Map MODERNIZATION

Federal Emergency Management Agency

FEMA's Flood Hazard Mapping Program

Guidelines and Specifications *for* Flood Hazard Mapping Partners

Introduction

FEDERAL EMERGENCY MANAGEMENT AGENCY

www.fema.gov/mit/tsd/dl_cgs.htm

FINAL

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Introduction

INT.1 Purpose and Scope of Document

The Federal Emergency Management Agency (FEMA), as the agency responsible for administration of the National Flood Insurance Program (NFIP), conducts flood hazard studies and prepares Flood Hazard Maps and related products. These *Guidelines and Specifications for Flood Hazard Mapping Partners* (hereinafter referred to as "these Guidelines") define technical requirements, product specifications for Flood Hazard Maps and related National Flood Insurance Program (NFIP) products, and associated coordination and documentation activities. These Guidelines are to be followed by FEMA Regional Office and Headquarters staff and the staff of other Flood Hazard Mapping Partners involved in producing and maintaining Flood Hazard Maps and related products of the NFIP. Information on the Flood Hazard Mapping Partners (hereinafter referred to as "Mapping Partners") involved in the Flood Hazard Mapping Program is provided in Section INT.9.

These *Guidelines* combine FEMA technical, programmatic, and administrative procedure publications, guidance documents (listed below), and memorandums regarding Flood Hazard Mapping . These *Guidelines* also reflect recent changes to processes and products associated with the implementation of the FEMA Map Modernization Program, including the Cooperating Technical Partners initiative and the new Flood Map Project Scoping procedures.

Unless specifically indicated otherwise by FEMA for a particular contract/agreement, these Guidelines supersede previous FEMA guidelines and specifications documents regarding the preparation of Flood Hazard Maps, including, but not limited to, the following:

- Flood Insurance Study Guidelines and Specifications for Study Contractors *(*FEMA 37, January 1995*)* and any previous versions thereof*;*
- "Airborne Light Detection and Ranging Systems" (Appendix 4B to FEMA 37, May 2000);
- Guidelines and Specifications for Flood Map Production Coordination Contractors *(*Final Draft, February 17, 1999*);*
- Guide for Preparing Technical Support Data Notebook *(*January 1990*);*
- Guidelines for Determining Flood Hazards on Alluvial Fans *(*February 23, 2000*);*
- Guidance for Scoping Flood Mapping Project*s (*January 12, 2001*);*
- Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping (March 1995);

- *Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping – Great Lakes* (October 1994);
- "Procedures for Collecting Depositing, and Reporting Fees Under Part 72 of the NFIP Procedures" (undated);
- "Procedures for the Administration of FEMA's Fee-Charge System" (undated);
- "DFIRM Graphic Specifications" (November 2000);
- "DFIRM Base Map Standards" (November 1998); and
- "Standard DFIRM Database Guidelines and Specifications" (May 2001).

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INT.2 Organization of Document

These Guidelines have been organized into three volumes and 13 appendices as described in Subsections INT.2.1 through INT.2.4. For the convenience of all Mapping Partners, a **List of Frequently Encountered Acronyms and Abbreviations** and a **Glossary of Frequently Encountered Terms** also have been included in these Guidelines.

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INT.2.1 Volume 1

Volume 1 explains the activities involved in the completion of Flood Map Projects and provides guidelines for performing those activities in the following phases:

- Mapping Needs Assessment;
- Project Scoping;
- Topographic and Flood Hazard Data Development;
- Map and Report Production; and
- Preliminary/Post-Preliminary Processing.

Additional information on the products generated as a result of Flood Map Projects and the processes required to generate the products is provided in Sections INT.6 and INT.7.

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INT.2.2 Volume 2

Volume 2 provides guidelines for revisions and amendments to Flood Hazard Maps initiated by communities and other Flood Hazard Mapping Partners, including the following:

- Letters of Map Amendment;
- Letters of Map Revision Based on Fill;
- Letters of Map Revision; and
- Physical Map Revisions.

Additional information on the products generated as a result of these revisions and amendments and the processes that must be followed to generate those products is provided in the Introduction to these Guidelines, in Sections INT.6 and INT.7.

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INT.2.3 Volume 3

Volume 3 provides guidelines and specifications for support activities performed for FEMA by various Mapping Partners in the following general categories:

- Program coordination, including development and maintenance of FEMA databases and Management Information Systems, courier service, library archiving and maintenance, distribution of archived mapping-related materials;

- Special technical and program support, including meeting and conference support, hazard identification and mapping activities, risk assessment activities, post flood hazard verification and mapping activities, and policy development and implementation assistance;

- Public outreach activities, including Map Assistance Center support, website content development and maintenance activities , training assistance, Cooperating Technical Partners initiative support, and Mapping Needs Assessment activities;

- Special correspondence support, including Congressional Responses, Director Responses, Mapping Responses, Freedom of Information Act Responses, and Letters of Determination Review ; and

- Other program support, including Map Service Center assistance, Q3 Flood Data maintenance, fee-charge system maintenance, Map Modernization Program support, and Engineering Study Data Package Facility maintenance.

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INT.2.4 Appendices

Additional guidelines and specifications for the processes and products covered in Volumes 1, 2, and 3 are presented in 13 appendices covering the following topics:

- Aerial mapping and surveying, including airborne LIght Detection and Ranging Systems;
- Datum conversions;
- Hazard analyses and mapping of riverine flooding;
- Coastal flooding;
- Shallow flooding;
- Ice-jam flooding;

- Alluvial fan flooding;
- Evaluation and mapping of flood protection systems;
- Scoping for Flood Map Projects;
- Flood Insurance Study report format guidelines and specifications;
- Flood Hazard Map format guidelines and specifications;
- Digital Flood Hazard Map database guidelines and specifications; and
- Technical and administrative support data preparation and processing requirements.

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INT.3 General Performance Requirements

Although they are printed separately, these Guidelines are considered to be a part of any Contract Statement of Work (SOW) or other agreement signed by a Mapping Partner with FEMA to perform work in support of the NFIP and will be incorporated in said contract SOW or other agreement. Performance in accordance with these Guidelines is required, unless otherwise specified in the Contract SOW or other agreement.

Mapping Partners shall provide all data and other materials necessary to prepare and process new and revised Flood Hazard Maps, reports, and related supporting documents in accordance with the requirements detailed in these Guidelines. Selected Mapping Partners also shall provide program support services and products in accordance with the requirements detailed in these Guidelines when so tasked by FEMA. Specific performance requirements, most notably especially with respect to deliverable items, also will be detailed in the Contract SOW or other agreement.

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INT.3.1 Resolution of Inconsistencies in Contract Documents

In the event of inconsistencies between the requirements detailed in these Guidelines and Contract SOWs or other agreements with FEMA, Mapping Partners shall resolve the inconsistencies through consultation with the FEMA Regional Project Officer (RPO), FEMA Regional Assistance Officer (AO), Project Officer (PO) at FEMA Headquarters, and/or Contracting Officer (CO) at FEMA Headquarters. In most cases, inconsistencies shall be resolved in the following priority order:

1. Formal exceptions by the RPO, AO, PO, or CO documented and made a part of the case file for the mapping activity undertaken;

2. Contract SOW or other agreement schedule;

3. Special terms and conditions of the contract or other agreement;

4. General provisions of the contract or other agreement;

5. Other provisions of the contract SOW or other agreement, whether incorporated by reference or otherwise; and

6. These Guidelines.

The FEMA RPO and/or PO shall ensure that Mapping Partners achieve the technical requirements of the contract or agreement. To accomplish this, the FEMA RPO or PO shall provide direction on technical and programmatic issues, monitor the progress of work, and evaluate performance. The FEMA RPO and/or PO may issue written or verbal instructions to expand on the details of the Contract SOW or agreement, or these Guidelines. The FEMA RPO and/or PO also shall make recommendations to the AO or CO whenever the Contract SOW or

other agreement, period of performance, or other technical provisions of the contract SOW or other agreement should be amended to accomplish the objectives of the contract or agreement.

The FEMA RPO and/or PO shall not direct a Mapping Partner to undertake any activity that will affect the price, period of performance, scope, or administrative provisions of the contract SOW or other agreement. If required, these activities shall be authorized by the FEMA AO and/or CO at the recommendation of the FEMA RPO and/or PO.

In the event of inconsistencies between the requirements documented in these Guidelines and any FEMA operating policies or procedures, the inconsistencies shall be resolved in the following priority order:

1. Statutes governing the NFIP;

2. NFIP regulations;

3. Issuance of memorandums of policy or procedure, criteria, or guidelines that post-date these Guidelines;

4. Written guidance provided by the FEMA RPO and/or PO; and

5. These Guidelines.

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INT.3.2 Documentation of Exceptions

The responsible Mapping Partner and/or FEMA shall document all exceptions to standard procedures and specifications contained herein in the case file for the specific mapping activity. At the request of the FEMA RPO or PO, the responsible Mapping Partner also shall document exceptions in periodic Monitoring reports, discussed in Volume 3, Subsections 3.2.1 and 3.2.6 of these Guidelines, which should contain a description of the issue and resolution as appropriate for all such exceptions.

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INT.3.3 Engineering, Mapping, and Report Standards

The engineering, mapping, and report standards documented in these Guidelines reflect current policy and procedures. The flood hazard information presented on the maps and in the related reports and other products of the Flood Hazard Mapping Program forms the technical basis for the administration of the NFIP locally and nationally. Therefore, FEMA and its Mapping Partners must adhere to the rigorous standards documented herein, both in performing the initial flood hazard analyses for a community or flooding source within a community and preparing the initial Flood Hazard Map, report, and other supporting products, and in performing a revised analysis of flood hazards and preparing a revised Flood Hazard Map and related products.

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INT.4 Planned Updates

These Guidelines are a "living" document that will be updated whenever FEMA determines that changes to the product and processing requirements documented herein are appropriate. A new version of these Guidelines will be posted each October as a collection of PDF files that mirror the structure of the three volumes and 13 appendices. Additional information on the update process is provided below.

FEMA Regional and Headquarters Office staff will notify Mapping Partners when changes are made. Such changes may be frequent as FEMA proceeds with implementation of the Map Modernization Program. Therefore, FEMA encourages all Mapping Partners to remain familiar with, and cognizant of, FEMA's progress in implementing the Map Modernization Program. Details on FEMA's implementation activities may be found on the FEMA Flood Hazard Mapping website at http://www.fema.gov/mit/tsd/mm_main.htm.

To ensure Mapping Partners are provided with a controlled and current version of these Guidelines for Flood Hazard Mapping activities, the following document control procedures have been implemented:

- A header on each page identifies the document source.
- A footer on each page provides the page number, major section number (e.g., 1.1, 1.2), and version date (e.g., February 2002).
- A date (month and year) reflecting the last time the section or subsection was revised appears at the end of each numbered section and subsection.

Mapping Partners will also be able to keep up to date on changes to these Guidelines through a website with the following features (currently under development):

- An "Overview Paragraph," which explains the functionality of the site and which provides the yearly update schedule;
- An "Update Queue," which contains new specifications and/or guidance issued by FEMA that supersede specifications and/or guidance presented in specific portions of these Guidelines;
- A "Summary of Changes," which describes all changes made to these Guidelines since they were last revised; and
- An "Archive," which contains previous versions of these Guidelines.

Because these Guidelines are a living document, new technologies and methodologies deemed applicable to Flood Map Projects in the preparation of Flood Hazard Studies for FEMA can be included in future updates. Therefore, FEMA encourages Mapping Partners to submit ideas for improving these Guidelines. Written comments may be submitted electronically by sending an e-

mail message to FEMACG&S@floodmaps.net. Alternatively, they may be sent to the following address or transmitted by facsimile to the number provided:

Federal Emergency Management Agency

Federal Insurance and Mitigation Administration

Hazard Mapping Division

500 C Street, SW.

Washington, DC 20472

Facsimile: 202-646-4596

Attention: Allyson Lichtenfels, FEMA G&S Coordinator

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INT.5 Overview of Flood Hazard Mapping Program

For decades, the national response to flood disasters was generally limited to constructing flood-control works, such as dams, levees, and seawalls, and to providing disaster relief to flood victims. This approach did not reduce all monetary flood losses, nor did it discourage unwise development in the floodplain. To compound the problem, the public could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

Thus, it was in the face of mounting flood losses and escalating costs to the general taxpayer for disaster relief that the U.S. Congress created the NFIP with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973, the National Flood Insurance Reform Act of 1994, and other legislative measures, with the intent being to reduce future flood damage and provide an insurance mechanism that allows a premium to be paid for protection by those most in need of the protection.

The NFIP enables property owners in communities that choose to participate in the NFIP to insure structures against flood losses. The 1973 Act's mandatory flood insurance purchase requirements, which were expanded and strengthened in the 1994 Act, protect the financial interests of the lender, the borrower, and the taxpayer. Insurance coverage reduces reliance on Federal disaster assistance and also reduces the number of income tax write-offs for uninsured loans.

By employing sound floodplain management practices, officials and residents of a participating community can minimize the extent of the area requiring the mandatory purchase of flood insurance and protect homes and businesses from much of the devastating financial losses resulting from future flood disasters. More careful local management of floodplain development results in construction practices that can reduce flood losses and reduce the high costs associated with flood disasters.

To meet the community participation and flood hazard assessment objectives of the NFIP, the U.S. Congress assigned the following responsibilities to the Secretary of the U.S. Department of Housing and Urban Development:

> …(1) identify and publish information with respect to all flood plain areas, including coastal areas located in the United States, which have special flood hazards, within five years following the date of the enactment of this Act, and (2) establish flood-risk zones 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, within fifteen years following each date.

Those responsibilities are now assigned to the Director of FEMA. For more than two decades as the administrator of the NFIP, FEMA has been engaged in a massive and unprecedented effort to identify and assess flood hazards and present flood hazard information on community-based mapping. The results to date have been impressive. FEMA has produced over 100,000 Flood

Hazard Map panels for approximately 19,000 communities representing approximately 150,000 square miles of floodplain. The net effect of this work is that it has protected citizens' lives, properties, and personal finances by providing an insurance mechanism for those at risk and flood hazard data to minimize the flood risk for new and existing development.

The Flood Hazard Maps are referred to for each of the 15 million mortgage transactions each year and every time a community issues a building permit. Although originally developed to support the flood insurance and floodplain management activities associated with the NFIP, the Flood Hazard Maps are currently used by no fewer than nine distinct constituencies for a variety of applications, including disaster preparedness, response, and recovery; risk assessment; and diverse mitigation activities.

The Flood Hazard Mapping Program continues to be funded almost exclusively by flood insurance policyholders. The Flood Hazard Maps are used daily by the following:

- **State and local floodplain managers, planners, and other officials** to establish and enforce minimum land-use and construction ordinances that comply with minimum NFIP standards;

- **Engineers** to consider the flood hazard when designing flood mitigation projects, such as structure elevations and relocations, buyouts, and culvert replacements;

- **Insurance companies and agents** to determine actuarial rates for flood insurance policies;

- **Lenders** to determine the flood hazard status of mortgaged properties at loan origination and throughout the life of the mortgages;

- **Real estate professionals and property owners** to determine the flood hazard status of properties;

- **Flood map determination firms** to specify the location of properties relative to the flood hazard area as well as provide other interpretive services for lenders;

- **Land development industry** to aid in designing developments that will be safe from flood hazards;

- **Surveyors** to prepare elevation certificates for structures; and

- **Federal, State, and local disaster and emergency response officials** to prepare for flooding disasters and issue warnings to those in danger of flooding and, after a flood has occurred, to implement emergency response activities and to aid in the rebuild and reconstruction process.

As the uses and applications have grown over the years, the Flood Hazard Maps have evolved in response to user needs and improved technologies; however, production of new and revised maps has always taken place within real-world fiscal constraints. Newer digital mapping

techniques are often more cost effective, in both the short- and long-term, than the old manual techniques. However, FEMA's conversion of over 100,000 existing map panels to a digital format has been, by design, deliberate and methodical. Because of funding constraints, the conversion generally has occurred only when new or updated flood hazard information has required an update to a Flood Hazard Map for a community or in support of some disaster response activities. FEMA estimates that an additional $750 million above current mapping funding levels would be needed to update the current national map inventory in 7 years.

As mapping technologies, applications, and uses for the Flood Hazard Maps evolve, and the NFIP map users become increasingly sophisticated, the Flood Hazard Maps, as well as associated NFIP products, must also continue to evolve. Accordingly, these Guidelines will continue to evolve to reflect current practices and technologies.

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INT.6 Overview of Flood Hazard Mapping Products

The NFIP objectives of flood hazard assessment and community participation have been achieved in two phases. The initial phase of community participation in the NFIP is referred to as the Emergency Phase; the Emergency Phase also may be referred to as the Emergency Program in some FEMA documents. The second phase of community participation is referred to as the Regular Phase; the Regular Phase also may be referred to as the Regular Program in some FEMA documents.

Information on the products that are produced and distributed by FEMA, its contractors, and other Mapping Partners during the Emergency and Regular Phases of the NFIP is provided in Subsections INT.6.1 and INT.6.2, respectively.

[February 2002]

INT.6.1 Mapping Products Generated During Emergency Phase

The Emergency Phase was designed to provide participating communities with a limited amount of insurance at federally subsidized rates until a detailed evaluation of the flood hazard could be performed. During the Emergency Phase, a community usually is provided with a Flood Hazard Boundary Map (FHBM). The FHBM presents an approximate delineation of the Special Flood Hazard Areas (SFHAs) in a community. The SFHAs are the areas that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent-annual-chance flood is also referred to as the "base flood" or "100-year flood."

If a community chooses to participate in the Emergency Phase of the NFIP, the community must adopt the FHBM and require permits for construction or other development in the SFHAs as shown on the FHBM.

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INT.6.2 Mapping Products Generated During Regular Phase

During the second phase of community participation in the NFIP—the Regular Phase—FEMA imposes more comprehensive floodplain management requirements on participating communities in exchange for higher amounts of insurance. Also, insurance for new and substantially improved structures is rated on an actuarial, or actual risk, basis. The insurance is based on flood insurance risk zones and elevations as determined by a detailed assessment of flood hazards and risk for the community.

The results of the initial detailed assessment, termed a Flood Insurance Study (FIS), are presented on a Flood Insurance Rate Map, or "FIRM," and, for some communities, on a Flood Boundary and Floodway Map, or "FBFM." The results also are presented in a collateral report, referred to as an "FIS report," which provides supporting documentation for information presented on the FIRM and FBFM.

During the first decade of the NFIP, the FIRM and FBFM were prepared using traditional manual cartographic techniques. However, as the technology developed, FEMA has gradually transitioned to a digital environment. The mapping product that is produced using digital production techniques is referred to as a Digital Flood Insurance Rate Map, or "DFIRM." The data associated with the DFIRM are maintained in a Geographic Information System (GIS) or spatial database, which is referred to as the "DFIRM Database."

In addition to the DFIRM products, FEMA is also creating Raster FIRMs. These Raster FIRMs are either created by scanning the manually produced FIRMs or as a by-product of the creation of DFIRMs.

Once the flood hazard data are generated, they are subject to various dynamic factors that affect their accuracy and, thus, their value as a tool for assessing flood risks for insurance and floodplain management purposes. These factors are as follows:

- Changes in development trends;
- Changes in hydrologic conditions;
- Changes in topographic conditions;
- Changes in flood hazard and risk assessment technologies and available data; and
- Discoveries of errors in existing analyses.

Therefore, since the early years of the NFIP, FEMA has performed restudies of hazards and coordinated with communities to revise or amend maps, reports, and other products in response to the dynamic factors listed above. Depending on the extent and impact of the revised flood hazard information, FEMA has physically revised and reissued the mapping products or has issued an alternative product, referred to as a Letter of Map Change, or "LOMC."

The LOMC has the same effect as a physical map update in that it documents a change to the effective FIRM, FBFM, and/or FIS report. However, because these products are not physically revised and republished, LOMCs generally take less time to process and are significantly less expensive for FEMA to complete.

Additional information on the mapping products discussed above is presented in Subsections INT.6.2.1 through INT.6.2.6.

[February 2002]

INT.6.2.1 Flood Insurance Rate Map

The FIRM is the insurance and floodplain management map produced by FEMA that identifies, based on detailed or approximate analyses, the areas subject to flooding during a 1-percent-annual-chance flood event in a community. Flood insurance risk zones, which are used to compute actuarial flood insurance rates, also are shown. In areas studied by detailed analyses, the FIRM shows Base Flood Elevations (BFEs) to reflect the elevations of the 1-percent-annual-chance flood. For many communities, when detailed analyses are performed, the FIRM also may show areas inundated by 0.2-percent-annual-chance, or "500-year," flood and regulatory floodway areas. Specific information on how the detailed analyses are to be performed, how floodplain and regulatory floodway boundaries are to be delineated, and how the BFEs and regulatory floodway are to be computed is provided in Volume 1 of these Guidelines.

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INT.6.2.2 Flood Boundary and Floodway Map

The FBFM is the floodplain management map issued by FEMA that depicts, based on detailed flood hazard analyses, the boundaries of the 1-percent-annual-chance (100-year) and the 0.2-percent-annual (500-year) floodplains and, when appropriate, the regulatory floodway. The FBFM does not show flood insurance risk zones or BFEs. Specific information on how the detailed flood hazard analyses are to be performed, how floodplain and regulatory floodway boundaries are to be delineated, and how the regulatory floodway is to be computed is provided in Volume 1 of these Guidelines. (Note: Since the mid-1980s, FEMA has been incorporating information related to the regulatory floodway into the FIRM; however, numerous communities still have separately published FBFMs.)

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INT.6.2.3 Flood Insurance Study Report

The FIS report is a document, prepared and issued by FEMA, that documents the results of the detailed flood hazard assessment performed for a community. The primary components of the FIS report are text, data tables, photographs, and Flood Profiles. Specific information on the contents of the FIS report and how it is to be produced is provided in Appendix J of these Guidelines.

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INT.6.2.4 Digital Flood Insurance Rate Map

The DFIRM is a FIRM containing the information described in Subsection INT.6.2.1, prepared as a digital product. Creation of the DFIRM product may involve converting the existing manually produced FIRM to digital format. DFIRM products also may be created from new digital data sources using a GIS environment. The DFIRM product allows for the creation of interactive, multi-hazard digital maps. Linkages are built into an associated database to allow users options to access the engineering backup material used to develop the DFIRM, such as hydrologic and hydraulic models, Flood Profiles, data tables, Digital Elevation Models, and structure-specific data, such as digital elevation certificates and digital photographs of bridges and culverts.

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INT.6.2.5 Digital Flood Insurance Rate Map Spatial Database

The objective of the DFIRM spatial database is to facilitate the collection, storage, processing, and distribution of data developed by FEMA. The DFIRM spatial database enables Mapping Partners to share the data necessary for the DFIRM production and conversion process. In addition, the database enables rapid map updates/revisions in the future. Where possible, all mapping and engineering data elements are linked to physical geographic features and georeferenced. The use of a GIS as a component of the DFIRM spatial database provides the ability to georeference and overlay the mapping and engineering data. This allows the database to support a wide variety of existing and visionary FEMA engineering and mapping products.

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INT.6.2.6 Raster Flood Maps

The creation of raster FIRMs and FBFMs will allow FEMA and its map users to access the flood hazard information shown on the FIRM from electronic media, such as CD-ROMs, or via the Internet instead of printed and folded hardcopy (paper) maps. The raster FIRMs and FBFMs present the identical information shown on the printed maps in a more convenient format for computer users.

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INT.6.2.7 Letters of Map Change

A LOMC is a letter, prepared and issued by FEMA, that officially amends or revises an effective FHBM, FIRM, FBFM, FIS report, or DFIRM. LOMCs are issued in three forms: Letter of Map Revision Based on Fill, or "LOMR-F"; Letter of Map Revision based on conditions other than fill, or "LOMR"; and Letter of Map Amendment, or "LOMA."

A LOMR-F is an official revision of the effective NFIP map for a community. The LOMR-F provides FEMA's determination as to whether a property (i.e., legally defined parcel of land or structure) has been elevated on fill above the BFE and is therefore outside the SFHA.

A LOMR also is an official revision, by letter, of an effective NFIP map. The LOMR product is issued by FEMA to change flood elevations, floodplain and regulatory floodway boundaries, and planimetric features.

A LOMA is an official amendment of the effective NFIP map for a community. The LOMA provides FEMA's determination as to whether a property that is on natural ground has been inadvertently included in the SFHA shown on the map. The LOMA establishes the property's location in relation to the SFHA.

Additional information on LOMC processes and related products is provided in Subsection INT.7.2 and Volume 2 of these Guidelines.

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INT.6.2.8 Revalidation Letters

To assist communities in maintaining the FIRM, FEMA developed a process for revalidating LOMCs automatically when a revised FIRM becomes effective, thereby superseding the LOMCs. The result of this process is a revalidation letter, termed a "LOMC-VALID letter." FEMA generally issues the LOMC-VALID letter approximately 2 weeks before the effective date of the revised FIRM, and the LOMC-VALID letter becomes effective 1 day after the effective date of the revised FIRM. The LOMC-VALID letter provides a list of all LOMCs on the revised FIRM panels that are revalidated, meaning that those LOMCs are still in effect for NFIP purposes.

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INT.6.2.9 Letters of Determination Review

As mandated by the National Flood Insurance Reform Act of 1994, FEMA developed a Standard Flood Hazard Determination Form that is to be used by all regulated lenders and Federal agency lenders that make flood hazard determinations for improved property used to secure loans. When a borrower disagrees with the Standard Flood Hazard Determination made by the borrower and the borrower and lender cannot reach an agreement, the borrower and lender may request a determination from FEMA. The FEMA response to such requests is a Letter of Determination Review, or "LODR."

If sufficient information is provided, the written response from FEMA will indicate FEMA's concurrence or disagreement with the lender's determination and whether the subject building is in the SFHA shown on the effective NFIP map. If sufficient information is not provided, the submitted information will be returned with a written response detailing the additional information FEMA would need to make a determination.

INT.6.2.10 Special Conversion Products

The conversion of a community to the Regular Phase of the NFIP is usually accomplished through the publication of a FIRM for the community. However, for some newly identified communities and communities that are participating in the Emergency Phase of the NFIP, FEMA may take an alternative approach and use specially designed "Special Conversion" procedures. Under these Special Conversion procedures, FEMA may convert a community to the Regular Phase of the NFIP without performing a detailed flood hazard analysis and preparing a FIRM with detailed flood risk zones. Under these procedures, a community is converted, based on the recommendation of the FEMA Regional Office, through either non-floodprone or minimally floodprone conversion procedures.

The products for non-floodprone and minimally floodprone communities are discussed below. An explanation of the terms "non-floodprone" and "minimally floodprone" and additional information on Special Conversion procedures is provided in Subsection INT.7.1.4 and in Volume 1 of these Guidelines.

Conversion Products for Non-Floodprone Communities

Once a community has been approved for a non-floodprone conversion, FEMA sends the community a letter to effect the conversion. The content of the letter for a particular community will vary, depending on the community's status in the NFIP and the existence of an FHBM.

Conversion Products for Minimally Floodprone Communities

If no changes are required within the SFHA shown on the effective FHBM, FEMA converts the community to the Regular Phase of the NFIP with a letter only. The letter informs the community that the FHBM is now a FIRM.

If the SFHA shown on the existing FHBM for a community must be revised, FEMA converts the community with a FIRM that is an updated version of the FHBM. Depending on the flooding situation in the community, FEMA prepares and prints one of the following:

- A FIRM that shows all SFHAs as Zone A;
- A FIRM Index that notes that all areas in the community are Zone D (used in cases where the FIRM is the community's initial map and all areas are considered remote and uninhabited); or
- A FIRM (one or more panels printed) that shows Zones A and X (unshaded)) for the community's most populated areas and notes on the map Index that all unprinted panels are Zone D.

FEMA transmits Preliminary copies of the required map products to the community along with a transmittal letter that documents the floodprone status of the community.

INT.6.3 Other Flood Hazard Mapping Products

FEMA issues a variety of other products related to the creation and distribution of the products discussed in Subsections INT.6.1, INT.6.2, and INT.6.3 (e.g., Summaries of Map Actions, BFE notices, appeal resolution letters). These products are discussed in detail in Volumes 1 and 2 and in the appendices in these Guidelines. In addition, FEMA and its Mapping Partners produce and distribute a variety of products to support the administration of the NFIP in general and the Flood Hazard Mapping Program in particular. These products, and the processes followed in preparing and distributing them, are discussed in Volume 3 of these Guidelines.

[February 2002]

INT.7 Overview of Flood Hazard Mapping Processes

INT.7.1 FEMA-Funded Flood Map Projects and Update Activities

To fulfill its mandate to identify floodprone areas, FEMA has an ongoing program to (1) develop new FIRMs for floodprone communities that do not have them and (2) to produce updated FIRMs for communities with existing FIRMs. Detailed information on the processes, guidelines, and specifications by which FEMA develops and updates FIRMs are provided in Volume 1 of these Guidelines.

For the purposes of these Guidelines, all activities related to the flood hazard analyses performed for new or revised FIRMs are referred to as "Flood Map Projects." However, these activities have until recently been categorized as one of the following:

- Flood Insurance Study;
- Flood Insurance Restudy;
- Limited Map Maintenance Program Revision;
- Existing Data Study;
- Existing Data Restudy;
- Special Conversion;
- Coastal Barrier Resource System Revision; or
- Notice-to-User Revision.

A more detailed description of each category of activities, as well as the revalidation process, is provided in Subsections INT.7.1.1 through INT.7.1.7.

[February 2002]

INT.7.1.1 Flood Insurance Studies and Restudies

A "Flood Insurance Study (FIS)" is the initial study of flood hazards performed for a community that does not have an effective Flood Insurance Rate Map (FIRM). An FIS also may be referred to as a "Type 15 FIS" or a "Type 15 study."

A "Flood Insurance Restudy (RFIS)" is a revised study of flood hazards performed for a community that already has an effective FIRM (and, in some cases, FBFM). An RFIS also may be referred to as a "Type 19 RFIS" or a "Type 19 restudy."

FISs and RFISs have traditionally been performed by FEMA Study Contractors. However, these types of Flood Map Projects also may be performed by communities, regional agencies, and States that are participating in the Cooperating Technical Partners (CTP) initiative.

[February 2002]

INT.7.1.2 Limited Map Maintenance Program Project Revisions

A "Limited Map Maintenance Program project revision," or "LMMP," is a limited-scope restudy of flood hazards that generally involves a single community and one watercourse. The data submitted to FEMA for an LMMP are similar in format and level of detail to those submitted for an RFIS.

[February 2002]

INT.7.1.3 Existing Data Studies and Restudies

FEMA also may prepare an "Existing Data Study," or "XDS," for a community that does not have a FIRM using previously published flood hazard information. This flood hazard information comes from one of the following sources:

1. Reports prepared by Federal agencies for purposes other than the NFIP, such as Flood Hazard Analyses Reports (FHARs) and Floodplain Information reports (FPIs);
2. Other engineering reports prepared by Federal, State, or local agencies; or
3. FIS reports, FIRMs, and FBFMs issued by FEMA for adjacent communities (especially previously unincorporated areas of a county).

If FEMA uses previously published information to prepare an initial or revised FIRM and FIS report for a community that is already participating in the Regular Phase of the NFIP without a FIRM, the product produced is referred to as an "Existing Data Restudy," or "RXDS."

[February 2002]

INT.7.1.4 Special Conversions

As mentioned earlier in this Introduction, FEMA may convert a community to the Regular Phase of the NFIP without preparing a FIRM with detailed flood risk zones. The exact process that is followed depends on whether FEMA determines the community is "non-floodprone" or "minimally floodprone."

Non-floodprone communities are those communities that are determined by FEMA to not be subject to inundation by the 1-percent-annual-chance (100-year) flood. The FEMA guidelines employed for determining whether a community is designated as non-floodprone are that all of its SFHAs are less than 200 feet wide and all drain less than 1 square mile, or physiographic features that preclude floodplain development exist in the community.

Minimally floodprone communities are those communities subject to inundation by the base flood, but for which existing conditions indicate that the area is unlikely to be developed in the foreseeable future. The criteria used by FEMA to evaluate a community's development potential are as follows:

- Floodplains are publicly owned and designed for open space or preservation.
- Zoning laws, sanitary codes, subdivision regulations, shore land regulations, or community regulations effectively prohibit floodplain development.
- Surrounding land use or topography effectively limits the development potential.
- Population is decreasing or stable, and there is no foreseeable pressure for floodplain development.
- Floodplains are remote and uninhabited, and future development is unlikely.

Other indicators may be used in addition to these criteria to assess the development potential. One important indicator is the size of the undeveloped floodplain relative to the size of the entire community. The larger the proportion, the more the floodplain is likely to be subject to pressure for development.

[February 2002]

INT.7.1.5 Coastal Barrier Resource System Revisions

In cooperation with the U.S. Department of the Interior, FEMA transfers Coastal Barrier Resource System (CBRS) boundaries to FIRMs using congressionally adopted source maps. FIRMs clearly depict the unique CBRS areas and their effective dates with special map notes and symbology. An important distinction to make in CBRS revisions and other types of map revisions is the community review component. Although FEMA shows CBRS areas on FIRMs, the U.S. Congress is the only entity that may authorize a revision to CBRS boundaries, therefore any requests for revisions to CBRS boundaries shown on FIRMs must be addressed by the US Fish and Wildlife Service and/or Congress.

The revised CBRS boundaries are not a component of flood hazard analyses, and are not determined by FEMA. Additional information on CBRS revisions is provided in Volume 2, Section 2.2 of these Guidelines.

[February 2002]

INT.7.1.6 Notice-To-User Revisions

The intent of a "Notice-To-User" revision is to quickly and inexpensively correct a non-technical problem with a published FIS report, FIRM, or FBFM. These types of revisions are intended solely to correct a noted defect with the product and cannot be used to establish new or revised flood hazard information. The corrected components are sent to all individuals that previously

received a copy of the product that contained the error or omission. A Notice-To-User letter signed by the FEMA PO is sent with the corrected FIS report, FIRM, and/or FBFM to provide a brief explanation of the revision. Additional information on Notice-To-User Revisions is provided in Volume 2, Section 2.3 of these Guidelines.

[February 2002]

INT.7.1.7 Revalidations

When a revised FIRM panel becomes effective, all previous LOMCs issued for that panel are superseded. Therefore, each time a FIRM panel is physically revised and republished, the panel must be updated to include the changes in flood hazard information resulting from previously issued map update actions, including LOMCs. Frequently, the results of a LOMC cannot be shown on a revised FIRM panel due to the limited size of the change contained in the LOMC or because the change is structure-specific.

The changes made to the effective FIRM via the LOMC process become effective without the affected panel(s) being physically revised and republished. Therefore, FEMA maintains records of these modifications so they may be incorporated into the next physical update of the affected FIRM panel(s), if mappable. To assist communities in maintaining the FIRM, FEMA developed a process for revalidating LOMCs automatically when a revised FIRM becomes effective. The result of this process is the issuance of a revalidation letter, termed a "LOMC-VALID letter."

The LOMC-VALID letter is considered legally binding, in the same manner as the original LOMC, provided it is accompanied by a copy of the original LOMC. If required by the requester, FEMA forwards a copy of the original LOMC with the LOMC-VALID letter. No fee is to be assessed for such requests.

Detailed information on processing procedures and requirements for revalidation letters is provided in Volume 2, Section 2.5 of these Guidelines.

[February 2002]

INT.7.2 Community and Property Owner-Initiated Map Revisions

Requests for map revisions may be submitted to FEMA by community officials or by individuals through their community officials in accordance with Part 65 of the NFIP regulations. These map revision requests generally involve changes to one or more of the following: (1) flood elevations, (2) flood risk zones, (3) floodplain boundaries, (4) regulatory floodway boundaries, and (5) corporate limits. These changes usually result from one or more of the following:

- Natural or manmade changes in the watershed or floodplain that affect flood hazards;
- Availability of new or more detailed topographic or flood information;
- Community annexations of floodprone areas; or
- Errors or discrepancies uncovered in the effective FIS report or map(s).

As discussed earlier in this Introduction, in response to such requests, FEMA may physically revise and reissue the FIS report and map(s). This action is referred to as a "Physical Map Revision," or "PMR."

FEMA also may revise the FIS report and maps by issuing a letter documenting the changes to the FIS report and/or map(s). This action is referred to as either a LOMR-F if the change is based solely on the placement of earthen fill and BFEs are not modified, or a LOMR if the change is based on conditions other than the placement of earthen fill. Additional information on PMRs, LOMRs, and LOMR-Fs is provided in Subsections INT.7.2.1 and INT.7.2.2.

[February 2002]

INT.7.2.1 Physical Map Revisions

FEMA generally will initiate a PMR when:

- Changes resulting from the requested revision are extensive, affecting significant portions of a FIRM panel or multiple FIRM panels;
- Revision will add significant SFHAs to the effective FIRM; or
- Revision will result in an increase in the BFEs and/or regulatory floodway.

FEMA also may prepare a revised FIS report and/or FBFM, depending on the nature of the revision. Detailed information on PMRs is provided in Volume 2, Section 2.1 of these Guidelines.

[February 2002]

INT.7.2.2 Letters of Map Revision

The FIRM can be revised by a LOMR-F when it is determined by FEMA that a legally defined parcel of land or structure has been elevated above the BFE based on the placement of earthen fill after the date of the first NFIP map. The LOMR-F request must be routed through the community Chief Executive Officer (CEO), or an official designated by the CEO, and the supporting data and documentation must satisfy the criteria described in Section 65.5 of the NFIP regulations. The issuance of a LOMR-F may revise the effective FHBM or FIRM by removing the parcel of land or structure from the SFHA; however, LOMR-Fs should not be confused with LOMRs that make changes in BFEs, floodplain and floodway boundary delineations, and coastal high hazard areas.

Requests for LOMR-Fs may involve one or more properties (lots) or structures. Final determinations based on as-built data may be made for undeveloped lots totally filled above the BFE, portions of lots defined by metes and bounds and filled above the BFE, or for existing structure(s) on ground elevated by fill above the BFE.

Detailed information on processing procedures and requirements for LOMR-Fs is provided in Volume 2, Subsection 2.4.4 of these Guidelines.

FEMA may issue a LOMR to revise SFHAs, BFEs, or regulatory floodways on an effective FIRM, FBFM, and/or FIS report when the extent of the changes resulting from the requested revision are limited or when the request must be addressed quickly. However, FEMA typically does not issue a LOMR to add SFHAs to an effective FIRM and FBFM or to increase BFEs. If the width of an SFHA increases, and the increase is contained entirely on the requester's property, FEMA may issue a LOMR.

FEMA prepares the LOMR using a standard format and provides a general description of the changes resulting from the requested revision. For most LOMRs, FEMA prepares and includes annotated copies of the affected Flood Profile, FIRM, and FBFM panels; Summary of Discharges Table; and Floodway Data Table, as appropriate. Although a revision accomplished by LOMR usually becomes effective on the date of the LOMR, the effective date may vary.

Detailed information on the processing procedures for LOMRs is provided in Volume 2, Subsection 2.2.1 of these Guidelines.

[February 2002]

INT.7.3 Conditional Map Revisions

Conditional Map Revisions are those based on proposed alterations to the floodplain conditions within a community.

A requester may choose to submit documentation that satisfies the criteria of Section 65.8 of the NFIP regulations and request that FEMA review and comment on the effect that a proposed project involving the placement of earthen fill within the SFHA will have on the SFHA designation for one or more legally defined parcels of land or one or more proposed structures.

Conditional determinations also provide FEMA's comments as to whether or not the proposed project meets the minimum NFIP floodplain management criteria. Those FEMA reviews usually result in the issuance of a Conditional Letter of Map Revision Based on Fill, or "CLOMR-F." Detailed information on processing procedures and requirements for CLOMR-Fs is provided in Volume 2, Subsection 2.4.3 of these Guidelines.

A community or individual may request that FEMA review and comment on the effect of a proposed project on the flood hazards depicted on the effective FIRM and/or FBFM for a community. In these cases, FEMA reviews the proposed project based on proposed construction drawings instead of as-built plans. These reviews usually result in the issuance of a Conditional Letter of Map Revision, or "CLOMR." The CLOMR describes the effect of the project, if constructed as proposed, on the effective FIRM and/or FBFM. A CLOMR often contains detailed information on conditions that must be met by a requester before FEMA will issue a final determination regarding revising the FIS report, FIRM, and/or FBFM. Detailed information on processing procedures and requirements for CLOMRs is provided in Volume 2, Subsection 2.4.5 of these Guidelines.

[February 2002]

INT.7.4 Map Amendments

Under the provisions of Part 70 of the NFIP regulations, a requester who believes that his or her property has been inadvertently included in an SFHA is allowed to substantiate this claim by requesting a LOMA. As mentioned earlier in this Introduction, a LOMA is an official determination by FEMA that a property has been inadvertently included in an SFHA as shown on an effective FHBM or FIRM and is not subject to inundation by the 1-percent-annual-chance flood. Generally, the property is located on natural high ground at or above the BFE or on fill placed prior to the effective date of the first NFIP map designating the property as within an SFHA. Limitations of map scale and development of topographic data more accurately reflecting the existing ground elevations at the time the maps were prepared are the two most common bases for LOMA requests.

The result of such a request, if warranted, is an amendment to the currently effective FHBM or FIRM. Requests for such determinations generally are submitted by the owners of the affected property or others having an insurable interest in properties that may have been included in the SFHA. LOMAs eliminate the Federal requirement for the purchase of flood insurance. It remains the lending institution's prerogative, however, to require or waive the insurance purchase requirement.

LOMA requests may involve one or more properties (lots) and one or more structures. Final determinations, based on existing conditions, may be made for undeveloped lots or for existing structures.

Detailed information on processing procedures and requirements for LOMAs is provided in Volume 2, Subsection 2.4.2 of these Guidelines.

[February 2002]

INT.7.5 Conditional Map Amendments

Under Part 70 of the NFIP regulations, a requester who believes his or her structure, when constructed on natural ground at or above the BFE, will be outside the SFHA, may request a conditional determination from FEMA. FEMA's response is usually a "Conditional Letter of Map Amendment," or "CLOMA." CLOMAs provide FEMA's comment on whether the structure, if built as proposed, would be in the SFHA. CLOMAs may not be issued for unimproved or undeveloped property. Detailed information on processing procedures and requirements for CLOMAs is provided in Volume 2, Subsection 2.4.1 of these Guidelines.

[February 2002]

INT.7.6 Annexation Requests

FEMA receives a considerable number of requests from communities to have their NFIP maps updated to reflect recent annexations or de-annexations. To accommodate these requests, FEMA developed a standard procedure for processing these requests. Using this procedure, processing decisions are made based on the following factors: (1) status of map for annexing community, (2) existence of flood hazard information for annexed area, (3) source of flood hazard information, and (4) effect of annexation on community participation in the NFIP.

Depending on the decision made, FEMA will take one of the following actions:

- Send a letter to the annexing community indicating the revision will not be made at this time because the flood hazard information has not changed.
- Issue one or more LOMRs to revise the affected map panel(s) for both the annexing and de-annexing communities.
- Physically update and re-issue affected FIRM panel(s) for both the annexing and de-annexing communities.
- Create new FIRMs for communities that do not have FIRMs when necessary to meet NFIP regulations.
- Send a memorandum to the FEMA RO staff requesting additional guidance and coordination with the community (when the annexed area is covered by an effective or rescinded FHBM or by a rescinded FIRM).

Detailed information on processing procedures and requirements for annexation requests is provided in Volume 2, Section 2.6 of these Guidelines.

[February 2002]

INT.7.7 Letters of Determination Review

When a borrower disagrees with the Standard Flood Hazard Determination made by the borrower and the borrower and lender cannot reach an agreement, the borrower and lender may request a determination from FEMA. The FEMA response to such requests is a LODR.

If sufficient information is provided, the written response from FEMA will indicate FEMA's concurrence or disagreement with the lender's determination and whether the subject building is in the SFHA shown on the effective NFIP map. If sufficient information is not provided, FEMA will return the submitted information with a written response indicating the additional information to be submitted.

Detailed information on processing procedures and requirements for LODR requests is provided in Volume 3, Section 3.10 of these Guidelines.

[February 2002]

INT.8 Overview of Mapping Formats

FEMA uses two basic formats in preparing FHBMs, FIRMs, and FBFMs—Flat Map and Z-Fold Map. Although they are discussed separately below, the Standard, Map Initiatives, and Countywide Formats are subsets of the Flat Map and Z-Fold Map Formats. Graphic representations of Flood Hazard Maps prepared in these formats are provided in Appendix K of these Guidelines.

[February 2002]

INT.8.1 Flat Map Format

For the Flat Map Format, the panels are produced as 11" x 17" pages that are formatted and printed in a booklet form. If more than one panel is required to cover a community, FEMA prepares a cover sheet that includes an index and legend. FEMA used the Flat Map Format primarily to prepare FHBMs; however, FEMA also prepared some FIRMs in this format. FEMA has not, and will not, prepare FBFMs or DFIRMs in this format. FEMA has, for the most part, discontinued the Flat Map Format for new Flood Hazard Maps and plans to convert the remaining inventory to Z-Fold Format on a community-by-community basis.

[February 2002]

INT.8.2 Z-Fold Map Format

For the Z-Fold Map Format, FEMA produces one or more map panels in a folded format similar to that used for road maps. FEMA shows a Legend on each printed panel. If more than one panel is required to cover a community, FEMA prepares an index, either in Z-Fold Format or as an accompanying 8.5" x 11" document. (See Appendix K of these Guidelines for further details.) FEMA has historically used the Z-Fold Map format to produce many FHBMs; most FIRMs; all FBFMs; and, most recently, all DFIRMs.

[February 2002]

INT.8.3 Standard Format

Until 1985, FEMA produced and published separate FIRMs and FBFMs. This is referred to as the Standard Format for FEMA maps. Generally speaking, FEMA only produced separate FBFMs if (1) regulatory floodways were computed, so they had to be shown on the map, or (2) if separate FBFMs were required by State regulations even if FEMA did not compute or delineate a regulatory floodway.

[February 2002]

INT.8.4 Map Initiatives Format

Starting in 1986, FEMA began preparing FIRMs in its Map Initiatives Format. For FIRMs prepared in the Map Initiatives Format, FEMA combined all essential information previously shown on the separately published FIRM and FBFM into a FIRM. At this same time, FEMA instituted some additional format changes to make the FIRM more user-friendly and useable. These changes included simplifying the flood insurance rate zone designations for SFHAs developed based on detailed flood hazard assessments and providing a new cross-hatching feature to identify regulatory floodway areas.

[February 2002]

INT.8.5 Countywide Format

At about this same time, FEMA instituted its Countywide Format, to enable seamless flood hazard coverage at the county level. For FIRMs prepared in the Countywide Format, FEMA compiles the effective flood hazard information for all jurisdictions within the subject county (both unincorporated and incorporated areas) and produces one FIRM and one FIS report. For FIRMs prepared in Countywide Format, FEMA included all essential information that previously appeared on the effective FIRMs and FBFMs for the individual communities, unless that information had been superseded by a restudy or map revision.

[February 2002]

INT.9 Overview of Mapping Partners

To provide a sound basis for floodplain management and insurance rating, the Flood Hazard Maps must present flood hazard information that is correct and up to date. Maintaining correct and up-to-date flood hazard information requires the combined contributions of many Mapping Partners.

The following are the primary Mapping Partners involved in the development and maintenance of the Flood Hazard Maps and other flood hazard and risk information used for NFIP purposes:

- FEMA Regional Office staff;
- FEMA Headquarters Office staff;
- Community officials;
- Regional agency officials;
- State agency officials;
- Communities, regional agencies, and State agencies participating in the CTP initiative;
- Other Federal agencies;
- FEMA Contractors;
- Contractors for communities, regional agencies, and State agencies; and
- Community residents and property owners.

Brief descriptions of each of the primary groups of Mapping Partners as well as other constituent groups that have an interest in the accuracy of the flood hazard information are provided in Subsections INT.9.1 through INT.9.9.

[February 2002]

INT.9.1 FEMA Regional Offices

FEMA has offices in each of 10 Regions. The locations of these offices and the States, Commonwealths, and Territories that they cover are presented below.

- **Region I**, located in Boston, oversees flood hazard mapping and floodplain management activities in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.
- **Region II**, located in New York City, oversees flood hazard mapping and floodplain management activities in New Jersey, New York, Puerto Rico, and the U.S. Virgin Islands.

- **Region III**, located in Philadelphia, oversees flood hazard mapping and floodplain management activities in Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia.

- **Region IV**, located in Atlanta, oversees flood hazard mapping and floodplain management activities in Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

- **Region V**, located in Chicago, oversees flood hazard mapping and floodplain management activities in Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

- **Region VI**, located in Denton, Texas, oversees flood hazard mapping and floodplain management activities in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

- **Region VII**, located in Kansas City, oversees flood hazard mapping and floodplain management activities in Iowa, Kansas, Missouri, and Nebraska.

- **Region VIII**, located in Denver, oversees flood hazard mapping and floodplain management activities in Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

- **Region IX,** located in San Francisco, oversees flood hazard mapping and floodplain management activities in Arizona, California, Hawaii, Nevada, Guam, American Samoa, and the Northern Mariana Islands.

- **Region X**, located in Bothell, Washington, oversees flood hazard mapping and floodplain management activities in Alaska, Idaho, Oregon, and Washington.

[February 2002]

INT.9.2 FEMA Headquarters Office

The FEMA Headquarters, or National, Office is located in Washington, DC. The Federal Insurance and Mitigation Administration is the office within FEMA that oversees flood hazard mapping and floodplain management activities nationwide.

[February 2002]

INT.9.3 Community Officials

Many community officials have active roles in the process of creating and maintaining Flood Hazard Maps, implementing floodplain management ordinances, and ensuring wise floodplain development. The community officials who work most closely with FEMA and other Mapping Partners are the Chief Executive Officer, floodplain managers, and community planners.

[February 2002]

INT.9.4 Regional Agency Officials

The regional agencies that have active roles in the process of creating and maintaining Flood Hazard Maps, implementing floodplain management ordinances, and ensuring wise floodplain development are watershed management districts, flood control districts, regional planning councils, councils of governments, and regional offices of State agencies.

[February 2002]

INT.9.5 State, Commonwealth, and Territory Officials

Many State, Commonwealth, and Territory agencies are actively involved in creating and maintaining Flood Hazard Maps, implementing floodplain management ordinances, and ensuring wise floodplain development. The most active agency in each is referred to as the "State NFIP Coordinator," or "State Coordinating Agency" for that state, commonwealth, or territory.

The State NFIP Coordinators in each FEMA Region are listed below.

Region I

Connecticut Department of Environmental Protection
Maine State Planning Office
Massachusetts Department of Flood Hazard Management Programs
New Hampshire Office of Emergency Management
Rhode Island Emergency Management Agency
Vermont Department of Environmental Conservation

Region II

New Jersey Department of Environmental Protection
New York State Department of Environmental Conservation
Puerto Rico Planning Board
U.S. Virgin Islands Department of Planning and Natural Resources

Region III

Delaware Department of Natural Resources
District of Columbia Environmental Health Administration
Maryland Emergency Management Agency
Pennsylvania Department of Community and Economic Development
Virginia Department of Conservation
West Virginia Office of Emergency Services

Region IV

Alabama Emergency Management Agency
Florida Division of Emergency Management
Georgia Department of Natural Resources
Kentucky Division of Water Resources
Mississippi Emergency Management Agency
North Carolina Division of Emergency Management
South Carolina Department of Natural Resources
Tennessee Department of Economic and Community Development

Region V

Illinois Department of Natural Resources
Indiana Department of Natural Resources
Michigan Department of Environmental Quality
Minnesota Department of Natural Resources
Ohio Department of Natural Resources
Wisconsin Department of Natural Resources

Region VI

Arkansas Soil and Water Conservation Commission
Louisiana Department of Transportation and Development
New Mexico Department of Public Safety
Oklahoma Water Resource Board
Texas Natural Resources and Conservation Commission

Region VII

Iowa Department of Natural Resources
Kansas Department of Agriculture, Division of Natural Resources
Missouri Emergency Management Agency
Nebraska Natural Resources Commission

Region VIII

Colorado Water Conservation Board
Montana Department of Natural Resources and Conservation
North Dakota State Water Commission
South Dakota Division of Emergency Management
Utah Division of Comprehensive Emergency Management
Wyoming Emergency Management Agency

Region IX

Arizona Department of Water Resources
California Department of Water Resources
Hawaii Department of Land and natural Resources
Nevada Division of Water Planning
Guam Department of Public Works
American Samoa Economic Development Planning Office
Northern Mariana Islands Building Safety Division

Region X

Alaska Department of Community and Economic Development
Idaho Department of Water Resources
Oregon Department of Land Conservation and Development
Washington State Department of Ecology

[February 2002]

INT.9.6 Participants in Cooperating Technical Partners Initiative

One of the key objectives of the FEMA Map Modernization Program is to increase local involvement in, and ownership of, the flood mapping process. To meet this objective, FEMA developed and implemented the Cooperating Technical Partners, or "CTP," initiative. FEMA has identified the following beneficial reasons for 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 NFIP map, facilitating more efficient floodplain management.

- The CTP initiative provides the opportunity to modify a national program to interject a tailored, local focus where unique conditions may exist that necessitate special approaches to flood hazard identification.

- The partnership mechanism provides the opportunity to pool resources and extend the productivity of limited public funds.

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

- To recognize the contributions made by FEMA's State, regional, and local community Partners by providing timely and accurate flood hazard information;

- To maximize the use of Partners' contributions as a means of leveraging limited public funds to the fullest extent possible while maintaining essential NFIP standards;

- To fully integrate contributing Partners into the flood hazard data development process, with the corresponding authorities and responsibilities;

- To provide training and technical assistance to Partners when appropriate; and
- To facilitate mentoring to increase capabilities of both existing and potential Partners.

The CTP initiative allows communities as well as regional agencies and State, Commonwealth, and Territory agencies that have the interest and capability to become active partners in the FEMA Flood Hazard Mapping Program. FEMA and its Partners administer activities under the CTP initiative through close and frequent coordination and through formal agreements.

More detailed information on these agreements and eligible CTP activities is provided in Volume 3, Section 3.18 of these Guidelines.

[February 2002]

INT.9.7 Other Federal Agencies

Five Federal agencies have been actively involved in the NFIP since its inception, and have worked closely with FEMA in performing flood hazard studies and preparing Flood Hazard Maps. These agencies are the U.S. Army Corps of Engineers, U.S. Geological Survey, Natural Resources Conservation Service, U.S. Bureau of Reclamation, Tennessee Valley Authority. These agencies also often provide FEMA with copies of reports (e.g., Floodplain Information Reports, Flood Hazard Analyses Reports) and other information that was developed for purposes other than the NFIP for FEMA use in updating the Flood Hazard Maps for affected communities.

In accordance with Paragraph 65.10(e) of the NFIP regulations, a Federal agency with responsibility for levee design may certify that a levee has been adequately designed and constructed to provide protection from the 1-percent-annual-chance flood. Therefore, the U.S. Army Corps of Engineers and other Federal agencies may be involved in a flood hazard study/restudy or map revision even when they are not contracted with FEMA to perform the hydrologic and hydraulic analyses.

FEMA works closely with the National Geodetic Survey, the part of the National Oceanic and Atmospheric Administration that maintains a network of more than 750,000 precisely located monumented reference points nationwide. The NGS national reference network and Global Positioning System photogrammetry provide a universal set of coordinates across community, county, and State lines. FEMA requires such a foundation of accurate coordinates for the Flood Hazard Maps.

FEMA works closely with, and provides technical assistance to, the U.S. Fish and Wildlife Service to improve the mapping of Coastal Barrier Resource System Areas. Specifically, FEMA assists the U.S. Fish and Wildlife Service in producing digital, vector mapping that is suitable for direct incorporation as a thematic layer in Digital FIRMs and potential posting on a website. As requested by the U.S. Congress, FEMA uses the mapping developed by the Service to present Coastal Barrier Resource System areas and related information of the Flood Hazard Maps for affected communities. Additional information on Coastal Barrier Resource System revisions is presented in Subsection INT.7.1.5 and in Volume 2, Section 2.2 of these Guidelines.

FEMA has established a partnership with the U.S. Geological Survey through the National Digital Orthophoto Partnership Program. Through this Program, the U.S. Geological Survey will produce Digital Orthophoto Quadrangle Maps, or "DOQs," for those communities where no community base map that meets FEMA base map specifications exists. FEMA will then use the information to update the Flood Hazard Maps.

FEMA is an active participant in the National Digital Elevation Program, which was established to promote the exchange of digital elevation data and technology among government, private-sector, and academic communities and establish standards and guidance that will benefit all agencies and users.

FEMA also is working cooperatively with 16 other Federal agencies participating on the Federal Geographic Data Committee, or "FGDC." The Committee is developing the National Spatial Data Infrastructure, which encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data. The goals of this Infrastructure are to (1) reduce duplication of effort among agencies; (2) improve quality and reduce costs related to geographic information; (3) make geographic data more accessible to the public; (4) increase the benefits of using available data; and (5) establish key partnerships with States, counties, cities, tribal nations, academia, and the private sector to increase data availability.

Representatives of the U.S. Army Corps of Engineers, U.S. Geological Survey, and National Aeronautics and Space Administration participated in the development of guidelines and specifications for the use of airborne LIght Detection and Ranging Systems, or "LIDAR" systems. That information now appears in Appendix A, Section A.8 of these Guidelines.

[February 2002]

INT.9.8 FEMA Contractors

The primary FEMA contractors that assist FEMA and the other Mapping Partners in creating and maintaining Flood Hazard Maps and implementing floodplain management ordinances and their traditional roles and responsibilities are summarized in Subsections INT.9.8.1 through INT.9.8.3.

[February 2002]

INT.9.8.1 Study Contractors

The Study Contractors, or "SCs," are the private-sector architectural/engineering firms and Federal agencies that perform flood hazard studies and restudies under contract to, or through Interagency Agreement (Federal agencies) with FEMA. The Federal agencies that have performed flood hazard studies and restudies for FEMA are the U.S. Army Corps of Engineers, U.S. Geological Survey, Natural Resources and Conservation Service (formerly U.S. Soil Conservation Service), U.S. Bureau of Reclamation, and Tennessee Valley Authority.

[February 2002]

INT.9.8.2 Flood Map Production Coordination Contractors

The Flood Map Production Coordination Contractors, or "MCCs," are the private-sector architectural/engineering firms that: (1) review and process flood hazard studies and restudies; (2) review and process revisions and amendments to NFIP maps and related products; (3) prepare Preliminary copies and final reproduction materials for Flood Hazard Maps, reports, and related products; (4) provide program development and implementation support to FEMA and other Mapping Partners; and (5) maintain Region-based archives of flood hazard data.

[February 2002]

INT.9.8.3 Map Service Center Contractor

The Map Service Center Contractor is a private-sector firm that maintains the FEMA Flood Hazard Mapping inventory and related products, distributes printed copies of Flood Hazard Maps and related products, and provides customer service support to FEMA and other Mapping Partners.

[February 2002]

INT.9.9 Contractors for Communities and Regional Agencies

To expand their resources or to complete a specific short- or long-term mapping-related project, communities and regional agencies may hire contractors to provide a variety of engineering and mapping services. These contractors may be private-sector firms or public-sector agencies (Federal, State, and regional) with specific experience, knowledge, or capability.

[February 2002]

INT.9.10 Contractors for State/Commonwealth/Territory Agencies

To expand their resources or to complete a specific short- or long-term mapping-related project, State, Commonwealth, and Territory agencies may hire contractors to provide a variety of engineering and mapping services. These contractors may be private-sector firms or public-sector agencies (Federal, State, and regional) with specific experience, knowledge, or capability.Community Residents and Property Owners

Community residents and property owners play an active role in creating and maintaining Flood Hazard Maps by providing community officials, FEMA, and their contractors with historical and property-specific information during the preparation of a new or revised Flood Hazard Map; by providing property- or area-specific technical support data to community officials and FEMA for use in revising or amending Flood Hazard Maps; and by notifying community officials and FEMA of potential violations of local floodplain management and development ordinances.

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INT.9.11 Other Program Constituents

Other Program constituents that may play lesser, but nonetheless important roles in the process of creating and maintaining Flood Hazard Maps, implementing floodplain management ordinances, and ensuring wise floodplain development and management are the following:

- U.S. Congress;
- Insurance companies and agents;
- Lenders;
- Real estate professionals;
- Flood map determination firms;
- Land development industry;
- Surveyors; and
- Federal, State, and local disaster and emergency response officials.

Several organizations that represent state and local officials, the nation's realtors, home builders, and surveyors, and those with a stake in floodplain management, development review, disaster mitigation, emergency response, land-use planning, and environmental protection, have formed a coalition. The coalition was formed to support the FEMA Map Modernization Program and take an active part in assuring that the Flood Hazard Maps are accurate. The following organizations are members of this coalition:

- American Congress of Surveying and Mapping;
- American Planning Association;
- American Public Works Association;
- American Society of Civil Engineers;
- Association of State Floodplain Managers;
- Association of State Wetland Managers;
- Coastal States Organization;
- National Association of Counties;
- National Association of Development Organizations;
- National Association of Flood and Stormwater Management Agencies;

- National Association of Home Builders;
- National Association of Realtors,
- National Emergency Management Association;
- National League of Cities;
- National Flood Determination Association; and
- National Lenders Insurance Council.

The National Wildlife Federation and the Western Governors Association also have publicly supported the FEMA Map Modernization Program.

[February 2002]

INT.10 Guidelines for Mapping Partners in Perspective

Since its inception, the Federal Government has had primary responsibility for administering the NFIP in general, with a special emphasis on the identification and mapping of the nation's floodplains. The Federal Government undertook the identification and mapping activities to create a broad-based awareness of flood hazards and to provide data necessary for community floodplain management programs and to actuarially rate flood insurance.

In the enabling legislation that created and amended the NFIP, FEMA has been authorized to consult with, receive information from, and enter into agreements or other arrangements with the head of any State, regional, or local agency in order to identify these floodplain areas. Therefore, FEMA has encouraged strong Federal, State, regional, and local partnerships for the purposes of reducing flood losses and disaster assistance.

Over the years, FEMA has established and implemented initiatives to build on Federal, State, regional, and local partnerships and, where appropriate, formalize the partnerships. Through these initiatives—including the recent Cooperating Technical Partners initiative—FEMA and its State, regional, and local partners have formalized improved cooperation in the flood hazard identification and mapping processes. Many communities and the agencies that serve them have developed considerable technical capabilities and resources that provide the opportunity to improve and expand the collection, development, and evaluation of flood hazard data.

Recognizing that the contributions of FEMA and all of its Mapping Partners may evolve over the next several years, these Guidelines have not emphasized the traditional roles of the various Mapping Partners. Instead, these Guidelines specify the requirements that the Mapping Partner performing a specific task must meet to ensure consistent and accurate flood hazard information is provided to U.S. citizens nationwide.