

1.0 INTRODUCTION

Floods cause more damage and economic losses in the United States than any other type of natural disaster. According to the ISO's Property Claim Services unit, a record of nearly \$53 billion worth of insured property was damaged, resulting in 3.2 million claims in 2005. The claims for 2005 alone were greater than all claims the National Flood Insurance Program (NFIP) has paid out from 1968-2004 combined. For decades, the national response to flood disasters generally was limited to flood control works such as levees and dams, and providing disaster relief to flood victims. Although helpful, this approach has not done enough to reduce losses or discourage unwise floodplain development. To compound the problem, the public often could not buy flood coverage from insurance companies, and building techniques that could reduce flood damage often were

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overlooked. In the face of mounting flood losses and escalating disaster relief costs to taxpayers, Congress created the NFIP in 1968.

The Department of Homeland Security's (DHS's) Federal Emergency Management Agency (FEMA) is the Federal agency with primary responsibility for assisting local and State governments, private entities, and individuals in preparing for, mitigating, responding to, and recovering from natural disasters, including floods. The NFIP is the key component of FEMA's efforts to minimize or mitigate the damage and financial impact of floods on the public, and to limit Federal expenditures needed after floods occur.

The NFIP's objectives are to reduce flood damage and provide an insurance mechanism for those most in need of protection. To that end, FEMA has been identifying and assessing flood hazards, providing Special Flood Hazard Area information on maps, and setting national floodplain management requirements that are adopted and enforced by communities choosing to participate in the NFIP. Minimizing the flood risk for new and existing development has protected citizens' lives, property, and personal finances.

Many people within the United States live along streams, coasts, or lakes for which flood hazards have not been identified on maps, or where the maps are outdated and do not accurately portray existing flood hazards. The flood hazard and mapping data is currently being updated. With anticipated 5 years of funding (FY04-FY08), FEMA has embarked on an effort to update the Nation's flood maps through Flood Map Modernization. The Multi-Year Flood Hazard Identification Plan (MHIP) defines how FEMA will produce updated, digital flood-hazard data for areas with the greatest flood risk.

1.1 National Flood Insurance Program Background

In response to escalating flood damage, Congress established the NFIP with the passage of the National Flood Insurance Act of 1968. The program was expanded in 1973, requiring that flood

insurance be purchased as a condition of federally backed financial assistance; enforcement provisions were added in 1994. The Federal program enables property owners in participating communities to purchase insurance as a protection against flood losses, in exchange for community and State commitments to establish and implement floodplain management regulations targeted at reducing future flood damages.

Participation in the NFIP is voluntary and based on an agreement between communities and the Federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk in floodplains, the Federal government makes flood insurance available within the community. This insurance provides an alternative to disaster assistance and reduces the taxpayer burden of escalating costs for repairing flood damage to buildings and their contents by sharing the risk among policyholders.

Since its inception, the NFIP has sought to minimize flood-related property losses by making flood insurance available on reasonable terms and encouraging its purchase by people who need insurance protection. The NFIP identifies and maps flood-prone areas, makes flood insurance available to property owners in the more than 21,000 communities that currently participate in the program, and requires that participating communities enact floodplain management measures to mitigate flood hazards. In the early 1990s, FEMA began to collect data and information to develop flood maps in digital format. In 1994, the President issued Executive Order 12906, which mandated that standards for digital geographic data be applied uniformly throughout the Federal government. Anticipating that electronic data would soon become the standard vehicle for information delivery, and in an attempt to make flood map production more cost-effective and efficient, FEMA developed a prototype digital flood map.

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FEMA developed an initial strategy for Flood Map Modernization and provided a vision for a 5-year, \$1 billion program. This approach targeted the creation of a digital flood layer for the Nation as the highest priority. This vision was formalized in 1997 and subsequently updated and refined in 1999, 2001, 2004, and 2006. Flood Map Modernization was designed to achieve this vision, as well as to respond to congressional intent and stakeholder input, by leveraging program resources through partnerships with other Federal agencies and State and local governments involved in the NFIP.

The goals of the Flood Map Modernization initiative in 2001 as stated in *Modernizing FEMA's Flood Hazard Mapping Program: A Progress Report* were to convert approximately 80 percent of existing paper map panels to digital format with a high-quality base map, update 20 percent of the existing panels with new flood risk information while converting them to digital format, and add 13,700 completely new panels (also in digital format) to cover previously unmapped communities.

This updated plan reflects the recommendations of the 1995-2000 Technical Mapping Advisory Council created by Congress.

When FEMA developed the initial Flood Map Modernization plan for updating the Nation's flood maps, a sampling of existing paper flood maps was the best means available to establish these estimates and baselines that were needed to develop the parameters of a nationwide rollout of this important initiative.

Recognizing the relationship between damage reduction and accurate flood hazard maps, Congress appropriated significant funding for Flood Map Modernization. The substantial increase in funding reflects the priority and commitment that the President and Congress have placed on Flood Map Modernization.

1.2 Flood Map Modernization

Some of the flood maps in FEMA's inventory are not current. Along with the goals established as a part of Flood Map Modernization, FEMA must continue to revise its maps for five primary reasons:

- New development and storm impacts may change the physical environment such that the flood maps no longer accurately depict actual risks.
- Better data has become available from improved topography, continued observations of rainfall and stream gages, and other sources.
- New methods and models are available, providing more accurate predictions.
- Many areas have never been mapped.
- Improving the accuracy of flood maps can help to reduce the loss of life and property damage by better informing the public about current flood hazards.

Through Flood Map Modernization, FEMA is producing more reliable and accessible flood maps by using advanced technology to gather accurate data and make the resulting information available via the Mapping Information Platform (MIP) (<https://hazards.fema.gov>). The MIP promotes FEMA's objectives of sharing data openly to enable States and local communities to significantly increase their role in developing and maintaining data about hazards. The following features and capabilities are offered through the MIP:

- Access to hazard data managed by FEMA and its partners via easy-to-navigate geospatial tools that can be used to locate maps and data, program news, and information
- An automated, workflow-driven process for flood map production
- Access to state-of-the-art flood map production tools

- Capture of intermediate engineering and mapping deliverables (data) to reduce the cost of revisions
- Tools for managing, monitoring, reporting, and tracking flood mapping studies
- Secure, single sign-on to key MIP capabilities and multiple levels of access based on user needs
- Access to training and education for FEMA contractors and mapping partners
- Access to interoperable, standards-based Web services such as Geospatial One-Stop and other business systems used by partners

As flood hazard data is updated, the flood map inventory becomes a digital map system enabling communities with Geographic Information Systems (GIS)-based technology to access risk data. This technology will help to increase awareness of flood hazards and access to flood data through electronic viewing, ordering, and distribution of maps. Although the flood hazard data FEMA develops will be used specifically for floodplain management, the data also will have applications for other purposes. The framework data and infrastructure developed by Flood Map Modernization also is expected to help local, State, and Federal officials mitigate and manage risk from multiple hazards, both natural and manmade, and identify high-risk areas and mapping needs. Reliable digital maps can provide a framework for developing additional data such as the location of hazardous material facilities, power plants, railroads, and airports for planning development and assessing internal weaknesses and evacuation routes.

Flood Map Modernization impacts millions of citizens nationwide. FEMA's flood maps serve the Nation for insurance and flood disaster mitigation and relief. In 2002, industry experts reported, lenders and insurance agents used flood maps more than 30 million times. Flood hazard maps impact some 2 million development permits issued for new structures each year, and all Federally regulated mortgages issued require that flood hazard maps be consulted. FEMA believes that Flood Map Modernization will result in more reliable, readily available, and easier-to-use flood maps and data for communities with the greatest flood risk.

Through Flood Map Modernization, FEMA is:

- Utilizing the MIP to manage, extract, share, and produce mapping information for Flood Map Modernization. The MIP is also a data production, management, and dissemination system for effective Digital Flood Insurance Rate Maps (DFIRMs) and other geospatial hazard information as well as providing users with engineering and mapping tools needed to produce DFIRMs. Additionally, the information and functionality are tailored to meet the needs of mapping partners, stakeholders, and the general public.
- Leveraging the use of local, State, and Federal resources, and transferring ownership and use of maps and data to communities and States. FEMA seeks to help local communities

and States acquire and maintain data. To do this, FEMA is building and maintaining effective partnerships with community, State, and regional entities before and during development of maps and data. FEMA already has experienced considerable success with such transfers through the Cooperating Technical Partners (CTP) program.

- Reducing processing time and cost of map updates and increasing accountability for spending by implementing results-oriented systems and standards that will facilitate the rapid exchange of data between mapping partners, stakeholders, FEMA staff, FEMA contractors, and other users.
- Communicating with mapping partners, stakeholders, and map users effectively, consistently, and continuously to maximize understanding of flood hazards and the risks that these hazards pose to life and property.
- Continuing to improve the quality and accuracy of national flood hazard data by developing GIS-based products with the best available technologies that meet enhanced technical standards as detailed in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners (Guidelines and Specifications)* (http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm).

1.3 Flood Map Modernization Objectives

In early 2006, FEMA performed a Mid-Course Adjustment that considered input from Congress, the U.S. Government Accountability Office (GAO), DHS's Inspector General, and other stakeholders.

In accordance with the Mid-Course Adjustment, which is described in more detail in section 1.4 of this MHIP, FEMA's objective for Flood Map Modernization is to provide reliable digital flood hazard data and maps for 92 percent of the Nation's population in communities with the greatest flood risk.

Other objectives of Flood Map Modernization are as follows:

1. **Establish and maintain a premier flood-hazard data collection and delivery system.** FEMA has created the MIP (<https://hazards.fema.gov>), which is a state-of-the-art geospatial system that collects and maintains the best data available, and provides easy access to reliable flood-hazard data and other information to support risk management applications and operations.
2. **Build and maintain mutually beneficial partnerships.** FEMA is fostering mutually beneficial partnerships that achieve shared outcomes through the communication of flood risk and other hazards, and by improving the systems that support them. Partnerships result in enhanced delivery of risk management applications and operations. Flood Map

Modernization includes innovative local, State, and Federal partnerships that use advanced technologies for determining and depicting flood hazards. Flood Map Modernization also includes improving e-Government processes for flood-hazard data collection and distribution. This includes the electronic Letter of Map Amendment tool, or eLOMA, an interactive online determination tool for MT-1 requests. eLOMA is a web-based application within the MIP that provides licensed land surveyors and professional engineers (licensed professionals) with a system to submit simple Letter of Map Amendment requests to FEMA. This tool is designed to make a determination based on the information submitted by the licensed professional and allow them to generate a determination from FEMA in minutes, a process that previously could take up to 60 days. Through this objective, FEMA intends to maximize the reuse of existing data and cost sharing in the collection of new data with local, State, and Federal partners.

3. **Achieve effective program management.** FEMA has developed a sound program management structure that motivates partners to share responsibilities and aligns with partners' missions to reduce the Nation's vulnerability to floods and other hazards. FEMA is developing and implementing data quality standards and product specifications in a way that minimizes the complexity of the standards while maximizing interoperability of the data and systems.
4. **Expand and better inform the user community.** FEMA implemented the Map Viewer tool on the MIP as a place for the public and stakeholders to obtain and understand flood and other hazard data as well as learn how to use and analyze these data to make sound decisions to reduce vulnerability to natural and manmade hazards.

1.4 Flood Map Modernization Mid-Course Adjustment

As initially envisioned in 2003, Flood Map Modernization focused on creating a digital flood layer for all communities at risk of flooding. Stakeholder recommendations indicated a preference for FEMA to focus on developing flood maps that meet new, higher standards for mapping and for allocating a greater percentage of resources to those communities at greatest flood risk. Many States and professional organizations have continued to express this preference, realizing that it would delay development of new maps for communities facing less flood risk.

FEMA is implementing changes that will result in providing better-targeted and more accurate flood data, while also producing flood maps for a significant portion of the Nation. These changes respond to Congressional direction and stakeholder input that the quality of maps not be sacrificed in order to produce a larger number of maps. It is estimated that, by the end of the initiative, 90 percent of the Nation's flood risk will have been mapped based on factors such as population, flood history, growth potential, and other similar characteristics. This approach will delay reaching the goal of having a complete national digital flood layer.

Table 1-1 shows the original projections for the end of Flood Map Modernization and the new projections described in FEMA's Mid-Course Adjustment.

Table 1-1. Comparison of Flood Map Modernization Output, Original Course vs. Adjusted Course

	Original Course	Adjusted Course
Percentage of mapped stream and coastal miles meeting 2005 Floodplain Boundary Standard	57%	75%
Percentage of population covered by maps meeting 2005 Floodplain Boundary Standard	32%	80%
Percentage of mapped stream and coastal miles with new, updated, or validated engineering analysis	22%	30%
Percentage of population covered by maps with new, updated, or validated engineering analysis	15%	40%
Percentage of land area of continental United States covered by digital flood maps	100%	65%
Percentage of U.S. population covered by digital flood maps	100%	92%

As a result of this adjustment, FEMA is implementing changes that will result in providing better-targeted and more accurate flood data, while also producing digital flood maps for a significant portion of the Nation. Specifically, FEMA has used the following parameters to identify flood risk areas:

- 2000 Population
- Population Change 1980-2000
- Housing Units
- NFIP Policies
- NFIP Claims
- Repetitive Loss Claims
- Repetitive Loss Properties
- Federally Declared Flood Disasters
- Predicted Population Growth to 2010
- Length of Stream/Coasts on Non-Federal Lands

Early in the implementation of Flood Map Modernization, Congress, the GAO, and stakeholders expressed concern about the quality of maps being produced. In response, FEMA established a Floodplain Boundary Standard to complement its existing *Guidelines and Specifications* (www.fema.gov/plan/prevent/fhm/dl_cgs.shtm). This standard, which varies depending on the flood risk for an area, is aimed at ensuring flood hazard boundary lines are adequately supported with topographic information. In the coming months, FEMA may slightly revise Floodplain Boundary Standard thresholds based on experience gained from the first round of audits, particularly as it relates to the delineation of the floodplain boundary at a printed map scale associated with a visible horizontal tolerance. These potential changes will not compromise the intent of the standard (to ensure floodplain boundaries are supported with topographic data) for digital precision, nor will they change the national target of 75 percent compliance. Rather, they will make the audit procedures more efficient and effective; thereby further improving product quality throughout the program.

Equally important, FEMA is on the verge of implementing a “validation” standard regarding the engineering analysis used to develop flood elevations. As outlined in the Mid-Course Adjustment, FEMA estimated that by the end of the 5-year Flood Map Modernization initiative, 30 percent of the stream miles mapped will be based on new, updated, or validated engineering analysis. The new standard is aimed at helping mapping partners determine where new studies must be conducted, where updates to existing flood hazards should be performed, and what might deem a study to still be valid. Three main factors considered in the development of this standard include:

- **Physical Changes** – These are changes in the watershed that can increase flood discharge, or changes within the watercourse, floodplain, or along the shoreline that can impact water flow. Examples of physical changes include increases in impervious surface, bridge construction, dam enhancements or changes in operations, wildfires, stream meandering and erosion, fill, and detention projects.
- **Changes in Climatology** – These can generally be thought of as changes in storm activity such as rainfall, hurricanes, or extratropical storms. For areas along rivers, periods of drought or above-average rainfall can impact estimated flood discharges which, in turn, can impact flood heights. Along the Nation’s coasts, intense events can often have statistically significant impacts on estimated storm surges.
- **Changes in Methodology** – Typically, changes in the science used to estimate flood stages are modest year to year; however, over many years, they can have an impact – particularly as computing capability increases.

1.5 Flood Map Modernization Performance

FEMA's Key Performance Parameter (KPP) for Flood Map Modernization measures the percentage of the population for whom FEMA will provide accurate flood risk data in GIS format (DFIRMs). FEMA's target for this KPP is 92 percent. This goal is expressed in table 1-2.

Table 1-2. Flood Map Modernization Key Performance Parameter

Parameter	Target
Percentage of the population whose safety is improved through availability of accurate flood risk data in GIS format	92%

To help achieve this goal, FEMA created the Key Performance Indicators (KPIs) for Flood Map Modernization to measure annual performance against a set of four metrics related to flood map production. FEMA set targets for the KPIs through FY08, the last year in which Flood Map Modernization is anticipated to receive Federal funding.

The four KPIs used to measure the success of Flood Map Modernization are shown in table 1-3. KPIs 1 and 2 are designed to measure population for whom maps are available online and population for whom counties have adopted maps. KPIs 3 and 4 measure the percentage of effort leveraged and percentage of funds sent to CTPs, respectively.

The targets for KPIs 1 and 2 were revised as a result of the Mid-Course Adjustment; as a result of the change in Flood Map Modernization focus and in recognition of potential risks to the mapping schedule described in section 1.7, the KPI 1 target for FY06 was maintained at 50 percent. The new targets are shown in table 1-3. Section 6, KPI Performance, presents actual and projected achievement for each of these KPIs.

The KPI targets are measured at a national level and began in FY04, the first year of full funding for Flood Map Modernization. Some regional statistics may exceed these KPIs and others may fall short; however, all regional statistics will roll-up to the national KPIs.

Table 1-3. Flood Map Modernization Key Performance Indicators

Key Performance Indicators		Targets				
KPI	Management Indicators	FY04	FY05	FY06	FY07	FY08
KPI 1	Percentage of population with digital GIS flood data available on-line	20%	50%	50%	60%	70%
KPI 2	Percentage of population with adopted maps that meet quality standards	10%	20%	25%	35%	50%
KPI 3	Percentage of leveraged contributions toward digital flood data	20%	20%	20%	20%	20%
KPI 4	Percentage of appropriated funds sent to CTPs	20%	25%	33%*	33%*	33%*

Note: KPIs 1 and 2 are cumulative. KPIs 3 and 4 are annual.

* - These targets for FY06-FY08 depend on the ability to develop local and State capability. There are significant assumptions in KPI 4 and FEMA is examining strategies to achieve the target numbers.

1.6 Flood Map Modernization Framework

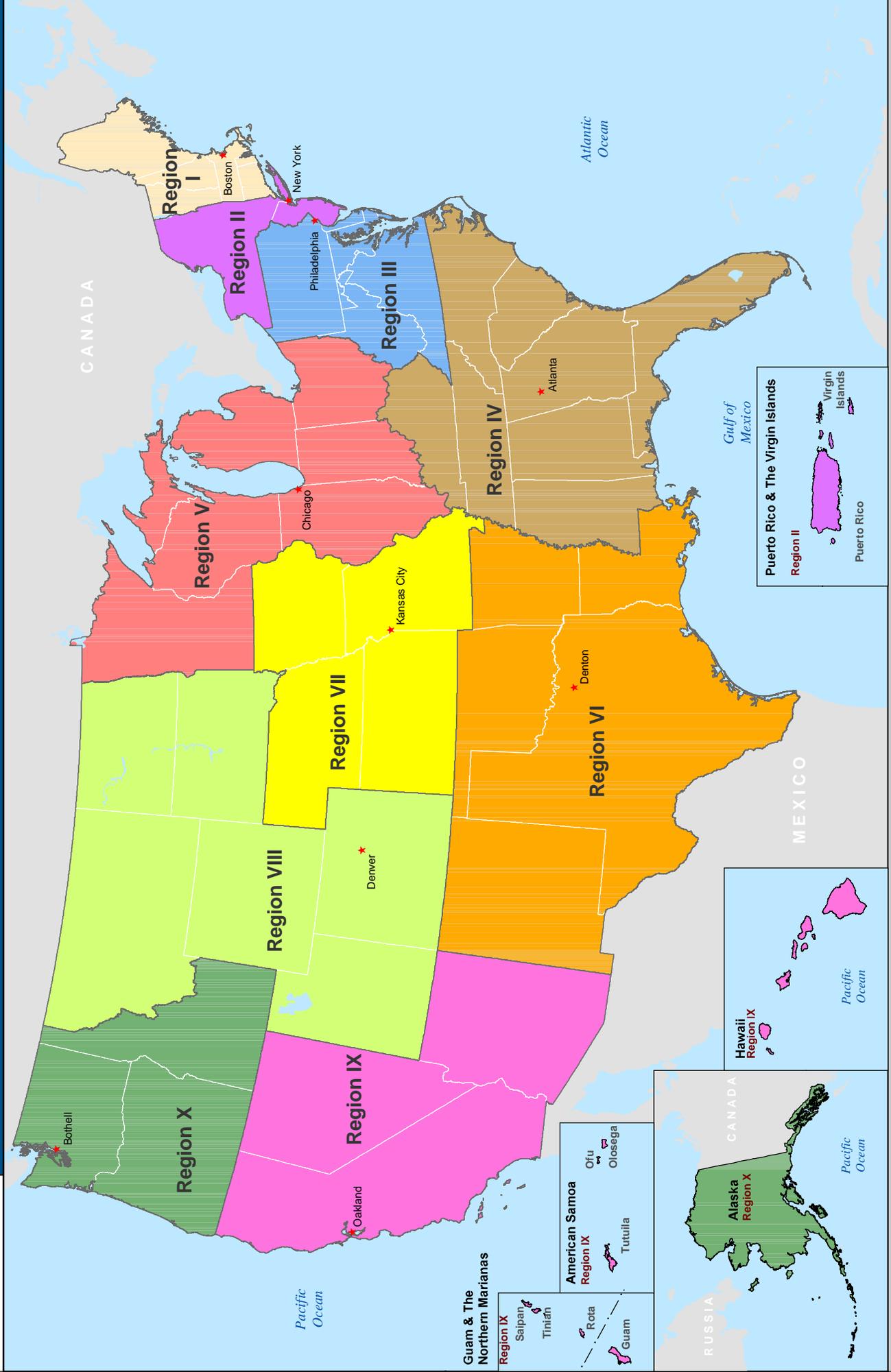
FEMA developed a program framework around anticipated funding for Flood Map Modernization. Map production costs are only a portion of total Flood Map Modernization costs. Flood Map Modernization funding must cover engineering and mapping; ongoing technical support; system and tools development; customer care and outreach; program management support; map maintenance; the development of methodologies and standards; needs assessment; library data management; and other activities.

Changes in overall funding may negatively affect the funds for map production by FEMA's Regions, which are shown in map 1-1, and the funding for the individual studies.

Section 3, Distribution of Funds to the Regions, provides details on FEMA's planned spending for Flood Map Modernization, focusing on map production and adoption.



Map 1-1. FEMA Regions



Projection: Albers Equal-Area Conic
Data Source: FEMA Sequencing Tool

1.7 Potential Risks to Flood Map Modernization Schedule

Appendix A of this MHIP outlines FEMA's planned map production schedule. Recognizing that certain factors could potentially affect this schedule, FEMA maintains a risk management inventory to catalog risks and possible methods of mitigating them. These potential risks include the following:

- **Recognition of levee system protection on Flood Insurance Rate Maps (FIRMs)** – Approximately one-quarter of all counties being mapped under Flood Map Modernization show levees on their existing FIRMs. Thus, recognition of those levees on FIRMs will need to be addressed within the mapping process. FEMA will only recognize those levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards. Code of Federal Regulations 44 (44 CFR) Section 65.10 describes the information needed to recognize whether a levee system provides protection from the base flood event. The required information must be supplied to FEMA by the community or other party seeking recognition of the levee system.
- **Coordination and timeframe of community review of updated FIRMs** – To facilitate community adoption of updated FIRMs, coordination of an adequate review and comment period with all impacted communities is necessary to provide due process. This coordination can be impacted by community ordinance or state law that requires the community to adopt the maps under strict guidelines or at a given time of year (e.g., annual meeting). When a community or other interested party files an appeal of its proposed Base Flood Elevations, FEMA or the mapping partner must review the data to determine if they are technically or scientifically correct. This appeals process is important to develop the most accurate maps possible. Data provided during this process can assist in this endeavor. However, this can result in delays to the map production schedule.
- **New Mapping Partners** – Mapping partners who are new to Flood Map Modernization may not be familiar with the complete map production process and workflow. The time required to coordinate and provide additional assistance and outreach to impacted communities and new flood mapping partners may impact projected timeframes for map update completion.
- **Natural Disasters** – In the event of a natural disaster, FEMA staff supporting the Flood Map Modernization effort may be tasked to provide support to areas impacted by natural disasters.
- **Funding** – The planned map production schedule is based on planned funding for Flood Map Modernization. Changes to planned funding amounts could impact the schedule for flood map production.

1.8 MHIP Benefits

With continued Presidential and congressional support, FEMA will produce updated digital data for areas of the Nation with greatest flood risk. The complexity of this task requires a detailed plan for performance, schedule, and cost.

Compared with the original plan released in November 2004, this MHIP reflects a change in course. A Mid-Course Adjustment was implemented within Flood Map Modernization. This updated MHIP presents FEMA's plan for accomplishing the DFIRM production activities for the Nation's highest-flood-risk areas. In general the MHIP provides:

- A planning tool to enable all stakeholders to anticipate future workload requirements such as new flood zone determinations and ordinance adoptions
- A planning tool to support the decision-making processes of local, State, and regional community partners
- A flexible tool that allows FEMA and its partners to balance national goals and local mapping needs
- An input process that maximizes stakeholder involvement and clear communication (to maintain stakeholder awareness of the planning effort and encourage partner participation and contributions)
- A methodology for Flood Map Modernization funding distributions
- Planned costs and schedules for current and future map updates for counties, parishes, boroughs, cities, townships, tribal lands, and territories where there is flood risk
- A dynamic method to revise scheduling for flood map production for studies funded through FY06 and future years
- A mechanism for clear reporting of progress for greater accountability

1.9 MHIP Process

The MHIP is a vital tool for communicating with stakeholders on subjects such as the distribution of Flood Map Modernization funds, the mechanisms for forecasting and sequencing flood studies, and advancements in processes, procedures, and tools. In addition, the MHIP communicates program progress toward national goals.

1.9.1 Collaborative Process for a Plan Developed by FEMA and Stakeholders

The MHIP provides all mapping partners with a 5-year plan for map production, based on anticipated funding through FY08. The MHIP also reflects proposed or estimated annual budget allocations, business plans, changing study and mapping needs, and new data and technology.

Section 2, Stakeholder Input, presents the MHIP process, showing the planned annual cycle of stakeholder inputs, appropriations, and MHIP updates. Communication is critical to the development, flexibility, and continual updating of the MHIP. Communication facilitates the proper identification of flood hazard risks and the proper allocation of funds to provide the appropriate method of engineering study for the level of risk in each community. The MHIP process and successful communication will provide quality map products to all areas of the Nation with the greatest flood risk. FEMA will refine the MHIP annually by integrating community data along with mapping needs identified by States, FEMA Regional Offices, and FEMA Headquarters.

1.9.2 Flexible Plan Allows Regular Updates to Adapt to Changing Conditions

The concept of a rolling plan is not new. In general, the MHIP process is modeled after the Federal Highway Administration's successful Transportation Improvement Plan (TIP) process.

Metropolitan areas develop TIPs to determine how Federal fund allocations will be spent on various projects. These TIPs are then aggregated at the State level. Because budgets, needs, and priorities may change from one year to the next, it is not uncommon for the TIP to have a project scheduled to be done in 3 years, only to have it delayed or scheduled earlier in the following year's TIP.

This MHIP also allows updates to plans at the local level, as FEMA continues to respond to changes at local and State levels. FEMA expects to similarly re-evaluate and, as needed, re-sequence the map production projects as better information becomes available and budgets and needs change.

1.9.3 Plan Development and Updates

The foundations for the MHIP are relative flood risk and business plans. In developing the initial MHIP, FEMA first assessed risk at the national level. FEMA used the overall picture of risk for the Nation to determine the allocation of funding by Region. FEMA's Regional Offices assessed risk and need at the regional level. State business plans, regional plans for Flood Map Modernization, and other input were considered in developing the sequencing at the regional level. Budgets were established for individual studies given the anticipated funding. The Regional Offices and communities further address specific local needs during the scoping process. These local needs also are submitted to FEMA's Headquarters via business plans and scoping data. The MHIP is posted on FEMA's Flood Hazard Mapping Web site

(http://www.fema.gov/plan/prevent/fhm/mh_main.shtml) for stakeholder viewing, with instructions for stakeholders to submit comments on the plan (see Section 2, Stakeholder Input).

1.10 Time Period Addressed by this MHIP

MHIP Version 1.0, dated November 2004, addressed flood hazard study and map updates initiated in FY04-FY08. MHIP Version 1.5 was released in June 2005 and was the first MHIP revision. Appendix F: Fiscal Year 2005 Flood Map Production (Version 1.6) was released in December 2005; it reports on flood map production actions performed in FY05. This newest revision, dated September 2006, is MHIP Version 2.0.

The process of flood hazard study production and map adoption by communities takes more than a year to complete. Therefore, the plan includes time periods falling between FY03 and FY10. References to these periods are, in general, related to flood hazard study production and map adoption timeframes, budget, the sequencing plan, the KPIs, or performance.

- **Flood Map Modernization funding period.** FEMA anticipates receiving funding for map production through FY08. Although Flood Map Modernization began in FY04, some studies were funded in FY03 and prior. This MHIP provides detailed tables and graphs of projected flood map production sequencing and projected funding allocations, based on anticipated overall funding at the county level. Actual funding levels for county flood map updates are determined as flood mapping projects are scoped and projects are further defined.
- **Flood Map Modernization production period.** FEMA anticipates receiving funding for studies through FY08. Flood Map Modernization currently is anticipated to run through FY10, although certain constraints could prevent completion by the end of that fiscal year.

1.11 Organization of the MHIP

The other sections of this version of the MHIP are organized and focused as follows:

- **Section 2, Stakeholder Input:** This section summarizes findings from the State and regional plans and describes how additional data will be collected and used to refine sequencing and funding distributions. It also explains how stakeholders can submit questions and comments about the MHIP and how FEMA will keep them informed about MHIP updates.
- **Section 3, Distribution of Funds to the Regions:** This section presents the funding distribution factors, how these were used to determine the program phasing for the counties, and how final distributions were made based on other factors. The section also describes the use of sequencing as a tool in the distribution of funds.
- **Section 4, FY03-FY06 Production Report:** This section provides the current status of project goals, presents the sequencing tool, and defines how it is used and what information it provides. This section also presents the levels of funding for FY03 through

FY06, describes how the actual performance compares to the national goals, and summarizes the overall progress to date.

- Section 5, FY06-FY10 Production Forecast: This section presents planned activities for FY06 through FY10.
- Section 6, KPI Performance: This section discusses FEMA's past, present, and future Flood Map Modernization performance as it relates to the KPP and KPIs.
- Section 7, Map Quality: This section has not been revised for this MHIP update. Section 7 of MHIP Version 1.5 is available on FEMA's Flood Hazard Mapping Web site (http://www.fema.gov/plan/prevent/fhm/mh_main.shtm).
- Section 8, Cost-Saving Processes, Procedures, and Tools: This section has not been revised for this MHIP update. Section 8 of MHIP Version 1.5 is available on FEMA's Flood Hazard Mapping Web site (http://www.fema.gov/plan/prevent/fhm/mh_main.shtm).
- Section 9, Geospatial Data Coordination: This section has not been revised for this MHIP update. Section 9 of MHIP Version 1.5 is available on FEMA's Flood Hazard Mapping Web site (http://www.fema.gov/plan/prevent/fhm/mh_main.shtm).
- Section 10, MHIP Updates: This section restates FEMA's effort moving forward to continue to refine the MHIP.
- Appendix A, Detailed Production Report – Sequencing by County: This appendix provides a list, by Region and State, of all counties, the funding they have received or are anticipated to receive, and when their maps became or are scheduled to become effective.
- Appendix B, Maps: This appendix includes a series of maps that show, by year, which counties' maps will become effective.
- Appendix C, Flood Map Modernization Business Plans: This appendix has not been revised for this MHIP update. Appendix C of MHIP Version 1.5 is available on FEMA's Flood Hazard Mapping Web site (http://www.fema.gov/plan/prevent/fhm/mh_main.shtm).
- Appendix D, FY07-FY08 Funding Calculations: This appendix shows data used in determining funding calculations for upcoming years.
- Appendix E, Acronyms and Terms: This appendix shows acronyms and terms used throughout the MHIP.
- Appendix F, Fiscal Year 2005 Flood Map Production: This appendix has not been revised for this MHIP update. Appendix F of MHIP Version 1.6 is available on FEMA's Flood Hazard Mapping Web site (http://www.fema.gov/plan/prevent/fhm/mh_main.shtm).