRD shall coordinate with those Mapping Partners responsible for Floodplain Mapping, as necessary, to resolve any problems that are identified during development of the DFIRM Database. The primary purpose of this activity is to ensure that a quality DFIRM database is prepared earlier in the flood study process and well in advance of the Preliminary DFIRM Map Production and Distribution.

Standards: All DFIRM Database work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP. Additionally, the Technical Support Data Notebook format described in Appendix M of the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

- DFIRM database files prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners* and in the format(s) required for the NSP's Validate Content Submission Process; and
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications.

MIP workflow step equivalent: Develop DFIRM Database, Rework Data Development Task (if needed as a result of Independent QC).

Concurrent steps: Perform Independent QC for DFIRM Database (if funded by Region VII), NSP QC Check of Draft DFIRM database (FAFS automated), Database, Validate Content Submission (NSP core Task Order).

NSP QC Check of Draft DFIRM database. The Papio-Missouri River NRD assigned the Develop DFIRM Database task must upload the draft DFIRM database (currently in .e00 format) and draft DFIRM metadata to FAFS through the MIP. The submission is automatically sent to FAFS for data auto-validation. The detailed logic description for the FAFS QC Pro Auto Screen is available from FEMA or its contractor.

Produce Preliminary Map Products

Responsible Mapping Partner: Papio-Missouri River NRD

Scope: Papio-Missouri River NRD shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Floodplain Mapping. 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). Papio-Missouri River NRD will be preparing the database for this project in the Standard format. The database shall be produced in accordance with the *Guides and Specifications for Flood Hazard Mapping Partners*. Papio-Missouri River NRD shall coordinate with those Mapping Partners responsible for the Perform Floodplain Mapping and Develop DFIRM Database tasks to resolve any problems that are identified during development of the Preliminary Map Products.

This task includes the creation of the countywide Flood Insurance Study (FIS) report. The FIS report will include the new study data and portions of the existing community based FIS reports as appropriate. The floodway data tables and profile sheets will be combined as needed to create a continuous table and profile for the subject streams. The elevations shown in the FIS shall be referenced to NAVD 1988 vertical datum.

Only accredited levees, or levees with a provisional accreditation, are to be depicted on the Flood Insurance Rate map. Other levees, including non-accredited levee shown on the effective FIRM, are not to be included.

Floodway Data Tables and Profile sheets for the Missouri River are available from Watershed Concepts. The Papio-Missouri River NRD shall incorporate this information into the countywide FIS as appropriate.

The Papio-Missouri River NRD shall prepare Preliminary SOMAs for all affected communities, if appropriate. The SOMA shall list pertinent information regarding LOMCs that will be affected by the issuance of the DFIRM (i.e., superseded, incorporated, revalidated).

Papio-Missouri River NRD shall address all concerns or questions regarding the Preliminary Map Products that are raised by National Service Provider during the Independent QC review, or during the NSP's Validate Content Submission Process.

When the Papio-Missouri River NRD is not responsible for Post-Preliminary Processing, and if they use a different GIS platform than the National Service Provider then the Papio-Missouri River NRD will have additional activities associated with Post-Preliminary Processing finalize the DFIRM and FIS report. These additional activities are described in the Post-Preliminary Processing activity.

Standards: All DFIRM Database, DFIRM Map, and FIS Report work shall be performed in accordance with the standards specified in Section 5 - Standards. All work must pass the automated and visual "National QA/QC" reviews prior to the distribution of the preliminary copies of the DFIRM and FIS report and the Preliminary SOMA.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Papio-Missouri River NRD shall make the following products available to FEMA by uploading the digital data to the MIP. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

- DFIRM mapping and database files prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners* and in the format(s) required for the NSP QC Process;
- All Digital information used to compile and print panels which can include digital label and annotation files used to create labeling on panels (including all fonts and style files, if applicable) which can comprise cross sections, BFEs, flood insurance zone labels, and all applicable base map features;
- The Flood Insurance Study Report is prepared in the FEMA Countywide Format as documented in the *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;
- Draft Preliminary SOMA prepared using the SOMA Tool on the MIP;
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications;

- 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 as outlined in approved QA/QC Plan; and
- Passing Quality Review report.

MIP workflow step equivalent: Produce Preliminary Map Products, Rework Data Development Task (if needed as a result of Independent QC).

Concurrent steps: Perform Independent QC for Preliminary Map Products (if funded by Region VII), NSP QC Check of Preliminary DFIRM database (FAFS automated) DFIRM and FIS (NSP visual), Validate Content Submission (NSP core Task Order).

NSP QC Check of Preliminary DFIRM and Flood Insurance Study Report (FIS): The Papio-Missouri River NRD assigned the Produce Preliminary Map Products task must upload the Preliminary DFIRM database (currently in .e00 format) and preliminary DFIRM metadata to FAFS through the MIP. The submission is automatically sent to FAFS for data auto-validation. The detailed logic description for the FAFS QC Pro Auto Screen is available from FEMA or its contractor. In addition, the Papio-Missouri River NRD must submit the preliminary DFIRM and FIS report to the Regional Management Center (RMC) prior to distribution. The amount of time necessary to complete the review will vary dependent upon study size. The RMC will review the DFIRM panels and the FIS report, and verify that the DFIRM database has passed the automated database check as indicated by a passing notification from HDM in the MIP. The RMC will review a sample—roughly 10 percent—of DFIRM panels. In this review, the RMC will look for significant errors. The Papio-Missouri River NRD is responsible for checking all panels and correcting errors identified by the RMC. Any errors identified during this review must be corrected before the Preliminary DFIRM is distributed.

Independent QC Review of Preliminary Map Products

Responsible Mapping Partner: National Service Provider

Scope: Upon completion of the Produce Preliminary Map Products activity, Papio-Missouri River NRD shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. In addition, National Service Provider shall review the DFIRM panels to ensure they meet current FEMA graphic specifications. National Service Provider shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QC review. In addition, National Service Provider shall perform a review of the FIS report including all data tables, Flood Profiles, and other components of the FIS report. If National Service Provider utilizes a contractor to perform the Independent QC, the contractor must be a different contractor than who performed the original analyses. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall 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, pertinent notes, 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 a GIS file and database format as 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.
- The FIS report is prepared in the FEMA Countywide Format as documented in the *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- Metadata files describing the DFIRM data include all required information shown in the FEMA NFIP Metadata Profile Specifications.

Standards: All DFIRM Database Development work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: : In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, National Service Provider shall make the following products available to FEMA by uploading the digital data to the MIP, through the Load Studies Data Artifacts portlet under the Data Upload tab under Tools & Links. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

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

MIP workflow step equivalent: Perform Independent QA/QC of Preliminary Map Products.

Concurrent steps: Produce Preliminary Map Products, NSP QC Check of Preliminary DFIRM database (FAFS automated) DFIRM and FIS (NSP visual), Validate Content Submission (NSP core Task Order), Rework Data Development Task (if needed as a result of Independent QC).

Distribute Preliminary Map Products

Responsible Mapping Partners: National Service Provider

Scope: Distribute Preliminary Map Products consists of the printing and distribution of the Preliminary copies of the DFIRM and FIS report for community officials and the general public for review and comment. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. The activities to be performed are summarized below.

The National Service Provider shall notify the other Project team members when the Preliminary Date is determined for each county. The Consultation Coordination Officer shall be included in this notification. The notification should be made as soon as the date is determined, but not later than two weeks prior to the Preliminary FIRM date.

Preliminary Transmittal Letter Preparation: The National Service Provider shall prepare transmittal letters for the Preliminary copies of the DFIRM, FIS report and related enclosures to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA. This letter may be prepared for FEMA only or for signature by FEMA

and the National Service Provider. A template specific to Region VII is available from the Regional Management Center.

Preliminary FIRM and FIS Countywide Brochure: Region VII has developed a brochure that will be provided to each community with the Preliminary Transmittal Letter. The National Service Provider shall prepare the brochure for each county. The template is available from the Regional Management Center.

Distribution of Preliminary DFIRM and FIS Report: The National Service Provider shall distribute the Preliminary copies of the DFIRM and FIS report to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA. Per Procedure Memorandum No. 38, dated October 17, 2007, FBS self-certification documentation must be submitted within 30 days of the issuance of the preliminary map products.

Standards: All Preliminary Map Products work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, the National Service Provider shall make the following products available to FEMA. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

- Preliminary transmittal letters shall be prepared and transmitted. 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* and in conjunction with Guidance provided by the Region and/or its contractor.
- 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, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.
- Digital files in an Adobe pdf format of each panel and the FIS will be provided to the FEMA Regional Office with the preliminary distribution.
- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be provided as appropriate.
- Floodplain Boundary Standard (FBS) Self-Certification Documentation submitted to the RMC.
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the final preparation of the preliminary DFIRM shall be provided as outlined in the approved QA/QC Plan.

MIP workflow step equivalent: Distribute Preliminary Map Products, Verify Outreach Activities.

Concurrent steps: None

Post-Preliminary Processing

Responsible Mapping Partners: National Service Provider and FEMA

Scope: This activity consists of finalizing the DFIRM, SOMA, and FIS report after the Preliminary copies of the DFIRM and FIS report have been issued to community officials and the public for review and comment. The activities to be performed are summarized below and are subject to the mandatory quality control checks by the National Service Provider (NSP), also as described below.

When the Papio-Missouri River NRD does not use the DFIRM Tools and is not responsible for Post-Preliminary Processing, then the Papio-Missouri River NRD will have additional activities associated with Post-Preliminary Processing finalize the DFIRM and FIS report.

The Consultation Coordination Officer will prepare a report following the final coordination meeting. The CCO will forward the report to the National Service Provider.

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, National Service Provider 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*:

- The National Service Provider shall prepare and distribute Proposed BFE determination letters to the CEOs and floodplain administrators of affected communities.
- The National Service Provider shall prepare legal notice of BFE changes and verify the notices are published in newspapers with local circulation in accordance with 44 CFR.
- The National Service Provider shall use the BFEs-on-theWeb tool to create BFE notices in accordance with Procedure Memorandum No. 44 – Protocol for Publishing Base Flood Elevation (BFE) Notices on the Web.
- The National Service Provider shall prepare the appropriate notices (Proposed Rules) that are to be published in the *Federal Register*. The National Service Provider shall then deliver those notices to FEMA for publication.

Resolution of Protests: National Service Provider shall review and resolve protests received during the comment or 90-day appeal periods. The activity will include all protests to correct street, stream and other names, corporate boundaries, and floodplain boundary changes due to topographic data. For each protest, the following activities shall be conducted as appropriate:

- Initial processing and acknowledgment of submittal;
- Technical review of submittal to determine validity of protest;
- Preparation of letter(s) requesting additional supporting data; and
- Preparation of a draft resolution letter for co-signature with FEMA and National Service Provider and revised DFIRM and FIS report materials for FEMA review.

National Service Provider shall mail all associated correspondence upon authorization by FEMA.

Resolution of Appeals: National Service Provider shall review and resolve appeals received during the 90-day appeal period. Appeals that are defined by 67.6(b)(1) or 67.6(b)(3) might be considered a change of scope and should be discussed with the Regional Project Manager before proceeding. For each appeal, the following activities shall be conducted as appropriate:

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

National Service Provider shall mail all associated correspondence upon authorization by FEMA.

When the Papio-Missouri River NRD is not responsible for Post-Preliminary Processing, and if they use a different GIS platform than the National Service Provider then Papio-Missouri River NRD will have additional activities associated with Post-Preliminary Processing finalize the DFIRM and FIS report.

Resolution of Appeals and Protests: Papio-Missouri River NRD shall provide the revised DFIRM and FIS Report to accompany any protest or appeal resolution letter. The National Service Provider shall provide the Papio-Missouri River NRD with the DFIRM and FIS report corrections for their use in revising the products.

Revision of DFIRM and FIS Report: If necessary, the Papio-Missouri River NRD shall revise the DFIRM and FIS report at the direction of the FEMA Regional Project Officer and provide to the National Service Provider in Adobe .pdf format. The National Service Provider shall distribute Revised preliminary copies of the DFIRM and FIS report to the CEO and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

Letters of Map Change: Papio-Missouri River NRD shall include all effective LOMCs occurring after the Preliminary Map and up to 30 days prior to the QR#5 review, or approximately 90 days prior to Letter of Final Determination (LFD) for each affected community. The National Service Provider will provide Papio-Missouri River NRD with copies of the LOMCs issued between the above-mentioned periods. Only those LOMCs visible at the published map scale shall be included.

Deliverables: The Papio-Missouri River NRD shall make the following products available to the National Service Provider for use in preparing for the final submission to the Map Service Center:

- Post script or encapsulated post script files for each DFIRM map panel and Index map panel. These files will be used for film negative production.
- Adobe .pdf files for the FIS Report cover page, any FIS Report photograph pages, and all profile sheets.

Letters of Map Change: National Service Provider shall include all effective LOMCs occurring after the Preliminary Map and up to 30 days prior to the QR#5 review, or approximately 90 days prior to Letter of Final Determination. Only those LOMCs visible at the published map scale shall be included.

Preparation of Special Correspondence: National Service Provider 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 for co-signature. National Service Provider 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 National Service Provider shall work together with FEMA to revise the DFIRM and FIS report and shall distribute revised Preliminary copies of the DFIRM and FIS report to the CEO and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

Final SOMA Preparation: National Service Provider shall prepare Final SOMAs for the affected communities with assistance from FEMA, as appropriate.

Processing of Letter of Final Determination: The National Service Provider shall work with FEMA to establish the effective date for the DFIRM and FIS report, and shall prepare Letters of Final Determination (LFDs) for each affected community for FEMA review in coordination with the Region

and its contractor, and in accordance with the FEMA *Document Control Procedures Manual*. FEMA or its designated contractor shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs. All work must pass the automated and visual “National QA/QC” reviews and review of LFD prior to the distribution of the LFD. Per Procedure Memorandum No. 38, dated October 17, 2007, FBS self-certification documentation must be submitted within 30 days of the issuance of the LFD if the floodplain boundaries have been modified during post-preliminary processing.

- The National Service Provider shall prepare the appropriate notices (Final Rules) that are to be published in the *Federal Register*. The National Service Provider shall then deliver those notices to FEMA for publication.

Processing of Final DFIRM and FIS Report for Printing: National Service Provider shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to MSC for printing by the United States Government Printing Office. National Service Provider shall also 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.

Proof Copies: The National Service Provider will produce and distribute a digital proof copy of the final DFIRM and FIS delivered to the MSC according to the procedures set forth in *Region VII Procedures for Proof Copy Preparation and Distribution* available from the RMC. The proof copy package includes the following:

- CD or DVD containing digital proof copies of the DFIRM panels and FIS report
- Cover letter addressed to the relevant State NFIP Coordinator

National Service Provider will prepare and distribute the proof copy package to the State NFIP Coordinator, with copies to FEMA Region VII and the RMC, within one week of submitting the final DFIRM and FIS report to the MSC.

Revalidation Letter Processing: National Service Provider shall prepare and distribute letters for FEMA signature to the community CEOs and floodplain administrators to notify the affected communities about LOMCs for which determinations will remain in effect after the DFIRM and FIS report become effective.

Archiving Data: National Service Provider shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until transmitted to the FEMA Engineering Study Data Package Facility. In addition, the National Service Provider will maintain copies of all data for a period of no less than three years.

Standards: All Post Preliminary DFIRM work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*, National Service Provider shall make the following products available to FEMA by uploading the digital data to the MIP. Additionally, the Technical Support Data Notebook format described in the *Guidelines and Specifications for Flood Hazard Mapping Partners* must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

Hard copy documents to be supplied through the FEDD file (sent to FEMA library):

- Documentation that the legal notice(s) 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;
- Proof Copy Distribution Letter;
- LOMC Revalidation Letters, if appropriate;
- Completed, organized, and archived technical and administrative support data; and
- Completed, organized, and archived case files and flood elevation dockets.

Documents to be submitted to the RMC:

- Floodplain Boundary Standard (FBS) Self-Certification Documentation, if required for the study.

Digital files to be submitted through the MIP;

- Digital copies of the final DFIRM database, DFIRM panels and FIS report; and
- A metadata file complying with the FEMA NFIP Metadata Profiles Specifications.

MIP workflow step equivalent: All steps within Manage Post Preliminary Processing process train.

Concurrent steps: None.

SECTION 2—TECHNICAL AND ADMINISTRATIVE SUPPORT DATA SUBMITTAL

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

All supporting documentation for the activities in this MAS shall be submitted in the TSDN format in accordance with the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners*. Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

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

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities													
	Scoping	Perform Field Survey	Topographic Development	QA/QC of Topographic Data	Acquire Base Map	Hydrologic Analyses	QA/QC of Hydrology	Hydraulic Analysis	QA/QC of Hydraulic Analyses	Perform Floodplain Mapping	QA/QC of Floodplain Mapping	Develop DFIRM Database	Distribute Preliminary Map Products	Post-Preliminary Processing
General Documentation														
Special Problem Reports	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
Meeting Minutes/ Reports	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
Engineering Analyses														
Hydrologic Analyses		X			X	X	X	X	X	X	X			
Hydraulic Analyses		X			X	X	X	X	X	X	X			
Key to Cross-Section Labeling		X			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	X								
Mapping Information	X		X	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	X

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities assigned to Papio-Missouri River NRD in this MAS will be completed within the period of performance specified in the Agreement Articles of the Cooperative Agreement. The Mapping Activities may be terminated at the option of FEMA or Papio-Missouri River NRD in accordance with the provisions of the April 11, 2003 CTP Partnership Agreement. If these mapping activities are terminated, all products produced to date must be returned and updated into the MIP and the remaining funds from uncompleted activities, provided by FEMA for this MAS, will be returned to FEMA.

SECTION 4—FUNDING/LEVERAGE

Funds will be provided to Papio-Missouri River NRD by FEMA through Cooperative Agreement EMK-2007-CA-XXXX for the completion for this Flood Map Project. The Cooperative Agreement budget identifies the amount to be provided by each party.

Activities associated with any additional needs would be performed based on availability of additional funds. The CTP Leverage listed below includes in-kind services and blue book values for acquired information (i.e. base map data, hydrologic and hydraulic analyses, etc.). These values should also be reported in the MIP by the appropriate task owner. The current Blue Book is dated November 2006 and can be downloaded from FEMA's Information Resource Library at <http://www.fema.gov/library/index.jsp>. Papio-Missouri River NRD shall complete Table 4.1 Contribution and Leverage

Table 4.1 Contribution and Leverage

Funding for Project/Partner Name	FEMA Contribution	Partner Contribution	% Leverage	Total Project Cost
Perform Field Survey	\$0	\$425,000	100%	\$425,000
Develop Topographic Data	\$0	\$78,000	100%	\$78,000
Independent Review of Topographic Data	\$0	\$15,600	100%	\$15,600
Acquire Base Map	\$0	\$18,600	100%	\$18,600
Perform Hydrologic Analyses	\$0	\$167,000	100%	\$167,000
Perform Hydraulic Analysis	\$0	\$624,000	100%	\$624,000
Perform Floodplain Mapping	\$0	\$373,000	100%	\$373,000
Develop DFIRM Database	\$0	\$310,000	100%	\$310,000
Produce Preliminary Map Products	\$0	\$37,200	100%	\$37,200

Funding for Project/Partner Name	FEMA Contribution	Partner Contribution	% Leverage	Total Project Cost
National Service Provider QA/QC Reviews	\$375,000	\$0	0%	\$375,000
TOTAL FUNDING AMOUNTS	\$375,000	\$2,048,400	84.5%	\$2,423,400

SECTION 5—STANDARDS

The standards relevant to this MAS are provided in Tables 5-1 and 5-2. Information on the correct volume and appendix of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* to be referenced for each mapping activity are summarized in Table 5-2 for convenience. However, all mapping partners working on a Flood Map Project are responsible for complying with all appropriate requirements in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and related Procedure Memoranda published by FEMA as of the date of this agreement.

These guidelines may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm. The Geospatial Data Coordination Policy and the Geospatial Data Coordination Implementation Guide are located at <https://hazards.fema.gov> under "Tools & Links."

SECTION 6—SCHEDULE

The tasks documented in this Mapping Activity Statement shall be completed in accordance with the project schedule. The Papio-Missouri River NRD will use the MIP to report progress, entering Cost to Date, Percent Complete to Date, and "As of" date in the "Update Information" section of the Task Information screen for each task. Within three weeks of funds award, the Papio-Missouri River NRD will provide the RMC with the initial schedule for each county for entry into the MIP. The data reported in the MIP will include estimated and actual completion dates, budget and amount spent, and the percent complete of each task identified in the Mapping Activity Statement. Each county identified in Table 1-1 will have separate schedule established.

The Papio-Missouri River NRD will update the MIP at least monthly, and when a task is completed.

SECTION 7—CERTIFICATIONS

Field Surveys and Topographic Data Development

A Registered Professional Engineer or Licensed Land Surveyor shall provide an accuracy statement for field surveys and/or topographic data used and shall certify these data meet the accuracy statement provided. Data accuracy should be stated used the Federal Geographic Data Committee National Standards for Spatial Data Accuracy, but the American Society for Photogrammetry and Remote Sensing accuracy reporting standards are acceptable.

Table 5-1. Applicable Standards for Project Activities

	Activities														
	Scoping	Perform Field Survey	Topographic Development	QA/QC Review of Topo Data	Acquire Base Map	Hydrologic Analysis	QA/QC Review of Hydrologic Analysis	Hydraulic Analysis	QA/QC Review of Hydraulic Analysis	Perform Floodplain Mapping	QA/QC Review of Floodplain Mapping	Develop DFIRM Database	QA/QC Review of Preliminary Map	Distribute Preliminary Map Products	Post-Preliminary Processing
Applicable Standards															
<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
FEMA's Geospatial Data Coordination Policy	X		X		X										
FEMA's Geospatial Data Coordination Implementation Guide	X		X	X	X										
Engineer Manual 1110-2-1003, <i>Hydrographic Surveys</i> (USACE), January 1, 2002	X	X													
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003	X					X	X	X	X						
NFIP Metadata Profile Specifications	X		X	X						X	X	X	X	X	X
<i>Document Control Procedures Manual</i>	X													X	X
<i>44 Code of Federal Regulations Part 66 and 67</i>	X													X	

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

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Scoping	Volume 1
Perform Field Survey	Volume 1
	Appendix A
	Appendix F
Topographic Development	Appendices B, C, F, and M
	Volume 1
	Appendix A
Independent QA/QC Review of Topographic Data	Appendix M
	Volume 1,
	Appendix A
Acquire Base Map	Appendix M
	Volume 1
	Appendices A, K, L, and M
Perform Hydrologic Analyses	Volume 1
	Appendix A
	Appendix C
	Appendices E, F, G, H, M

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Perform Independent QA/QC Review of Hydrologic Analyses	Volume 1
	Appendix A
	Appendix C
	Appendices E, F, G, H, M
Perform Hydraulic Analyses	Volume 1
	Appendix A
	Appendix C
	Appendices B, E, F, G, H, M
Perform Independent QA/QC Review of Hydraulic Analyses	Volume 1
	Appendix A
	Appendix C
	Appendices B, E, F, G, H, M
	Appendix C
	Appendices B, D, and M
	Appendix A
	Appendices B, D, H and M
Perform Floodplain Mapping	Volume 1
	Appendix C
	Appendix D
	Appendices E, F, G, H, K, L, and M
	Volume 1
	Appendix C
	Appendices K, L, and M
Perform Independent QA/QC Review of Floodplain Mapping	Volume 1
	Appendix C

Activity Description	Applicable Volume, Section/Subsection, and Appendix
	Appendix D Appendices E, F, G, H, K, L, and M
Perform Independent QA/QC Review of Preliminary Map Product	Volume 1 Appendices K, L, and M
Distribute Preliminary Map Products	Volume 1 Appendices J, K, L, and M
Post-Preliminary Processing	Volume 1 Appendices J, K, L, and M

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 is still being 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.

Hydrologic Analyses, Hydraulic Analyses, and Floodplain Mapping

- A Registered Professional Engineer shall certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).
- Any levee systems to be accredited will be certified in accordance with 44 CFR 65.10.

SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from FEMA and/or your Regional Project Officer.

General technical and programmatic information, such as FEMA 265 and the Quick-2 computer program, can be downloaded from the FEMA website at <http://www.fema.gov/plan/prevent/fhm/index.shtm>. Specific technical and programmatic support may be provided through FEMA and/or its contractor; such assistance should be requested through the FEMA Project Officer specified in Section 12 – Points of Contact.

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

Papio-Missouri River NRD intends to use the services of a CTP Study Contractor as a contractor for this Flood Map Project. Papio-Missouri River NRD 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 United States Government Printing Office website at http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html.

SECTION 10—REPORTING

Papio-Missouri River NRD shall provide progress and financial reports to the FEMA Regional Project Officer and Assistance Officer in accordance with Cooperative Agreement Articles V & VI, and 44 CFR 13.40 and 13.41.

EARNED VALUE REPORTING:

Earned Value Reporting: The MIP Workflow is designed to track the Earned Value of mapping projects. This information is automatically calculated by the MIP, using the Actual cost and schedule of work performed, or “actuals” and comparing them to the expected cost and schedule of work performed, or “baseline”.

Once the FEMA Regional office has issued a task order the NSP will complete the “Obligate Project Funds” screen in the MIP. This step establishes the baseline for the project in the MIP, using the cost and schedule information for each activity.

The MIP study workflow allows Papio-Missouri River NRD to report on the status of these projects at a task level. The cost and schedule information, updated by the Papio-Missouri River NRD for each contracted task, is compared to the baseline established for those tasks. This information is rolled up to a project level and monitored by the FEMA Region to assess progress and Earned Value.

Earned Value reporting involves the reporting of cost, schedule and performance (physical percent complete) in the MIP by the Papio-Missouri River NRD.

Once the baseline schedule and cost is established in the MIP, the Papio-Missouri River NRD shall input the performance and actual cost to date for each contracted task for each project. This must be completed at least monthly. When a task is completed, including all QA/QC activities in this MAS plus the Quality Control Reviews established in PM 42, the Papio-Missouri River NRD shall enter 100% complete, enter the actual completion cost, and the actual completion date within the Manage Data Development, Manage Preliminary Map Production, or Manage Post Preliminary Processing, as applicable.

Progress reporting shall utilize the MIP to the extent possible. Other progress reports are not anticipated. When the Papio-Missouri River NRD provides deliverables through the MIP, the Papio-Missouri River NRD shall ensure the MIP reflects the status of the related task. The Papio-Missouri River NRD will submit two (2) copies of the MIP Flood Engineering Report and other appropriate reports to the FEMA Assistance Officer for quarterly progress reporting.

The Project Officer, as needed, may request additional information on status on an ad hoc basis.

SECTION 11—PROJECT COORDINATION

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

- Meetings, teleconferences, and video conferences with FEMA and other Project Team members on an ad hoc basis;
- Telephone conversations with FEMA and other Project Team members on an ad hoc basis;
- Updates to the MIP and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*; and

- E-mail, facsimile transmissions, and letters, as required.
- Project Team members shall meet with the Regional Management Center and/or FEMA quarterly to review the progress of the project. These meetings will be held via a conference call at a mutually agreeable time to be determined. Typically, the call will occur following the submittal of the quarterly progress report.

SECTION 12—POINTS OF CONTACT

The points of contact for this Flood Map Project are Robert Franke the FEMA Regional Project Officer; Paul Woodward, the Project Manager for CTP; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, any additional FEMA assistance should be requested through the FEMA Regional Project Officer.

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

John Winkler
General Manager
Papio-Missouri River NRD

Date

Robert G Bissell
Director, Mitigation Division
Federal Emergency Management Agency, Region VII

Date

Exhibit A

Counties that will include UMRSFSS-based data

Douglas

Sarpy

EXHIBIT B

Summary of Deliverables provided to Mapping Partners

Mapping of the Upper Mississippi River System Flow Frequency Study (UMRSFFS)

Location of Data on the MIP: J:\FEMA\R07\MISSOURI_29_StatewideData\UMRSFFS

MISSOURI and

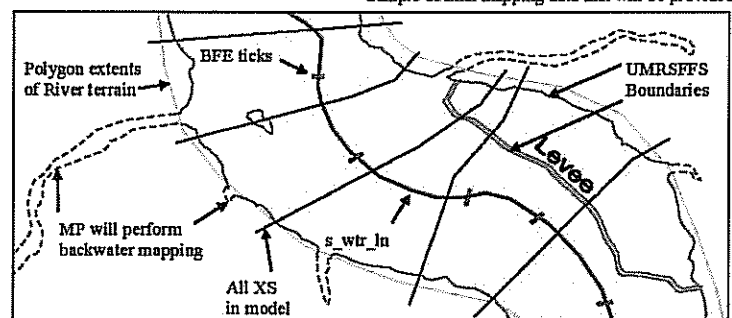
MISSISSIPPI RIVERS

Note: The horizontal projection for all spatial files will be NAD 1983 StatePlane Missouri West FIPS 2403 Feet

Missouri River
Mississippi River

Deliverable	Details	Estimated Months Available
s_fid_haz_in	**Provided county-by-county **Will contain "cleaned" 100-yr/500-yr boundaries for the river (small islands deleted, etc.) Larger islands will be left to the discretion of the mapping partner to delete/keep based on the panel size **Will not contain limit lines (LOS, LODS) **Will include floodway lines as the Corps provided them. MP may have to adjust the floodway line to be at the landward toe of the levee if the floodway limit is at the levee. **Will not be provided in polygon format **Boundaries will extend to end of river bluff-to-bluff terrain only. MP will have to merge backwater with incoming tribs and "close off" gaps in the boundary with supplemental topo data in the county for areas where the UMRSSFS topo ends (see diagram below) **No assessment of levees will be made. MP will have to decide to cut the mapping off at the levees or keep the floodplain as fully extended based on whether the levee provides protection. **Will be provided as a separate file for each county. The s_fid_haz_in file in each county will be cleaned and clipped just outside of the county boundary. MP will have to clip it to the final county boundary during their mapping process. **Boundary will be FBS-compliant (results of the FBS check will be provided)	All UMR MO River Map Mod counties available by end of May 2008 All UMR MS River Map Mod counties available by end of October 2008
s_perimeter	**Provided for entire extents of the river **Terrain DCS file that will be available on the MIP to view extents of terrain	AVAILABLE
s_xs	**Provided for entire extents of the river **MP will have to clip out the cross-sections for their county **The following information will be populated for each cross-section: XS_LN_ID; STREAM_STN; WTR_NM; WSEL_REG; LEN_UNIT; V_DATUM. And other required Appendix L fields (including XS_LTR and XS_LN_TYP) will have to be populated by the MP. **The 500-yr elevation from the UMRSSFS UNET model at each XS will be added into the shapefile as additional information, although this field should be removed before finalizing the s_xs layer in the final DFIRM database. **WSEL_REG will be in NAVD88 and will match the 100-yr elevation from the HEC-RAS model	AVAILABLE
s_wtr_in	**Provided for the entire extents of the river **The modeled stream centerline will be provided as one feature in the s_wtr_in file **Will be populated by defining the WATER_TYP element as PROFILE BASELINE **MP will have to clip out the line for their county **The following fields will be populated: WTR_LN_ID; WATER_TYP; WTR_NM. All other required fields will have to be populated by the MP.	AVAILABLE April 2008
BFE tick shapefile	**Will <i>not</i> be submitted in s_bfe format **Provided county-by-county **Will contain the raw output from WISE, showing the location of natural (whole foot) and significant break BFE lines. Panel edge BFEs will not be provided. **Significant break BFE lines will show both the rounded (ELEV field) and unrounded (ELEV_DEC field) elevations in the attribute table of the shapefile provided. **Lines provided will just be short tick marks to show location. MP will have to select which BFEs to print and will have to extend/orientate the BFEs. MP may also have to create panel edge BFEs once panel layout in their county is finalized.	All UMR counties by end of May 2008 All UMR counties by end of Oct 2008
Flood Profiles	**Provided county-by-county **Will show the 10-, 50-, and 500-yr elevations from the UMRSSFS UNET model & the 100-yr elevation from the HEC-RAS model **Will be provided in digital (*.dwg) AutoCAD 2006 format - PDFs will not be provided **Profiles will show all cross-sections in the model so that MP can "pick and choose" which ones to print on the maps **MP will have to edit profiles based on final cross-section lettering selection **Road crossings w/ structure symbols will be included on the profiles **Road names should be verified by the MP using the final base data in their county **MP will have to add in tributary confluence locations, limits of flooding affecting community notes, corporate limits, or other notes on the profiles using county data **MP will have to adjust the profile number (lower right corner of profile) to fit in with the overall county FIS profiles **Profile border will be to FEMA spec **Profiles will be created at either a 1" = 1 river mile or 1" = 2 river miles scale (preference being 1" = 2 miles)	All UMR counties by end of May 2008 All UMR counties by end of Oct 2008
Floodway Data Tables (FDTs)	**Provided county-by-county **FDTs will show all cross-sections in the model so that MP can "pick and choose" which ones to print on the maps **MP will have to change FDTs based on final cross-section lettering selection **Elevations provided will be in NAVD88 and will match elevations from the HEC-RAS model	End of May 2008 End of Oct 2008
FIS Report text/tables	**Provided county-by-county **FIS report text and tables documenting the UMRSSFS data will be provided **MP will have to incorporate the write-up and tables into the countywide FIS report for their county	End of May 2008 End of Oct 2008

Sample of final mapping data that will be provided



Notes:	FEMA Contribution	5375,000
NA = Not Assigned to any Mapping Partner (MP)	Partner Contribution	\$2,048,400
NTP = Notice to Proceed date	Partner Leverage	84.5%
NLT = No Later Than the date indicated	Total Project Cost	\$2,423,400
N/C = No Cost should be reported for this activity per the MAS.		
All activities will have a start and end date. These dates will be used by the RMC for entry into the MAP workflow.		

Project Activity	Douglas & Sappi Counties			FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
	Start	End	Cost						
Outreach	NTP	NLT							
Perform Field Surveys	5/1/2008	06/30/13	MC						
Topographic Development	05/01/08	09/30/08	\$425,000						
Perform Independent QA/QC Review of Topographic Data	5/1/2008	09/30/08	\$78,000						
Acquire Base Map	10/1/2008	10/31/08	\$15,600						
Perform Hydrologic Analyses	5/1/2008	09/30/08	\$18,800						
Perform Independent QA/QC Review of Hydrologic Analyses	5/1/2008	11/30/08	\$167,000						
Perform Hydraulic Analyses	11/1/2008	11/30/08	\$32,300						
Perform Independent QA/QC Review of Hydraulic Analyses	7/1/2008	9/30/09	\$624,000						
Perform Floodplain Mapping	11/1/2009	11/30/09	\$80,000						
Perform Independent QA/QC Review of Floodplain Mapping	12/1/2009	7/30/10	\$373,000						
Develop Df/IRM Database and Graphics	8/1/2010	9/30/10	\$80,000						
Produce Preliminary Map Products	10/1/2010	5/31/11	\$310,000						
Perform Independent QA/QC of Preliminary Map Products	6/1/2011	11/30/11	\$37,200						
Distribute Preliminary Map Products	12/1/2011	4/30/12	\$37,200						
Post-Preliminary Processing	5/1/2012	5/31/12	\$15,500						
	6/1/2012	6/30/13	\$130,000						
Total Cost			\$3,433,400						

Date Prepared/Revised:	November 25, 2007
Date Prepared/Revised:	January 14, 2008
Date Prepared/Revised:	May 13, 2008