



**FEMA**

## **NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT**

### **Mapping Activity Statement No. FY06.03A (Amendment to MAS 3 for Coastal Analysis) – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data**

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated December 25, 2002 between the Northwest Florida Water Management District (NFWFMD) and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 3 is amended as follows:

All activities outlined in MAS No. 3 for mapping activities are still valid for Gadsden and Leon Counties. All activities outlined in MAS No. 3 for mapping activities in Wakulla County, except for “Scoping”, are no longer valid and have been deleted. Mapping activities for Wakulla County are now defined under this amendment (MAS 3A). This amendment is largely to conduct detailed coastal analysis covering the Wakulla County coastal community including the neighboring counties of Franklin and Jefferson Counties. FEMA and the NFWFMD have agreed to spend remaining funds set aside for Wakulla County to develop a Storm Surge Inundation Model and Wave Setup Model as part of a Project to provide detailed coastal analysis and DFIRM production for the coastal area which principally will cover Wakulla, Franklin and Jefferson Counties. The scope and deliverables for the project described herein are activities that will be completed under this MAS 3A.

### **SECTION 1—OBJECTIVE AND SCOPE**

The objective of the Flood Map Project documented in this MAS 3A is to develop an ADvanced CIRCulation (ADCIRC) 2-D hydrodynamic model to simulate storm surge inundation and wave setup model using the SWAN (Simulating Waves Nearshore) 2-D wave model, both of which will be suitable for coastal hazard analysis in support of preparing Digital Flood Insurance Rate Maps (DFIRMs) and Flood Insurance Study (FIS) report for Wakulla and Franklin counties, and coastal regions of Jefferson County. The most current approved version of the models listed above (as specified by FEMA at [http://www.fema.gov/plan/prevent/fhm/en\\_modl.shtm](http://www.fema.gov/plan/prevent/fhm/en_modl.shtm)) will be utilized. 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). These documents can be found on FEMA’s website at [http://www.fema.gov/plan/prevent/fhm/gs\\_main.shtm](http://www.fema.gov/plan/prevent/fhm/gs_main.shtm) and [http://www.fema.gov/plan/prevent/fhm/gs\\_memos.shtm](http://www.fema.gov/plan/prevent/fhm/gs_memos.shtm).

The Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in Table 1.1, Flooding Source(s) to be Studied.

**Table 1.1 Flooding Source(s) to be Studied**

Flooding Source	Reach Limits	Reach Length	Detailed Riverine		Detailed Coastal					Limited Detail Study	Redelineation of SFHAs Using Effective Profiles and New Topography	Refine/Establish Zone A
			Hydrology	Hydraulics	Stillwater	Setup	Wave Height	Wave Runup	Erosion			
Gulf of Mexico	Jefferson Co. eastern border to Franklin Co. western border	185 +/- miles of shoreline	N/A	N/A	TBD	TBD	N/A	N/A	N/A	N/A	N/A	N/A

This Flood Map Project will be completed by the following Mapping Partners:

- NFWFMD;
- Qualified contractors selected by the NFWFMD.

The Mapping Partner shall notify FEMA and all applicable parties of all meetings with community officials at least two weeks prior to the meeting. FEMA and/or NFWFMD’s contractor may or may not attend the community meetings.

The Mapping Partner shall maintain an archive of all data submitted. (All supporting data must be retained for three years from the date a funding recipient submits its final expenditure report to FEMA.)

The activities for this Flood Map Project, including any required Quality Control Requirements as outlined in 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**

State	County	Partner Name	Partner Type	Perform Field Survey	Perform Coastal Flood Hazard Analyses	Perform Independent QA/QC of Coastal Flood Hazard Analyses
FL	Wakulla	NFWFMD	CTP	X	X	X
FL	Franklin	NFWFMD	CTP	X	X	X
FL	Jefferson	NFWFMD	CTP	X	X	X
All Counties		NSP Core Task Order				

NFWFMD is responsible for the implementation of an independent Quality Assurance/Quality Control (QA/QC) plan for all assigned activities and will provide it to FEMA when scoping is completed. The NFWFMD will submit a Summary Report that describes and provides the results of all automated or manual QA/QC review steps. The report should include the process for all assigned activities.

Independent QC review activities will be performed by the CTPs contractors. The CTP will need to submit its QC plan 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.

Metadata is required for all activities. The metadata profiles are available from FEMA.

FEMA will provide download/upload capability for data submittals through the Mapping Information Platform (MIP) located at <https://hazards.fema.gov>. As each activity is completed, the data must be submitted to the MIP.

The NFWFMD will respond to any comments generated as a result of the mandatory quality control checks by the National Service Provider (NSP) as described in PM 42. The NSP QC process is nationally funded and required on each FIS. The NSP QC process applicable to this MAS 3A includes the following activity:

- **Validate Content Submission.** Automatic metadata and visual RMC validation of submitted data for Perform Field Survey, Develop Topographic Data, Perform Coastal Analysis, and Acquire Base Map Data.

In cooperation with the FEMA Project Officer, a Project Management Team (PMT) will be established by the NFWFMD consisting of representatives from the NFWFMD, FEMA’s regional engineer, the RMC, 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, no greater than every thirty days, when the activity is complete, and also include leverage data. 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.

## **Field Reconnaissance for Detailed Coastal Analysis**

Responsible Mapping Partner: NFWFMD

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, NFWFMD and/or its contractors shall conduct a detailed field reconnaissance of the coastal areas for each of the counties 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 transects to be evaluated for wave modeling (including fetch areas and obstruction areas, such as marsh, building, and vegetation information), and other parameters needed for detailed coastal analysis. Field reconnaissance and transect site inspections will be conducted for respective representative coastal reaches of the shoreline being studied by detailed methods to ensure that the modeling matches the site characteristics. Interviews will be conducted with State of Florida agencies and local officials regarding available storm and field measured data and records of past flooding events. This will include:

- During the coastal restudy process, site inspections for the coastal reaches of the shoreline being studied by detailed methods are required to assure that the modeling matches the site characteristics.

Field reconnaissance for each coastal reach will identify the type and nature of the vegetation and building obstructions along coastal reaches, and document unique coastal features which need to be considered in the modeling (inlets, seawalls, cliffs, and alluvial river confluences).

NFWFMD and/or its contractors also shall coordinate with other Mapping Partners that are involved in the Topographic Data Development process regarding ongoing activities and deliverables.

Standards: All Field Reconnaissance for coastal analysis work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: NFWFMD and/or its contractors shall make the following products available to FEMA by uploading the digital data to the MIP. A metadata file complying with the NFIP Metadata Profiles Specifications, must accompany the G&S compliant digital data. Additionally, the Technical Support Data Notebook (TSDN) format described in the G&S must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. Where paper documentation is required by State Law for Professional certifications, the NFWFMD and/or its contractors may submit the paper in addition to a scanned version of the paper for the digital record, which may include:

- A report summarizing the findings of the field reconnaissance;
- Documentation of the horizontal and vertical datum;
- Digital versions of draft text for inclusion in the FIS report;

## **Coastal Flood Hazard Analyses**

Responsible Mapping Partner: NFWFMD

**Scope of Detailed Coastal Stillwater and Wave Setup Analyses:** NFWFMD contractors shall develop an overland ADCIRC model and wave setup model SWAN for the coastal area of Wakulla, Franklin, and Jefferson Counties for approximately 185+/- miles of shoreline. The coastal flood hazard analyses will be performed for an as yet undetermined amount of transects along the shoreline of coastal flooding sources including the Gulf of Mexico and all associated bays, sounds and intracoastal waterways. These analyses are to include: Stillwater Elevation (SWEL) determination and wave setup. The analyses above will be used to support tasks to be performed under a separate mapping activity statement (MAS 5): erosion analyses, wave runup analyses, and Primary Frontal Dune (PFD) analyses for subsequent flood hazard mapping tasks. The model development will also support production runs for the purpose of computing the 10-, 2-, 1-, and 0.2-percent-annual-chance events. The NFWFMD and its contractors plan to use the coastal methodologies and analyses FEMA applied to the Mississippi Study for the Gulf Coast and will take any new guidance subsequent to the Mississippi study from FEMA under consideration. In addition, the NFWFMD shall address all concerns or questions regarding the Coastal Flood Hazard Analyses that are raised during the independent QA/QC review.

To determine revised stillwater elevations, the NFWFMD will conduct hurricane storm surge modeling using the ADvanced CIRCulation model (ADCIRC), a 2-D hydrodynamic model for storm surge simulation. This study will rely on hurricane wind and pressure field data and 2-D wave modeling in conjunction with a statistical analysis of the model results (to be completed under MAS 5) using a FEMA approved method for computing flood wave probabilities.

The storm surge study tasks to be completed under this MAS will include the following sub-tasks:

### Storm Selection

The NFWFMD and its contractors will review the NOAA/NWS and HURDAT database that lists all the tropical events that have impacted the study area and shall identify the most significant ones. The storm selection shall be based on track location, intensity, and flooding history of the storms. Effective FISs shall be reviewed in order to identify the most destructive storms. Based upon this review and utilizing an approved methodology, the NFWFMD and its contractors will select historical storms that shall be used to determine the statistical hurricane key parameters.

### Terrain and Bathymetric Data Processing

Existing LIDAR data and NOAA bathymetric surveys will primarily be collected for each county in the study area from FL DEM. The NFWFMD contractors will evaluate the terrain and bathymetric data and correct them, if necessary, to a set of standardized datum. Bathymetry and topographic data shall be then merged together with the shoreline, to produce separate seamless digital elevation models (DEMs) for the study area to be modeled. The NFWFMD will evaluate the shoreline to determine if it represents the most update information and is accurate enough for the purpose of a FEMA storm surge study.

#### Develop/Refine ADCIRC Mesh

The NFWFMD and its contractors will utilize an ADCIRC model mesh developed for the NFWFMD by the University of Central Florida (UCF) as a starting point will refine this mesh for overland flow and computational efficiency for future production runs. Working with UCF a final detailed mesh shall be selected and produced. Once completed, the mesh will be interpolated to the seamless DEM mass points in order to be applicable for the storm surge modeling. The NFWFMD and its contractors shall ensure that the mesh reasonably interpolates the terrain and bathymetric data providing a representation of the morphological features represented in the data set. Once the mesh is developed, it will be provided to FEMA for review and comment. FEMA will provide any comments to the NFWFMD within 2 weeks.

#### Tidal calibration

The NFWFMD and its contractors will perform additional tidal calibrations as necessary for initial storm surge calibration. The Gulf of Mexico Tidal Constituent Database shall be utilized to determine the tidal constituent to be used to force the tide at the mesh boundaries. The NFWFMD and its contractors shall determine the friction factors to apply to the bathymetry areas of the mesh. Simulated tidal constituents and hydrographs shall be compared versus the predicted ones in order to ensure that the tidal calibration results meet the standards for a FEMA flood study.

#### Wind and Pressure Field Determination

Synthetic wind and pressure fields shall be developed using the statistical hurricane key parameters for each modeled storm. Historical tracks will be used to determine a suite of hurricane tracks whose spacing will be a function of the storm size. Sensitivity studies to the key parameters shall be performed before the final generation of the synthetic wind and pressure fields.

#### 2-Dimensional Wave Modeling

The NFWFMD and its contractors will work with the University of Florida (UF), who will develop a 2-D wave modeling using the SWAN (Simulating Waves Nearshore) model developed by Delft Hydraulics. Previous SWAN model grids using dated topo/bathy data set up for the NFWFMD by the UF will be used as a starting point. Offshore boundary conditions shall be developed to use as forcing for the nearshore wave modeling. The 2-D wave modeling will determine radiation stresses that will be input into ADCIRC model in order to provide stillwater elevations accounting for wave setup. A procedure that accounts for the generation of the boundary conditions, the runs of the 2-D wave model, the validation of the results, and the coupling process between the wave and the storm surge models shall be used.

#### Storms Hindcasts and Verification

A set of storms shall be identified from the storms selected from the NOAA database to be run for hindcasts and verification for both surge and wave modeling. Three storms shall be run over the study

areas in order to verify that the mesh and the models simulate water elevations and wave heights associated with the selected historical events. Once the storms have been selected, these will be provided to FEMA for review and comment. FEMA will provide all comments within 2 weeks.

Any flooding sources associated with a levee (if any) that are mapped as providing protection on effective FIRMs, but will not meet certification requirements for the new FIRMs, will require revised hydraulic analysis. This revised analysis should be done in accordance with Appendix H of the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

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

Deliverables: In accordance with the G&S, NFWFMD and/or its contractors shall make available to FEMA the following products by uploading the digital data to the MIP so that NFWFMD contractors can access it for an independent QC review in accordance with the schedule outlined in Section 6 - Schedule. A metadata file complying with the NFIP Metadata Profiles Specifications, must accompany the uploaded compliant digital data. Additionally, the TSDN format described in the G&S must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

The MIP shall be updated for status reporting at least every 30 days and when the activity is complete. Where paper documentation is required by State Law for Professional certifications, the NFWFMD may submit the paper in addition to a scanned version of the paper for the digital record. The MIP should also be populated with appropriate leverage information regarding who paid for the data and the amount of data used by the Flood Map Project.

- Digital coastal modeling (input and output files);
- Digital versions of any other supporting computations;
- Digital work maps/flood maps of the storm hindcasts selected;
- All backup data used in the analyses;
- Coastal Hydrology Database or Data Delivery consistent with the *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- Where paper documentation is required by State Law for Professional certifications, the NFWFMD may submit the paper in addition to a scanned version of the paper for the digital record.

In addition, NFWFMD and/or its contractors shall submit a coastal study technical documentation notebook with all backup data, description of methodology, and input and output files used in the analyses and mapping as discussed in the G&S.

## **Independent QA/QC Review of Coastal Hazard Analyses**

Responsible Mapping Partner: NFWFMD

Scope: For each of the subtasks identified under Coastal Hazard Analysis as part of this MAS 3a NFWFMD and/or its contractors shall review the technical, scientific, and other information submitted

by NFWFMD contractors under Coastal Flood Hazard Analyses to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice, and are sufficient to prepare DFIRMs. If NFWFMD utilizes a contractor to perform the QA/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 is to 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, if appropriate; and
  - Comparison with 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 coastal 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).

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

Deliverables: In accordance with the G&S, NFWFMD and/or its contractors shall make the following products available to FEMA by uploading the digital data to the MIP. Additionally, the TSDN format described in the G&S must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule.

- A Summary Report that describes the findings of the independent QA/QC review.
- QA/QC checklist used.
- Recommendations to resolve any problems that are identified during the independent QA/QC review.
- Resolution for all identified problems and comments during the independent QA/QC review.
- If the data changed during the QA/QC process, then the updated deliverables from the Coastal Flood Hazard Analyses will be resubmitted at this time.

## 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 below.

All supporting documentation for the activities in this MAS/SOW shall be submitted in the TSDN format in accordance with the FEMA G&S. Table 2.1 Mapping Activities and Applicable TSDN Sections 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 G&S.)

As per Section D.2.12 of the Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update (Final Draft, February 2007), intermediate data submissions at defined milestones in the coastal flood study process will be submitted to FEMA for review of the study approach and results.

**Table 2.1- Mapping Activities and Applicable TSDN Sections**

TSDN Section	Mapping Activities													
	Scoping	Field Survey	Topo Data	QA/QC of Topo	Base Map	Hydrology/Coastal	QA/QC of Hydrology/Coastal	Hydraulic Analysis	QA/QC of Hydraulics	Flood-plain Mapping (and Re-delineation)	QA/QC of FP Mapping	DFIRM Database	Preliminary Map Products	Post-Preliminary
General Documentation														
Special Problem Reports		X				X	X							
Telephone Conversation Reports		X				X	X							
Meeting Minutes/ Reports		X				X	X							
General Correspondence		X				X	X							
Engineering Analyses														
Hydrologic Analyses		X				X	X							

TSDN Section	Mapping Activities													
	Scoping	Field Survey	Topo Data	QA/QC of Topo	Base Map	Hydrology/Coastal	QA/QC of Hydrology/Coastal	Hydraulic Analysis	QA/QC of Hydraulics	Flood-plain Mapping (and Re-delineation)	QA/QC of FP Mapping	DFIRM Database	Preliminary Map Products	Post-Preliminary
Hydraulic Analyses		X				X	X							
Draft FIS Report						X	X							
Mapping Information						X	X							
Miscellaneous Reference Information		X				X	X							

### SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS 3A will begin following FEMA NTP, and will be completed no later than September 30, 2009. The Mapping Activities may be terminated at the option of FEMA or NFWFMD in accordance with the provisions of the Partnership Agreement dated December 25, 2002. 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

NFWFMD is redistributing funding, in the amount of \$500,000, for the completion of the activities under this MAS 3A. NFWFMD shall provide any additional resources required to complete the assigned activities for this Flood Map Project. Activities associated with any additional needs would be performed based on availability of additional funds. The leverage listed below includes in-kind services and blue book values for acquired information (i.e. base map data, hydrologic and hydraulic analyses, etc.). These values should also be reported in the MIP by the appropriate task owner. The current Blue Book is dated November 2006 and can be downloaded from FEMA’s Information Resource Library at <http://www.fema.gov/library/index.jsp>. NFWFMD shall complete Table 4.1 Contribution and Leverage

Table 4.1 Contribution and Leverage (Leverage estimates will be updated after the Scoping phase of the project)

Project Task	FEMA Contribution	Partner Contribution	% Partner Leverage	Total Project Cost
TOTAL FUNDING AMOUNTS	\$500,000	\$974,906	195%	\$1,474,906

Leverage dollars or units shall be entered as applicable within the Manage Data Development task in the MIP workflow.

## SECTION 5—STANDARDS

The standards relevant to this MAS are provided in Tables 5-1 Applicable Standards for Project Activities and 5-2 Project Activities and Applicable Portions of FEMA Guidelines and Specifications. Information on the correct volume and appendix of the G&S 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 G&S including the Final Draft Guidelines for Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States and Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update Final Draft, collectively referred to as “Coastal Guidelines Updates”; and related PMs 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](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	Field Survey	Topo Data	QA/QC Topo Data	Base Map	Coastal	QA/QC Coastal	Hydrology	QA/QC Hydrology	Hydraulic Analysis	QA/QC of Hydraulic Analysis	Floodplain Mapping (inc. Redelineation)	QA/Qc Flood-plain Mapping	DFIRM Dbase	QA/QC DFIRM Database	Preliminary Map Products	Post-Preliminary Processing
<i>Guidelines and Specifications for Flood Hazard Mapping Partners and Procedure Memorandums</i>		X				X	X										
FEMA's Geospatial Data Coordination Policy																	
FEMA's Geospatial Data Coordination Implementation Guide																	
Engineer Manual 1110-2-1003, <i>Hydrographic Surveys</i> (USACE), January 1, 2002		X															
"Numerical Models Accepted by FEMA for NFIP Usage," latest version on FEMA's website						X	X										
NFIP Metadata Profile Specifications																	
<i>Document Control Procedures Manual</i>																	
<i>44 Code of Federal Regulations Parts 65, 66 and 67</i>		X				X	X										

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

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Field Survey	Volume 1 Appendices A, B, C, F, and M
Coastal Hazard Analyses and Independent QA/QC of Coastal Hazard Analyses	Volume 1 Appendices A, B, C, D, H, and M Coastal Guidelines Updates”

## SECTION 6— SCHEDULE

The activities documented in this MAS shall be completed in accordance with Table 6.1 Mapping Activities Schedule. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner. Please also identify to whom the products associated with each task are to be submitted to (i.e. the MIP, FEMA Regional Office, etc.).

**Table 6.1 Mapping Activities Schedule**

ACTIVITIES	RESPONSIBLE PARTNER(S)	START (Days From NTP)	END (Days From NTP)
Field Surveys	CTP	1 Day	150 Days
Coastal Flood Hazard Analyses	CTP	1 Day	180 Days
Independent QA/QC Review of Coastal Hazard Analyses	CTP	150 Days	240 Days

NFWFMD and/or its contractors shall populate the MIP workflow tasks with schedule and cost information within 30 days once funds are awarded.

## SECTION 7—CERTIFICATIONS

### Coastal Analyses

- A Registered Professional Engineer(s) with appropriate expertise shall certify the various aspects of the coastal 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(e).

## **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/frm\\_soft.shtm](http://www.fema.gov/plan/prevent/fhm/frm_soft.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.

Assistance with the MIP may be requested at [miphelp@mapmodteam.com](mailto:miphelp@mapmodteam.com).

## **SECTION 9—CONTRACTORS (CTP)**

NWFWMD intends to use the services of qualified contractors for this Flood Map Project. NWFWMD 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](http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html).

## **SECTION 10—REPORTING (CTP)**

Financial Reporting: Because funding has been provided to NWFWMD by FEMA, financial reporting requirements for NWFWMD will be in accordance with Cooperative Agreement Articles. NWFWMD shall also refer to 44 CFR 13.41.

NWFWMD shall provide financial reports to the FEMA Regional Project Officer and Assistance Officer in accordance with the terms of the signed Cooperative Agreement for this MAS.

Status Reporting: Status reports will be submitted on a quarterly basis in accordance with the financial reporting submittals. NWFWMD shall refer to 44 CFR 13.4 to obtain minimum requirements for status reporting. The Project Officer, as needed, may request additional information on status.

NWFWMD may meet with FEMA and/or its contractor up to bi-weekly, or more frequently if needed, to review the progress of the project in addition to the quarterly financial and status submittals. These meetings will alternate between FEMA's Regional Office, the NWFWMD office, and conference calls, as necessary. NWFWMD will participate in monthly status review calls with FEMA, RMC, and contractors.

Earned Value Updates: 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 funded a project, FEMA 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 task as outlined in this document and agreed to at the completion of the scoping process.

The MIP study workflow allows NWFWMD to report on the status of these projects at a task level. The cost and schedule information, updated by the NWFWMD 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 NWFWMD.

Once the baseline has been established in the MIP, the NWFWMD shall input the performance and actual cost to date for each contracted task for each project. This must be completed at minimum every thirty days and at the completion of the task. When a task is completed, including all QA/QC activities in this MAS plus the Quality Control Reviews established in PM 42. The NWFWMD 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.

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 as needed basis;
- Telephone conversations with FEMA and other Project Team members on a scheduled basis and an ad hoc basis, as required;
- Updates to the MIP and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of G&S; and
- E-mail, facsimile transmissions, and letters, as required.

## SECTION 12—POINTS OF CONTACT (CTP)

The points of contact for this Flood Map Project are Laura Algeo, the FEMA Regional Project Officer; Ron Bartel, the Project Manager for NFWFMD; 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 revised MAS to be executed by its duly authorized representative.

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Ron Bartel  
Project Manager  
NFWFMD

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Date

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Douglas Barr  
Executive Director  
NFWFMD

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Date

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Laura Algeo  
Regional Project Officer  
Federal Emergency Management Agency, Region 4

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Date