



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.

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.

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/gm_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 (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.

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 FEMAs 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.

