

SOUTH FLORIDA WATER MANAGEMENT DISTRICT COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. 3 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated November 12, 2003 between the South Florida Water Management District (SFWMD) and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 3 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 **Broward County, Florida**. The DFIRM and FIS report will be produced in the FEMA Countywide Format. This DFIRM product will reflect the Special Flood Hazard Areas in NAVD 1988.

Existing GIS data and study needs for the county will be researched, obtained, organized and provided in accordance with Activity 1. Scoping will be necessary to determine the final scope of work for this project.

In addition the Mapping Partners involved in this project will develop new and/or updated flood hazard data for flooding sources that will be identified at the scoping meeting in activity 1 of this MAS.

Flooding Source	Reach Limits	Reach Length	Detailed Riverine		Detailed Coastal					Limited Detail Study	Redelineation of SFHAs Using Effective Profiles	Refine/ Establish Zone A
			Hydrology	Hydraulics	Stillwater	Set up	Wave Height	Wave Runup	Erosion			
TBD	Unknown	Unknown	Yes	Yes							Yes, if topo data is available. Details will be determined during scoping.	

The coastal zones shown on the effective Flood Insurance Rate Maps (FIRM) for Broward County are reflective of FEMA's primary frontal dune policy and of wave setup computations. Therefore, no additional coastal modeling or computations will be performed as part of this MAS.

However when a datum conversion (1929 NGVD to 1988 NAVD) is applied to the Broward County coastal flood study the location of the VE/AE gutters and boundaries will shift. This is a result of how the gutter locations are determined and rounded to the nearest whole foot on the FIRMs. Coastal gutters that divide the BFEs are determined by locating the half foot increment between the whole foot. Therefore, the range for an area of a particular BFE is between 0.4 above and 0.5 below a particular whole foot BFE.

In Broward County the datum conversion from NGVD29 to NAVD88 is around -1.5 ft. With this conversion factor and the fact the topography along the shoreline is low and flat the coastal gutter locations will require re-delineation. A conversion program written Watershed Concepts will be utilized to convert the WHAFIS output. This conversion program uses the WHAFIS program output file as input and produces a file that has the converted wave elevation profile and the new location of the gutters. Also if new more detailed topographic data is obtained that covers the coastal areas the limit of the SFHA will be re-delineated based on the effective stillwater elevations.

A more detailed assessment of the datum conversion issues for the coastal areas of the county will be determined during Activity 1: Scoping.

This Flood Map Project will be completed by the following:

- SFWMD;

- SFWMD contractors; and
- Federal Emergency Management Agency (FEMA)

The CTP shall notify FEMA and the National Service Provider (NSP) by e-mail of all meetings with community officials at least one week prior to the meeting (with as much notice as possible). FEMA and/or the NSP may or may not attend the community meetings

The activities for this Flood Map Project, including required Quality Assurance/Quality Control (QA/QC) reviews, and the Mapping Partners that will complete them are summarized in the table below. The activities listed below under CTP may be completed by either SFWMD staff or contractors selected by the SFWMD to perform these services for them. The sections of this MAS that follow the table below describe the specific activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map components.

Activities	CTP	FEMA
Activity 1 – Scoping	X	X
Activity 2 - Outreach	X	
Activity 3 – Field Surveys and Reconnaissance	X	
Activity 4 – Topographic Data Development	NA	
Activity 5 – Independent QA/QC Review of Topographic Data	NA	
Activity 6 –Hydrologic Analyses	X	
Activity 6A –Coastal Flood Hazard Analyses	NA	
Activity 7–Independent QA/QC Review of Hydrologic Analyses	X	X
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	NA	
Activity 8 – Hydraulic Analyses	X	
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	X	X
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	X	
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	X	
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	NA	
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	X	X

Activities	CTP	FEMA
Activity 12 – Base Map Acquisition)	X	
Activity 13 – DFIRM Production (Non-Revised Areas)	X	
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	X	
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	X	X
Activity 14A – Application of DFIRM Graphic and Database Specifications	X	
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	X	X
Activity 15 – Preliminary DFIRM and FIS Report Distribution	X	
Activity 16 – Post-Preliminary Processing	X	X

The CTP should evaluate the level or risk and study methodology for each community utilizing the guidance for data quality standards outlined in Chapter 7 of the Multi-Year Flood Hazard Identification Plan (MHIP).

QA/QC review activities will be performed by consultants under contract with the SFWMD. The QA/QC efforts will be independent from the contractor that performed the original MAS Activity. The QA/QC work plan will be submitted to the Regional Project Officer for approval at the time of submittal of the scoping document.

FEMA will be providing download/upload capability for intermediate data submittals through the Management Information Portal (MIP). Data submittals uploaded via the MIP, will include the same data required prior to the existence of the MIP.

Activity 1 – Scoping

Responsible Mapping Partner: SFWMD

Scope: This task involves collecting data from a variety of sources including community surveys, other Federal and State Agencies, National Flood Insurance Program (NFIP) State Coordinators, Community Assistance Visits (CAV's) and FEMA archives. The SFWMD or its contractors will evaluate the effective FIS report and FIRM maps to see if it needs to be updated. Lists of mapping needs will be obtained from the Map Needs Update Support System (MNUSS) database, community surveys and CAV's if available.

Data collection will include obtaining the best available base map materials (corporate limits, roads, orthophotos, etc) along with stream centerline files. The acquired data will be imported into the scoping tool and used during the Scoping Task. In the Scoping Tool all streams should have unique names, the limits of the effective FEMA studies should be identified, Letter of Map change (LOMC) areas should be

identified, and community requests should be identified. This task also includes populating the streamlines with existing pipeline and scoped studies currently underway.

In cooperation with the FEMA Region, a Project Management Team will be established consisting of the SFWMD and its contractors, FEMA's regional engineer, Broward County and all the city officials as well as other appropriate officials. The Project Management Team will be responsible for coordinating the activities of this project and completing all tasks identified in this Statement of Work.

Preliminary Research Activities can be separated into two categories—researching effective information and researching available data for the Flood Map Project. The following tasks shall be completed to research effective information: inventory the FEMA archives for effective FIRM panels, Flood Boundary Floodway Map (FBFM) panels, FIS reports, and other flood hazard data or existing study data; summarize the information in the MNUSS database; summarize contiguous community agreement checks; review Community Assistance Visits (CAV) and Community Assistance Calls (CAC) files; and develop a “scoping map” and an overview of the results of the research.

The SFWMD or its contractors will co-ordinate, set-up, and hold the Scoping Meeting. This includes identifying a time, place, and all participants. The purpose of this meeting is to present the current information to the local officials (state, county and municipal) and coordinate on prioritization and identification of study areas. The SFWMD or its contractors shall be responsible for compiling the necessary information for the meeting. These items may include: FIS and FIRM for affected communities; USGS quads for the study area; best available community base map(s); effective FIRM summary; Available Data Inventory; Scoping Map; Scoping Meeting Agenda/Minutes form; Aerial photos/topographic mapping if available; existing drainage studies or other H&H data; Community master plan(s)/Drainage Master Plan(s); Zoning Maps; Street Maps; As-built plans; and Floodplain Ordinance(s).

The project management team shall review the initial mapping needs list, review the research findings, and make selections of proposed methods for obtaining/producing flood data. Any additions or changes to the needs list shall be discussed with all members. All needs shall also be prioritized. In general, highest priority shall be given to the following areas: areas of dense existing or anticipated development, including areas where new road crossings have been constructed over stream(s); areas affected by flood-control structures and/or channelization; areas where natural physical changes in the floodplain have been significant (due to subsidence or extreme erosion, for example); areas that were studied by approximate methods and unmapped areas, especially those with development pressure; areas where the community has experienced flooding outside mapped floodplains, with severe damage to buildings and/or infrastructure; areas where mapped flood hazards do not match those shown on contiguous FIRMs (unless those FIRMs are not considered to be accurate); and areas where flood data (BFEs, floodplains, and regulatory floodways) are likely to be changed the most by a restudy.

Broward County is divided into 3 geographical areas for water supply modeling purposes. These are the North Aquifer Drainage Assessment (NADA), the Central Aquifer Drainage Assessment (CADA) and the South Aquifer Drainage Assessment (SADA) study areas. The NADA, CADA and the SADA have been previously studied using a linked Mike SHE-Mike 11 model which incorporates the effects of groundwater on these stream and canal systems. These models will be reviewed for possible use to develop 100-year flood data on the flooding sources by revising and adding to these models or possibly taking the input data on the systems reflected in the models along with additional data and incorporating into another hydrodynamic model to produce 100-year floodstages for the areas. The scoping effort will prioritize based upon funding limitations which flooding sources will be studied as part of this MAS.

Based on the discussion of mapping needs, the SFWMD and FEMA Project Officer will finalize the areas to be included in the project (based on recommendations provided by the Project Team). Areas to be

studied by detailed and approximate methods shall be identified. The following issues will be discussed and refined: Review and Refinement of Flood Hazard Identification Methodologies, Review of Proposed Paneling Scheme, Review and Refinement of Base and Topographic Map Source, and Finalization of Map Production and Database Options.

As part of the scoping process the necessary data for the NAVD 88 conversion will be identified. Existing data available will be analyzed and the additional data required to convert from 1929 NGVD to 1988 NAVD will be specified and priced out as part of Activity 3- Field Surveys and Reconnaissance. To best utilize collection methods and provide a suitable product that is professionally defensible in both GIS and surveying, all aspects of the data must meet applicable Federal Standards for collection of Survey data by the National Geodetic Survey and the Corps of Engineers.

The SFWMD will be acting as the Consultation Coordination Officer (CCO) for this flood study as identified in Title 44 of the Code of Federal Regulations Part 66. At this point, the CTP will prepare and set up the Community Case File and Flood Elevation Docket for the maintenance of all communication and coordination as outlined in 44CFR Part 66 and 67.

Standards: All work under Activity 1 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables:

- The Final Scoping with all of the components as laid out in the attached “Partner Flood Map Modernization Program Scoping Report” template in Appendix A will be delivered in accordance with the schedule outlined in Section 6 for this Activity to the Regional Project Officer for approval.
- If WISE scoping tool is used, submit data sets for inclusion in the MIP to track the chosen areas to be studied as well as to document areas not chosen as needs.
- MNUSS inputs of all needs identified is scoping in order to track those areas which will still need a study.
- QA/QC Plan for the review of the mapping project outlined in this MAS. This will include the checklists developed for that review.

Activity 2 – Outreach

Responsible Mapping Partner: SFWMD

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

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

The SFWMD or its contractors will work with the Regional Office during the initiation of this activity to determine an Outreach Plan for implementation throughout the Mapping Project. The Regional Office will have access to many outreach tools that have been developed for this process that can be utilized or customized for your use.

All communication with local governments will be done in accordance with Title 44 Code of Federal Regulations Part 66.

Standards: All work under Activity 2 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon determination of an Outreach and Coordination Approach the SFWMD or its contractors shall deliver the following to the FEMA Regional Project Officer in accordance with the schedule outlined in Section 6 for this Activity:

- A report detailing outreach and coordination activities
- Backup or supplemental information used in writing this report
- At the completion of the DFIRM process, the SFWMD will submit a summary of outreach activities and any changes made in the outreach approach based on the actual implementation

Activity 3 - Field Surveys and Reconnaissance

Responsible Mapping Partner: SFWMD

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, the SFWMD or its contractors 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.

In addition to the initial field reconnaissance, the SFWMD or its contractors 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. The SFWMD also shall coordinate with other Mapping Partners that are collecting topographic data under Activity 4.

Standards: All work under Activity 3 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the Technical Support Data Notebook (TSDN) format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD or its contractors shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the

MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results; and
- Survey notebook containing cross sections and structural data.
- NSP Format Survey Database or Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the Guidelines and Specifications for Flood Mapping Partners

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 4 - Topographic Data Development

Responsible Mapping Partner: SFWMD

To supplement the field surveys conducted under Activity 3, the SFWMD shall obtain available topographic data of the overbank areas of the flooding sources studied to delineate floodplain boundaries. The SFWMD shall gather information on what topographic data is available for the given community and what accuracy and currency it meets. The SFWMD shall use this topographic data that is better than that of the original study.

Standards: All work under Activity 4 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of topographic data collection, the SFWMD shall upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall also make the following products available to FEMA by submitting it to the FEMA Regional Office via the digital media identified in the paragraph above, if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 5 - Independent QA/QC Review of Topographic Data

Responsible Mapping Partner: SFWMD

Scope: The SFWMD shall obtain from the agency or company that performed the topographic mapping gathered in Activity 4 a copy of a signed **FEMA Certification and Compliance Form** as found in Appendix M of the *Guidelines and Specifications for Flood Hazard Mapping Partners*. The SFWMD will assure that the topographic mapping products proposed for use in this MAS will have a **Certification and Compliance Form** completed and a cursory review of the topographic data. If the SFWMD utilizes a

contractor to perform the QA/QC, the contractor shall not be the same one 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 work under Activity 5 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

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

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 6 – Hydrologic Analyses

Responsible Mapping Partner: SFWMD

Scope: The SFWMD or its contractors shall perform hydrologic analyses for those flooding sources identified in Activity 1 (Scoping) of this MAS. The SFWMD or its contractors shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using a hydrologic model to be determined as part of Activity 1 (Scoping). These flood discharges will be the basis for subsequent hydraulic analyses under Activity 8. In addition, the SFWMD or its contractors shall address all concerns or questions regarding Activity 6 that are raised during the independent QA/QC review performed by a SFWMD QA/QC contractor during the QA/QC review under Activity 7.

The SFWMD or its contractors will develop Arc Hydro/AHED databases for those streams identified in Activity 1 (Scoping) for detailed study analysis. The input data for the hydrologic model chosen for use as part of this activity will be populated by the Arc Hydro/AHED database. If funds are available then the SFWMD or its contractors will develop Arc Hydro/AHED databases for all watersheds in the county. This database development is in addition to the FEMA standard database.

If Geographic Information System (GIS)-based modeling is used, the SFWMD or its contractors shall document automated data processing and modeling algorithms and provide them to FEMA to ensure they 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 SFWMD or its contractors shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

Standards: All work under Activity 6 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of hydrologic modeling, the SFWMD or its contractors shall upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable. All hydrologic modeling will be reviewed by the SFWMD's QA/QC contractor under Activity 7.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall make the following products available to FEMA by submitting it to the FEMA Regional Office via the digital media identified in the paragraph above, if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

Deliverables include the following:

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events;
- Digital Summary of Discharges Tables presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital draft text for Section 3.1, Hydrologic Analyses, of the FIS report; and
- Digital versions of all backup data used in the analysis, including work maps.
- NSP Format Hydrology Database or Data Delivery consistent with the NSP Data Capture Standards –Appendix N of the Guidelines and Specifications for Flood Mapping Partners
- For GIS-based modeling, deliverables shall include all input and output data, intermediate data processing products, and GIS data layers.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 6A – Coastal Flood Hazard Analyses

Responsible Mapping Partner: Not applicable

A coastal analysis is not proposed under this MAS since the effective FIRMs already reflects primary frontal dunes and wave setup.

Activity 7 - Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: SFWMD and FEMA

Scope: The SFWMDs QA/QC contractor shall review the technical, scientific, and other information submitted by the SFWMD or it's contractor performing Activity 6 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM. When the CTP utilizes a contractor to perform the QA/QC, the contractor shall not be the same one 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 them readily available to FEMA.
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 7 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

Deliverable shall include:

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

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 7A - Independent QA/QC Review of Coastal Hazard Analyses

Not applicable.

Activity 8 – Hydraulic Analyses

Responsible Mapping Partner: SFWMD

Scope: The SFWMD or its contractors shall perform hydraulic analyses for a number of stream miles in the NADA, CADA and SADA study areas that do not exceed the funding amounts shown in the attached

Schedule and Budget Supplemental Form. The exact number of stream miles will be determined during the scoping process identified under Activity 1 of this MAS. The modeling will include the 10-, 2-, 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Activity 6. The hydraulic methods used for this analysis will be determined as part of the scoping process in Activity 1.

The SFWMD or its contractors shall use the cross-section and field data collected under Activity 3 to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways, if applicable, for the subject flooding sources.

The SFWMD or its contractors shall address all concerns or questions regarding Activity 8 that are raised by the SFWMDs QA/QC contractor performing the independent QA/QC review under Activity 9.

The SFWMD or its contractors shall document automated data processing and modeling algorithms for GIS-based modeling and provide them to FEMA for review to ensure they 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 SFWMD shall provide full user documentation, technical algorithm documentation, and software to FEMA for review before performing the hydraulic analyses.

Standards: All work under Activity 8 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of hydraulic modeling, the SFWMD or its contractors will upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable, so that the SFWMDs QA/QC contractor can access it for the independent QA/QC review under Activity 9.

In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD or its contractors shall make the following products available to FEMA submitting it to the FEMA Regional Office via the digital media identified in the paragraph above, if the MIP is unavailable. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

Deliverables shall include:

- Digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing conditions using the FEMA RASPLLOT program or similar software;
- Digital Floodway Data Tables, if applicable, for each flooding source that is compatible with the DFIRM database;
- Digital hydraulic modeling (input and output) files;
- Digital tables with range of Manning's "n" values;
- Digital versions of all backup data used in the analyses;
- Digital versions of draft text for inclusion in the FIS report.
- 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.

- NSP Format Hydraulic Database or Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the Guidelines and Specifications for Flood Mapping Partners

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 9 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: SFWMD and FEMA

Scope: The SFWMDs QA/QC contractor shall review the technical, scientific, and other information submitted by the SFWMD contractor for Activity 8 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to revise the FIRM. When the CTP utilizes a contractor to perform the QA/QC, the contractor shall not be the same one 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 if applicable; and
 - Tie-in to upstream and downstream non-revised Flood Profiles.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for hydraulic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 9 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD or its contractors shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

Deliverable include:

- A Summary Report that describes the findings of the independent QA/QC review; and
- Recommendations to resolve any problems that are identified during the independent QA/QC review.
- If the data changed during the QA/QC process under Activity 7 or this Activity, then the updated and verified deliverables from Activity 6 and 8 will be resubmitted at this time.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 10 - Floodplain Mapping (Detailed Riverine or Coastal Analysis)

Responsible Mapping Partner: SFWMD

Scope: The SFWMD or its contractors 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/or hydraulic, and/or coastal analyses were performed. The SFWMD or its contractors shall incorporate all new or revised hydrologic and hydraulic modeling and shall use the topographic data acquired under Activity 4 to delineate the floodplain and regulatory floodway boundaries on a digital work map. In addition, the SFWMD or its contractors shall incorporate the results of all effective Letters of Map Change (LOMCs) within the revised areas as appropriate. Also, the SFWMD or its contractors shall address all concerns or questions regarding Activity 10 that are raised by the SFWMDs QA/QC contractor during the independent QA/QC review under Activity 11.

Activity 10A - Floodplain Mapping (Delineation of Detailed Floodplain Boundaries Using Updated Topographic Data)

Responsible Mapping Partner: SFWMD

Scope: The SFWMD or its contractors shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries, if applicable, for the flooding sources listed earlier in this MAS on the best available topographic data identified as part of the scoping process in Activity 1. The SFWMDs contractor for this activity shall address all concerns or questions regarding Activity 10A that are raised by the SFWMDs QA/QC contractor during the independent QA/QC review under Activity 11.

Coastal redelineation involves the following steps: redelineate the landward extent of the coastal flooding based on existing Stillwater elevations and the new topography. All gutters (elevation change lines between open water and the landward extent of the coastal flooding) need to be digitized (these lines are not directly related to the topography so they should be digitized directly). If converting between NGVD and NAVD and the difference is close to 1.0 feet the elevation can just be changed on the map and the gutters will stay at the same location. If the difference between NGVD and NAVD is between 0.1 and 0.9, or greater than 1.1, contact FEMA and the RMC for guidance on how to move the gutters.

Activity 10B - Floodplain Mapping (Refinement or Creation of Zone A)

Not Applicable, there are no proposed refinement or creation of Zone A areas.

Standards: All work under Activity 10 and 10A shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables for Activities 10 and 10A: Upon completion of floodplain mapping for the detailed study area NADA, CADA and SADA watersheds identified for model updates as part of the scoping process in Activity 1, the SFWMD or its contractors shall upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable, so that the SFWMDs QA/QC contractor can access it for the independent QA/QC review under Activity 11. The mapping for the remaining flooding sources is to be submitted for a final QA/QC review at the completion of this activity.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall make the following products available to by submitting it to the FEMA Regional Office via the digital media identified in the paragraph above, if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

Deliverables are as follows:

- Digital work map showing the Coastal High Hazard Area (V zone) delineated along the Atlantic Ocean shoreline, transect locations, BFEs, and flood insurance risk zone designation labels;
- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale;
- 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;
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined under Activity 9; and
- An explanation for the use of existing topography for the studied reaches, if appropriate.
- Digital work maps showing the 1-percent-annual-chance floodplain boundary delineations, flood insurance risk zone labels, and all applicable base map features;
- Written summary of the analysis methodologies;
- Any backup or supplemental information, including supporting calculations and assumptions for any computed 1-percent-annual-chance water-surface elevations used in the mapping required for the independent QA/QC review under Activity 11;

- Digital versions of input and output for any computer programs that were used;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.
- NSP Format Mapping Database or Data Delivery consistent with the NSP Data Capture Standards –Appendix N of the Guidelines and Specifications for Flood Mapping Partners
- When automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 11 - Independent QA/QC Review of Floodplain Mapping (Revised Areas)

Responsible Mapping Partner: SFWMD and FEMA

Scope: The SFWMDs QA/QC contractor shall review the floodplain mapping submitted by the SFWMD mapping contractor under Activities 10 and 10A to ensure that the results of the analyses performed are accurately represented. When the CTP utilizes a contractor to perform the QA/QC, the contractor shall not be the same one 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 cross sections for proper location and orientation on the work map.
- 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, if applicable, 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 and the contour lines and other topographic information shown on the work maps where applicable.
- Review the floodplain widths at cross sections as shown on the work maps to ensure they match the Floodway Data Table where applicable.
- Review the floodplain boundaries as shown on the work maps to ensure they match the Flood Profiles.

- Review the flood insurance risk zones as shown on the work maps to ensure they are labeled properly.
- Review the DFIRM mapping files to ensure they were prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- Review the metadata files to ensure they include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All work under Activity 11 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall make the following products available to FEMA by uploading the digital data to MIP or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

Deliverable shall include:

- A Summary Report that describes the findings of the QA/QC review, noting any deficiencies in or agreeing with the mapping results;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated work map with all questions and/or concerns indicated, if necessary.
- If the data changed during the QA/QC process, then the updated deliverables from Activity 10, 10A and 10B will be resubmitted at this time.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 12 - Base Map Acquisition

Responsible Mapping Partner: SFWMD

Scope: Activity 12 consists of obtaining the digital base map, which will consist of either the 2004 DOQQs for the county or best available data from the county, for the project. The SFWMD or it's contractor shall provide the digital base map. The required activities are as follows:

- Obtain digital files (raster or vector) of the base map.
- 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.
- Certify that the digital data meets the minimum standards and specifications that FEMA requires for DFIRM production.
- Populate the DFIRM database with the information required by FEMA.

Standards: All work under Activity 12 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

Deliverables include:

- Written certification that the digital data meet the minimum standards and specifications and
- Documentation that FEMA can use the digital base map.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 13 – DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: SFWMD

Scope: For all flooding sources except those segments for which updated flood data will be developed under Activities 1 through 11, the SFWMD or its contractors shall convert the information shown on the effective FIRM panels and Flood Boundary Floodway Map (FBFM) panels for all incorporated and unincorporated areas of Broward County to digital format in conformance with FEMA DFIRM specifications. The SFWMD or its contractors shall use the base map acquired under Activity 12 for the conversion. The number of effective FIRM panels to be digitized will be determined as part of the scoping activity in Activity 1. The SFWMD or its contractors also shall incorporate the results of LOMCs issued by FEMA since the date of the current effective FIRM for each affected community.

Also, the SFWMD or its contractors shall address all comments and questions regarding Activity 13 that are raised by the SFWMDs QA/QC contractor during the independent QA/QC review under Activity 13A.

The SFWMD or its contractors shall not digitize the flood theme for those segments of flooding sources for which updated flood data will be developed. Rather, the SFWMD or its contractors shall leave these as “holes” in the digital flood theme that will be filled in as part of Activity 14 using the digital flood data developed under Activities 10 and 10A.

Standards: All work under Activity 13 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of digitizing the required DFIRM panels, the SFWMD or its contractors shall upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable, so that the SFWMDs QA/QC contractor can access it for the independent QA/QC review under Activity 13A. In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

Deliverables include:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations (where applicable) , cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM, including a check that the road and floodplain relationship is maintained for all non-revised areas.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: SFWMD

Scope: The SFWMDs QA/QC contractor shall review the DFIRM panels submitted by the SFWMD mapping contractor under Activity 13 to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the area mapped. the Regional Project Officer. This work shall include, at a minimum When the CTP utilizes a contractor to perform the QA/QC, the contractor shall not be the same one who performed the original analyses. FEMA may audit or assist in these activities if deemed to be necessary by, checking the following:

- Cross sections were properly located and oriented as shown on the FIRM.
- BFEs are properly located and agree with the BFEs shown on the FIRM.
- Regulatory floodway widths, where applicable, agree with the widths shown on the FIRM or FBFM.
- The 1 and 0.2-percent-annual-chance floodplain boundaries agree with the floodplain boundaries shown on the FIRM and the contour lines, other topographic information, and planimetric information shown on the DFIRM base.
- For coastal studies, setup and runup height elevations shown on the work map agree with those shown on the data table(s), and stillwater elevations are shown where coastal and riverine flooding studied in detail join.
- Flood insurance risk zone designations are indicated properly.
- Road and floodplain relationships are maintained for all unrevised areas.

- DFIRM mapping files meet the GIS file and database format requirements specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those requirements for content and attribution.
- Metadata files describing the DFIRM data include the required information.

Standards: All work under Activity 13A shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* the SFWMD or its contractors shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable in accordance with the schedule outlined in Section 6 for this Activity:

Deliverables include:

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

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

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

Responsible Mapping Partner: SFWMD

Scope: Upon completion of the floodplain mapping activities for the revised areas (Activities 10 and 10A) and the DFIRM production for non-revised areas (Activity 13), the SFWMD or its contractors 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 SFWMD or its contractors 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 SFWMD or its contractors shall coordinate with FEMA and those Mapping Partners responsible for Activities 10, 10A, and 13, as necessary, to resolve any potential tie-in issues.

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* the SFWMD or its contractors shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable in accordance with the schedule outlined in Section 6 for this Activity:

Deliverables include:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations (if applicable), cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

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

Responsible Mapping Partner: SFWMD

Scope: The SFWMD or its contractors shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Activity 14. This work shall include adding all required annotation, line pattern, area shading, and map collar information (e.g., map borders, title blocks, legends, notes to user). The SFWMD or its contractors will be preparing the database for this project in the Standard Format. The database shall be produced in accordance with Appendix L of the Guides and Specifications for Flood Hazard Mapping Partners. The SFWMD or its contractors shall coordinate with those Mapping Partners responsible for Activities 10, 10A, 13, and 14, as necessary, to resolve any problems that are identified during Activity 14A.

The product will be the standard database with the exception where detail studies are being performed. In those areas the Arc hydro database will be developed but no hydraulic model database.

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, The SFWMD or its contractors shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

Deliverables include:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.
- NSP Format DFIRM Database or Data Delivery consistent with the NSP Data Capture Standards –Appendix N of the *Guidelines and Specifications for Flood Mapping Partners*

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

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

Responsible Mapping Partner: SFWMD

Scope: Upon completion of the floodplain mapping activities (Activities 10 and 10A) and DFIRM production activities (Activities 13, 14, and 14A), the SFWMDs QA/QC contractor shall review the DFIRM to ensure it meets current FEMA graphic specifications. In addition, the SFWMD or its contractors shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. The SFWMD or its contractors shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QA/QC review. When the CTP utilizes a contractor to perform the QA/QC, the contractor shall not be the same one 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, and all roads within and adjacent to the 1-percent-annual-chance floodplains.
- All DFIRM features are correctly symbolized with the appropriate symbol, line pattern, or area shading and follow the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- All map collar information is complete, correct, and follows the requirements specified in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- DFIRM mapping files are in one of the GIS file and database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution.

- DFIRM database files are in one of the database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution.
- Metadata files describing the DFIRM data include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- The FIS report is prepared in the FEMA Countywide Format as documented in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

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

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the SFWMD or its contractors shall make the following products available to FEMA by uploading the digital data to the Multi-Hazard Information Platform (MIP) or submitting it to the FEMA Regional Office if the MIP is unavailable. This submittal will occur in accordance with the schedule outlined in Section 6 for this Activity.

Deliverables include:

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results and the results of all automated or manual QA/QC steps taken during the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary.
- If the data changed during the QA/QC process, then the updated deliverables from Activities 10, 10A, and Activities 13, 14, and 14A will be resubmitted at this time.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 15 - Preliminary DFIRM and FIS Report Distribution

Responsible Mapping Partners: SFWMD

Scope: Activity 15 consists of the final preparation, review, and distribution of the Preliminary copies of the DFIRM and FIS report for community official and general public 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.

Preliminary Transmittal Letter Preparation. The SFWMD or its contractors shall prepare letters and transmit the Preliminary copies of the DFIRM and 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 FEMA and the SFWMD signature.

Final QA/QC Review of Preliminary DFIRM and FIS Report: The SFWMD or its contractors shall perform a final QA/QC review of the Preliminary DFIRM and FIS report, including all data tables, Flood Profiles, and other components of the FIS report. The QA/QC review procedures shall be consistent with the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Discrepancy Resolution: The SFWMD or its contractors shall work to resolve discrepancies identified during the final QA/QC review.

Distribution of Preliminary DFIRM and FIS Report: The SFWMD or its contractors 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.

News Release Preparation: The SFWMD or its contractors shall prepare news release notifications of BFE changes for all affected communities if appropriate and perform QA/QC reviews of the notices for accuracy and compliance with FEMA format requirements. The SFWMD or its contractors shall file the notifications for later submittal to FEMA for review.

Preliminary Summary of Map Actions (SOMA) Preparation: The SFWMD or its contractors 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, and revalidated).

Standards: All work under Activity 15 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section I and Appendix A of the *FEMA Document Control Procedures Manual*. The SFWMD or its contractors shall make the products listed below available to FEMA in accordance with the schedule outlined in Section 6 for this Activity.

Deliverables include:

- 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*.
- 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.
- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be provided as appropriate.
- Revised DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided by uploading the digital data to the MIP or submitting it by using other digital media if the MIP is unavailable.
- Revised DFIRM database files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided by uploading the digital data to the MIP or submitting it by using other digital media if the MIP is unavailable.

- Revised metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided by uploading the digital data to the MIP or submitting it by using other digital media if the MIP is unavailable.
- 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 shall be provided.

Activity 16 - Post-Preliminary Processing

Responsible Mapping Partners: SFWMD and FEMA

Scope: Activity 16 consists of finalizing the DFIRM 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. 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.

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, SFWMD or its contractors 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*:

- Proposed BFE determination letters are sent to the community CEOs and floodplain administrators.

News release notifications of BFE changes are published in prominent newspapers with local circulation in accordance with 44 CFR.

- The SFWMD or its contractors shall prepare the appropriate notices (Proposed Rules) that are to be published in the *Federal Register*. The SFWMD or its contractors shall then deliver those notices to FEMA for publication.
- When the SFWMD or its contractors holds public meetings to present and discuss the results of this Flood Map Project, FEMA may attend the meetings and assist where possible if requested.

Resolution of Appeals and Protests: The SFWMD shall review and resolve appeals and protests received during the 90-day appeal period. The effort expended for appeal resolution or correction of protest shall not exceed \$20,000. If the SFWMD determines that the appeal and/or protest resolution exceeds \$20,000 then A Special problem report will be prepared and sent to FEMA with an additional funding request. For each appeal and protest, the following activities shall be conducted as appropriate:

- Initial processing and acknowledgment of submittal;
- Technical review of submittal;
- 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 the SFWMD and revised DFIRM and FIS report materials for FEMA review.

SFWMD or its contractors shall mail all associated correspondence upon authorization by FEMA.

Preparation of Special Correspondence: The SFWMD or its contractors 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 SFWMD or its contractors 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 SFWMD or its contractors 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 SFWMD or its contractor shall prepare Final SOMAs for the affected communities as appropriate.

Processing of Letter of Final Determination: The SFWMD or its contractor shall work with FEMA to establish the effective date for the DFIRM and FIS report, and shall prepare a Letter of Final Determination (LFDs) for each affected community for FEMA review in accordance with the FEMA *Document Control Procedures Manual*. They also shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs and enclosures upon receipt of authorization from FEMA.

Processing of Final DFIRM and FIS Report for Printing: The SFWMD or its contractors shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to the FEMA Map Service Center for printing by the U.S. Government Printing Office. The SFWMD shall 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.

Revalidation Letter Processing. The SFWMD or its contractor 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 SFWMD or its contractors shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until they are transmitted to the FEMA Engineering Study Data Package Facility. In addition, the SFWMD will maintain copies of all data for a period of no less than 3 years.

Standards: All work under Activity 16 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the FEMA *Document Control Procedures Manual*, FEMA’s Contractor and/or the

SFWMD or its contractors shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Documentation that the news releases 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;
- LOMC Revalidation Letters if appropriate; and
- Complete, organized archived technical and administrative support data
- Complete, organized and archived case file and flood elevation docket

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 Mapping Activity Statement shall be submitted in the TSDN format in accordance with Appendix M of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated April 2003. Appendix M is available for viewing or download on the FEMA Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf. 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 Appendix M, Subsection M.2.1.1 of *Guidelines and Specifications for Flood Hazard Mapping Partners*.)

Table 2-1. Mapping Activities and Applicable TSDN Sections

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

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin upon the notice to proceed (NTP) date from FEMA, and will be completed no later than September 30, 2008. The mapping activities may be terminated at the option of FEMA or the SFWMD in accordance with the provisions of the Partnership

Agreement dated November 12, 2003. If these Mapping Activities are terminated; the remaining funds from uncompleted activities, provided by FEMA for this Mapping Activity Statement, will be returned to FEMA.

SECTION 4—FUNDING/LEVERAGE

FEMA is providing funding, in the amount of _____, to the SFWMD for the completion of this Flood Map Project. The SFWMD shall provide any additional resources required to complete the assigned activities for this Flood Map Project. During the scoping process, additional needs may be identified. Activities associated with any additional needs would be performed based on availability of additional funds. More detailed leverage information will be determined during the detailed scoping process and reported back to FEMA at that time.

Funding for Project	FEMA Contribution	CTP Contribution	% Leverage	Total Project Cost
TOTAL FUNDING AMOUNTS)		35 %	

FEMA funds identified above are available to be used for the following activities*:

Activities	FUNDABLE?
Activity 1 – Scoping	Yes, up to 10% of total cost
Activity 2 - Outreach	Yes, up to 10% of total cost
Activity 3 – Field Surveys and Reconnaissance	Yes
Activity 4 – Topographic Data Development	No, unless approval given during scoping phase by Regional PO
Activity 5 – Independent QA/QC Review of Topographic Data	No, unless approval given during scoping phase by Regional PO
Activity 6 –Hydrologic Analyses	Yes
Activity 6A –Coastal Flood Hazard Analyses	Yes
Activity 7–Independent QA/QC Review of Hydrologic Analyses	Yes
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	Yes
Activity 8 – Hydraulic Analyses	Yes
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	Yes
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	Yes
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	Yes

Activities	FUNDABLE?
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	Yes
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	Yes
Activity 12 – Base Map Acquisition	No
Activity 13 – DFIRM Production (Non-Revised Areas)	Yes
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Yes
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	Yes
Activity 14A – Application of DFIRM Graphic and Database Specifications	Yes
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	Yes
Activity 15 – Preliminary DFIRM and FIS Report Distribution	Yes
Activity 16 – Post-Preliminary Processing	Yes

*This table is for information purposes only

SECTION 5—STANDARDS

The standards relevant to this Mapping Activity Statement are provided in Tables 5-1 and 5-2. Information on the correct volume, appendix, section, or subsection of the *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners* to be referenced for each mapping activity are summarized in Table 5-2.

These Guidelines are available for viewing or download from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/fhm/dl_cgs.shtm.

Table 5-1. Applicable Standards for Project Activities

Applicable Standards	Activities															
	1	2	3	4	5	6	7	8	9	10, 10A	11	12	13, 13A	14, 14A	15	16
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003	X	X	X			X	X	X	X	X	X	X	X	X	X	X
American Congress on Surveying and Mapping Procedures	X		X													
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-510), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	X		X													
Engineer Manual 1110-1-1000, <i>Photogrammetric Mapping</i> (USACE), July 1, 2002	X		X													
Engineer Manual 1110-2-1003, <i>Hydrographic Surveys</i> (USACE), January 1, 2002	X		X													
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003	X					X	X	X	X							
<i>Content Standard for Digital Geospatial Metadata</i> (Federal Geographic Data Committee), 1998	X	X								X	X	X	X	X	X	X
<i>Document Control Procedures Manual</i> , December 2000	X	X													X	X
<i>44 Code of Federal Regulations Part 66 and 67</i>		X														

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
1	Scoping	Appendix I, Scoping Report document attached in Appendix A to this Mapping Activity Statement
2	Outreach	44 Code of Federal Regulations Part 66 and 67
3	Field Surveys and Reconnaissance	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1) Appendix A, Sections A.4, A.5, A.6, A.7, and A.8 Appendix F, Section F.3 Appendices B, C, and M Appendix A, Sections A.2, A.3, A.7, and A.8 Appendix M Appendix A, Sections A.2, A.3, A.7 (specifically Subsection A.7.5), and A.8 (specifically Subsection A.8.6) Appendix M
6	Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix A, Section A.4 Appendix C, Sections C.1 and C.7 Appendices E, F, G, H, and M Appendix A, Section A.4 Appendices B, D, and M

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

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
	Using Effective Flood Profiles and Updated Topographic Data	Appendix C, Section C.6 (specifically Subsection C.6.1.3) Appendices K, L, and M
11	Independent QA/QC Review of Floodplain Mapping (Revised Areas)	Appendix C, Sections C.4 and C.6 Appendices K, L, and M
12	Base Map Acquisition and Preparation	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, and M
13	DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsections 1.4.3.1 and 1.4.3.2) Appendix A, Section A.1 (specifically Subsection A.1.1)
13A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M
14	DFIRM Production (Merging Revised and Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M
14A	DFIRM Production (Application of FEMA Graphics and Database Specifications)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K, L, and M
14B	Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, and M
15	Preliminary DFIRM and FIS Report Distribution	Volume 1, Sections 1.4 (specifically Subsections 1.4.2 and 1.4.3) and 1.5 (specifically Subsection 1.5.1)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
16	Post-Preliminary Processing	Appendices J, K, L, and M Volume 1, Section 1.5 (specifically Subsection 1.5.2) Appendices J, K, L, and M

SECTION 6—SCHEDULE

The activities documented in this MAS shall be completed in accordance with the project schedule below. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner. All dates are based upon a Notice to Proceed (NTP) date of June 15, 2005.

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 1 – Scoping	SFWMD	1/1/06
Activity 2 - Outreach	SFWMD	9/30/08
Activity 3 – Field Surveys and Reconnaissance	SFWMD	6/1/06
Activity 4 – Topographic Data Development	SFWMD	3/1/06
Activity 5 – Independent QA/QC Review of Topographic Data	SFWMD	4/15/06
Activity 6 –Hydrologic Analyses	SFWMD	3/1/07
Activity 6A –Coastal Flood Hazard Analyses	NA	NA
Activity 7–Independent QA/QC Review of Hydrologic Analyses	SFWMD	4/1/07
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	NA	NA
Activity 8 – Hydraulic Analyses	SFWMD	3/1/07
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	SFWMD	4/1/07
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)		
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)		
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	SFWMD	6/1/07
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	SFWMD	6/15/07
Activity 12 – Base Map Acquisition	SFWMD	2/1/07

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 13 – DFIRM Production (Non-Revised Areas)	SFWMD	8/1/07
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	SFWMD	9/15/07
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	SFWMD	8/1/07
Activity 14A – Application of DFIRM Graphic and Database Specifications	SFWMD	8/15/07
Activity 14B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	SFWMD	9/1/07
Activity 15 – Preliminary DFIRM and FIS Report Distribution	SFWMD	9/30/07
Activity 16 – Post-Preliminary Processing	SFWMD	9/30/08

SECTION 7—CERTIFICATIONS

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

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

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

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

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

Revised Information}}, and Activity 14A (DFIRM Production {Application of FEMA Graphics and Database Specifications})

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

Activity 12 (Base Map Acquisition and Preparation)

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

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

SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from the NSP, who may be contacted through 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 Web site (<http://www.fema.gov/flm/>). Specific technical and programmatic support may be provided through the NSP; such assistance should be requested through the FEMA Project Officer specified in Section 12 of this MAS.

Project Team members also may consult with the FEMA Regional Project Officer to request support in the areas of selection of data sources, digital data accuracy standards, assessment of vertical data accuracy, data collection methods or subcontractors, and GIS-based engineering and modeling training.

SECTION 9—CONTRACTORS

The SFWMD intends to use the services of several contractors (to be determined at a later date) for this Flood Map Project. The SFWMD shall ensure that the procurement for all contractors used for this Flood Map Project complies with the requirements of 44 CFR 13.36.

Part 13 may be downloaded in PDF or text format from the U.S. Government Printing Office Web site at http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html.

SECTION 10—REPORTING

FINANCIAL REPORTING:

Because funding has been provided to the SFWMD by FEMA, financial reporting requirements for the SFWMD will be in accordance with Cooperative Agreement Articles V and VI.

The SFWMD 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 Mapping Activity Statement.

STATUS REPORTING:

Status reports will be submitted on a quarterly basis in accordance with the financial reporting submittals. At a minimum these reports will include a summary of the work as outlined in the Cooperative Technical Partner (CTP)/Map Modernization Project Quarterly Report located in Appendix B of this Mapping Activity Statement. The Project Officer, as needed, may request additional information on status.

The SFWMD may meet with the NSP and/or FEMA more frequently (up to bi-weekly 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 SFWMD office and conference calls as necessary.

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 a quarterly basis;
- Telephone conversations with FEMA and other Project Team members on a scheduled basis monthly 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 *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- E-mail, facsimile transmissions, and letters, as required.

SECTION 12—POINTS OF CONTACT

The points of contact for this Flood Map Project are Laura Algeo, the FEMA Regional Project Officer; Angela Prymas, the Project Manager for the SFWMD; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the any additional assistance of FEMA should be requested through the FEMA Regional Project Officer.

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



Frank Hayden,
Department Director
Procurement Department
SFWMD

8-8-05

Date



Laura Algeo, PE
Regional Project Officer
Federal Emergency Management Agency, Region IV

8.12.05

Date

Mapping Activity Statement
Supplemental Schedule and Funding Evaluation
South Florida Water Management District



FEMA

Mapping Activity Statement Number : 3 County Name: Broward

Performance Period: Start: 8.15.05 or NTP Finish: 9.30.08

<u>Activity **</u>	<u>Start Date</u>	<u>End Date</u>	<u>Responsible Party (FEMA or CTP)</u>	<u>Budget</u>
Activity 1 – Scoping	<u>9.15.05</u>	<u>1.1.06</u>	<u>SFWMD</u>	<u></u>
Activity 2 - Outreach	<u>10.15.05</u>	<u>9.30.08</u>	<u>SFWMD</u>	<u></u>
Activity 3 – Field Surveys and Reconnaissance	<u>2.1.06</u>	<u>6.1.06</u>	<u>SFWMD</u>	<u>\$</u>
Activity 4 – Topographic Data Development	<u>2.1.06</u>	<u>3.1.06</u>	<u>SFWMD</u>	<u>\$</u>
Activity 5 – Independent QA/QC Review of Topographic Data	<u>3.15.06</u>	<u>4.15.06</u>	<u>SFWMD</u>	<u></u>
Activity 6 –Hydrologic Analyses	<u>3.1.06</u>	<u>3.1.07</u>	<u>SFWMD</u>	<u>\$</u>
Activity 6A –Coastal Flood Hazard Analyses	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Activity 7–Independent QA/QC Review of Hydrologic Analyses	<u>3.1.07</u>	<u>4.1.07</u>	<u>SFWMD</u>	<u></u>
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Activity 8 – Hydraulic Analyses	<u>3.1.06</u>	<u>3.1.07</u>	<u>SFWMD</u>	<u></u>
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	<u>3.1.07</u>	<u>4.1.07</u>	<u>SFWMD</u>	<u></u>
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)				
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated				
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	<u>4.15.07</u>	<u>6.1.07</u>	<u>SFWMD</u>	<u></u>
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	<u>6.1.07</u>	<u>6.15.07</u>	<u>SFWMD</u>	<u></u>
Activity 12 – Base Map Acquisition	<u>2.1.06</u>	<u>2.1.07</u>	<u>SFWMD</u>	<u>NA</u>
Activity 13 – DFIRM Production (Non-Revised Areas)	<u>1.15.07</u>	<u>8.1.07</u>	<u>SFWMD</u>	<u></u>

Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	<u>8.1.07</u>	<u>9.15.07</u>	<u>SFWMD</u>	<u>\$</u>
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	<u>6.15.07</u>	<u>8.1.07</u>	<u>SFWMD</u>	
Activity 14A – Application of DFIRM Graphic and Database Specifications	<u>1.15.07</u>	<u>8.15.07</u>	<u>SFWMD</u>	
Activity 14B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	<u>8.15.07</u>	<u>9.1.07</u>	<u>SFWMD</u>	<u>\$:</u>
Activity 15 – Preliminary DFIRM and FIS Report Distribution	<u>9.1.07</u>	<u>9.30.07</u>	<u>SFWMD</u>	<u>000 000</u>
Activity 16 – Post-Preliminary Processing	<u>10.1.07</u>	<u>9.30.08</u>	<u>SFWMD</u>	
Total FEMA Cost:				<u> </u>

*** Note - If this is a basin study show responsible party and budget by County and basin (if funded in separate years). Otherwise, just show the breakdown of costs for each County.**

****Note - Use only those activities that apply to your project. If additional activities are needed that are not shown please add at the bottom of the sheet.**

Additional Comments: