



FEMA

KANSAS DEPARTMENT OF AGRICULTURE – DIVISION OF WATER RESOURCES COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. 17 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated September 1, 1999 between Kansas Department of Agriculture – Division of Water Resources and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 17 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, Jackson, Marion, Osage, Pottawatomie, Riley, and Republic 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 | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/Establish Zone A | Digital Conversion |
|-----------------------|--|--------------|-------------------|------------|--|-------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| DOUGLAS COUNTY | | | | | | | |
| ATSF Trib | Confluence Kansas River upstream 3 miles | 3 | | | X | | |
| Baldwin Creek | Confluence Kansas River upstream 7.8 miles | 7.8 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|----------------------|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Baldwin Creek Trib | Confluence Baldwin Creek upstream 1.7 | 1.7 | | | X | | |
| Baldwin Creek Trib 2 | Confluence of Baldwin Creek upstream 1.2 miles | 1.2 | | | X | | |
| Baldwin Creek Trib3 | Confluence of Baldwin Creek upstream 0.5 miles | 0.5 | | | X | | |
| Belle Haven Trib | Confluence of Naismith Creek upstream 0.5 miles | 0.5 | | | X | | |
| Broken Arrow Trib | Confluence of Wakaruse Trib 1 upstream 0.95 miles | 0.95 | | | X | | |
| Brooks Street Trib | Confluence ATSF Trib upstream 0.75 miles | 0.75 | | | X | | |
| Captain Creek | Confluence upstream 1.2 miles | 1.2 | | | X | | |
| Coal Creek | Confluence Wakarusa River upstream 11.3 miles | 11.3 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/Establish Zone A | Digital Conversion |
|---------------------|--|--------------|-------------------|------------|--|-------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Coal Creek Trib | Confluence of Coal Creek upstream 1 mile | 1 | | | X | | |
| Coal Creek Trib 2 | Confluence of Coal Creek upstream 1.3 miles | 1.3 | | | X | | |
| Coal Creek Trib 3 | Confluence of Coal Creek upstream 0.23 miles | 0.23 | | | X | | |
| Coal Creek Trib 4 | Confluence of Coal Creek upstream 0.85 miles | 0.85 | | | X | | |
| Coal Creek Trib 4.1 | Confluence of Coal Creek upstream 0.23 miles | 0.23 | | | X | | |
| Coal Creek Trib 5 | Confluence of Coal Creek upstream 0.2 miles | 0.2 | | | X | | |
| Coon Creek | Confluence Kansas River upstream 6.7 miles | 6.7 | | | X | | |
| Coon Creek Trib 1 | Confluence of Coon Creek upstream 0.15 miles | 0.15 | | | X | | |
| Cook Creek Trib 2 | Confluence of Coon Creek upstream 0.15 miles | 0.1 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/Establish Zone A | Digital Conversion |
|--------------------------------|---|--------------|-------------------|------------|--|-------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Country Club-Hope Plaza Trib | Confluence of Kansas River 1.2 miles | 1.2 | | | X | | |
| Country Club-Hope Plaza Trib 1 | Confluence of Country Club-Hope Plaza Trib 0.12 miles upstream | 0.12 | | | X | | |
| Deerfield Trib | Confluence of Baldwin Creek upstream 2.5 miles | 2.5 | | | X | | |
| East Fork Vinland Creek | Confluence of Vinland Creek upstream 1.5 miles | 1.5 | | | X | | |
| Eudora East Trib | Confluence of Wakarusa upstream 1.9 miles | 1.9 | | | X | | |
| Eudora Mid Trib | Confluence of Wakarusa upstream 1.9 miles | 1.9 | | | X | | |
| Haskell Trib | Confluence of Wakarusa Trib 1 upstream 0.6 miles | 0.6 | | | X | | |
| Hidden Valley Trib | Confluence of Yankee Tank upstream 2 miles | 2 | | | X | | |
| Hidden Valley Trib 1 | Confluence of Hidden Valley | 0.23 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|--------------------------------|--|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| | Trib 0.23 miles | | | | | | |
| Kansas River | County boundary to county boundary | 36 | | | X | | |
| Kanwaka Trib | N1500 Road Downstream to 1415 Rd | 1.4 | | | X | | |
| KLWN Trib | Confluence of Yankee Tank upstream 1.3 miles | 1.3 | | | X | | |
| Little Wakarusa Creek | Confluence of Wakarusa upstream 3 miles | 3 | | | X | | |
| Maple Grove Drainages | Confluence of Kansas River upstream 3.8 miles | 3.8 | | | X | | |
| Maple Grove Drainage Trib | Confluence of Maple Grove Drainage upstream 1.6 miles | 1.6 | | | X | | |
| Maple Grove Drainage Trib 2 | Confluence of Maple Grove Drainage Trib upstream 1.2 miles | 1.2 | | | X | | |
| Maple Grove Drainage East Fork | Confluence of Maple Grove Drainage Trib upstream 1.7 miles | 1.7 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|--------------------------------|--|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Maple Grove Drainage West Fork | Confluence of Maple Grove Drainage Trib upstream 1.6 miles | 1.6 | | | X | | |
| Naismith Creek | Confluence of Wakarusa Trib 1 upstream 2 miles | 2 | | | X | | |
| North Spring Creek | Confluence upstream 2 miles | 2 | | | X | | |
| Pleasant Grove East Trib | Pleasant Valley Trib upstream 3.4 miles | 3.4 | | | X | | |
| Pleasant Grove West Trib | Pleasant Valley Trib upstream 6.3 miles | 6.3 | | | X | | |
| Pleasant Grove West Trib 1 | Confluence of Pleasant Grove West Trib upstream 0.5 miles | 0.5 | | | X | | |
| Pleasant Valley Trib | Confluence Wakarusa River upstream 4 miles | 4 | | | X | | |
| Quail Creek | Confluence of Yankee Tank upstream 2 miles | 2 | | | X | | |
| Tauy Creek East Fork | N400 or State lake Road | 6.4 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|-----------------------------------|--|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| | downstream 6.4 miles | | | | | | |
| Tauy Creek East Fork Trib | Confluence Tauy Creek East Fork 1.9 miles | 1.9 | | | X | | |
| Tauy Creek East Fork Trib A (1.2) | Confluence Tauy Creek East Fork Trib upstream 0.45 miles | 0.45 | | | X | | |
| Tauy Creek East Fork Trib B | Confluence Tauy Creek East Fork Trib upstream 0.72 miles | 0.72 | | | X | | |
| Tauy Creek East Fork Trib C (1.1) | Confluence Tauy Creek East Fork Trib upstream 0.89 miles | 0.89 | | | X | | |
| Vinland Creek | Confluence of Coal Creek upstream 2 miles | 2.1 | | | X | | |
| West Fork Vinland Creek | Confluence of Vinland Creek upstream 1.3 miles | 1.3 | | | X | | |
| Wakarusa River | Confluence of Kansas River | 20.5 | | | X | | |
| Wakarusa River Trib (1) | Confluence of Wakarusa River upstream 5.8 miles | 5.8 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|-------------------------|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Wakarusa River Trib 2 | Confluence of Wakarusa River upstream 2 miles | 2 | | | X | | |
| Wakarusa River Trib 2.1 | Confluence of Wakarusa River upstream 0.45 miles | 0.45 | | | X | | |
| Washington Creek | Confluence Wakarusa River | 15.4 | | | X | | |
| Washington Creek Trib 1 | Confluence of Washington Creek upstream 3.4 miles | 3.4 | | | X | | |
| Washington Creek Trib 2 | Confluence of Washington Creek upstream 1.1 miles | 1.1 | | | X | | |
| Washington Creek Trib 3 | Confluence of Washington Creek upstream 0.3 miles | 0.3 | | | X | | |
| Washington Creek Trib 4 | Confluence of Washington Creek upstream 0.3 miles | 0.3 | | | X | | |
| Washington Creek Trib 5 | Confluence of Washington Creek upstream 0.8 | 0.8 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|------------------------------|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| | miles | | | | | | |
| Washington Creek Trib 5.1 | Confluence of Washington Creek upstream 0.4 miles | 0.4 | | | X | | |
| Washington Creek Trib 7 | Confluence of Washington Creek upstream 0.3 miles | 0.3 | | | X | | |
| Washington Creek Trib 8 | Confluence of Washington Creek upstream 0.4 miles | 0.4 | | | X | | |
| Washington Creek Trib 9 | Confluence of Washington Creek upstream 0.5 miles | 0.5 | | | X | | |
| Yankee Tank Creek | Confluence Wakarusa River upstream 2 miles | 2 | | | X | | |
| Yankee Tank East Branch | Confluence Yankee Tank Creek upstream 2.5 miles | 2.5 | | | X | | |
| Yankee Tank West Branch | Confluence Yankee Tank Creek upstream 2 miles | 2 | | | X | | |
| DOUGLAS COUNTY TOTALS | | | | | 195.32 | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|------------------------------|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| JACKSON COUNTY | | | | | | | |
| Banner Creek | From east section line of Sec 13, T7S, R14E (M Road) to confluence with Elk River | 9.0 | | | X | | |
| Elk River | From north section line of Sec 36, T6S, R14E to 1800 feet upstream of the east section line of Sec 6, T7S, R16E | 11.5 | | | X | | |
| JACKSON COUNTY TOTALS | | | | | 19.5 | | |
| MARION COUNTY | | | | | | | |
| Mud Creek | From 50 Feet upstream of Chicago Rock Island and Pacific Railroad to confluence of Cottonwood River | 1.2 | X | X | | | |
| Clear Creek | From Sunshine Road to Confluence of cottonwood River | 1.2 | X | X | | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|--|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Old Mud Creek Channel | From 200th Street to confluence with Cottonwood River | 2.1 | X | X | | | |
| Tributary to Old Mud Creek Channel No. 1 | From Levee to confluence with Old Mud Creek Channel | 1.5 | X | X | | | |
| Cottonwood River | From 900 feet upstream of Main Street to 1500 feet downstream of 3rd Street | 1.4 | | | X | | |
| Cottonwood River Tributary | From east section line of Sec 5, T20S, R4E to City of Marion corporate boundary | 0.6 | | | X | | |
| Cottonwood River | From Marion Street to 600 feet downstream of Railroad | 1.0 | | | X | | |
| Doyle Creek | From 1200 feet upstream of Union Pacific Railroad to Pawnee Road | 3.1 | | | | | X |
| Prairie Creek | From Newell Road to confluence with Doyle Creek | 2.5 | | | | | X |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|--------------------------------|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Spring Creek | From 1220 feet upstream of 70th Street to confluence with Doyle Creek | 2.4 | | | | | X |
| MARION COUNTY TOTALS | | | 6 | 6 | 3 | | 8 |
| OSAGE COUNTY | | | | | | | |
| Burys Creek | City Boundary to City Boundary | 0.95 | | | X | | |
| OSAGE COUNTY TOTALS | | | | | 0.95 | | |
| POTTAWATOMIE COUNTY | | | | | | | |
| College Creek | Mt Cavalry Rd to Bertrand Street | 1.0 | X | X | | | |
| Delaware River Tributary No. 5 | Mt. Zion Road to confluence with Delaware River | 3.4 | X | X | | | |
| Elbo Creek | Mt. Zion Road to confluence of Big Blue River | 5.1 | X | X | | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|----------------------------|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Elbo Creek Tributary No. 1 | Mt. Zion Road to confluence with Elbo Creek | 3.5 | X | X | | | |
| School Creek | Lake Elbo Road to confluence with Elbo Creek | 1.0 | X | X | | | |
| Big Blue River | Tuttle Creek Dam to Confluence with Kansas River | 9.6 | | | X | | |
| Cedar Creek | 19,600 ft above confluence with Big Blue River to confluence with Big Blue River | 3.7 | | | X | | |
| East Unnamed Creek | 14,700 ft above confluence with Kansas River to confluence with Kansas River | 2.8 | | | X | | |
| East Unnamed Tributary | 2,550 ft above confluence with East Unnamed Creek to confluence with East Unnamed Creek | 0.5 | | | X | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|-----------------------------------|---|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Kansas River | SW corner of County line to SE corner of County line | 41.4 | | | X | | |
| North Unnamed Tributary | 3,350 ft above confluence with East Unnamed Creek to confluence with East Unnamed Creek | 0.6 | | | X | | |
| Willard Creek | 4,700 ft above county boundary to county boundary | 0.9 | | | X | | |
| Rock Creek | 163,600 ft above confluence with Vermillion Creek to 51,200 ft above confluence with Vermillion Creek | 21.3 | | | X | | |
| Big Blue River | Tuttle Creek Reservoir backwater extends up to NW county boundary | 31.2 | | | X | | |
| POTTAWATOMIE COUNTY TOTALS | | | 14 | 14 | 112 | | |
| REPUBLIC COUNTY | | | | | | | |

| Flooding Source | Reach Limits | Reach Length | Detailed Riverine | | Redelineation of SFHAs Using Effective Profiles and New Topography | Refine/ Establish Zone A | Digital Conversion |
|-------------------------------|--|--------------|-------------------|------------|--|--------------------------|--------------------|
| | | | Hydrology | Hydraulics | | | |
| Republican River | From 1400 feet upstream of US Route 36 to Chicago Rock Island Pacific Railroad | 1.2 | | | X | | |
| REPUBLIC COUNTY TOTALS | | | | | 1.2 | | |
| RILEY COUNTY | | | | | | | |
| Big Blue River | Confluence of Kansas River upstream 9.6 miles | 9.6 | | | X | | |
| RILEY COUNTY TOTALS | | | | | 9.6 | | |

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

- Kansas Department of Agriculture – Division of Water Resources; and
- contractors URS and AMEC Earth and Environment

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.

Table 1.2 Flood Mapping Project Activities

TASK ASSIGNMENTS

| State | County | Partner Name | Partner Type | Lead SC Type | Scoping | Perform Field Survey | Develop Topographic Data | Perform Independent QA/QC of Topographic Data | Acquire Base Map | Perform Hydrologic Analyses | Perform Independent QA/QC of Hydrologic Analyses | Perform Hydraulic Analyses | Perform Independent QA/QC of Hydraulic Analyses | Perform Floodplain Mapping | Perform Independent QA/QC of Floodplain Mapping | Develop DFIRM Database | Quality Review (QR) 1 Auto Validation of Draft DFIRM Database | Produce Preliminary Map Products | Perform Independent QA/QC of Preliminary Map Product | QR2 Auto Validation of Preliminary Database | QR3 10% Visual Check | Distribute Preliminary Map Products | Post Preliminary Processing | QR4 Validate BFE Notice and CEO Letters | QR5 Validate Final DFIRM Database and Map Panels | QR6 Check LFD | QR7 Validate MSC Deliverable Package | |
|-------|--------------|--------------|---------------------|--------------|---------|----------------------|--------------------------|---|------------------|-----------------------------|--|----------------------------|---|----------------------------|---|------------------------|---|----------------------------------|--|---|----------------------|-------------------------------------|-----------------------------|---|--|---------------|--------------------------------------|--|
| KS | Douglas | KDA | CTP | KSCTP | | | | | X | | | | | X | | X | | X | | | | | X | | | | X | |
| KS | Douglas | NSP | NSP | KSCTP | | | | | | | | | | | X | | | X | | | | | X | | | | X | |
| KS | Jackson | KDA | CTP | KSCTP | | | | | X | | | | | X | | X | | X | | | | | X | | | | X | |
| KS | Jackson | NSP | NSP | KSCTP | | | | | | | | | | | X | | | X | | | | | X | | | | X | |
| KS | Marion | KDA | CTP | KSCTP | | X | | | X | | | X | | X | | X | | X | | | | | X | | | | X | |
| KS | Marion | NSP | NSP | KSCTP | | | | X | | | | | | | X | | | X | | | | | X | | | | X | |
| KS | Osage | KDA | CTP | KSCTP | | | | | X | | | | | X | | X | | X | | | | | X | | | | X | |
| KS | Osage | NSP | NSP | KSCTP | | | | | | | | | | | X | | | X | | | | | X | | | | X | |
| KS | Pottawatomie | KDA | CTP | KSCTP | | X | | | X | | | X | | X | | X | | X | | | | | X | | | | X | |
| KS | Pottawatomie | NSP | NSP | KSCTP | | | | | | | | | | | X | | | X | | | | | X | | | | X | |
| KS | Republic | KDA | CTP | KSCTP | | | | | X | | | | | X | | X | | X | | | | | X | | | | X | |
| KS | Republic | NSP | NSP | KSCTP | | | | | | | | | | | X | | | X | | | | | X | | | | X | |
| KS | Riley | KDA | CTP | KSCTP | | | | | X | | | | | X | | X | | X | | | | | X | | | | X | |
| KS | Riley | NSP | NSP | KSCTP | | | | | | | | | | | X | | | X | | | | | X | | | | X | |
| | All Counties | | NSP Core Task Order | KSCTP | | | | | | | | | | | | | | | | | | | | | | | | |

The Kansas Department of Agriculture – Division of Water Resources is assigned the Floodplain Mapping Activity and will incorporate the approximate studies completed by Kansas Department of Agriculture – Division of Water Resources for the counties identified in Table 1.1.

Kansas Department of Agriculture – Division of Water Resources is responsible for the implementation of a Quality Assurance plan for all assigned activities. The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 | Lawrence Unit | B | |
| Marion | Marion Levee | B | |
| Marion | Florence Levee | B | |
| Riley | Fort Riley | B | |
| Riley | Manhattan Unit | B | |

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 may be performed by the CTP’s or FEMA’s contractor at the discretion of FEMA. If the CTP will be utilizing its contractors to do the QC review, this should be identified during scoping. The CTP will need to submit its QC plan with checklist to the Regional Project Officer for approval. Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. The CTP will be responsible for addressing any and all comments resulting from independent QC, including re-submittal of deliverables as needed to pass technical review.

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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources consisting of representatives from the Kansas Department of Agriculture – Division of Water Resources, Contractors URS and AMEC Earth and Environmental, 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/g_s_memos.shtm

OUTREACH

(NOTE: The performance of outreach takes place throughout the life of the flood study project. Therefore, we recommend tracking the outreach budget, in the MIP Workflow, equally between Produce Preliminary Map Products and Post Preliminary Processing. An alternate tracking method is acceptable with approval from the project management team.)

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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources shall attend a final meeting in each county following the issuance of the Preliminary FIRM and FIS.

Deliverables: Upon determination of an Outreach and Coordination Approach, the Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, Kansas Department of Agriculture – Division of Water Resources 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.

Kansas Department of Agriculture – Division of Water Resources 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. Kansas Department of Agriculture – Division of Water Resources also shall coordinate with other Mapping Partners that are involved in the Topographic Data Development process.

Kansas Department of Agriculture – Division of Water Resources 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*, Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources

Scope: The Kansas Department of Agriculture – Division of Water Resources 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. Kansas Department of Agriculture – Division of Water Resources shall gather information on what topographic data is available for the given community and what accuracy and currency it meets. Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources shall address all concerns or questions regarding the topographic data development and processing that are raised by the Kansas Department of Agriculture – Division of Water Resources during the independent QC review. The Kansas Department of Agriculture – Division of Water Resources 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.

The Kansas Department of Agriculture – Division of Water Resources 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. The Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources shall address all concerns or questions regarding the topographic data development that are raised by the Kansas Department of Agriculture – Division of Water Resources during the independent QC review, or during the PM42 defined Validation Process.

Summary of Topographic Data

| County | Description | Source |
|--------------|-----------------------|--|
| Douglas | LIDAR | LIDAR public domain from USGS. |
| Jackson | 10m DEM | Public domain from USGS |
| Marion | 10m DEM and new LIDAR | 10m DEM public domain from USGS. LIDAR procured as part of this activity |
| Osage | 10m DEM | Public domain from USGS |
| Pottawatomie | 2m DEM | Public domain from DASC |
| Republic | 10m DEM | Public domain from USGS |
| Riley | 10m DEM | Public domain from USGS |

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*, the Kansas Department of Agriculture – Division of Water Resources shall make the following products available to FEMA by uploading the digital data to the MIP so that the Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources

Scope: The Kansas Department of Agriculture – Division of Water Resources shall review the mapping data generated by the Kansas Department of Agriculture – Division of Water Resources 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 the Kansas Department of Agriculture – Division of Water Resources 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*, the Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources

Scope: Base Map Acquisition consists of obtaining the digital base map, orthophoto, for the project and as necessary, preparing the base map for use. The Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources shall address all concerns or questions regarding the base map that are raised during the Independent QC review performed by the Kansas Department of Agriculture – Division of Water Resources, or during the NSP’s Validate Content Submission Process.

Summary of Base Map

| County | Description | Source |
|--------------|---|-------------------------|
| Douglas | USGS 2002 DOQ - Countywide Mosaic MrSID | DASC |
| Jackson | USGS 2002 DOQ - Countywide Mosaic MrSID | DASC |
| Marion | USGS 2002 DOQ - Countywide Mosaic MrSID | DASC |
| Osage | USGS 2002 DOQ - Countywide Mosaic MrSID | DASC |
| Pottawatomie | USGS 2002 DOQ - Countywide Mosaic MrSID | DASC |
| Republic | USGS 2002 DOQ - Countywide Mosaic MrSID | DASC |
| Riley | County Wide Vector Map | Current Effective DFIRM |

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*, the Kansas Department of Agriculture – Division of Water Resources shall make the following products

available to FEMA by uploading the digital data to the MIP so that the Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources

Scope: The Kansas Department of Agriculture – Division of Water Resources shall review the base map acquired by Kansas Department of Agriculture – Division of Water Resources 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*, the Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources

Scope: The Kansas Department of Agriculture – Division of Water Resources shall perform hydrologic analyses for the flooding source(s) listed in Table 1.1. For streams studied by detailed methods the Kansas Department of Agriculture – Division of Water Resources shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using the method indicated in the table below. For streams studied by approximate methods the Kansas Department of Agriculture – Division of Water Resources shall calculate peak flood discharges for the 1 percent-annual-chance storm events using the method indicated in the table below. These flood discharges will be the basis for subsequent Hydraulic Analyses performed under this MAS. In addition, the Kansas Department of Agriculture – Division of Water Resources shall address all concerns or questions regarding the hydrologic analyses that are raised during the Independent QC review performed by the Kansas Department of Agriculture – Division of Water Resources, or during the NSP’s Validate Content Submission Process.

If GIS-based modeling is used, the Kansas Department of Agriculture – Division of Water Resources 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 the Kansas Department of Agriculture – Division of Water Resources shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

Summary of Hydrologic Analysis

| County Name | Method | Square Miles of New Detailed Hydrology |
|--------------|---------|--|
| Douglas | | 0 |
| Jackson | | 0 |
| Marion | HEC-HMS | 6 |
| Osage | | 0 |
| Pottawatomie | HEC-HMS | 14 |
| Republic | | 0 |
| Riley | | 0 |

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*, the Kansas Department of Agriculture – Division of Water Resources shall make the following products available to FEMA by uploading the digital data to the MIP so that the Kansas Department of Agriculture

– Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources 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;
- 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 stream studied by approximate methods, the Kansas Department of Agriculture – Division of Water Resources shall provide the following deliverables:

- Digital copies of all hydrologic modeling (input and output) files for the 1-percent-annual-chance storm event; and
- Digital versions of all backup data used in the analysis including work maps.

For all streams, the Kansas Department of Agriculture – Division of Water Resources 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 (NSP)

Scope: The NSP shall review the technical, scientific, and other information submitted by the Kansas Department of Agriculture – Division of Water Resources 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 the NSP 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*, the NSP 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: Kansas Department of Agriculture – Division of Water Resources

Scope: For the streams identified in Table 1.1 of this MAS that will be studied by approximate methods, the Kansas Department of Agriculture – Division of Water Resources shall perform hydraulic analyses for all flooding sources within each county that have a drainage area greater than or equal to 1 mi². For all flood sources that have drainage areas less than 1 mi² and have effective approximate mapping, the Kansas Department of Agriculture – Division of Water Resources shall also perform hydraulic analyses extending to the upstream limits of the effective study. The estimated length of approximate-studied streams is 560 miles. The modeling will include the 1% annual chance storm event based on peak discharges computed under the Perform Hydrologic Analyses Task. The hydraulic methods used for this analysis are indicated in the table below.

For the streams identified in Table 1.1 that will be studied by detailed methods, the Kansas Department of Agriculture – Division of Water Resources will perform hydraulic analyses for approximately 20 miles. The modeling will include the 10%, 2%, 1% and 0.2% annual chance storm events based on peak discharges computed in the Perform Hydrologic Analyses Task. The hydraulic methods used for this analysis will include HEC-RAS 3.1 or higher, computer program. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

The Kansas Department of Agriculture – Division of Water Resources 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.

The Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, the Kansas Department of Agriculture – Division of Water Resources shall address all concerns or questions regarding the hydraulic analyses that are raised by the Kansas Department of Agriculture – Division of Water Resources during the Independent QC review, or during the NSP’s Validate Content Submission Process.

The Kansas Department of Agriculture – Division of Water Resources 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 the Kansas Department of Agriculture – Division of Water Resources shall provide full user documentation, technical algorithm documentation, and software to FEMA for review before performing the hydraulic analyses.

Summary of Hydraulic Analysis

| County Name | Method | Total Miles of New Detailed or Approximate Hydraulics |
|-------------|------------------|---|
| Douglas | HEC-RAS | Approximate - 560 |
| Jackson | HEC RAS | 0 |
| Marion | Detailed/HEC-RAS | 6 |

| | | |
|--------------|------------------|----|
| Osage | HEC RAS | 0 |
| Pottawatomie | Detailed/HEC-RAS | 14 |
| Republic | HEC RAS | 0 |

Levee(s) that are mapped as providing protection on effective FIRMs and that will not receive a Provisionally Accredited Levee designation and identified in Table 1.3 as requiring hydraulic analysis should be done in accordance with the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

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*, the Kansas Department of Agriculture – Division of Water Resources shall make the following products available to FEMA by uploading the digital data to the MIP so that the Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources shall provide the following deliverables:

- Digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing conditions using the FEMA RASPLIT 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- and 0.2-percent-annual-chance 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 stream studied by approximate methods, the Kansas Department of Agriculture – Division of Water Resources shall provide the following deliverables:

- Digital versions of draft text for inclusion in the FIS report (only for counties that require a FIS report).

For all flood sources the Kansas Department of Agriculture – Division of Water Resources 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 (NSP)

Scope: The NSP shall review the technical, scientific, and other information submitted by the Kansas Department of Agriculture – Division of Water Resources 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 the NSP 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*, the NSP 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: Kansas Department of Agriculture – Division of Water Resources

Scope for Detailed Riverine: The Kansas Department of Agriculture – Division of Water Resources shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries (if required) for the flooding sources for which detailed hydrologic and hydraulic analyses were performed. The Kansas Department of Agriculture – Division of Water Resources 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 of Redelineation of Detailed Floodplain Boundaries Using Updated Topographic Data: The Kansas Department of Agriculture – Division of Water Resources shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries, and regulatory floodway boundaries for the flooding sources listed earlier in Table 1.1. The Kansas Department of Agriculture – Division of Water Resources shall use the topographic data acquired under Develop Topographic Data to delineate the floodplain and regulatory floodway boundaries, as appropriate, on a digital work map. If the new topographic data do not reflect the same hydraulic characteristics as in the effective study, the Kansas Department of Agriculture – Division of Water Resources shall evaluate the topographic data to determine if changes are significant enough to invalidate the floodplain boundary and regulatory floodway boundary redelineations. If so, the Kansas Department of Agriculture – Division of Water Resources shall contact the FEMA Regional Project Officer, identified in Section 12 – Points of Contact, with a recommendation.

Scope for Non-revised Areas: For all flooding sources except those segments for which updated flood data will be developed, the Kansas Department of Agriculture – Division of Water Resources 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. The Kansas Department of Agriculture – Division of Water Resources shall use the acquired base map for the conversion. The Kansas Department of Agriculture – Division of Water Resources 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, the Kansas Department of Agriculture – Division of Water Resources 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. The Kansas Department of Agriculture – Division of Water Resources 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. The Kansas Department of Agriculture – Division of Water Resources 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 | 106 |
| Jackson | 35 |
| Marion | 50 |
| Osage | 30 |
| Pottawatomie | 51 |
| Republic | 34 |
| Riley | 4 |

The Kansas Department of Agriculture – Division of Water Resources 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.

The Kansas Department of Agriculture – Division of Water Resources shall address all concerns or questions regarding Floodplain Mapping that are raised by the Kansas Department of Agriculture – Division of Water Resources during the Independent QC review, or during the NSP’s Validate Content Submission Process.

The Kansas Department of Agriculture – Division of Water Resources 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.

The Kansas Department of Agriculture – Division of Water Resources 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). The Kansas Department of Agriculture – Division of Water Resources 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. The Kansas Department of Agriculture – Division of Water Resources will perform self-certification audits for the Floodplain Boundary Standards, as described in PM 38 and all subsequent revisions, for all flood hazard areas. The Kansas Department of Agriculture – Division of Water Resources may expand on the approaches for analyzing Zone A areas outlined in *Guidelines and Specifications for Flood Hazard Mapping Partners* and in FEMA 265, *Managing Floodplain Development in Approximate Zone A Areas* (April 1995), and/or develop new approaches. Such approaches must be coordinated with and approved by the FEMA Regional Project Officer before analysis and mapping begin.

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, the Kansas Department of Agriculture – Division of Water Resources shall make the following products available to FEMA by uploading the digital data to the MIP so that the Kansas Department of Agriculture – Division of Water Resources 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- and 0.2-percent-annual-chance floodplain boundary 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 (NSP)

Scope: The NSP shall review the floodplain mapping submitted by the Kansas Department of Agriculture – Division of Water Resources 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 the NSP 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*, the NSP 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: Kansas Department of Agriculture – Division of Water Resources

Scope: The Kansas Department of Agriculture – Division of Water Resources 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. The Kansas Department of Agriculture – Division of Water Resources 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*, the Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources

Scope: The Kansas Department of Agriculture – Division of Water Resources 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). Kansas Department of Agriculture – Division of Water Resources 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*. The Kansas Department of Agriculture – Division of Water Resources 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.

The Kansas Department of Agriculture – Division of Water Resources 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).

Kansas Department of Agriculture – Division of Water Resources shall address all concerns or questions regarding the Preliminary Map Products that are raised by Kansas Department of Agriculture – Division of Water Resources during the Independent QC review, or during the NSP's Validate Content Submission Process.

When the Kansas Department of Agriculture – Division of Water Resources is not responsible for Post-Preliminary Processing, and if they use a different GIS platform than the Kansas Department of Agriculture – Division of Water Resources then the Kansas Department of Agriculture – Division of Water Resources 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*, Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 (NSP)

Scope: Upon completion of the Produce Preliminary Map Products activity, the NSP shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. In addition, the NSP shall review the DFIRM panels to ensure they meet current FEMA graphic specifications. The NSP shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QC review. In addition, the NSP shall perform a review of the FIS report including all data tables, Flood Profiles, and other components of the FIS report. If the NSP 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*, the NSP 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: Kansas Department of Agriculture – Division of Water Resources

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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources. 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 Kansas Department of Agriculture – Division of Water Resources shall prepare the brochure for each county. The template is available from the Regional Management Center.

Distribution of Preliminary DFIRM and FIS Report: The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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: Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources does not use the DFIRM Tools and is not responsible for Post-Preliminary Processing, then the Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources.

Initiation of Statutory 90-Day Appeal Period: When required, upon completion of a 30-day community comment period and/or final coordination meeting with the affected communities, the Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources shall prepare and distribute Proposed BFE determination letters to the CEOs and floodplain administrators of affected communities.
- The Kansas Department of Agriculture – Division of Water Resources shall prepare legal notice of BFE changes and verify the notices are published in newspapers with local circulation in accordance with 44 CFR.
- The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources shall prepare the appropriate notices (Proposed Rules) that are to be published in the *Federal Register*. The Kansas Department of Agriculture – Division of Water Resources shall then deliver those notices to FEMA for publication.

Resolution of Protests: The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources and revised DFIRM and FIS report materials for FEMA review.

The Kansas Department of Agriculture – Division of Water Resources shall mail all associated correspondence upon authorization by FEMA.

Resolution of Appeals: The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources and revised DFIRM and FIS report materials for FEMA review.

The Kansas Department of Agriculture – Division of Water Resources shall mail all associated correspondence upon authorization by FEMA.

Letters of Map Change: The Kansas Department of Agriculture – Division of Water Resources 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: The Kansas Department of Agriculture – Division of Water Resources 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. The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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: The Kansas Department of Agriculture – Division of Water Resources shall prepare Final SOMAs for the affected communities with assistance from FEMA, as appropriate.

Processing of Letter of Final Determination: The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources shall prepare the appropriate notices (Final Rules) that are to be published in the *Federal Register*. The Kansas Department of Agriculture – Division of Water Resources shall then deliver those notices to FEMA for publication.

Processing of Final DFIRM and FIS Report for Printing: The Kansas Department of Agriculture – Division of Water Resources shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to FEMA for printing by the United States Government Printing Office. The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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

The Kansas Department of Agriculture – Division of Water Resources 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: The Kansas Department of Agriculture – Division of Water Resources 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: The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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*, Kansas Department of Agriculture – Division of Water Resources 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 docket.

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 DFRM 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 | | | | |
| Hydraulic Analyses | | X | | | X | X | X | X | X | X | | | | |
| Key to Cross-Section Labeling | | X | | | X | X | X | X | X | X | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Key to Transect Labeling | | X | | | X | X | X | X | X | X | X | X | X | | | | | | |
| Draft FIS Report | | | | | X | X | X | X | X | | | | | | | | | | |
| Mapping Information | 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 | X | X |

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities assigned to the Kansas Department of Agriculture – Division of Water Resources 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 the Kansas Department of Agriculture – Division of Water Resources in accordance with the provisions of the September 1, 1999 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 the Kansas Department of Agriculture – Division of Water Resources by FEMA through Cooperative Agreement EMK-2008-CA-8005 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. 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>. The Kansas Department of Agriculture – Division of Water Resources shall complete Table 4.1 Contribution and Leverage

| Funding for Project / KDA-DWR | FEMA Contribution | Partner Contribution | % Leverage | Total Project Cost |
|-------------------------------|-------------------|----------------------|------------|--------------------|
| TOTAL FUNDING AMOUNTS | | | | |

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.”

Table 5-1. Applicable Standards for Project Activities

| Applicable Standards | 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 |
| <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 | | | | | | | | | | |
| 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 | | | | | | |
| NFIP Metadata Profile Specifications | 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 Appendices B, C, F, and M |
| Topographic Development | Volume 1 Appendix A Appendix M |
| Independent QA/QC Review of Topographic Data | Volume 1, Appendix A Appendix M |
| Acquire Base Map | 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 |
| Perform Independent QA/QC Review of Floodplain Mapping | Volume 1 Appendix C Appendices K, L, and M 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 |

SECTION 6—SCHEDULE

The tasks documented in this Mapping Activity Statement shall be completed in accordance with the project schedule. The Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources will update the MIP at least monthly, and when a task is completed.

SECTION 7—CERTIFICATIONS

Data Capture Standards

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.

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

The Kansas Department of Agriculture – Division of Water Resources intends to use the services of URS and AMEC Earth and Environmental as contractors for this Flood Map Project. The Kansas Department of Agriculture – Division of Water Resources 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

The Kansas Department of Agriculture – Division of Water Resources 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 the Kansas Department of Agriculture – Division of Water Resources to report on the status of these projects at a task level. The cost and schedule information, updated by the Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources.

Once the baseline schedule and cost is established in the MIP, the Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources 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 Kansas Department of Agriculture – Division of Water Resources provides deliverables through the MIP, the Kansas Department of Agriculture – Division of Water Resources shall ensure the MIP reflects the status of the related task. The Kansas Department of Agriculture – Division of Water Resources will submit electronic 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 Bob Franke, the FEMA Regional Project Officer; Andrew Megrail, the Project Manager for the Kansas Department of Agriculture – Division of Water Resources; 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.



Andrew D. Megrail
Project Manager
Kansas Department of Agriculture – Division of Water Resources

6/30/2008
Date



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

7/7/08
Date