



Hillsborough County, Florida
Federal Emergency Management Agency
Cooperating Technical Community
Mapping Activity Statement and Agreement

Agreement #1- Hydrologic and Hydraulic Analyses and Floodplain Mapping

In accordance with the Cooperating Technical Community (CTC) Memorandum of Agreement dated March 28, 2000 between Hillsborough County, Florida and the Federal Emergency Management Agency (FEMA), Agreement #1 is as follows:

- 1. Objective and Scope:** The objective of this Mapping Activity is to develop detailed hydrologic and hydraulic analyses and floodplain and floodway mapping in Hillsborough County. Hydrologic analyses will be completed for approximately 1023 square miles of drainage area. Hydraulic analysis and floodplain mapping will be completed for the stream reaches identified in each of Hillsborough County's 17 Watershed Master Plans developed by and/or for Hillsborough County. (See attached list for the 17 watersheds studied).
- 2. Period of Performance:** This Mapping Activity will begin on January 1, 2001 and end no later than June 30, 2003. This Mapping Activity may be terminated at the option of FEMA or Hillsborough County, Florida in accordance with the provisions of the March 28, 2000, CTC Memorandum of Agreement.
- 3. Funding/Cost-Sharing:** The County will fund the completion of hydrologic and hydraulic work for seventeen (17) watershed studies. FEMA will fund the processing of this information into digital countywide Flood Insurance Rate Maps (FIRM) and a new Flood Insurance Study (FIS) Text for Hillsborough County.
- 4. Technical Assistance and Resources:** FEMA will provide technical assistance and resources to Hillsborough County for the completion of this Mapping Activity Statement. FEMA will prepare digital countywide FIRM's and a FIS text that reflect the modeling efforts by Hillsborough County on the 17 watersheds studied. FEMA's Mapping Coordination Contractor (MCC), Dewberry & Davis (D&D), will prepare the digital countywide FIRM's for FEMA. The digital countywide FIRM's and FIS text will be prepared in accordance with FEMA's *Guidelines and Specifications for Flood Map Production Coordination Contractors (Final Draft dated February 17, 1999)*. Additional services to be supplied by FEMA include floodway modeling on approximately 180 miles of stream, established in accordance with 44 CFR 65.7, as well as any applicable state requirements. Also included is the digitizing of the 100-year floodplain for the Curiosity Creek, Lower Sweetwater Creek, Pemberton Baker Canal/Baker Canal, Rocky/Brushy Creek, Double Branch Creek, Brooker Creek, Sweetwater Creek, and East Lake Area completed watershed studies. Floodways for the approximately 180 miles of stream will also be digitized. These services will equate to approximately \$694,200 worth of technical assistance.

In addition, FEMA's MCC, D&D, will be available to the County for technical and programmatic support; such assistance should be requested through the FEMA Project Officer specified in Section 12 of this Mapping Activity Statement. General technical and programmatic information can be downloaded from FEMA's Flood Hazard Mapping web site (www.fema.gov/mit/tsd).

- 5. Standards:** The following standards and documents are relevant to this Mapping Activity:

- Detailed hydrologic and hydraulic analyses and floodplain mapping will follow the standards set forth in FEMA 37, *Guidelines and Specifications for Study Contractors* (January 1995) and Title 44 of the Code of Federal Regulations (CFR), Part 65.
 - Computer models used for the hydrologic and/or hydraulic analyses will be the HEC-1 model and the EXTRAN Block of SWMM 4.31b. Version 4.31b of SWMM has been accepted by FEMA for use in Hillsborough County only as referenced in FEMA's November 6, 2000 letter to the County.
 - Topographic mapping used to delineate floodplain and floodway boundaries will be of adequate scale and topographic definition to provide reasonable accuracy. Planimetric features will be compatible with the base map (with respect to horizontal accuracy) to be used by FEMA for Digital FIRM production. Topographic mapping taken from aerial photogrammetry or surveys will comply with the requirements of Appendix 4 of FEMA 37. The selection of the topographic mapping source to be used will be coordinated with the FEMA Project Officer prior to analysis and mapping.
 - Any levee or dike systems to be shown on the community's FIRM as providing protection from the 1% annual chance flood will comply with the requirements of 44 CFR 65.10. Chapter 7 of FEMA 37 provides guidelines for evaluating levee systems.
 - Flood elevations and floodplain and floodway boundaries will reasonably tie in to non-revised information in accordance with 44 CFR 65.6(a)(6).
 - Digital mapping will comply with guidelines of Chapter 9 and Appendix 7 of FEMA 37.
 - Digital Elevation Models (DEMs) and field survey data will comply with vertical accuracy guidelines contained in Appendix 4 of FEMA 37.
6. **Products:** Hillsborough County will make available items outlined in Chapter 11 of FEMA 37 in the Technical Support Data Notebook (TSDN) format. These include:
- Digital 1% annual chance floodplain for the Curiosity Creek, Delaney Creek, Archie Creek/North Archie Creek, Bullfrog Creek/Wolf Branch, Cypress Creek, Little Manatee River, Alafia River, Hillsborough River, Tampa Bypass Canal/Hillsborough River, Silver/Twin Lakes and the Duck Pond Area watershed studies.
 - Digital profiles of the 10%, 2% and 1%, annual chance water surface elevations representing existing conditions;
 - Copies of watershed study texts which detail the development and results of the existing conditions hydrologic and hydraulic modeling;
 - Digital copies of all HEC-1 and SWMM 4.31b modeling for existing conditions (input and output files); and
 - All back-up data used in the analyses or mapping to include SWMM connectivity diagrams with field survey cross sections located on them;

- Digital base map to be used for the FIRM panels;
- Copies of work maps that depict the 1% annual chance floodplain for the Lower Sweetwater Creek, Pemberton Baker Canal/Baker Canal, Rocky/Brushy Creek, Double Branch Creek, Brooker Creek, Sweetwater Creek, East Lake Area and Curiosity Creek watershed studies.
- The summary of map actions (SOMA) prepared by FEMA's MCC, D&D, will be reviewed by Hillsborough County. The County will provide their review comments in writing to FEMA prior to the Final CCO meeting for the county wide FIRM product.
- Quality control (QC) documents for the HEC-1 and SWMM 4.31b modeling in each watershed.

7. Schedule and Milestones:

Milestone 1 (Digital Base Mapping): Hillsborough County is in the process of having a new digital base map developed (scale of 1 inch to 1000 feet with "one-foot" or other agreed upon pixel resolution). As soon as the new digital base map becomes available, the County will forward the digital file to the FEMA Project Officer.

Milestone 2 (Watershed Master Plans): Products associated with Phase I listed in the schedule in this Agreement's Attachment 1 will be provided to the FEMA Project Officer by January 2001. This includes submittal of all data listed in Section 5 of this Mapping Activity Statement that pertain to these watershed master plans.

Milestone 3 (Watershed Master Plans): Products associated with Phase II listed in the schedule in this Agreement's Attachment 1 will be provided to the FEMA Project Officer by June 2001. This includes submittal of all data listed in Section 5 of this Mapping Activity Statement that pertain to these watershed master plans.

Milestone 4 (Watershed Master Plans): Products associated with Phase III listed in the schedule in this Agreement's Attachment 1 will be provided to the FEMA Project Officer by November 2001. This includes submittal of all data listed in Section 5 of this Mapping Activity Statement that pertain to these watershed master plans.

Milestone 5 (Watershed Master Plans): Products associated with Phase IV listed in the schedule in this Agreement's Attachment 1 will be provided to the FEMA Project Officer by March 2002. This includes submittal of all data listed in Section 5 of this Mapping Activity Statement that pertain to these watershed master plans.

Milestone 6 (Appeals Period): The County will be available to assist in answering and resolving any technical appeals submitted during the statutory 90 day appeal period which follows the Final CCO meeting in the county.

8. Certification: The following certifications apply to this Mapping Activity (as appropriate):

- A registered professional engineer or licensed land surveyor in accordance with 44 CFR 65.6(f) will certify hydrologic and/or hydraulic analyses and data.
- A registered professional engineer or licensed land surveyor in accordance with 44 CFR 65.5(c) will certify topographic information. Topographic information associated with the

USGS Quadrangle Maps and the Southwest Florida Water Management District (SWFMD) contour maps will not require certification as long as Hillsborough County accepts these as the best available topographic mapping.

- If fill is to be considered in the mapping to raise land areas above the 1% annual chance flood elevation, certification of the fill will be provided in accordance with 44 CFR 65.5(a)(6) by the community's NFIP permit official, a registered professional engineer, or a licensed land surveyor.
- Any levee systems to be accredited as discussed in Section 4 of this Mapping Activity Statement will be certified in accordance with 44 CFR 65.10(e).

9. **Subcontractors:** Not Applicable

10. **Quality Assurance/Quality Control (QA/QC) Procedures:** The QA/QC procedures outlined in Chapter 10 of the *Guidelines and Specifications for Study Contractors* and the QA/QC procedures approved by Hillsborough County for the HEC-1 and SWMM 4.31b modeling in the watersheds, should be followed during the development of the hydrologic and hydraulic analyses and floodplain mapping. Analyses and mapping should be independently reviewed for compliance with the standards defined in Section 4 of this Mapping Activity Statement. Hillsborough County and FEMA's MCC, D&D will conduct the independent review.

11. **Reporting:** Quarterly reports will be prepared by the County and FEMA's MCC, D&D. These reports will address the status of the project and identify any areas where problems may exist. These reports will be submitted to the FEMA Project Officer.

12. **Points of Contact:** The FEMA Project Officer is Laura Algeo and the CTC's Project Manager is Eugene Henry, or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities.

Each party has caused this Mapping Activity Statement to be executed by its duly authorized representatives.

Pat Frank
Pat Frank, Chairman
Hillsborough County Board of County Commissioners
CTC Partner's authorized representative

12/20/00
date

APPROVED BY COUNTY ATTORNEY
BY Cheryl Gandy
Approved As To Form And Legal
Sufficiency.

Laura Algeo
FEMA authorized representative

2/23/01
date

State representative*

date

* In States where statutory and/or regulatory requirements require the State's review and/or approval of new flood hazard data, the State will be a signatory to a community's Mapping Activity Statement. This is not required within Florida. However, this is a standard Agreement used by FEMA and the signature area will remain.

**Attachment Number 1
HILLSBOROUGH COUNTY, FLORIDA
WATERSHED MASTER PLANS**

<u>Product Schedule</u>	<u>Watershed</u>	<u>Completion Date</u>	
Phase I	Bullfrog Ck./Wolf Br.	January	2001
	Curiosity Creek	January	2001
	Cypress Creek	January	2001
	Delaney Ck./Archie CK./North Archie Ck.	January	2001
Phase II	East Lake Area	March	2001
	Lower Sweetwater Creek	May	2001
	Pemberton Baker Creek/Baker Canal Area	May	2001
	Rocky/Brushy Creek	May	2001
Phase III	Brooker Creek	September	2001
	Double Branch Creek	September	2001
	Sweetwater Creek	September	2001
	Duck Pond Area	November	2001
	Silver/Twin Lakes	November	2001
Phase IV	Alafia River	March	2002
	Hillsborough River	March	2002
	Little Manatee River	March	2002
	Tampa Bypass Canal/Hillsborough River	March	2002

Note: Information may be provided in a preliminary format for use prior to dates shown.

ATTACHMENT 3: LIST OF AGREEMENT COORDINATORS

Project Management,
Stormwater Management
and Modeling:

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Project Management and
Agreement Liaisons:

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