

# 6

## 6.0 Progress

The final step each year in the Council's efforts is the formulation of recommendations to be included in the Annual Report to the Director of FEMA. FEMA's response to most of the recommendations is reflected in FEMA's Map Modernization Plan (MMP). The Council is pleased to have been asked to participate with the work groups that were formed to address MMP objectives and to offer its input on the various issues that the Council has recommended be addressed. The MMP will not become a reality without significant increases in funding, however the Council is gratified that many MMP objectives are currently being addressed or have already been implemented by FEMA despite the agency's fiscal constraints.

### 6.1 Map Modernization Plan Objectives

Based on accomplishments to date and current priorities for implementing certain components of the MMP, FEMA has updated the list of map modernization objectives identified in FY 1998. These updated objectives are outlined below.

#### 6.1.1 Completed Map Modernization Objectives

Items that are fully developed, ongoing components of the flood-hazard mapping program will no longer be considered as map modernization objectives.

- Flood-hazard mapping web site architecture (on-line October 1998)
- FEMA Map Assistance Call Center (operational January 1999)
- Multi-year study contracts (implemented at regional office discretion)
- *Guidelines and Specifications for Flood Map Production Coordination Contractors* (completed February 1999)
- Memorandum of Agreement with Department of Defense for the use of the Precise Positioning Service (signed November 1998)

#### 6.1.2 Ongoing Program Objectives

These ongoing flood-hazard mapping program objectives are no longer considered as map modernization objectives but are continuing under normal operations of FEMA's flood-hazard mapping program.

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- Existing Cooperative Initiatives
- Awarding of new Map Coordination Contracts
- Map Service Center contract
- 44 CFR 65.5 Regulatory Reform
- Erosion study research
- Community Rating System (CRS) Task Force
- Assessment of user fees

### 6.1.3 Deferred Objectives

Due to resource limitations, these FY 1998 objectives have been deferred.

- Revise *Guidelines and Specifications for Study Contractors* (FEMA 37) dated January 1995
- Unmapped community inventory
- Zone V guidelines and specifications
- Revise *Appeals, Revisions, and Amendments to NFIP Maps: A Guide for Community Officials* dated December 1993

### 6.1.4 New Objectives

These new objectives have been identified and initiated.

- Automated hydrologic and hydraulic modeling
- Zone A areas
- Scoping of Flood Insurance Studies

### 6.1.5 Active Map Modernization Objectives

With the changes identified above, there are now 23 active Map Modernization objectives. These objectives, as follows, are grouped into three categories.

#### A. Products and Standards Objectives:

1. **Develop product specifications for Digital Flood Insurance Rate Maps (DFIRMs).** The DFIRM product involves converting the existing inventory of manually produced Flood Insurance Rate Maps (FIRMs) to digital format. The new digital product will address maintenance needs as well as restudy needs.
2. **Develop revised, minimum base map standards.** Base maps cover the entire geographical area of a community and include roads, railroads, streams, and other physical features, as well as corporate limits and section lines. These map features are employed by map users to locate properties and structures relative to floodplains.

The objective is to establish and utilize minimum base map standards for all new FIRMs.

3. **Advanced Remote Sensing Technologies.** This objective assesses LIDAR, IFSAR, and LIDAR/IFSAR fusion for use in gathering topographic and base map information for Flood Insurance Studies (FISs). This objective also includes, as appropriate, development of guidelines and specifications for these technologies in FEMA 37.
4. **Automated hydrologic and hydraulic modeling.** This objective is to assess the available technologies to automate the different aspects of floodplain analysis, including hydrology, hydraulics, and mapping.
5. **Zone A areas.** This objective is to develop a protocol to address the 50 to 70 percent of Special Flood Hazard Areas (SHFAs) on FEMA flood maps having approximate or unnumbered Zone A designations.
6. **Promote implementation of *Guidelines for Determining Flood Hazards on Alluvial Fans*.** The revised *Guidelines* provide technical guidance for the identification and mapping of flood hazards occurring on alluvial fans, regardless of the level of fan forming activity, including active and inactive alluvial fan flooding. The *Guidelines* take into account that multiple variables can affect alluvial fans and flooding on alluvial fans, such as climate, fan history, vegetation, and land use.
7. **Complete coastal erosion studies required by National Flood Insurance Reform Act of 1994.** This objective provides for the completion of the evaluation of erosion hazards mandated by Section 577 of the National Flood Insurance Reform Act of 1994 (NFIRA).
8. **Develop recommendations for using future-conditions hydrology for the National Flood Insurance Program (NFIP).** Flood risk information presented on the flood maps is based on the existing conditions of the floodplain and watershed. The objective is to recommend ways to incorporate floodplain delineations based on future land-use and development conditions in the FIS process.
9. **Riverine Erosion Hazard Area Feasibility Study.** This objective is to conduct the Riverine Erosion Hazard Area (REHA) Mapping Feasibility Study in response to Section 577 of NFIRA.

### **B. Process Objectives:**

1. **Mapping Needs Assessment Process.** A complete, accurate assessment of flood-hazard mapping needs is essential for FEMA to develop priorities and expend the flood-hazard mapping budget in the most cost-beneficial manner.
2. **Scoping of Flood Insurance Studies.** The purpose of this objective is to develop guidance and identify tools to be used by FEMA's study managers during the scoping phase of the flood-hazard map development and production process.

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3. **Optimized Study Process.** The purpose of this objective is to optimize the FIS process so that each community's FIRM can be created, revised, distributed, and stored more efficiently and effectively.
  4. **Cooperating Technical Communities (CTCs).** This objective is to develop and implement the CTC initiative whereby partnerships are formed with communities, states, and/or regional agencies to fully integrate them into FEMA's flood-hazard mapping process.
  5. **Monitoring Information on Contracted Studies (MICS).** As the regional engineers' workload continues to increase, automating portions of the study contractor monitoring process is necessary to maintain the quality of the FIS work. MICS is a software application that will enable FEMA to monitor the FIS process from identification of the communities to closure of the study.
  6. **LOMA 2000.** LOMA 2000 is the name given to a new software package that is currently being developed to automate Letter of Map Change (LOMC) production.
  7. **Improved LOMR process.** This objective is to improve the Letter of Map Revision (LOMR) process by developing technical and administrative enclosures that succinctly describe map changes and community responsibilities as a result of LOMRs.
  8. **Post-flood hazard verification.** Flooding events provide a valuable opportunity to evaluate the mapped flood hazards. This objective is to develop standard procedures for verifying the accuracy of the FIS and FIRM for a presidentially-declared disaster area and, if necessary, revising the FIS and FIRM.
- C. Other Program Improvement Objectives:**
1. **LOMA and LOMR-F delegation.** This objective has been created to investigate and address the issues and concerns regarding the delegation of the LOMA and LOMR-F authority to the community and/or private sector, particularly professional licensed surveyors and engineers.
  2. **Map Modernization outreach.** This objective is to develop and implement a marketing plan for the MMP. It seeks to publicize the MMP to facilitate progress on all the other objectives of the plan.
  3. **Regulations and laws.** As plans and specifications are finalized for the other objectives, the regulatory impacts of the MMP will be evaluated.
  4. **National Geodetic Survey Partnership.** Develop a formal partnership between FEMA and the National Geodetic Survey (NGS) to improve coordination and cooperation.
  5. **U.S. Fish and Wildlife Service partnership to improve mapping of Coastal Barrier Resources System areas.** This objective is to establish partnership with and

provide technical assistance to the U.S. Fish and Wildlife Service to improve mapping of Coastal Barrier Resources System (CBRS) areas.

6. **Participation in the U.S. Geological Survey National Digital Orthophoto Partnership Program.** This objective is to establish a partnership with USGS through the National Digital Orthophoto Partnership (NDOP) program.

## 6.2 Status of Council Recommendations

Below are shown the Council's recommendations for 1996, 1997, and 1998 and the status of FEMA's efforts to address the recommendations.

### 6.2.1 1996 Technical Mapping Advisory Council Recommendations

**1. Retention of Maps and Map Information.** Establish an archival system for maintaining in perpetuity, for historic and legal purposes, all Flood Insurance Rate Maps (FIRMs) and supporting technical data.

- ✓ Current Map Service Center (MSC) and Map Coordination Contractor (MCC) procedures are to maintain archives of all maps, reports, and supporting data. As resources allow, an indexing system for retrieval will be implemented.

**2. Distribution Processes.** Distribute Letters of Map Change (LOMCs) with each map ordered; individuals or companies that subscribe to automatic updates should automatically receive copies of pertinent LOMCs.

- ✓ Currently cost-prohibitive; long-term, all data will be available on the Internet.

**3. Forms.** Distribute, via the Internet, certification forms required for map revision requests.

- ✓ The MT-EZ, MT-1 and MT-2 forms as well as Flood Insurance Study (FIS) Data Request forms, Elevation Certificates, Floodproofing Certificates, and Standard Flood Hazard Determination forms are available for downloading at FEMA's flood-hazard mapping web site. <http://www.fema.gov/fhm/> They are available as .pdf files, .zip archives, and as Microsoft Word documents.

**4. H.R. 3340.** Develop a position on legislation that would delegate authority to issue LOMCs to entities other than FEMA.

- ✓ H.R. 3340 never passed.
- ✓ A meeting was held on December 9, 1998, with the state of South Carolina and professional organizations to discuss the issues involved with LOMC delegation. A summary report was prepared and distributed on August 17, 1999 to the FEMA Regional Mitigation Divisions, the ASFPM Mapping Committee, and the Technical Mapping Advisory Council.

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- ✓ FEMA will continue to examine all aspects of the LOMC processes and determine what can be modified to simplify the processes.

**5. Scribing.** Implement newer technologies than the scribing method for the production and dissemination of FIRMs.

- ✓ All updates to existing maps are produced digitally, where cost constraints allow.
- ✓ All newly created maps are produced digitally.
- ✓ MMP includes digitizing approximately 92,000 panels currently in manual format (approximately 8,000 converted to date) in FY 2001-2005, conditional on the availability of funding.
- ✓ A distribution plan for new DFIRM products is under development.
- ✓ Distribution of scanned paper FIRMs is planned when resources allow.

### 6.2.2 1997 Technical Mapping Advisory Council Recommendations

**1. Flood Insurance Studies (FISs).** Improve the FIS process by shortening Study Contractor (SC) process; permitting multi-year contracts to SCs; ensuring agreement on base map among SC, Map Coordination Contractor (MCC), the state, FEMA, and the community earlier in the process; and providing for intermediate reviews of mapping elements.

- ✓ Multi-year study contracts are being implemented at the discretion of the FEMA regional offices for FY 2000 new study starts.
- ✓ Optimized Study Process. MMP objective has designed new process. Features include:
  - Tasks to complete studies will be distributed to SC, CTC, and MCC to maximize expertise and capability of each.
    - Base map will be identified and agreed upon during FEMA's scoping coordination with the community and state.
    - All participants in the study process will complete work concurrently (i.e., CTC digitizes effective information for non-restudied streams while SC completes restudy) to shorten time frames.
    - Communities, states, and/or regional agencies will have the opportunity to review analyses and mapping at intermediate points in the study process.
  - Will begin implementation of optimized process in FY 2000.

**2. Base Maps.** Improve base maps and review and update existing standards, in consultation with the Federal Geographic Data Committee (FGDC). Ensure strict adherence to the standards.

- ✓ Base Map Specifications finalized and distributed to the FEMA Regional Mitigation Divisions and the Council on May 26, 1999. Contain requirements for:

- Contents,
  - Accuracy,
  - Currentness, and
  - Ability to distribute.
- ✓ Community-supplied or state-supplied data that meet minimum requirements will be first choice.
  - ✓ USGS Digital Orthophoto Quadrangles (DOQs) will be the default base map for community or state data that do not meet FEMA's base map specifications.
  - ✓ The base map standards will be expanded to include database attributes for required base map features and metadata. FEMA will coordinate with the FGDC before finalizing database attributes.
  - ✓ Will add finalized standards to the guidelines and specifications for SCs and MCCs, as well as the CTC Base Map Activity Statements.
  - ✓ Will initiate a Base Map Strategy Map Modernization objective in FY 2000.

**3. Base Mapping Partnerships.** Pursue base mapping partnerships with other public, private, and nonprofit entities, such as the Census Bureau, U.S. Geological Survey (USGS), state, local, and regional agencies, to achieve cost efficiencies and exchange technical expertise.

- ✓ FEMA is participating in the USGS National Digital Orthophoto Partnership (NDOP) Program.
- ✓ Goal will be to produce DOQs for communities where a FEMA map update is planned and a community base map that meets FEMA's base map specifications does not exist.
- ✓ Meetings have been held with USGS to discuss partnering options for the acquisition of DOQs to support FEMA's DFIRM mapping needs.
- ✓ FEMA provided comments on a draft NDOP Memorandum of Understanding to USGS on October 25, 1999.
- ✓ FEMA has named a representative for the NDOP steering committee. Representatives will be identified for the project coordination and technical subcommittees by January 2000.
- ✓ Digital Base Map Data Sharing is a CTC mapping activity.

**4. Digital Flood Insurance Rate Map (DFIRM).** Digitally prepare, produce, and make available all new map products resulting from studies or restudies and physical map revisions.

- ✓ See 1996 Recommendation #5.

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- ✓ Completing design of the New DFIRM Product:
  - Will include base map, georeferenced flood data, database, and new graphic specifications;
  - Graphic specifications will be completed by January 2000; and
  - DFIRM database specifications will be completed by April 2000.
- ✓ Map use policy to clarify issues for users as they migrate from paper to a digital environment is under review by FEMA.
- ✓ Draft distribution plan under development.

**5. Community Involvement.** Hold community meetings before, during, and after preparation of a new map product, such as a map digitized for the first time or one being converted to a countywide product, to enable community and state input to and participation in mapping issues and activities.

- ✓ As part of the Optimized Study Process (See 1997 Recommendation # 1), the “scoping phase” will include coordination and outreach to the community.
- ✓ For communities with flood data update needs and large countywide studies, the community coordination will typically be through a series of face-to-face meetings. The meetings will be attended by community officials, the SC, and state and/or regional agency officials.
- ✓ For communities for which the map update will be a digital conversion and/or map maintenance with no flood data updates, the community coordination may be accomplished via teleconferences with the community, state and/or regional agencies, and the MCC.
- ✓ The purpose of the coordination meetings (or teleconferences) will be to establish the scope of the project, including:
  - Validating map update needs;
  - Study reaches and methods for engineering analysis and floodplain mapping;
  - Topographic data sources;
  - DFIRM options to be included; and
  - Base map selection.
- ✓ The coordination meeting (or teleconference) will also be for FEMA to determine how to distribute the work required to complete the mapping project based on the strengths and technical capabilities of the available resources to achieve a “best value.”
- ✓ Communities will also be provided the opportunity to review data and mapping at intermediate points during production.
- ✓ Final meetings will be held during the “due process” phase, as needed.

### 6.2.3 1998 Technical Mapping Advisory Council Recommendations

**1. Map Availability and Accuracy.** Implement programmatic changes to improve accuracy, reliability, and availability of digital and graphic map data. To include:

- New technology for preparing work maps and FIRMs;
  - Specifications for DFIRMs;
  - Internet distribution of map data; and
  - Revision of *Guidelines and Specification for Study Contractors* (FEMA 37).
- ✓ Through the Advanced Remote Sensing Technologies Map Modernization objective, FEMA is assessing LIDAR, IFSAR, and LIDAR/IFSAR fusion for use in gathering topographic and base map information for FISs.
- LIDAR: Developed guidelines and specifications; published on FEMA's web site. Will update guidelines and specifications to test results and incorporate review comments. Will develop costing guidelines.
  - IFSAR and LIDAR/IFSAR Fusion: Contracted with the Jet Propulsion Lab through the Army Topographic Engineering Center to evaluate performance and to develop guidelines and specifications for FISs; flew mission over the Red River to collect data and evaluate performance. Continuing to evaluate Red River mission data; will develop and publish guidelines and specifications for FEMA 37; will develop costing guidelines.
- ✓ See 1997 Recommendation # 4 for description of new DFIRM product.
- ✓ FEMA 37 and *Guidelines and Specifications for MCCs* will be combined during FY 2000. This document will also be used for CTC mapping activities.

**2. Minimum Base Map Standards.** Revise and ensure adherence to minimum base map standards, consistent with FGDC standards. To include:

- Minimally acceptable tolerances for positional accuracy;
  - Feature content;
  - Age of the map;
  - Metadata requirements; and
  - Georeferencing requirements.
- ✓ Base maps should be produced in cooperation with other federal, state, and community partners.
- ✓ See 1997 Recommendation numbers 2 and 3.

**3. Mapping Needs Assessment Process.** Continue interaction with other entities; share and publicize preliminary results. Obtain approval from Office of Management and Budget (OMB) to collect information by questionnaire or other methods.

- ✓ First five-year cycle completed.

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- ✓ Prepared summary fact sheets of survey results NFIP state coordinators and members of Congress.
- ✓ Developing report to Congress.
- ✓ Presented survey results at ASFPM 1999 Conference.
- ✓ Working with FEMA Forms Management to develop community questionnaire for use in second five-year cycle; coordination with OMB will follow.
- ✓ Developed CTC Mapping Activity Statement for *Assessment of Community Mapping Needs*; pilot tested by state partners in FY 1999.
- ✓ Developed guidance document, *Analysis and Evaluation of Community Flood Mapping Needs*, to assist CTC partners and FEMA contractors to objectively evaluate flood-hazard mapping needs.
- ✓ Two states are represented on the Map Needs Assessment Workgroup.

**4. Public Awareness.** Devote education efforts to increasing public awareness of the real possibility of flooding beyond the Special Flood Hazard Area (SFHA) in any given year.

- ✓ All LOMCs removing land and/or structures from the SFHA include wording regarding the possibility of flooding beyond the SFHA and suggest the purchase of flood insurance.
- ✓ FEMA's Mitigation Directorate has established an Outreach Branch.
- ✓ FEMA's flood-hazard mapping web site contains extensive educational information specifically targeted for homeowners, insurers and lenders, engineers and surveyors, and floodplain managers.
- ✓ FEMA's Map Assistance Call Center is a resource for property owners, insurers and lenders, engineers and surveyors, and floodplain managers to ask specific questions. The Call Center can directly link customers to the FIA Response Center for additional information on flood insurance.
- ✓ Future-conditions hydrology standards are being developed.
- ✓ Flood insurance marketing efforts—main message in advertisements is that it can flood anywhere, anytime.

**5. Stream Gages.** Preserve and maintain existing stream gages and increase density of the streamgaging system. Consider incorporating rapid telemetry of gage data into existing and future stations.

- ✓ FEMA unable to implement; USGS's responsibility.
- ✓ FEMA will continue to support and encourage USGS efforts to preserve and maintain the streamgaging network.

**6. Maintenance of Flood-Control Projects.** Work with U.S. Army Corps of Engineers (USACE) to review permitting process under Section 404 of the Clean Water Act and to develop 404 permit regulations that exempt maintenance of FEMA-credited, flood-control projects.

- ✓ USACE currently has proposed rule on changes to 404 permits; FEMA coordinating internally and with other federal agencies to provide comments. This proposed rule change does not address permit exemptions for maintenance of flood-control projects.
- ✓ No formal action currently being taken by FEMA/USACE.

**7. Collaboration in Flood-Hazard Mapping.** Be more proactive in involving communities and state organizations in the flood mapping process from its inception through completion.

- ✓ The Optimized Study Process (See 1997 recommendation # 1) will involve communities, state agencies, and regional agencies in the entire process, allowing them to help determine the study scope, review intermediate analyses and mapping, and participate in the actual analysis, data collection, and/or mapping as CTCs.
- ✓ The CTC Initiative will form formal partnerships with communities, states, and/or regional agencies to fully integrate them into FEMA's flood-hazard mapping process:
  - Designated CTC partners for FY 1999 pilot CTCs;
  - Completed Mapping Activity Statements for nine specific types of CTC mapping activities;
  - Developed the CTC component of the FEMA flood-hazard mapping web site;
  - Conducted outreach activities;
  - Will develop a public relations package;
  - Will pursue enhancements to the MICS management support software system to track information on CTC projects;
  - Will develop eligibility criteria for mapping activities; and
  - Will enter into additional CTC agreements.

**8. Post-Disaster Verification of Flood Hazard Data.** Allocate funds specifically for post-disaster verification activities to:

- Gather data and document event;
- Assess the accuracy of the maps; and
- Revise applicable maps.
- ✓ Established a draft work plan for the Post-Flood Hazard Verification Map Modernization objective. This objective is to develop a standard procedure for

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verifying the accuracy of the FIS and FIRM for flooded communities declared disaster areas by the president and, if necessary, for revising the FIS and FIRM.

- ✓ Objective placed on hold to allocate resources to other map modernization objectives in March 1999.
- ✓ By February 2000, a draft post-flood-hazard verification document will be ready for review; procedures ready to test by June 2000 in a real disaster (beginning of hurricane season).
- ✓ Evaluating possible funding options.