



Work in Progress

Federal Emergency Management Agency

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Modernizing FEMA's Flood Hazard Mapping Program



A Message From Mike...

FEMA's plan to modernize the flood hazard mapping program has continually evolved as new products, processes and technical specifications have been developed and implemented. As the plan has progressed, we have also been able to refine the estimated funding requirements. This issue of *Work in Progress* includes an article on the current modernization cost estimates. In brief, the new estimate for needed additional funding was reduced to \$750 million over a 7-year period from our original estimate of \$871 million, which was based on less refined data. These estimates have been updated from those presented in the May 1999 FEMA report *Modernizing the Flood Hazard Mapping Program*.

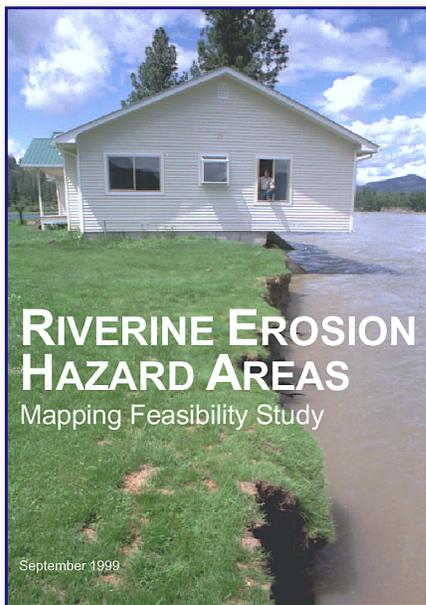
The significant changes made to the cost estimate are as follows:

- ✓ The projection of map update needs is based on data gathered from the completion of the first complete cycle of our map needs assessment for all communities nationwide.
- ✓ The current progress on the design of new products is included in the cost estimate.
- ✓ The complete digitization of the entire flood map inventory is included in the cost estimate.
- ✓ Cost savings due to technology over the 7-year modernization plan have been explicitly factored into the analysis.

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FEMA Completes Riverine Erosion Hazard Areas Mapping Feasibility Study

The Riverine Erosion Hazard Areas (REHAs) Mapping Feasibility Study addresses requirements of the National Flood Insurance Reform Act (NFIRA) enacted in September 1994. Section 577 of NFIRA requires that FEMA submit a report to Congress that evaluates the technological feasibility of mapping REHAs and assesses the economic impact of erosion and erosion mapping on the National Flood Insurance Program (NFIP). The purpose of this study was to determine whether it is technologically feasible to map REHAs.



Technological feasibility is defined as the existence of methodologies that are scientifically sound and implementable under the NFIP. Scientific soundness means that the methodologies are based on physical or statistical principles and are supported by the scientific community. Implementable means that FEMA can apply the approaches as part of a nationwide program under the NFIP and for an acceptable cost.

A Project Working Group (PWG) of experts in the field of riverine erosion was organized. The group's goals were to provide guidance to FEMA on the technological feasibility of mapping REHAs, to act as an information source to locate and select case studies, and to review and comment on

See "REHA," on page 11

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mapmod@fema.gov

FEMA Updates Cost Estimate for the Map Modernization Plan

FEMA's plan to modernize the flood hazard mapping program has continually evolved as new products, processes, and technical specifications have been developed and implemented. As the plan has progressed, we have also been able to refine the estimated funding requirements.

FEMA's modernization plan is a 7-year upgrade to the 100,000-panel flood map inventory as well as an enhancement of products, processes, and services. The upgrade of the flood map inventory will involve:

- Updating and producing digital maps for at least 17,500 panels requiring flood data updates;
- Digital conversion and routine map maintenance for 74,500 panels; and
- Development of flood data and digital flood maps for 13,700 panels for floodprone communities without flood maps.

The table below summarizes the current major cost estimates to fully implement the map modernization plan over the 7-year period FY2001 through FY2007. For comparison, the table also summarizes the cost estimates from the May 1999 FEMA report *Modernizing the Flood Hazard Mapping Program*. All estimates are in millions of dollars.

Summary of Costs for Map Modernization (Millions of Dollars)

Note: Totals may not add exactly due to rounding.

COMPONENT	AUGUST 1999	MAY 1999 REPORT
FEMA-funded flood data updates	\$385	\$748
Digital conversion and map maintenance	\$191	\$56
Unmapped communities	\$118	\$132
Ongoing activities	\$344	\$234
Map and customer service initiatives	---	\$23
Conversion to metric and NAVD 88	\$62	\$42
Contracted administrative staff	\$13	---
Total Mapping Costs	\$1,114	\$1,235
Expected income from existing fees	\$364	\$364
Incremental funding needed for map modernization	\$750	\$871

Continued on next page

The May 1999 estimate was based on initiating the plan in FY2000. However, the needed funding will not be provided in FY2000, so all the cost estimates have been adjusted to account for one year of inflation. Besides inflation, the primary differences between the cost estimates from the May 1999 report and the current estimate are as follows:

✓ The current estimate for **FEMA-funded flood data updates** was refined to reflect projections based on mapping needs identified by communities through April 15, 1999, with 100 percent of the mapped communities in the program being surveyed. The May 1999 estimate was made using an earlier projection of map needs based on 10 percent of communities surveyed.

✓ The **digital conversion and map maintenance** cost estimate was refined to:

- Include community survey data reflecting 100 percent of the communities.
- Reflect the cost to completely digitize the inventory. The previous estimate was based on digitizing only those panels with community-identified maintenance needs.
- Reflect the unit cost for the current design of the new DFIRM product. The previous estimate was made when the product was much more conceptual. As the product has been refined over the last year, the cost estimate has become more precise.

✓ The **unmapped communities** estimate was decreased as a result of new technologies that will reduce the cost of obtaining topographic data.

✓ The **ongoing activities** estimate has been refined to incorporate an updated estimate of long-term program maintenance requirements and completion of ongoing map updates outside of the map modernization plan. Additionally, the estimate for **map and customer service initiatives** has been included in the ongoing activities estimate because the toll-free Map Assistance Center and Flood Hazard Mapping Web site are now operating as part of day-to-day operations.

✓ The **conversion to metric and NAVD 88** costs have been adjusted to also reflect digitization of the entire inventory. The previous estimate was based on converting only those panels with community-identified needs.

✓ The costs for **contracted administrative staff** to augment FEMA staff in the management of the additional workload during implementation of the plan have been added.

Impact of Technology on Map Modernization Costs

Technological advances and conversion of the mapping inventory to a digital format are expected to yield significant cost savings. These savings have been factored into the current cost estimate for FEMA-funded flood data updates and ongoing activities.

✓ **Impact of technology on FEMA-funded flood data updates**

Emerging remote sensing technologies show promise for cost-effectively collecting accurate, digital topographic data. FEMA is aggressively participating in several initiatives to test new remote-sensing technologies

(most notably, LIDAR and IFSAR) for flood mapping applications. Additionally, the collection of topographic data in digital format will allow development of Digital Elevation Models (DEMs), which will greatly automate the engineering analyses. Thus, these new technologies should reduce the topographic data and engineering analyses components of FEMA's study costs for the modernization period.

✓ **Impact of Technology on Ongoing Activities**

The increased use of new remote-sensing technologies and conversion of the mapping inventory and supporting analyses to an all-digital environment during the modernization period will result in significant long-term cost savings for the program as the maps are updated. For example, automation of engineering analyses using DEMs developed during the modernization period should make it cost-effective to update the maps as watershed and flood-plain conditions change over time.

To present the estimated funding requirements, we have prepared the report *Cost Estimate for the Flood Map Modernization Plan*, dated August 27, 1999.

Matt Miller (matt.miller@fema.gov) is Chief of the Hazards Study Branch of the Technical Services Division.

FEMA's Map Modernization Plan: Status Report

Established in 1997 to modernize FEMA's flood mapping program, FEMA's Map Modernization Plan has made significant process to date, according to the recently released *Modernizing FEMA's Flood Hazard Mapping Program, Fiscal Year 1999 Progress Report*.

The report also outlines some organizational changes to the program during FY99, including categorizing the 23 active map modernization objectives into three groups: Products and Standards, Processes, and Other Program Improvements. FEMA has also initiated three new objectives— Automated Hydrologic and Hydraulic (H&H) Modeling, Zone A Areas and Scoping of Flood Insurance Studies — and has already begun working on them.

Several objectives were completed in FY99. Others have been put on hold. According to the report, fully developed items that are now ongoing components of the flood mapping program will no longer be considered as map modernization objectives. These include:

- ✓ Flood Hazard Mapping Web Site Architecture (Web site launched in October 1998)
- ✓ FEMA Map Assistance Call Center (operational since January 1999)
- ✓ Multi-Year Study Contracts (implemented at the discretion of FEMA Regional Offices)

- ✓ *Guidelines and Specifications for Flood Map Production Coordination Contractors* (completed in February 1999)
- ✓ Memorandum of Agreement with the U.S. Department of Defense (signed in November 1998)

- ✓ Erosion Study Research
- ✓ Community Rating System Task Force
- ✓ Assessment of user fees

Resource limitations resulted in the deferral of five objectives, including the revision of *Guidelines and Specifications for Study Contractors* (FEMA 37) and the inventory of unmapped communities. Also deferred were *V Zone Guidelines and Specifications* and the revision of *Appeals, Revisions, and Amendments to NFIP Maps: A Guide for Community Officials* (dated December 1993).

FEMA has made significant progress on several other objectives in each of the three categories. A detailed description of the objective, its accomplishments to date, the objective action plan and any deliverables tied to that objective are included in the report. To view the report, or to download a copy, please

go to http://www.fema.gov/mit/tsd/dl_mpmmod.htm.

Established in 1997 to modernize FEMA's flood mapping program, FEMA's Map Modernization Plan has made significant process to date

Some ongoing objectives are no longer considered map modernization objectives, but are continuing under normal operations of FEMA's flood mapping program. These include:

- ✓ Existing Cooperative Initiatives
- ✓ Awarding of new Map Coordination Contracts
- ✓ Map Service Center contract (awarded)
- ✓ 44 CFR 65.5 Regulatory Reform

Mary Jean Pajak
(mary.jean.pajak@fema.gov)
is a Hydraulic Engineer
in the Hazards Study Branch
of the Technical Services Division.

Users Pleased with FMAC's Services

FEMA Officials Plan Further Improvements to Customer Service



Launched nationwide in January 1999, the FEMA Map Assistance Center (FMAC) has consistently sought to provide answers to constituents with questions about flood maps. And, according to the latest FMAC activity report, it is succeeding.

In fact, despite a steady growth in the amount of calls to the FMAC's Eastern and Western teams, both FMAC teams have exceeded their goal of answering 85 percent of calls in 30 seconds or less, according to the FMAC's customer service monitoring database.

In addition to serving incoming calls, the FMAC randomly selects constituents to gather feedback on the NFIP and the FMAC's own performance. The FMAC database is designed to pick individuals equally from the different geographic regions about three weeks after their initial call — the average time it takes for requested materials to reach callers and for callers to initiate a Letter of Map Change request as a result of their call to the FMAC. The FMAC activity report states that, between April and September 1999, the FMAC scored 4.5 on the promptness of call pickup, 4.7 on courteousness, 4.4 on the clarity of staff's explanations to callers' questions and 4.7 on the prompt delivery of materials requested, all out of a possible score of 5.

As part of its continuing efforts to improve customer service, the FMAC is

implementing various changes, including the option to leave voicemail messages after hours.

The new after-hours voicemail option will allow callers to leave a detailed message and have a Map Specialist return their call the following business day. Previously, callers heard a recording of the FMAC's hours of operation and were asked to call back during those hours. Another improvement is the elimination of busy signals. Mr. John Magnotti, Project Officer for the FMAC, said that when this option is enabled callers should never encounter a busy signal, but instead will be routed to voicemail if there are too many calls in the system.

Also under consideration is creating an "options menu" for incoming calls. This would allow newer team members to handle application requests, while allowing senior staff to manage complex calls that require more technical and procedural knowledge. Mr. Magnotti said that this would help the FMAC to provide more efficient service and track calls more effectively.

Finally, to formalize the service offered by bilingual Map Specialists who already handle calls in Spanish when necessary, FEMA is exploring the possibility of providing callers an upfront prompt to choose whether they would like to speak to someone in Spanish or English.

Those who choose Spanish will be routed to one of the bilingual Map Specialists. If these Specialists are unavailable, callers will receive a prompt, in Spanish, to leave a detailed voicemail message. A Spanish-speaking Map Specialist will return their call promptly. The Western FMAC team will be experimenting with this service over the coming months.

Callers can reach the center toll-free by dialing 1-877-336-2627 (1-877-FEMA MAP). Calls are automatically routed to the appropriate team depending on the caller's location. The Eastern team handles calls about properties in Regions I through V and the Western team handles calls for properties in Regions VI through X. Individuals may call the FMAC for general information about National Flood Insurance Program maps and related regulations, specific questions about the status of individual map amendment or map revision cases or ongoing studies, and general information about brochures and publications. They may also request application/certification forms and, if necessary, obtain clarification of how and when to complete the forms.

Note: See page 10 for a summary of the FMAC's FY99 Performance Report.

John Magnotti (john.magnotti@fema.gov) is a Hydraulic Engineer in the Hazards Study Branch of the Technical Services Division.

Map Modernization Objectives

FEMA is embarking on a number of Map Modernization objectives for improving the NFIP and its map products. Following is a list of the objectives:

1. Develop and implement an outreach program to include:
 - Exhibit for conferences
 - Outreach to key constituencies
 - Updated briefing packet
 - Congressional outreach
 - **Work in Progress** Bulletin(Anne Flowers, anne.flowers@fema.gov)
2. Develop revised, minimum base map standards for hazard mapping and implement for all new hazard maps as soon as practicable, and not later than FY 1999. (John Gambel, john.gambel@fema.gov)
- 2.5 Complete assessment of advanced technologies for preparing topographic mapping and work maps required for the production of Flood Insurance Studies and Flood Insurance Rate Maps. Implement the technologies for study starts in FY 1999 by developing appropriate appendices to "FEMA 37, Guidelines and Specifications for Study Contractors," developing training module, and presenting to FEMA Regional and National office staff. (Karl Mohr, karl.mohr@fema.gov)
3. Develop flexible, prioritized spending plan for map modernization that maximizes alternative sources of funding. (Michael Buckley, mike.buckley@fema.gov)
4. Develop product specifications for Digital Flood Insurance Rate Map 2.0 and 2.1 (for converting existing manual inventory of Flood Insurance Rate Maps to digital format, and for our new flagship digital multi-hazard map product, respectively) and implement no later than FY 1999. (Mary Jean Pajak, mary.jean.pajak@fema.gov; and Mike Grimm, michael.grimm@fema.gov)
5. Develop Cooperating Technical Communities program to support Project Impact. (Bel Marquez, bel.marquez@fema.gov)
6. Initiate pilot Cooperating Technical Communities Program. (Project Impact staff and regional staff)
7. Bring ongoing cooperative initiatives to a successful completion, including: Maryland (Anne Flowers and John Benn, john.benn@fema.gov); New York (Phil Myers, phil.myers@fema.gov; and Paul Weberg, paul.weberg@fema.gov); Georgia (Mary Jean Pajak and Bel Marquez); Midland, Texas (Alan Johnson, alan.johnson@fema.gov; and Region VI staff); and Boone County, Nebraska (Alan Johnson and Region VII staff).
8. Develop standards and procedures for mapping future condition hydrology. (Mike Grimm)
9. Develop architecture for the Technical Services Division's Web site. Design to address product distribution, dissemination of information regarding map status, receipt and response to appeals, archives, and other functions. Formulate management structure, cost, and personnel requirements for implementation. (John Magnotti, john.magnotti@fema.gov)
10. Establish partnership with the National Geodetic Survey (NGS) for assistance in establishing and disseminating geodetic data, such as linking elevation reference mark information on Flood Insurance Rate Maps to the NGS's Web page for geodetic data. (John Gambel)
11. Establish partnership with the U.S. Geological Survey for assistance in developing and maintaining suitable base maps and topographic data compatible with NFIP needs. This includes making Digital Ortho Quads as readily accessible and usable as base maps. (John Gambel)
12. Establish partnership and provide technical assistance to Fish and Wildlife Service resulting in the Service's improved mapping of Coastal Barrier Resources System (CBRS) areas. Specifically, encourage and assist the Service in producing digital, vector mapping suitable for direct incorporation as a thematic layer in Digital Flood Insurance Rate Maps as well as posting on the World Wide Web. Improve and extend mapping of CBRS-protected areas. (Frank Tsai, frank.tsai@fema.gov)
13. Establish standard operating procedures for making hazard verification part of recovery cycle after Presidentially declared disasters. (Doug Bellomo, doug.bellomo@fema.gov)
14. Bring the toll-free FEMA Map Assistance Center on line. (John Magnotti)
15. Complete work on the automatic Letter of Map Amendment tracking and letter-generation software, also known as LOMA 2000. (Mark Crowell, mark.crowell@fema.gov)
16. Lay the groundwork for delegation of authority for issuance of Letters of Map Amendment and Letters of Map Revision Based on Fill to community officials and the private sector. Meet with ASCE, ASFPM, ACSM, FMDA, and NAFSMA. (John Gambel)
17. Develop new study processes, i.e., redefine the Technical Evaluation Contractor/Study Contractor relationship and begin limited implementation in FY 1998, with at least one pilot in each territory. (Marty Frengs, martin.frengs@fema.gov)

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18. Fully implement multi-year contracts and task ordered contracts for procuring Flood Insurance Studies. Transfer the procurement process to the three territories. (Larry Basich, lawrence.basich@fema.gov)
19. Continue implementation of 5-Year Map Review/Update Process and make it an integral part of the Flood Insurance Study procurement process. Ensure close regional and State involvement. (Cindy Croxdale, cindy.croxdale@fema.gov)
20. Develop improved systems for monitoring contracted Flood Insurance Studies. Implement Monitoring Insurance Contracted Studies (MICS) software. (Eric Berman, eric.berman@fema.gov)
21. Revise FEMA 37, "Guidelines and Specifications for Study Contractors" and implement for Flood Insurance Studies starting in FY 2000, or partially implement in FY 1999. (Phil Myers, phil.myers@fema.gov)
22. Revise "Guidelines and Specifications for Technical Evaluation Contractors" and develop statement of work and request for proposal for re-procuring Technical Evaluation Contracts to begin in FY 2000. (Alan Johnson)
23. Oversee all aspects of awarding new Technical Evaluation Contracts to begin in FY 2000. (Cindy Croxdale)
24. Oversee all aspects of award and implementation of new Map Service Center contract to begin in FY 1999. (Kathy Miller, kathy.miller@fema.gov)
25. Respond to National Research Council report on alluvial fans. (Mike Grimm)
26. Initiate regulatory reform at 44CFR, Part 65.5. (Alan Johnson)
27. Complete riverine erosion study required by National Flood Insurance Reform Act of 1994. (Mike Grimm)
28. Complete coastal erosion studies required by National Flood Insurance Reform Act of 1994. (Mark Crowell)

Continued on next page

OBJECTIVE	COMPLETED ITEMS
1. Develop and implement marketing plan.	<input checked="" type="checkbox"/> <i>Work In Progress</i> bimonthly map modernization bulletin-inaugural issue published September 9, 1998. <input checked="" type="checkbox"/> <i>Work In Progress</i> on the Web January 1999. (www.fema.gov/mit/tsd/mm_main.htm) <input checked="" type="checkbox"/> Storyboards depicting Chronology of Flood Mapping Products from 1968 to the Future displayed at FEMA Headquarters. <input checked="" type="checkbox"/> Display highlighting major components/benefits of map modernization developed for travel to conferences and Project Impact events.
2. Develop and implement revised minimum base map standards for hazard mapping.	<input checked="" type="checkbox"/> Final draft for DFIRM 2.0 and 2.1 Base Map Specifications completed November 1998.
2.5. Complete assessment of advanced technologies for preparing topographic mapping and develop appendices to "Guidelines and Specifications for Study Contractors."	<input checked="" type="checkbox"/> Draft on LIDAR specifications completed and reviewed January 1999. <input checked="" type="checkbox"/> Appendix 4B completed April 1999. <input checked="" type="checkbox"/> Appendix 4B posted on the Web May 1999. (http://www.fema.gov/mit/tsd/mm_lidar.htm)
6. Initiate pilot Cooperating Technical Communities Program.	<input checked="" type="checkbox"/> Ongoing discussions with CTCs. <input checked="" type="checkbox"/> Agreement signed with Lower Colorado River Authority in Harris County, Texas May 1999. <input checked="" type="checkbox"/> Agreement with Denver UDFCD signed May 1999.
8. Develop standards and procedures for mapping future conditions hydrology.	<input checked="" type="checkbox"/> First draft of Future Conditions Hydrology Report completed December 1998. <input checked="" type="checkbox"/> Key constituencies identified, group recommendations developed March 1999. <input checked="" type="checkbox"/> Revised draft report distributed for review May 1999. <input checked="" type="checkbox"/> Report posted on the Web August 1999. (http://www.fema.gov/mit/tsd/ft_futur.htm)
9. Develop Technical Services Division's Web site.	<input checked="" type="checkbox"/> Web Architecture completed. <input checked="" type="checkbox"/> Site launched February 1999. (www.fema.gov/mit/tsd)
12. Establish partnership with Fish and Wildlife Service to improve mapping of Coastal Barrier Resource System (CBRS) areas.	<input checked="" type="checkbox"/> CBRS Community database on FIA/NFIP Web site. <input checked="" type="checkbox"/> Dare County, North Carolina, pilot mapping project completed and a finished map set provided to the NC Congressional delegation. <input checked="" type="checkbox"/> Monthly cooperation meetings between FEMA and U.S. Fish and Wildlife Service held.
14. Bring the toll-free FEMA Map Assistance Center (FMAC) on-line.	<input checked="" type="checkbox"/> Nationwide launch completed December 1998.
15. Complete work on LOMA 2000.	<input checked="" type="checkbox"/> Product first used for LOMA determinations on March 1, 1999. <input checked="" type="checkbox"/> Product first used for LOMR-F determinations on March 15, 1999.

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OBJECTIVE	COMPLETED ITEMS
<p>17. Develop new study processes and begin limited implementation in FY98, with at least one pilot in each territory.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Presented draft recommendations at Regional Engineers' Conference in Emmitsburg, Md., October 1998. <input checked="" type="checkbox"/> Delivered final draft report with recommendations to Mike Buckley, December 31, 1998. <input checked="" type="checkbox"/> Held Q-&-A session on final report at Headquarters April 1, 1999. <input checked="" type="checkbox"/> Delivered final report and recommendations to Mike Buckley, May 1999. <input checked="" type="checkbox"/> Presented final recommendations at Association of State Floodplain Managers' (ASFPM) Conference in Portland, Ore., May 1999. <input checked="" type="checkbox"/> Distributed final report and recommendations at Regional Engineers' Conference in Fairfax, Va., June 1999.
<p>18. Fully implement multi-year contracts and task-ordered contracts for procuring Flood Insurance Studies. Transfer the procurement process to the three territories.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Report with recommendations completed November 1998.
<p>19. Continue implementation of Five-Year Mapping Needs Assessment Process.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Contacted 100 percent of mapped communities participating in the NFIP. <input checked="" type="checkbox"/> Sent thank-you letters to all responding communities. <input checked="" type="checkbox"/> Entered data in MNUSS for all responses received.
<p>22. Revise <i>Guidelines and Specifications for Flood Map Production Coordination Contractors</i> and develop Statement of Work and Request for Proposal for re-procuring Flood Map Production Coordination Contractor services to begin in FY2000.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Guidelines revised and on the Web February 1999. (www.fema.gov/mit/tsd/frmguid.htm)
<p>24. Oversee all aspects of award and implementation of new Map Service Center contract to begin in FY99.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Contract awarded October 30, 1998. (www.fema.gov/msc)
<p>25. Revise <i>Technical Guidelines For Mapping Alluvial Fans</i>.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> First draft distributed for review April 1999. <input checked="" type="checkbox"/> Comments received and final draft anticipated by July 1999. <input checked="" type="checkbox"/> Guidelines posted on the Web September 1999. (http://www.fema.gov/mit/tsd/ft_alf_an.htm)
<p>27. Complete riverine erosion study required by NFIRA.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> A first draft of Chapters 1-4 of Riverine Erosion Hazard Area report completed and mailed to Project Working Group (PWG) for review and comment. <input checked="" type="checkbox"/> Comments received and discussed in PWG teleconference December 1998. <input checked="" type="checkbox"/> Currently completing draft of entire report. <input checked="" type="checkbox"/> Report released and on the Web October 1999. (http://www.floodmaps.net/mit/tsd/ft_reha.htm)
<p>32. Enter into Memorandum of Understanding with U.S. Department of Defense to allow FEMA to use the PPS code in Global Positioning System.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Signed and approved Memorandum of Agreement November 1998.
<p>37. Identify and compile FEMA's regulations and laws and recommend changes to remove or minimize impediments to FEMA's Map Modernization Plan.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Currently collecting new or revised data on Objective 17, a key linkage to Objective 37. <input checked="" type="checkbox"/> Ongoing coordination with regional staff.

- 29. Continue maintenance level research on coastal erosion rate analysis and shoreline location forecasting. (Mark Crowell)
- 30. Participate as a member of the Community Rating System task force. (Alan Johnson)
- 31. Finalize "Guidelines and Specifications for Wave Height Studies," Volumes 1 and 2. (Doug Bellomo)
- 32. Participate as a National Coordinator in the Federal Civilian Agency Precise Positioning Service (PPS) Committee; enter into a Memorandum of Understanding with the Department of Defense to allow FEMA to use the PPS code in Global Positioning System units to enable more efficient spatial data collection; and organize the internal infrastructure necessary within FEMA to allow the regions to fully utilize this technology in program activities. (Erik Rourke, erik.rourke@fema.gov)
- 33. Revise and republish "Appeals, Revisions, and Amendments to NFIP Maps: A Guide for Community Officials," FIA 12. Include linkages to Cooperating Technical Communities program. (Eugene Zeisel, eugene.zeisel@fema.gov)
- 34. Represent FEMA at preparation meetings shaping the worldwide "Year of the Ocean" initiative being endorsed by the United Nations to promote and provide information and education regarding the impact of the ocean, seas, and coastal waters on everyday life. (Doug Bellomo)
- 35. Improve the Letter of Map Revision process by developing technical and administrative enclosures which succinctly describe map changes and community responsibilities as a result of Letters of Map Revision. (Doug Bellomo)
- 36. (removed)
- 37. Identify and compile FEMA's regulations and laws and recommend changes to remove or minimize impediments to FEMA's Map Modernization Plan. (Cecelia Lynch, cecelia.lynch@fema.gov)

The New Map Modernization Objectives: Moving Full Steam Ahead

Only a few months after FEMA announced the addition of two new map modernization objectives — Automated Hydrologic and Hydraulic (H&H) Modeling and Approximate Zone A Areas — objective leaders are reporting significant progress on both.

The purpose of the Automated H&H objective is to assess available technologies to automate the different aspects of floodplain analyses, including hydrologic and hydraulic modeling and floodplain mapping. Objective leader Sally Magee, of FEMA Headquarters, said that a work group assembled in May has already held several meetings. The group has developed a detailed list of well-known automation tools and held preliminary discussions on the development of an Internet-based educational package. The group also has discussed various issues, such as whether the “tools” are computer models, and, thus, subject to strict National Flood Insurance Program model regulations, and developed a procedural memo to clarify these issues.

The objective’s action plan includes:

- ✓ Continuing work on researching and documenting available tools and their capabilities.
- ✓ Developing draft and final reports summarizing the findings.
- ✓ Developing an Internet-based tutorial program to explain common techniques for automated H&H modeling and mapping.
- ✓ Creation of Automated H&H Web site.

The objective also includes a set of deliverables after all tasks are completed. These include:

- ✓ **Final report.** The report will provide an assessment of available technologies being used for automated H&H and mapping as well as a detailed explanation of each tool, including its capabilities, availability, GIS platform, limitations and other information. FEMA Regional Engineers, Cooperating Technical Communities, or Study Contractors interested in automating part or all of the floodplain analysis processes can use the report.

- ✓ **Automated H&H Tutorial Program.** The tutorial program will be Internet-based and can be used by engineers to learn automated H&H modeling. It will focus on the data requirements and detailed steps to be followed to perform automated H&H modeling tasks. Its widely accepted and commonly used automation tools will make the tutorial program useful to a wide audience.

The second objective is the Approximate Zone A Areas objective led by Mike Goetz, of FEMA Region I. FEMA officials estimate that approximately 50 to 70 percent of Special Flood Hazard Areas (SFHAs), the areas subject to inundation by the base (1-percent-annual-chance) flood, have the approximate Zone A designation. Zone A is used to designate SFHAs studied by approximate methods. Base flood elevations are not determined in areas designated Zone A. These areas create unique problems for communities and private landowners because of the lack of detailed information. Zone

A areas will be addressed as FEMA upgrades the flood map inventory.

This objective includes developing guidance, tools and processes to ensure, as the inventory is upgraded, that:

- ✓ Zone A areas are converted to detailed study areas where warranted by the level of existing and/or proposed development.
- ✓ Zone A areas are more accurately delineated where detailed studies are not warranted.
- ✓ Erroneous Zone A areas are removed.

To date, a work plan has been developed for this objective. It includes:

- ✓ Developing guidance for evaluating Zone A areas at the scoping phase of flood studies.
- ✓ Developing recommendations and related guidance documents for improving Zone A processing.
- ✓ Assessing automation technologies and analysis methodologies for revising/redelineating Zone A areas.

A recommendation report to address the items listed under the action plan will be released this fall.

For additional information on these objectives, please see “FEMA Announces New Map Modernization Objectives” in the July/August issue of *Work In Progress*.

Mike Goetz (michael.goetz@fema.gov) is a Team Leader in the Hazards Identification and Risk Assessment Branch of FEMA’s Region I Office.

Sally Magee (sally.magee@fema.gov) is a Civil Engineer in the Hazards Study Branch of the Technical Services Division.

Fiscal Year 1999 FMAC Performance Report

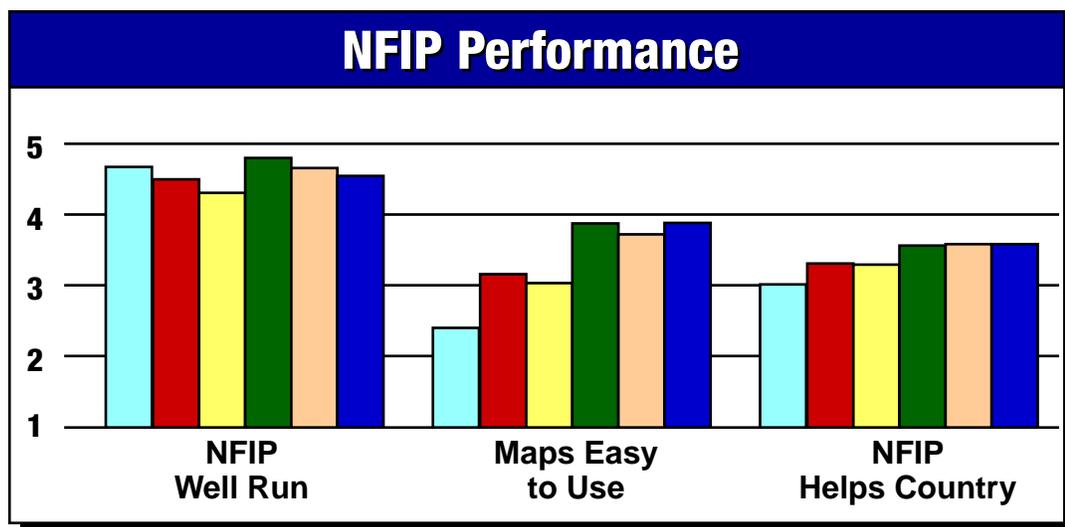
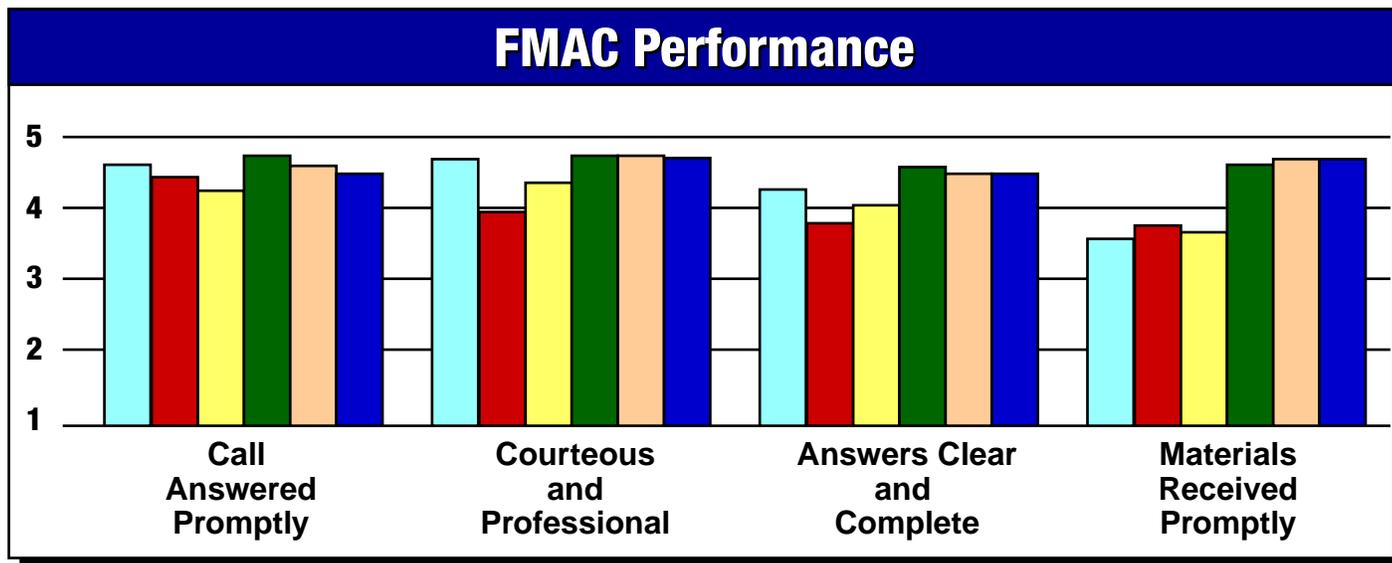
Fiscal Year 1999 Performance Indicators:

Establish a baseline rating for customer satisfaction with the flood mapping program

Has this goal been met? No Yes

KEY	
■ April	■ July
■ May	■ August
■ June	■ September

Rating Scale: 1=Strongly disagree . . . 5=Strongly agree





reports prepared during the study. The PWG included a nationwide mix of individuals from academia; Federal, State, regional and local government; and the private sector.

Based on the literature review, case study analysis, and input from the PWG, methodologies for analyzing and mapping REHAs were identified. A determination on technological feasibility was reached. Using cost data associated with existing case studies, the study team estimated the approximate unit cost (i.e., cost per river mile) of conducting riverine erosion hazard studies and adding the areas to existing Flood Insurance Rate Maps (FIRMs). The study team estimated the approximate overall costs for conducting studies and mapping the REHAs nationwide.

The Executive Summary and Full Report can be viewed/downloaded at www.fema.gov/mit/tsd/ft_reha.htm.

Mike Grimm (michael.grimm@fema.gov) is a Hydraulic Engineer in the Hazards Study Branch of the Technical Services Division.

Work in Progress was produced with the valuable assistance of many individuals in the Mitigation Directorate and across FEMA who contribute to the success of the Map Modernization Plan.

Michael J. Armstrong
Associate Director for Mitigation

Michael K. Buckley
Director, Technical Services Division

Anne Flowers
Editor

500 C Street, S.W., Washington, D.C.
20472
facsimile: 202-646-4596
email: mapmod@fema.gov



On the Bandwagon

The following organizations have formally expressed their support of FEMA's Flood Map Modernization Plan:

- American Congress of Surveying and Mapping
- American Society of Civil Engineers
- Association of State Floodplain Managers
- Illinois Department of Natural Resources
- Illinois General Assembly
- National Association of Flood and Stormwater Management Agencies
- National Emergency Management Association
- National League of Cities
- National Flood Determination Association
- National Lenders' Insurance Council
- Ohio River Basin Water Management Council
- Oregon's Seventieth Legislative Assembly
- State of Oregon
- Technical Mapping Advisory Council
- United States Geological Survey
- Western Governors' Association

“By modernizing the flood hazard mapping program, FEMA can better serve the citizens of the United States. Disaster preparedness relies on accurate determination of risk in all of its components....”

— **National Lenders' Insurance Council**

Important FEMA Telephone Numbers



For technical support for LOMAs, LOMR-Fs and LODRs	1-877-336-2627 (FEMA MAP)
For information about the NFIP's Preferred Risk Policy	1-800-427-9662
To order current FEMA publications	1-800-480-2520
Flood Insurance Information Hotline	1-800-427-4661
To order current FEMA floodplain maps	1-800-358-9616
FEMA's 24-hour FAX-on-demand system	1-800-646-FEMA TDD:1-800-427-5593

Members of the general public, as well as engineers, surveyors and representatives of local, state and Federal agencies may dial these numbers to obtain information about various subjects, such as flood insurance and map revisions/amendments. Callers may also use these numbers to obtain information packets and order FEMA publications and map products.

"A Message From Mike..." continued from page 1

- An updated estimate was made for on-going activities including customer, technical, and program support activities.
- The significant increase in demand for map revisions over the past several years has been factored in.

Technological advances and conversion of the mapping inventory to a digital format are expected to result in significant cost savings. FEMA is aggressively participating in several initiatives to test new remote-sensing technologies (most notably, LIDAR and IFSAR) for flood mapping applications. Additionally, the collection of topographic data in digital format will allow development of Digital Elevation Models (DEMs), which will greatly facilitate the automation of engineering analyses. This automation will result in more cost-effective map updates as watershed and floodplain conditions change over time.

Present funding levels do not allow FEMA to fully implement the plan. However, we continue to pursue various options for funding the plan and are working with FEMA's Office of Financial Management, the Federal Insurance Administration, and the President's Office of Management and Budget.

Mike Buckley (mike.buckley@fema.gov)
is Director of the Technical Services Division
of FEMA's National Office.

Future Conditions Hydrology Report Now Available on the Web

One of the objectives of FEMA's Map Modernization Plan is to evaluate the use of future conditions hydrology and to develop recommendations and specifications for its use. To help achieve that goal, FEMA has prepared the draft report *Modernizing FEMA's Flood Hazard Mapping Program: Recommendations for Using Future Conditions Hydrology for the National Flood Insurance Program*.

The report defines future conditions to be land-use conditions as shown on current zoning maps or comprehensive land-use plans. Future conditions hydrology is then defined as the flood discharges that would occur if the land-use conditions on these maps and plans were realized. To learn more about future conditions hydrology, or to view a copy of the report, visit http://www.fema.gov/mit/tsd/ft_futur.htm.

