

# FEMA's Flood Map Modernization— Preparing for FY09 and Beyond: Integrated Flood Data Update, Risk Assessment, and Mitigation Planning

DRAFT CONCEPT PAPER

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## 1. Overview

Flood Map Modernization has brought FEMA's maps and mapping process into the 21<sup>st</sup> century. The digital technologies advanced through Map Modernization have opened doors that allow more informed, sophisticated, and effective ways for local and state governments to assess, communicate, and reduce flood risk. However, urgent needs continue beyond 2008. Phase I brought the flood map inventory of the National Flood Insurance Program (NFIP) into the digital world. FEMA can now more fully assess its flood hazard data and maps and identify aspects of the data requiring updates to credibly identify the Nation's flood risk.

It is critical that the underlying data of the Flood Insurance Rate Maps remain relevant so that home and business owners, lenders, floodplain managers and others can make decisions with confidence. Data lacking credibility leads to inaction, which may leave communities and homeowners in jeopardy of sustaining losses with no recovery mechanism to restore/rebuild their homes and their lives. Credible flood hazard data is the foundation for NFIP actuarial soundness by facilitating informed floodplain management decisions and allowing for more equitable flood policy rating. All of which leads to better prepared and informed citizens.

With the strong foundation of Flood Map Modernization Phase I in place, FEMA's Mitigation Directorate is considering fairly significant philosophical and tactical shifts in how it delivers information necessary for flood hazard reduction. FY09 would mark the beginning of a *significantly improved integrated flood risk management approach by weaving county-level flood hazard data developed in support of the NFIP into watershed-based risk assessments which serve as the foundation for local Hazard Mitigation Plans and targeted risk communication activities*. FEMA will focus on filling flood hazard data needs and expanding and improving utility and accessibility of the flood hazard and risk data. FEMA will build on the benefits of digital flood hazard data, allowing easy access through our web-based portal and enabling powerful data analysis that quantifies flood risk in ways that facilitate improved mitigation planning and measures flood risk reduction.

The concepts presented here form an appreciably improved, integrated approach to identifying flood hazards that are then woven into watershed-based risk assessments and State and local Hazard Mitigation Plans. Moving the conversation with local communities beyond a single focus on flood hazard identification to a fuller appreciation of the necessary local action required puts in motion critical flood mitigation activities that will further reduce the loss of life and property—the fundamental premise of FEMA's mission. This integrated flood risk management approach would build on the benefits of Flood Map Modernization and enable FEMA and its qualified partners to:

1. Identify flood hazard data needs and establish a life-cycle approach to mapping updates, including areas along our Nation's coasts and those protected by levees;

2. Conduct informative watershed based flood risk assessments for all watersheds in the Nation opening the door for more effective risk communication, flood mitigation planning, and flood risk reduction performance tracking;
3. Ensure Hazard Mitigation Plans (required by the Disaster Management Act of 2000 and the National Flood Insurance Reform Act of 2004) are assessed and updated every five years; and
4. Keep the Nation's flood maps credible, enhance their quality, and maintain ease of data availability.

The participation of flood hazard mapping partners and stakeholders in planning and executing flood hazard data and map updates enables the ongoing success of Flood Map Modernization Phase I. The continued involvement of stakeholders is critical to FEMA's efforts to sustain and expand the benefits to public safety and loss reduction achieved in Flood Map Modernization Phase I.

This concept paper provides a proposed vision for Phase II. This scalable concept rests on numerous dependencies that must be addressed as the strategy is refined. Seeking feedback from mapping stakeholders on the concepts in this paper is a first step in the planning process for Phase II. Based on that feedback, FEMA may refine its approach to Phase II.

## 2. Flood Map Modernization Phase I

From the inception of the NFIP, the U.S. Department of Housing and Urban Development and then FEMA used the prevailing map production methods when creating flood maps for floodprone communities nationwide. Initially, paper map production methods were used to create the NFIP mapping inventory. However, with the development of computer-based Geographic Information System (GIS) technologies, the paper-map-making processes gave way to improved, digital production processes. As GIS technologies have advanced, the production of digital flood maps and related products also has advanced.

FEMA undertook the in-progress, multi-year Map Modernization Program to provide a technology-based, cost-effective, long-term process for updating, maintaining, storing, and distributing the flood hazard and risk information portrayed on the flood maps. Digital maps have tremendous advantages over paper maps – including the ability to present the information in a variety of ways to improve understanding, support more powerful analysis, electronic access and transmission, and lower long-term production and maintenance costs. To achieve this vision, as well as to respond to Congressional intent and stakeholder input, FEMA designed Map Modernization to leverage program resources through partnerships with other Federal agencies and State and local governments involved with the NFIP and flood hazard identification.

The first phase of Flood Map Modernization will provide:

- A solid performance based project and program management infrastructure focused on results;
- A premier flood data collection and dissemination platform;
- Strong effective partnerships with state, local, and other federal governments;
- Digital flood hazard data and maps for 92% of the Nation's population;
- New, updated, or validated flood hazard data for 30% of the mapped stream miles; and
- Credible floodplain boundaries for 75% of mapped stream and coastal miles.

As part of Flood Map Modernization Phase I, FEMA created a national system for tracking and collecting data using internet portal technology. FEMA's portal, developed during Phase I as the Mapping Information Platform (MIP), provides tools to track flood map update projects and collect flood hazard data as it is developed during the update process. The digital flood hazard data and Digital Flood Insurance Rate Map (DFIRM) developed during Flood Map Modernization Phase I are stored digitally and are then readily accessible for future updates or other uses. The DFIRMs and subsequent letters of map change constitute the National Flood Layer that serves as the flood hazard mapping repository for the nation, all of which are viewable through FEMA's portal. This

portal allows for mapping partners across the country to follow a standardized process to produce a DFIRM so that mapping projects can be tracked, evaluated for performance, and the program managed at the regional and national levels.

### 3. Flood Hazard Data Needs Identified in Flood Map Modernization

Although much has been accomplished, more needs to be done. Three specific flood hazard data investments are proposed in Phase II.

#### 3.1. Extending Digital Maps to All Participating Communities

The first phase of Flood Map Modernization will develop digital Flood Insurance Rate Maps (FIRMs) for 92% of the Nation's population. While successful delivery of these products is a major accomplishment not every community participating in the NFIP will have received a modernized map. Beginning in FY09, FEMA plans to provide digital flood hazard data and maps to the communities participating in the NFIP that may have been impacted by the Map Modernization mid-course adjustment.

#### 3.2. Levee Flood Hazard Data Needs

During Phase I, FEMA is assessing the status of levee systems nationwide to ensure any levee accredited as providing base flood protection on Flood Insurance Rate Maps is compliant with NFIP regulatory requirements. In many cases, we found levees whose actual level of protection was not known. As a result, FEMA has been working closely with the U. S. Army Corps of Engineers (USACE) to ensure the level of protection afforded by levees in the USACE Federal system is understood. Regardless, there are many non-Federal system levees where flood protection levels remain questionable. In Flood Map Modernization Phase II, FEMA would:

- Verify proper documentation and update levee flood hazard zone designations, if warranted, for those communities where levee status has changed or is better understood;
- Review and, if needed, update flood hazard zone designations for communities that received Provisionally Accredited Levee status in Flood Map Modernization and the 24 month period has elapsed; and
- In coordination with the USACE and with assistance from levee owners, update levee status information in the National Levee Database for both Federal and non-Federal levees that are reflected on FIRMs. The National Levee Database is currently being designed and populated by USACE for levees under which they have responsibilities.



In coordination with the USACE, a national inventory of levees should be in place for those levees that are reflected on FIRMs. The inventory will include among other things, levee location in GIS format and the accreditation status. Once an inventory is in place, FEMA plans to continue to assist the USACE in maintaining the information in the levee inventory beyond Phase II to ensure that flood hazard zone designations in levee impacted areas accurately reflect flood risk.

### 3.3. Coastal Flood Hazard Data Needs

All U.S. coastal communities are subject to flooding and many of our more urban coastal cities face huge risks. In Map Modernization, FEMA updated the methodology for determining coastal flood hazards in recognition of the flood hazard data update need for these high population, high flood risk areas. Beginning in FY09, FEMA would address coastal flood hazards using a basin approach, targeting the Gulf, Atlantic, Pacific, and Great Lakes basins on a statewide basis as directed by Congress (“Committee Report for Appropriation Bill, FY 2003, Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies”). This approach will address coastal mapping needs, including revisions to the Base Flood Elevations based on new coastal hydrology and hydraulics as well as the acquisition of topographic and bathymetric data where needed.

## 4. Integrated Risk Assessment and Mitigation Planning

FEMA has learned that it is not enough to simply identify the flood hazard and accept NFIP minimum requirements—effective mitigation requires further action by the community. Maintaining flood hazard data increases confidence with homeowners and communities, leads to better floodplain management, and reduces losses to life and property. Sharing those data openly reduces costs to the public and other sectors of the Federal government by avoiding redundancy in collecting information common to many areas, such as dealing with water quality and quantity. These community actions include the incorporation of the new flood hazard data into community flood risk assessments and local Hazard Mitigation Plans, as well as greater participation in programs like FEMA’s Community Rating System. Leveraging the flood hazard data into community mitigation action stands as the required next step to build on the value of the first phase of Map Modernization and further reduce the Nation’s vulnerability to flood damage. FEMA must provide leadership and technical assistance to make this possible.

The Government Accountability Office (GAO) recommended in their report “Flood Map Modernization: Program Strategy Shows Promise, but Challenges Remain” (GAO 04-417, dated March 2004) that FEMA evaluate the benefits of increasing stakeholders’ awareness and use of

flood hazard data and maps in their economic and planning decisions. The next phase in Map Modernization holds the greatest promise to bring these sometimes disparate elements into an integrated whole—where flood hazard data becomes the basis of a rigorous risk assessment and that assessed risk drives the communities’ planning and floodplain management efforts that exceed NFIP minimum participation requirements.

### 4.1. Flood Risk Assessment

Watershed based flood risk assessments, developed with credible flood hazard data, will enable FEMA to increase stakeholders’ awareness of their flood risk and use of flood hazard data and maps in their economic and planning decisions, as recommended by GAO. FEMA seeks to conduct an initial baseline flood risk assessment for all watershed basins in the Nation. FEMA will provide the flood risk assessments to the public at large with focused outreach to State and local emergency managers, planners, and first responders demonstrating their value as an effective tool for making more informed sustainable land use decisions and communicate risk. FEMA will develop a process to run risk assessments routinely, allowing the variance in risk resulting from mitigation activities or growth to be measured. The latest version of FEMA’s loss estimation tool, HAZUS-MH, has been optimized to take full advantage of the new data developed in Flood Map Modernization.

### 4.2. Mitigation Planning

Throughout Flood Map Modernization Phase I, FEMA has partnered with States, Tribes, local communities, and regional entities and initiated a process to re-validate floodplain areas and flood hazard zones at least once every five years. Mitigation planning, as required by the Disaster Mitigation Act of 2000 and the National Flood Insurance Act of 2004, also requires re-validation of risk data through a multi-hazard approach for all hazards in local Hazard Mitigation Plans on a five-year basis. FEMA proposes Phase II to build on the benefits of Flood Map Modernization Phase I and create an integrated flood risk management approach to reduce the impacts of flood hazards. GAO recommended that FEMA evaluate the benefits to stakeholders utilizing flood hazard data in their economic and planning decisions.

The efforts proposed under Phase II enable FEMA to:

- Ensure Hazard Mitigation Plans (as required by the Disaster Management Act of 2000) are assessed and updated every five years;
- Provide risk assessment data to State and local planners; and
- Enable coordinated flood risk management with States, Tribes, local communities, territories, regional entities, and Federal agencies.

Under the Disaster Mitigation Act of 2000 (Public Law 106-390), State, local, and tribal governments are required to develop a Hazard Mitigation Plan as a condition for receiving certain types of non-emergency disaster assistance. In addition, the National Flood Insurance Reform Act

of 2004 made Hazard Mitigation Plans a condition of receiving increased funding for mitigation grants through the National Flood Insurance Fund. A Hazard Mitigation Plan is a long-term strategy for reducing disaster losses. The mitigation planning process is as important as the resulting Hazard Mitigation Plan because it encourages jurisdictions to integrate mitigation with day-to-day decision making regarding land-use planning, floodplain management, site design, and other functions. Local mitigation planning includes the following elements: planning process and public involvement, risk assessment, mitigation strategy, and plan maintenance.

FEMA also engages with communities impacted by flood hazard data updates in the flood mapping scoping process. FEMA collaborates with States, regional, and local mapping partners in the flood map production sequencing and planning process. Moving the conversation with local communities beyond a single focus on flood hazard identification to a fuller appreciation of the necessary local action required not only puts in motion critical mitigation activities but will reduce the loss of life and property—the fundamental premise of FEMA’s mission.

### 4.3. Communicating Flood Risk

As part of Flood Map Modernization Phase I, FEMA communicates with States, Tribes, local communities, and regional entities impacted by flood map updates throughout the entire flood hazard data and map production process. In Flood Map Modernization Phase II, communicating flood risk will be a major force. As pointed out in the GAO recommendations, FEMA must better enable communities to take action based on their identified flood risk.

One significant area of action focuses on floodplain management. While attention is rightfully paid to the adoption of new Flood Insurance Rate Maps, communities reduce their future flood damage to buildings and their contents by managing their floodplains and implementing mitigation measures. Insurance only allows individuals to more readily recover from damage; insurance policies do not reduce flood hazard risk, rather they spread that risk as equitably as possible.

Beyond community action, FEMA wants to continue equipping the general public with information to make informed decisions for their individual lives. Through GIS-enabled technologies, the flood hazard risk data and the associated assessments will be available to the public at large.

## 5. Assessing On-going Flood Hazard Updates

Maintaining flood hazard data increases confidence with homeowners and communities, leads to better floodplain management, and reduces losses to life and property. Sharing those data openly reduces costs to the public and other sectors of the Federal government by avoiding redundancy in collecting information common to many areas, such as dealing with water quality and quantity. Certainty and confidence in these data will also result in more focused action by the homeowners and communities (as sought in standing GAO recommendations about this program).

The digital data foundation created through Map Modernization is not self-sustaining. FEMA will *keep the Nation's flood maps credible, enhance their quality, and maintain ease of data availability*, by:

- a) Assessing the integrity of flood hazard data by reviewing the flood map inventory every five years (as mandated by the National Flood Insurance Reform Act of 1994). Without periodic review and warranted updates, some flood hazard data may no longer be sufficient to maintain the required confidence of homeowners, communities, or industry in the NFIP. FEMA needs to review those areas mapped in Flood Map Modernization for triggers that indicate flood hazard data degradation, specifically:
  - Physical changes to watershed;
  - Changes in climatology, including the availability of additional flood records; and
  - Changes in flood hazard data methodology.

Where that review indicates the flood hazard data integrity has degraded flood map, updates or new studies should be performed for those areas of a mapped jurisdiction impacted by these changes. Consideration will be given to those changes that impact Base Flood Elevations (BFEs), floodplain or floodway designations. Where changes in flood hazard data methodology are identified that would impact BFEs, floodplains, or floodways; flood hazard data enhancement should be provided. Also, where FEMA's review of flood hazard data and map inventory reveals population increase in areas not mapped by Flood Map Modernization, enhancement of flood hazard data would occur by addressing mapping needs for unmapped areas.

- b) Maintaining the integrity of flood hazard data by updating data and maps--where needed, based on the results of the review and funding available
- c) Maintaining the infrastructure developed to deliver digital flood hazard data and maps to impacted communities and mapping partners.

To ensure that 30 percent of the stream miles mapped in Flood Map Modernization Phase I were based on new, updated, or validated engineering analysis, FEMA developed an approach to validating flood data and engineering analyses. FEMA defines "validation" as the confirmation of

an adequate level of flood hazard risk identification on a community's FIRM, based on its supporting engineering analysis for a flooding source with respect to physical, climate, and engineering methodology changes since the date of the effective analysis. FEMA defines a "need" as a revision to the FIRM that would constitute an improvement to the flood hazard data to upgrade the accuracy of the engineering analysis and floodplain delineation based on physical, hydrologic, or methodology changes since the date of the effective analysis. All other map update requests that do not meet these criteria will be considered; however, Federal investments to incorporate them into the product will be nominal.

Before the beginning of FY09 FEMA will refine its current systems for prioritizing unmet flood hazard data needs which will serve as a planning tool for map production. The intent of the strategy will be to evaluate a community's needs prior to map production, during map production, and after the community's FIRM is issued to establish a cyclic maintenance evaluation of the flood hazard data.

## 6. Program Planning and Execution

### 6.1. Program Planning

In Flood Map Modernization Phase I, FEMA developed the Multi-Year Flood Hazard Identification Plan (MHIP). The MHIP describes the strategy and multi-year plan for providing flood hazard data and maps for areas in the Nation with the greatest flood risk. By planning flood hazard mapping projects over several years, FEMA provides a venue for tracking progress as flood hazard information is updated nationwide. Yearly updates to the MHIP keep stakeholders informed of FEMA's progress in Flood Map Modernization Phase I and serve as a mechanism for feedback.

The MHIP is developed in a collaborative process, intended to strengthen relationships among States, regional entities, and other stakeholders, and encourage greater participation in Phase I. As part of its commitment to improve the Nation's flood hazard maps and in response to stakeholder feedback, FEMA performed a comprehensive review of Phase I. The resulting Mid-Course Adjustment was reflected in MHIP Version 2.0 dated September 2006.

Program planning will be an integral part of the Phase II and FEMA will develop a process, similar to that being used to produce the MHIP during Phase I, to plan for flood map updates in Phase II. Planning for the map updates will be dependant many factors including the availability and adequacy of existing data, flood risk, and any documented needs from Phase I, and input from state and local governments.

FEMA will expand its commitment to transparent performance reporting using the following measures as a means to manage the program internally and describe progress externally:

- 1) Percentage of the Nation's population whose NFIP maps are known to meet flood hazard data standards
- 2) Percentage of stream miles compliant with the New, Updated, Validated Engineering (NUVE) standard
- 3) Percentage of coastal miles compliant with the New, Updated, Validated Engineering (NUVE) standard
- 4) Percentage of watersheds with assessed and prioritized flood hazard data
- 5) Percentage of watersheds with risk assessments
- 6) Percentage of watersheds with updated flood maps
- 7) Percentage of the Nation's levees whose flood protection level is understood
- 8) Percentage of the Nation's population with approved Mitigation plans

### 6.2. Centralized Data Management: Digital Vision

The digital flood hazard data and Digital Flood Insurance Rate Maps (DFIRM) developed during Flood Map Modernization Phase I are stored digitally and are then readily accessible for future updates or other uses. The digital flood hazard data stands as the centerpiece of FEMA's digital vision.

FEMA's portal allows for mapping partners across the country to follow a standardized process to produce a DFIRM so that mapping projects can be tracked, evaluated for performance, and the program managed at the regional and national levels. Projects are evaluated based on an Earned Value Management System as well as managed to ensure that regulatory requirements of the mapping and community adoption process are being met. This enables the flood hazard data development and map production work to be done at a more regional and local level while still maintaining a national flood hazard data set and comprehensive program level management and performance tracking. The discipline developed during Phase I towards program and project performance will continue and be enhanced in Phase II.

The National Flood Insurance Reform Act of 2004 established digital flood hazard data as "interchangeable and legally equivalent" to flood maps. In Flood Map Modernization Phase I, FEMA provided the tools necessary for stakeholders to use digital flood hazard data and revised map production policies and methods to encourage use of digital flood hazard data. This investment will enable FEMA to realize efficiencies during Phase II through reducing the demand for paper maps and streamlining the process of moving digital data onto a reproducible map.

The benefits of digital flood hazard data range from being easy-access through FEMA's portal of DFIRMs and e-LOMA submissions to powerful data analysis for flood hazard assessment and mitigation planning. The Digital Flood Insurance Rate Map inventory created in Phase I provides for more efficient updates of the flood hazard data as well. Further, in Phase II FEMA will integrate the use of digital flood hazard data provided in Flood Map Modernization Phase I into flood risk assessments through tools such as the HAZUS loss estimation tool.

### 6.3. Roles of Mapping Partners

As part of Flood Map Modernization Phase I, FEMA utilizes engineering and mapping contractors in the update of flood hazard data and maps. In addition, through the Cooperating Technical Partners (CTP) Program, FEMA partners with State, local, and regional organizations to produce flood hazard data and NFIP maps. FEMA and the partner enter into a formal agreement whereby the partner will provide specific contributions to the flood hazard mapping effort in their communities. As FEMA and the partner identify specific mapping activities for the partner to undertake, they develop a Mapping Activity Statement for those activities. If the activities are eligible for Federal funding, FEMA may fund the partner to supplement or perform the ongoing mapping efforts.

There are several notable benefits to partnering with State, local, and regional organizations to produce NFIP maps:

- The data used for local permitting and planning will also be the basis for the Flood Insurance Rate Maps (FIRMs), facilitating more efficient floodplain management,
- The CTP Program provides the opportunity to interject a tailored, local focus into a national program; thus, where unique conditions may exist, the special approaches to flood hazard identification that may be necessary can be taken,
- The partnership mechanism provides the opportunity to pool resources and extend the productivity of limited public funds,
- For participating in the CTP Program community partners will receive Community Rating System (CRS) credits, which may lead to discounted flood insurance premiums for property owners.

In support of the CTP Program, FEMA has committed to do the following:

- Recognize the contributions made by FEMA's State, regional, and local partners by providing timely and accurate flood hazard information,
- Maximize the use of partner contributions as a means of leveraging limited public funds to the fullest extent while maintaining NFIP standards,
- Fully integrate partners into the flood hazard data development process with the corresponding authorities and responsibilities,
- Provide training and technical assistance to the partner when appropriate, and

- Facilitate mentoring to increase capability for both existing and potential partners.

The CTP Program is focused on the update of flood hazard data and maps in Flood Map Modernization Phase I. In addition, FEMA worked with three mapping partners to assess the capability of mapping partners to review requests for Letters of Map Revision and conditional Letters of Map Revision.

In Flood Map Modernization Phase II, the utilization of flood hazard mapping contractors and State, local, and regional mapping partners will be based on their current capability and any relevant past performance.



## 7. Questions to Consider

FEMA welcomes feedback on this Concept Paper, especially in the following areas:

- 1) Do you believe that the integrated approach *to identifying flood hazards that are then woven into watershed-based risk assessments and the local Hazard Mitigation Plans* is the right direction? Please identify places where this integrated approach has been used.
- 2) Does the articulated approach to keeping the Nation's flood maps credible (found in section 5) include the right elements?
- 3) Of the flood hazard data needs identified in Flood Map Modernization (extending digital maps to all NFIP participating communities, levee flood hazard data needs, and coastal flood hazard data needs), which should be addressed first based on available resources?
- 4) Do the measures outlined in Section 6.1 address the appropriate range of issues being managed in the program?
- 5) Are there components not included in the Concept Paper that could enable better coordination of flood risk management with States, Tribes, local communities, and Federal agencies?
- 6) Provide other specific comments on the Concept Paper.

# Addendum: Background on NFIP and Statutory Requirements

Flood hazards represent a major threat to the Nation. The National Weather Service (NWS) estimated that, in the 1990's alone, the nation experienced \$50 billion in flood damages, and that trend has been on the climb. In addition, the National Flood Insurance Program (NFIP) paid approximately \$20 billion in flood claims in 2005 after that disastrous hurricane season. Flood hazard data are an essential tool for understanding and mitigating these flood threats. FEMA provides flood hazard data and maps that are used to determine appropriate risk-based premium rates for the NFIP, guide floodplain management activities, complete flood hazard determinations for lending institutions, develop disaster response plans for Federal, State, and local emergency management personnel, and quantify flood risk (in terms of annualized economic losses) that facilitates more accurate and informed decisions for flood mitigation planning and effective mitigation activities.

Flood Map Modernization Phase I is a multi-year Presidential initiative supported by the U.S. Congress directed at improving and updating the Nation's flood maps. Initially, these flood maps were intended for the principal use of insurance agents, floodplain managers, and others charged with implementing the NFIP. However, over the years, the flood maps have become the primary source of flood hazard information for the Nation and essential tools for a much wider range of users, including builders and developers, Federal agencies, real estate agents and lenders, State and local emergency management and land-use planners, and citizens attempting to make informed decisions based on the degree of flood risk for a particular property.

## Purpose of the National Flood Insurance Program

The U.S. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968 (P.L. 90-448). The NFIP was envisioned as a program that, over time, would provide management measures to reduce the Nation's vulnerability to flood damage and provide a flood insurance option for individuals. Then, as today, flood insurance was not generally available through the commercial markets.

The NFIP enables property owners in participating communities to purchase insurance as a protection from flood losses. A community's participation in the NFIP is voluntary and is based on an agreement between communities and the Federal Government. When a community chooses to join the NFIP, the community must adopt and enforce minimum floodplain management standards for participation. FEMA works closely with State and local officials to identify flood hazard areas and flood risks. When a community chooses to join the NFIP, it must require permits for all development in the identified Special Flood Hazard Areas and ensure that construction materials and methods used will minimize future flood damage.

Participating communities also must ensure that their adopted floodplain management ordinance and enforcement procedures meet NFIP requirements. Communities must also ensure in their Hazard Mitigation Plans that they are in compliance with the NFIP requirements to receive FEMA plan approval, which makes them eligible to receive Federal Grants (HMGP, FMA, and PDM).

The NFIP provides an alternative to continual outlays in Federal disaster assistance funds in two ways. First, the floodplain management and mitigation measures that are put in place in communities that participate in the NFIP function to effectively reduce future flood damage to buildings and their contents. Second, the flood insurance policies purchased by individual property owners not only help people recover from flooding more quickly, but also partially shift the costs of flood events from Federal taxpayers to those whose properties are at risk.

To determine which areas are flood-prone, the 1968 Act authorized the Federal Government to:

*“...identify and publish information with respect to all floodplain areas, including coastal areas located in the United States” and “to establish or update flood-risk zone data in all such areas, and make estimates with respect to the rates of probable flood caused loss for the various flood risk zones for each of these areas.”*

Over the years, FEMA developed several types of flood maps and related products to identify flood hazards in accordance with this direction. These products included detailed engineering studies of flood-prone areas; maps depicting floodplain boundaries, flood elevations, zones of different levels of risk, and regulatory floodways; and other information as needed.

### Statutory Requirement for Review and Update of Flood Hazard Data

The National Flood Insurance Reform Act of 1994 (P.L. 103-325) requires the re-validation of all floodplain areas and flood hazard zones at least once every five years. This statutory mandate alerts FEMA where mapping revisions are necessary—whether driven by changes in the built landscape (often through adjacent real estate development), the availability of additional flood records, or the availability of improved engineering techniques.

FEMA’s specific statutory mandate related to flood hazard data includes:

- a) Identification of flood-prone areas [42 USC 4101(a,f)];
- b) Reviewing the NFIP flood map inventory [42 USC 4101(e)];
- c) Assessing flood hazard data update needs [42 USC 4101(e)];

- d) Making flood hazard data and maps available to the public [42 USC 4101(g)].

The five-year cycle is a minimum requirement to assess the update needs of the NFIP flood map inventory.

Much like a credit bureau assigns a risk level to an individual, the flood hazard mapping data along with specific information about the structure being insured allows the public to assess the risk of a given property or area. It is important that the underlying data be sufficient so that home and business owners, lenders, floodplain managers and others can make decisions with confidence. A general lack of credibility leads to inaction, which may leave communities and homeowners in jeopardy of sustaining losses with no recovery mechanism to restore/rebuild their homes and their lives. Flood hazard data that is sufficient to enable NFIP actuarial soundness facilitates sound floodplain management decisions and allows for more equitable flood policy rating which in turn leads to better prepared and informed citizens.

One use of updated flood hazard data is in the Mitigation planning process. Under the Disaster Mitigation Act of 2000 (Public Law 106-390), State, local, and tribal governments are required to develop a Hazard Mitigation Plan as a condition for receiving certain types of non-emergency disaster assistance. A Hazard Mitigation Plan is a long-term strategy for reducing disaster losses. The planning process, promoted by DMA 2000, is as important as the resulting plan because it encourages jurisdictions to integrate mitigation with day-to-day decision making regarding land-use planning, floodplain management, site design, and other functions. Mitigation planning includes the following elements: public involvement, risk assessment, and mitigation strategy.

