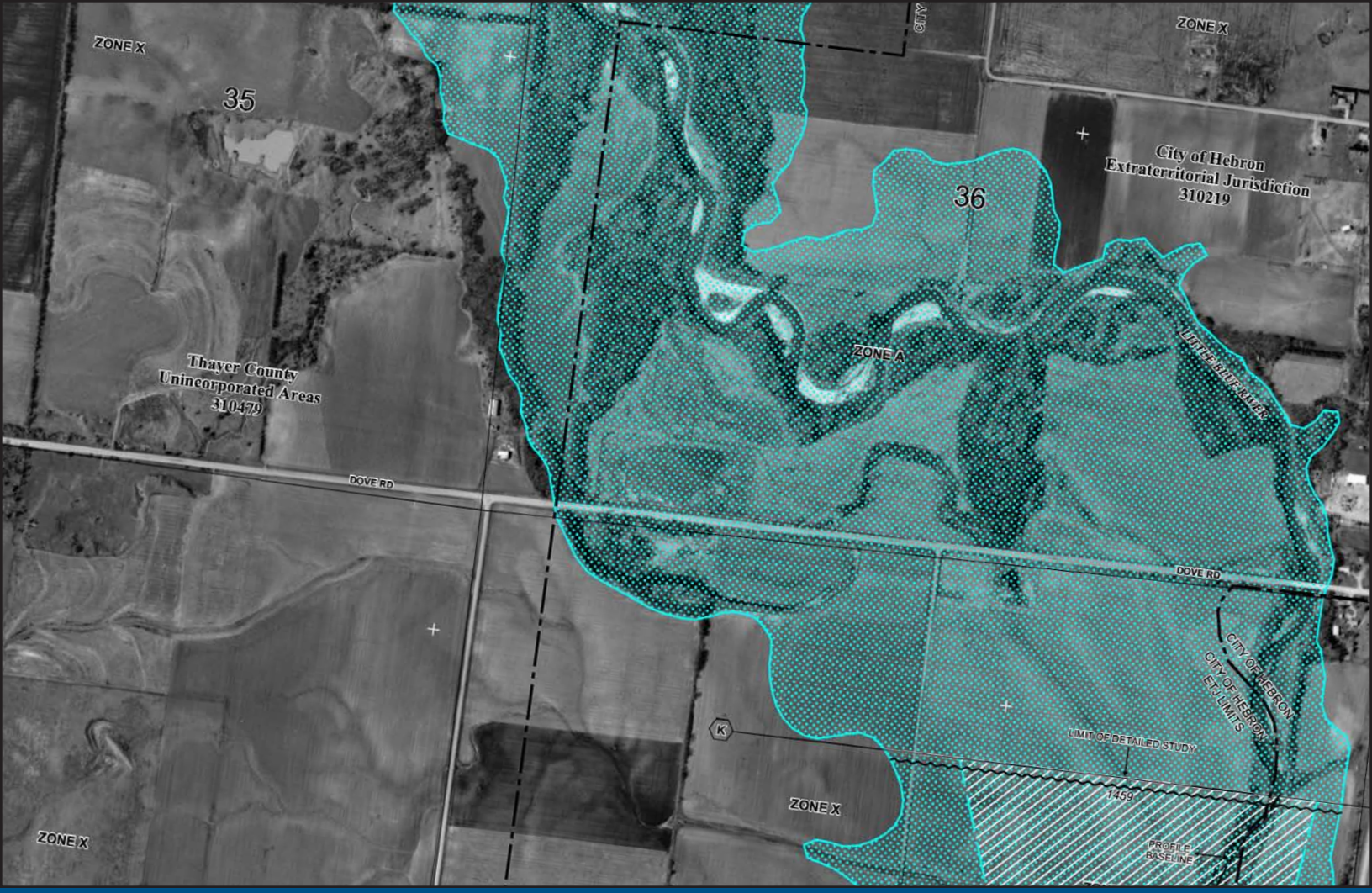

Guide to Flood Maps

Using the Flood Map to Improve Your Understanding of Risk

FEMA 258/December 2009

FEMA

A Message from FEMA

The Federal Emergency Management Agency, or FEMA, became part of the U.S. Department of Homeland Security (DHS) on March 1, 2003. FEMA's primary mission continues to be to reduce the loss of life and property and protect the Nation from all hazards, including natural disasters, acts of terrorism, and other manmade disasters. The dedicated, professional FEMA employees in offices around the U.S. are carrying out this mission by leading and supporting the Nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

One way that FEMA is displaying its leadership is through its administration of the National Flood Insurance Program, or NFIP. Since the late 1970s, FEMA has had primary responsibility for administering the NFIP in general, with a special emphasis on the identification and mapping of floodprone areas nationwide. FEMA undertook the identification and mapping activities to create a broad-based awareness of flood hazards and to provide the data necessary for community floodplain management programs and to actuarially rate flood insurance.

The NFIP is a Federal program that enables property owners in participating communities to purchase insurance as a protection from flood losses in exchange for State and community floodplain management regulations that reduce future flood damage. Participation in the NFIP is based on an agreement—a partnership—between communities and the Federal Government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains that meets the minimum requirements of the NFIP, the Federal Government makes flood insurance available within the community. The NFIP is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods.

The FEMA Mitigation Directorate, the component of FEMA that is primarily responsible for administering the NFIP, continues to identify floodprone areas nationwide, to develop flood hazard and flood risk information, and to distribute that information to affected communities in an appropriate manner. Among the tools that the Mitigation Directorate uses to assist government officials and citizens in preparing for, responding to, and recovering from flood disasters are the "Flood Maps." Over the history of the NFIP, the Flood Maps have taken many forms and been referred to by different names, including Flood Hazard Boundary Maps, or FHBMs; Flood Insurance Rate Maps, or FIRMs; Flood Boundary and Floodway Maps, or FBFMs; and, more recently, Digital Flood Insurance Rate Maps, or DFIRMs.

To develop the flood hazard and risk information shown on the Flood Maps, FEMA Regional Offices around the U.S. have conducted—in many cases, in partnership with national, state, regional, and local mapping partners—new or updated engineering studies, and have produced Flood Maps or provided flood hazard and risk information for more than 20,000 identified floodprone communities.

In 2003, FEMA undertook an unprecedented effort to update the flood hazard and risk information shown on the Flood Maps nationwide and to modernize the map products themselves by converting them to a digital format. Through this mapping effort, FEMA and its governmental (public-sector) and non-governmental (private-sector) partners, working together, are producing more reliable and accessible map products by using advanced technology to gather accurate data and to make the resulting information available via the Internet.

Over the years, the FEMA Mitigation Directorate has created and distributed an assortment of documents to improve the use and understanding of the flood hazard and risk information presented on the Flood Maps. FEMA 258, also known as the "Guide to Flood Maps," is one such document. FEMA is pleased to present this updated version of the Guide for the information and use of map users across the U.S.

This version of the Guide is designed to be an informative and user-friendly publication that is now accessible through the Internet and can be printed on all office and home printers. By redesigning, updating and reissuing the Guide, FEMA is trying to raise U.S. citizens' and other NFIP stakeholders' awareness and understanding of the flood hazards and risks that they face.

Using this Guide in conjunction with the modernized Flood Maps can assist map users in determining the level of risk posed to homes, businesses, and other structures and deciding what steps should be taken to reduce the risk, including purchasing the appropriate level of insurance protection. This Guide is a clear illustration of FEMA's continuing commitment to providing quality service to NFIP stakeholders and the general public, while remaining focused on its primary mission and goals.

FEMA welcomes comments on this updated version of the Guide and suggestions for improving this and the variety of other Flood Hazard Mapping products that are available from the FEMA Library (http://www.fema.gov/library/index.jsp). Please contact the FEMA Regional Office nearest you. For your convenience, the Regional Office addresses and telephone numbers are provided at the end of this Guide. You may also contact the Mitigation Directorate at FEMA Headquarters at:

Federal Emergency Management Agency
Mitigation Directorate
Risk Reduction Division
1800 South Bell Street
Arlington, VA 20598-3030

Let us know how we are doing… we are here to assist you.

Knowing Their Flood Risk Can Help People Reduce Devastating Losses During Floods.

BUILD SAFE !!!
13.1' MSL

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National Flood Insurance Program

For decades, the national response to flood disasters was generally limited to construction of flood-control works, such as dams, levees, and seawalls, and providing disaster relief to flood victims. This approach did not substantially reduce losses nor discourage unwise development, and, in some instances, may have actually encouraged additional development in high-risk areas. To compound the problem, the public could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayer, the U.S. Congress created the National Flood Insurance Program, or NFIP, in 1968. Their intent was to reduce future damage through community floodplain management ordinances and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The NFIP is administered by the Federal Emergency Management Agency, or FEMA, which has been a part of the U.S. Department of Homeland Security, or DHS, since March 1, 2003. Within FEMA, the NFIP is administered by Mitigation Directorate staff in the FEMA Headquarters office and the Mitigation Division offices in 10 Regional Offices throughout the U.S.

The NFIP is a Federal program that enables property owners in participating communities to purchase insurance protection against flood losses in exchange for State and community floodplain management regulations designed to reduce future flood damage. Participation in the NFIP is based on an agreement—a partnership—between communities and the Federal Government. If a community will adopt and enforce a floodplain management ordinance to reduce future flood risk to new construction in mapped flood hazard areas, the Federal Government will make flood insurance available within the community. The NFIP is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing flood damage to buildings and their contents.

Consumers should fund their own recovery via flood insurance, rather than rely on taxpayer-provided disaster assistance. The majority of disaster assistance comes in the form of a low-interest Small Business Administration disaster assistance loan that must be paid back with interest and costs far more than NFIP flood insurance protection.

As the component of FEMA that is responsible for administering the NFIP, the FEMA Mitigation Directorate continues to identify areas with varying levels of flood hazard and associated risk nationwide and to develop and distribute flood hazard and flood risk information to affected communities, counties, parishes, states, commonwealths, territories, and Indian tribal entities in an appropriate manner.

Among the tools that the Mitigation Directorate uses to assist government officials and citizens in preparing for, responding to, and recovering from flood disasters are the "Flood Maps." Over the history of the NFIP, the Flood Maps have taken many forms and been referred to by different names. In the early years of the NFIP, the Flood Maps were referred to as Flood Hazard Boundary Maps, or FHBMs. From the late 1970s to the end of the 20th Century, the Flood Maps were referred to as Flood Insurance Rate Maps, or FIRMs, and Flood Boundary and Floodway Maps, or FBFMs.

More recently, the Flood Maps have been referred to as Digital Flood Insurance Rate Maps, or DFIRMs. The DFIRMs are the result of an unprecedented effort to update the flood hazard and risk information shown on FHBMs, FIRMs, and FBFMs nationwide and to modernize the map products themselves by converting them to a digital format.

Through this mapping initiative, FEMA and its governmental (public-sector) and non-governmental (private-sector) partners, working together, are producing more reliable and accessible map products by using advanced technology to gather accurate data and to make the resulting information available via the Internet. Through this initiative, FEMA also is:

- Maximizing the use of local, State, and Federal resources, and transferring ownership and use of maps and data to State agencies, regional entities, and localities by building and maintaining effective partnerships with State agencies, regional entities, and communities before and during the development of maps and data;
- Reducing the processing time and cost for map updates, and facilitating the rapid exchange of data between mapping partners, stakeholders, FEMA staff, FEMA contractors, and other users;
- Communicating with mapping partners, stakeholders, and users effectively, consistently, and continuously to maximize understanding of flood hazards and the risks that these hazards pose to life and property; and
- Continuing to improve the quality and accuracy of national flood hazard data by developing Geographic Information System (GIS)-based products with reliable technologies that meet enhanced technical standards.

Use of Digital Flood Hazard and Risk Data

The continuing FEMA effort to convert paper maps and other flood hazard and risk information to a digital format and to produce DFIRM Databases and DFIRMs is critical to implementing FEMA's "digital vision." Since 2003, FEMA has achieved a 50- to 75-percent reduction in the number of Flood Maps distributed in paper form. New digital Flood Map users can access easy-to-use digital images (i.e., FIRM Scans, FIRMettes).

Users with more experience can create custom map products and perform advanced flood risk analyses. Map image and GIS data can be downloaded or delivered on CD-ROM. Map images from GIS data also can be accessed through a Web Map Service; a fact sheet explaining the Web Map Service is accessible through the FEMA Library (http://www.fema.gov/library/viewRecord.do?id=3292). A variety of FEMA-provided or commercially available software tools can be used with these data.

In November 2007, FEMA achieved a milestone in the implementation of its digital vision with the issuance of a policy for the use of digital flood hazard data. That policy, established in part in response to the requirements of Congress contained in the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, also is accessible through the FEMA Library (http://www.fema.gov/library/viewRecord.do?id=3235).

In addition to issuing a written policy, FEMA has created an inventory of digital flood map images, developed a "National Flood Hazard Layer" product, and created a suite of tools and users' guides for handling digital flood data. More information on the transition from paper to digital format is provided in a flyer titled "Moving to Digital Flood Hazard Information".

Replacing paper map products with digital versions will save money and improve the usability of FEMA flood hazard and risk data. FEMA will continue to work closely with stakeholders to ensure these digital products and services meet the needs of the NFIP and support the reduction of flood risk nationally.

Where To Find More Program Information

To learn more about the NFIP in general and the FEMA mapping effort and products in particular, interested parties should consult the Web pages listed below and others on the FEMA Web site.

- NFIP Index page: http://www.fema.gov/about/programs/nfip/index.shtm;
- Flood Hazard Mapping Index page: http://www.fema.gov/plan/prevent/fhm;
- Flood Insurance Index page: http://www.fema.gov/business/nfip/index.shtm;
- Floodplain Management Index page: http://www.fema.gov/plan/prevent/floodplain/index.shtm; and
- Online tutorials covering how to read and use paper and digital Flood Maps and reports: http://www.fema.gov/plan/prevent/fhm/ot_main.shtm.

Interested parties may also wish to view or download the following informative FEMA documents:

- "National Insurance Program Description";
- "Answers to Questions About the NFIP" (MitDiv-2);
- "Adoption of Flood Insurance Rate Maps by Participating Communities" (FEMA 495)
- "Why We Map Flood Risks: A Guide To Floodplain Management & Flood Insurance" (FEMA L-257); and
- "Mandatory Purchase of Flood Insurance Guidelines."

These documents and an assortment of other FEMA, NFIP, and mapping resources may be viewed on, or downloaded from, the FEMA Library.

The FEMA Library is accessible through the following link: http://www.fema.gov/library/index.jsp. For simplicity, the FHBMs, FIRMs, FBFMs, and DFIRMs are referred to collectively as Flood Maps in this *Guide*.

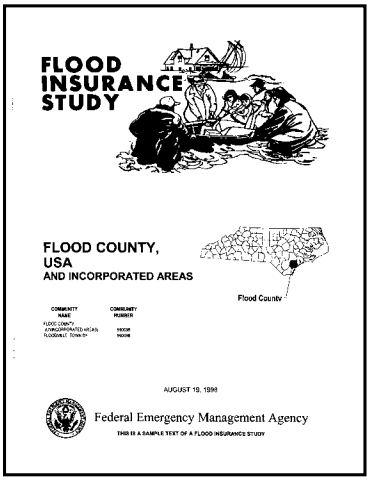
What Can Be Found on Flood Maps

To prepare or update the Flood Maps that graphically illustrate the flood hazards and related risks in a floodprone community, FEMA generally has conducted engineering studies referred to as Flood Insurance Studies, or FISs. The FISs are more commonly referred to simply as studies or mapping projects.

Using the information gathered in these studies, FEMA contractors and mapping partners present flood hazard and risk information on the Flood Maps and accompanying FIS reports. The mapping partners involved include State agency, regional agency, and local community and Indian Tribal entity partners participating in the FEMA Cooperating Technical Partners, or CTP, Program

The CTP Program is an innovative approach to creating partnerships between FEMA and participating NFIP communities and tribal entities, regional agencies, and State agencies that have the interest and capability to become more active participants in the FEMA flood hazard mapping program. To learn more about the CTP Program, interested parties should visit http://www.fema.gov/plan/prevent/fhm/ctp_main.shtm.

Several areas of flood hazard hazard are shown on Flood Maps. One of these areas is the Special Flood Hazard Area, or SFHA, a high-risk area defined as any land that would be inundated by a flood that has a 1-percent chance of occurring during any given year. This type of flood commonly is often referred to as the "100-year flood" or as the "base flood." This flood is not a flood that occurs every 100 years. In fact, this flood has a 26-percent chance of occurring during a 30-year period…the length of many mortgages.


FLOOD INSURANCE STUDY

FLOOD COUNTY, USA
AND INCORPORATED AREAS

Flood County

COMMUNITY NAME | COMMUNITY NUMBER

AUGUST 19, 1998

Federal Emergency Management Agency

THIS IS A SAMPLE TEXT OF A FLOOD INSURANCE STUDY

Regulated lending institutions must determine whether a borrower's building is located in an SFHA and require the purchase of flood insurance if it is. About 25 percent of insurance claims paid under the NFIP are in areas outside the high-risk SFHAs, where consumers may voluntarily purchase flood insurance.

The SFHA standard constitutes a reasonable compromise between the need for building restrictions to minimize potential loss of life and property and the economic benefits to be derived from development in these areas. Development may take place within the SFHA, provided that the development complies with local floodplain management ordinances, which must meet the minimum Federal requirements

In addition to SFHAs, a variety of information can be found on most Flood Map, including:

- Common physical features, such as major highways, secondary roads, lakes, railroads, streams, and other waterways;
- Base (1-percent-annual-chance) flood elevations, or BFEs, and/or base (1-percent-annual-chance) flood depths;
- Flood insurance risk zone designations, which are provided on the Flood Map to assist users in determining flood insurance premium rates for properties in the community;
- Moderate-risk areas subject to inundation by the 0.2-percent-annual-chance flood, which is often referred to as the "500-year flood" in some FEMA publications; and
- Low-risk areas outside the area inundated by the 0.2-percent-annual-chance flood.

The Flood Map for a community may also show:

- Area designated as regulatory floodways, which are defined as the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood discharge can be conveyed without increasing the BFEs more than a specified amount;
- Future-conditions flood hazard area, which is the land area that would be inundated by a 1-percent-annual-chance flood that is based on projected land-use conditions as documented on a community's zoning maps and/or in its comprehensive land-use plans (also known as "full build-out"); and
- Coastal Barrier Resources System, or CBRS, areas and Otherwise Protected Areas, or OPAs, which are protected coastal areas adjacent to the Atlantic Ocean, Pacific Ocean, or Great Lakes where flood insurance will not be available for new or substantially improved structures.

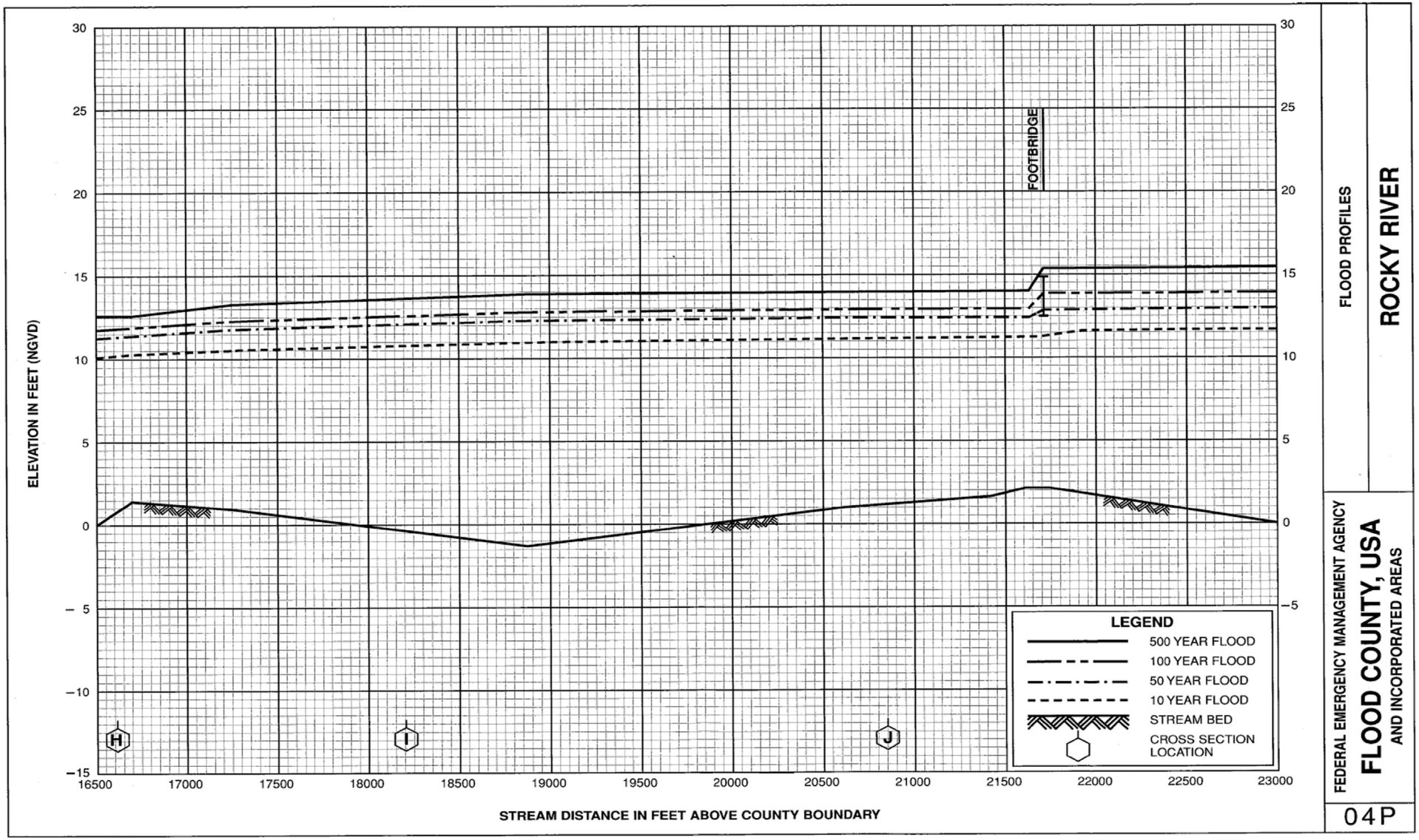


Figure 1. Sample Flood Profile

Projected construction of flood detention structures and projected hydraulic modifications within a stream or other waterway (e.g., bridge and culvert construction, fill, excavation) are not considered in determining future-conditions flood hazard areas and elevations.

The undeveloped coastal barriers are protected by law to discourage development in an attempt to preserve dunes, beaches, and wildlife habitats. The boundaries of the CBRS areas and OPAs are established by the U.S. Congress and provided to FEMA by the U.S. Fish and Wildlife Service. For additional information about these protected areas, please visit the U.S. Fish and Wildlife Service Web site at http://www.fws.gov/habitatconservation/coastal_barrier.htm.

What Can Be Found in Other Flood-Map Related Documents

The results of a study/mapping project are also available in a technical document—the FIS report—that provides information used for floodplain management and flood insurance. The information presented in the FIS report that accompanies the Flood Map includes a narrative that summarizes the conditions in the communities that were the subject of the study/mapping project and the types of studies that were performed. The FIS report also includes tables, photographs of previous flood events, and Flood Profiles.

Flood Profiles are graphs showing the relationship of water-surface elevations to locations, with the latter generally expressed as distance above the mouth for a stream or watercourse flowing in an open channel. When a detailed engineering study is performed, the Flood Profiles usually will include elevations for the 10-percent-annual-chance, or 10-year, flood; 2-percent-annual-chance, or 50-year, flood; 1-percent-annual-chance, or 100-year, flood; and 0.2-percent-annual-chance, or 500-year, flood. A sample Flood Profile is provided in Figure 1.

A FEMA tutorial that explains the various elements of the FIS report is available on the Web: http://www.fema.gov/plan/prevent/fhm/ot_fisr.shtm. A text equivalent of the tutorial is available from the FEMA Library: http://www.fema.gov/library/viewRecord.do?id=2325.

If a digital version of the Flood Map has not been produced yet for a community and the Flood Maps are older, the regulatory floodways and other floodplain management information may be shown on a separate Flood Map; this map is called a Flood Boundary and Floodway Map, or FBFM. The FBFM is an exhibit to the FIS report and is, therefore, distributed with the FIS report. On most of the newer Flood Maps, regulatory floodway information is not presented separately.

If a digital version of the Flood Map has been produced for a county or an individual community, another map-related product—a DFIRM Database—also has been produced. The DFIRM Database is designed to facilitate collecting, storing, processing, and accessing data developed by FEMA, enabling mapping partners to share the data necessary for the digital map production and conversion process. (See Figure 2.) 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 Database provides the ability to georeference and overlay the mapping and engineering data, allowing the database to support a wide variety of existing and future engineering and mapping products.

The FIS report and the Flood Map(s) can be reviewed at the Community Map Repository. The Community Map Repository is the community office responsible for floodplain management activities in your community. To locate the Community Map Repository, individuals may call a Map Specialist in the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Copies of the FIS report, Flood Map(s), and DFIRM Database may also be obtained from the FEMA Map Service Center as discussed in the "How To Obtain Flood Maps and Related Products" subsection of this *Guide*.

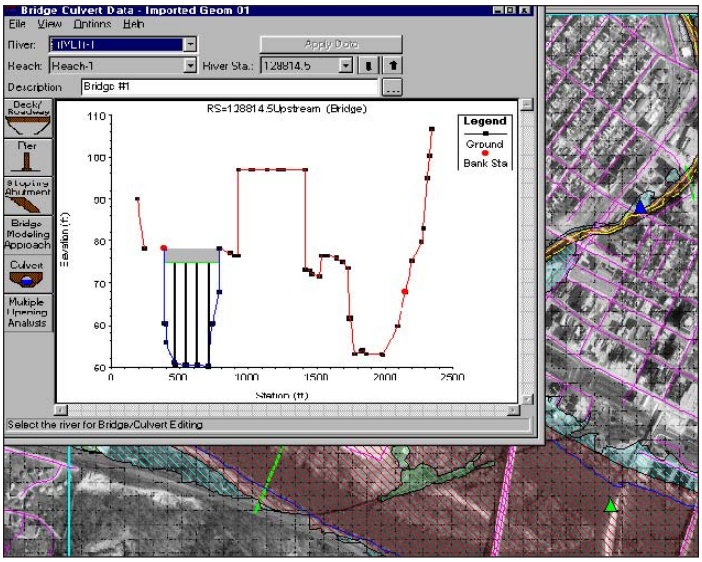


Figure 2. DFIRM Spatial Database

How Flood Maps and Related Products Can Help

The Flood Maps and related documents discussed earlier in this Guide provide information that allows community officials, citizens, and other map users to:

- Identify high-risk areas (SFHAs), moderate-risk areas, and minimal-risk areas;
- Identify the location of a specific property or structure in relation to the SFHA boundary, the regulatory floodway boundary, and the moderate-risk area boundary;
- Identify the type of flood hazard that a specific property may be subjected to (e.g., riverine flooding,

high-velocity coastal flooding, ice-jam flooding);

- Identify the BFE or base flood depth at a specific site;
- Identify the velocity of the floodflow for a specific river or stream at a specific location;
- Identify the extent of flood hazards in a specific area;
- Locate regulatory floodways;
- Identify undeveloped coastal barriers, where flood insurance is not available;
- View the locations of common physical features, such as major highways, secondary roads, lakes, railroads, streams, and other waterways; and
- Relate the flood hazard and risk information shown on the Flood Map to other data that have been georeferenced and maintained in GIS format.

Who Uses Flood Maps

FEMA distributes Flood Maps to a wide range of users for a variety of purposes, including:

- Homeowners, business owners, renters, community officials, insurance professionals and companies, real estate professionals and companies, and lending industry professionals use the Flood Maps to locate properties, buildings, and corresponding flood insurance risk zones.
- Homeowners, business owners, renters, community officials, insurance professionals and companies, real estate professionals and companies, and lending industry professionals use the Flood Maps to locate properties, buildings, and corresponding flood insurance risk zones.
- Community officials use the Flood Maps to administer local floodplain management regulations and mitigate flood damage.
- Lending industry professionals use the Flood Maps to locate properties and buildings and determine whether flood insurance is required when making loans or providing grants for the purchase, construction, or improvement of buildings.

How To Obtain Flood Maps and Related Products

As mentioned earlier in this *Guide*, paper (and, in some cases, digital) copies of the Flood Map(s) and FIS report for a particular community should be available at the Community Map Repository site for that community. Typically, this is the local planning, zoning, community development, or engineering office. For assistance in locating a Community Map Repository, individuals may call a Map Specialist in the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

To obtain their own digital copies of the Flood Map(s) and FIS report for a particular community or a group of communities, interested parties may want to contact the FEMA Map Service Center. Because the Map Service Center maintains digital versions of thousands of Flood Maps, specific information about the map(s) to be ordered will likely be required. (See page 39 of this *Guide* for ordering information.)

Note: The FEMA policy decision to have the Map Service Center distribute maps, reports, and other flood hazard data in digital form went into effect on October 1, 2009. See page 39 of this Guide for additional information regarding the FEMA transition to digital flood hazard information.

Flood Maps may be viewed online through the Map Service Center Web site: http://www.msc.fema.gov/. Flood Maps, FIS reports, DFIRM Databases, and related products also may be downloaded from the Map Service Center Web site. The Map Service Center Home Page is shown in Figure 3.

Although the Map Service Center site is well organized, some users may need some assistance in locating the map products they need.

In addition to obtaining the full-size Flood Maps, interested parties may also create another product while visiting the Map Service Center Web site. This product is called a FIRMette.

A FIRMette is a full-sized section of particular Flood Map that a user creates by selecting a desired area from the online image of a particular Flood Map. In addition to the area of interest, the FIRMette includes the map title block, north arrow, and scale bar. There is no cost for producing a FIRMette, and the FIRMette can be used for many aspects of the NFIP including floodplain management, flood insurance, and enforcement of mandatory flood insurance purchase requirements.

As shown in Figure 4, a FIRMette tutorial is available on the Map Service Center Web site to assist first-time users.

Flood Maps, FIS reports, DFIRM Databases, and related products (not the FIRMettes) also may be ordered by calling the Map Service Center, toll free, at 1-800-358-9616; by facsimile transmission, toll free, at 1-800-358-9620; or by submitting the request in writing to the address below.

Federal Emergency Management Agency
Map Service Center
P.O. Box 1038
Jessup, Maryland 20794-1038

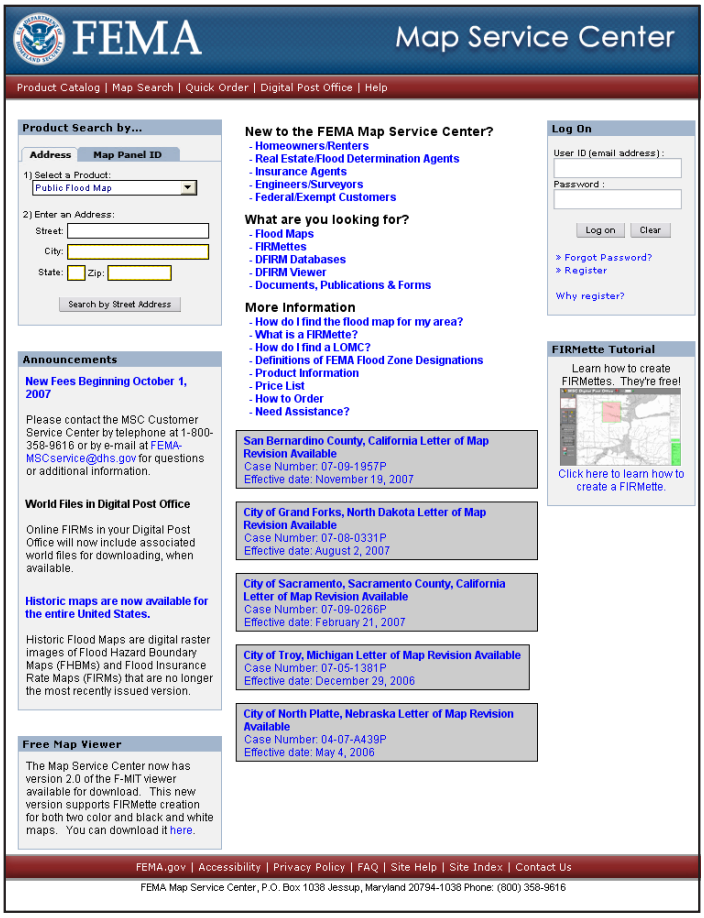


Figure 3. Map Service Center Homepage

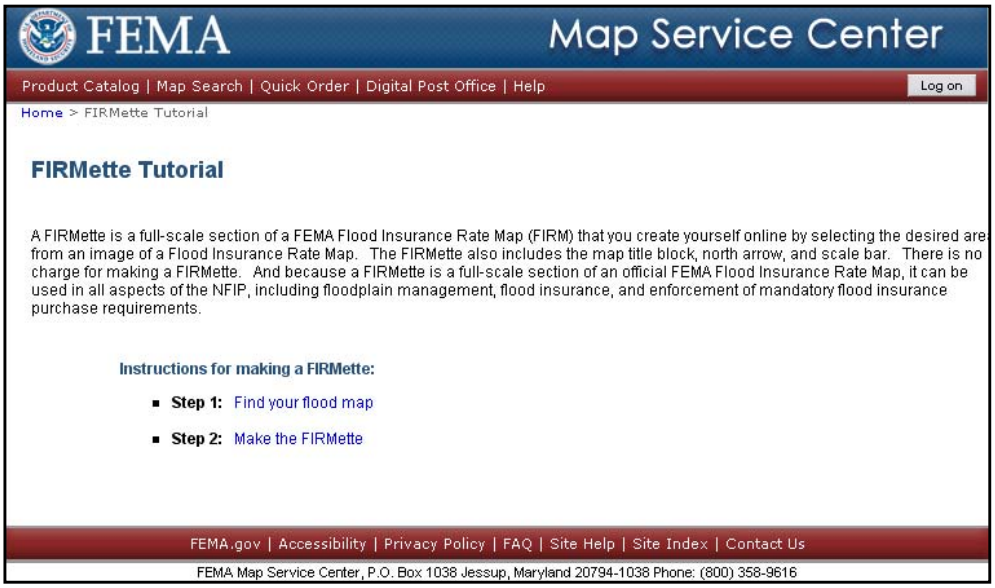


Figure 4. Map Service Center FIRMette Tutorial

Key Map Elements

Since the NFIP began, many design improvements have been made to make the Flood Maps easier to use and better able to meet users' needs. To control costs, FEMA has included design improvements in Flood Maps on a map-by-map basis as new or updated Flood Maps are produced. As a result, until the effort to modernize the Flood Maps and produce them in digital, countywide format is completed, all Flood Maps will not be exactly the same. They may differ in format and content.

Flood Maps also may differ in scale. The most common scales are:

- 1 inch = 500 feet;
- 1 inch = 1,000 feet; and
- 1 inch = 2,000 feet.

The Flood Maps may include different types of jurisdictions. Most of the newer Flood Maps cover entire counties; divisions (in Alaska); parishes (in Louisiana); or, in some cases, entire territories or islands (e.g., Guam, American Samoa). For the purposes of this *Guide*, the format for these Flood Maps will be referred to as the FEMA Countywide Format.

Most of the older Flood Maps cover individual communities or just parts of counties, divisions, or parishes. The format for these Flood Maps is referred to as the FEMA Community-Based Format.

For many of the Flood Maps produced since January 1985, all flood insurance, regulatory floodway, and floodplain management information is presented on one set of Flood Map panels. These newer Flood Maps also present simplified flood insurance risk zone designations. (That is, Zone AE is used in place of Zones A1 to A30, and Zone VE is used in place of Zones V1 to V30.) Before January 1985, regulatory floodway and floodplain management information was shown on separate Flood Maps, called Flood Boundary and Floodway Maps.

In this section, the key elements common to Flood Maps are described and illustrated. Please keep in mind, however, that as a result of variations in format and content, all elements described here do not appear on every Flood Map.

Basic Formats Used for Flood Maps

The printed paper copies of Flood Maps may differ in size and type of fold, as described below.

- A Flat Flood Map is one or more 11" X 17" pages and a cover sheet that includes an Index and a Key to Map.
- A Z-Fold Flood Map, like a highway map, consists of one or more panels, each of which has a Key to Map or Legend printed on it. Z-fold Flood Maps involving more than one panel also have an Index.

Sample maps for each map size and fold are provided in the "How to Read a Flood Map Index" and "How to Read the Flood Map Panels" sections of this *Guide*.

Basic Elements of Flood Maps

Flood Maps also have several basic elements in common. These elements are described below.

The Index

If a Flood Map is composed of more than one panel, an Index is provided. The Index serves as a guide to the information found on the various panels and gives the map user a variety of information. Sample Indexes are provided

later in this *Guide*, in the section titled "How To Read the Flood Map Index."

The Panel

The Flood Map for a community may include one or more individual pages, each of which is known as a panel. This simply means that the Flood Map for the community, when printed, will not fit on one page, so there are several pages. The number of panels depends on the area covered by the Flood Map and the scale(s) used to produce the Flood Map panels.

The Key to Map or Legend

The Key To Map (found on older Z-fold Flood Maps and Flat Flood Maps), provides additional information, including explanations of flood insurance risk zone designations, notes to users, and dates for previously printed versions of the Flood Map. A sample Key to Map is provided in Figure 11a on page 24.

The Legend (found on newer Z-fold Flood Maps, including modernized Flood Maps prepared in the FEMA Countywide Format) also provides flood insurance risk zone definitions and dates for previously printed versions of the Flood Map. The Legend also provides the address for the Community Map Repository. Sample Legends are provided in Figures 11b through 11e on page 24 through 27.

As shown in Figures 11b through 11e, the content of the Legend for newer Flood Maps will vary based on when the Flood Map was produced, whether it is for a single community or jurisdiction or for all communities in a county (i.e., countywide), and whether an orthophoto or vector base map was used. (Additional information on base map requirements is provided in Volume 1, Subsection 1.3.1.8 of FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*.)

The Title Block

Found on each Flood Map panel (or page), including the Index, the title block contains the community name, the panel number (page number), and other information necessary to identify the Flood Map panel correctly. Sample title blocks are provided in Figures 10a and 10b on page 21.

Some Flood Maps Cover Entire Counties

Most of the older Flood Maps cover only one community. If that community is a county, flooding information is shown only for the areas under the jurisdiction of the county government; that is, the unincorporated areas of the county. This means flooding information for incorporated areas (e.g., towns, cities, villages) is not found on the older Flood Maps produced for most counties. FEMA may have prepared separate Flood Maps for the incorporated areas of communities.

FEMA has produced most of the newer Flood Maps in its Countywide Format. These Flood Maps show flooding information for all of the geographic areas of a county, including the incorporated areas. The Countywide Format enables seamless flood hazard and base map coverage from community to community within a county, thereby eliminating the need to revise individual Flood Map panels because floodplain boundaries, regulatory floodway boundaries, road names and configurations, or corporate limits did not match exactly.

How to Read the Flood Map Index

As mentioned earlier in this Guide, if a Flood Map is composed of more than one panel, FEMA provides an Index. This Index serves as a guide to the information found on the various panels. As shown in Figures 5, 6, and 7, the Index shows the outline of the mapped community and the numbers and positions of the individual panels. The individual items included on the Index are discussed below.

Elements Found on All Flood Map Indexes, Regardless of Format

Several items are found on all FEMA Flood Map Indexes, regardless of the format or the area covered by the Flood Map. In addition to these seven items, other index items can be found on specific Flood Map Index formats as discussed below.

Community Name

The Community Name tells you the mapped community, the community type (e.g., village, town, city, county), the county name, and the state name. When the mapped community is a county, the words "Unincorporated Areas" often appear below the county name of Flat Flood Maps and older Z-Fold Flood Maps. This indicates that the incorporated areas in the county are not covered by the Flood Map.

When the Flood Map covers the entire geographic area of the county, the words "and Incorporated Areas" appear after the county and state name. This is the form FEMA has used for most of the newer Flood Maps prepared in the Countywide Format. On a limited number of Flood Maps, FEMA has used the phrase "All Jurisdictions."

Community Number

The community number, often referred to as the "community identification number," is a six-digit identification number assigned by FEMA to a community. Map users may need to use the community identification number when asking FEMA staff questions about a Flat Flood Map or a Z-fold Flood Map for an individual community and when ordering digital copies of Flood Map panels and Flood Insurance Study reports from the FEMA Map Service Center. (Note: Effective October 1, 2009, paper copies of Flood Map panels, reports, and other data are no longer be available from the Map Service Center., See page 39 for additional information regarding the FEMA transition to digital flood hazard information.) It also is helpful to know the community identification number when discussing flood insurance requirements.

Corporate Limits or County Boundary Lines

The corporate limits or county boundary line identifies the jurisdictional limits of the community's regulatory authority over land development and building construction at the time that the Flood Map was produced. These lines are shown on both the Flood Map Index and the Flood Map panels.

In some states, an incorporated community may exercise authority, often termed "extraterritorial jurisdiction," over land development and building construction in areas beyond its corporate limits. Where appropriate, these limits are shown and labeled on the Flood Map Index.

Inset Note

The inset note tells the map user which Flood Map panels include particular areas mapped on other panels. These areas are shown as insets (i.e., small, separate portions

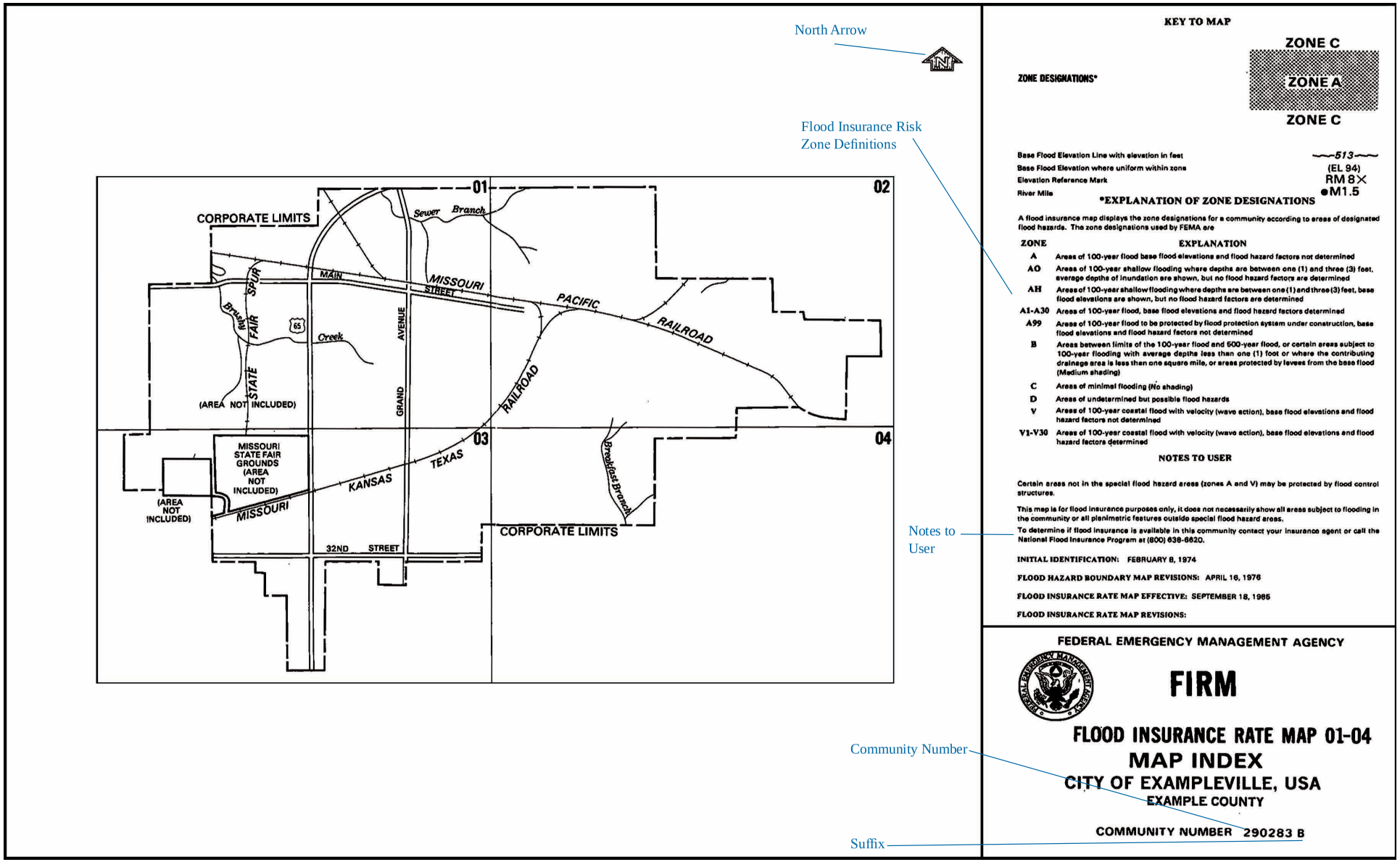


Figure 5. Index for a Flat Flood Map

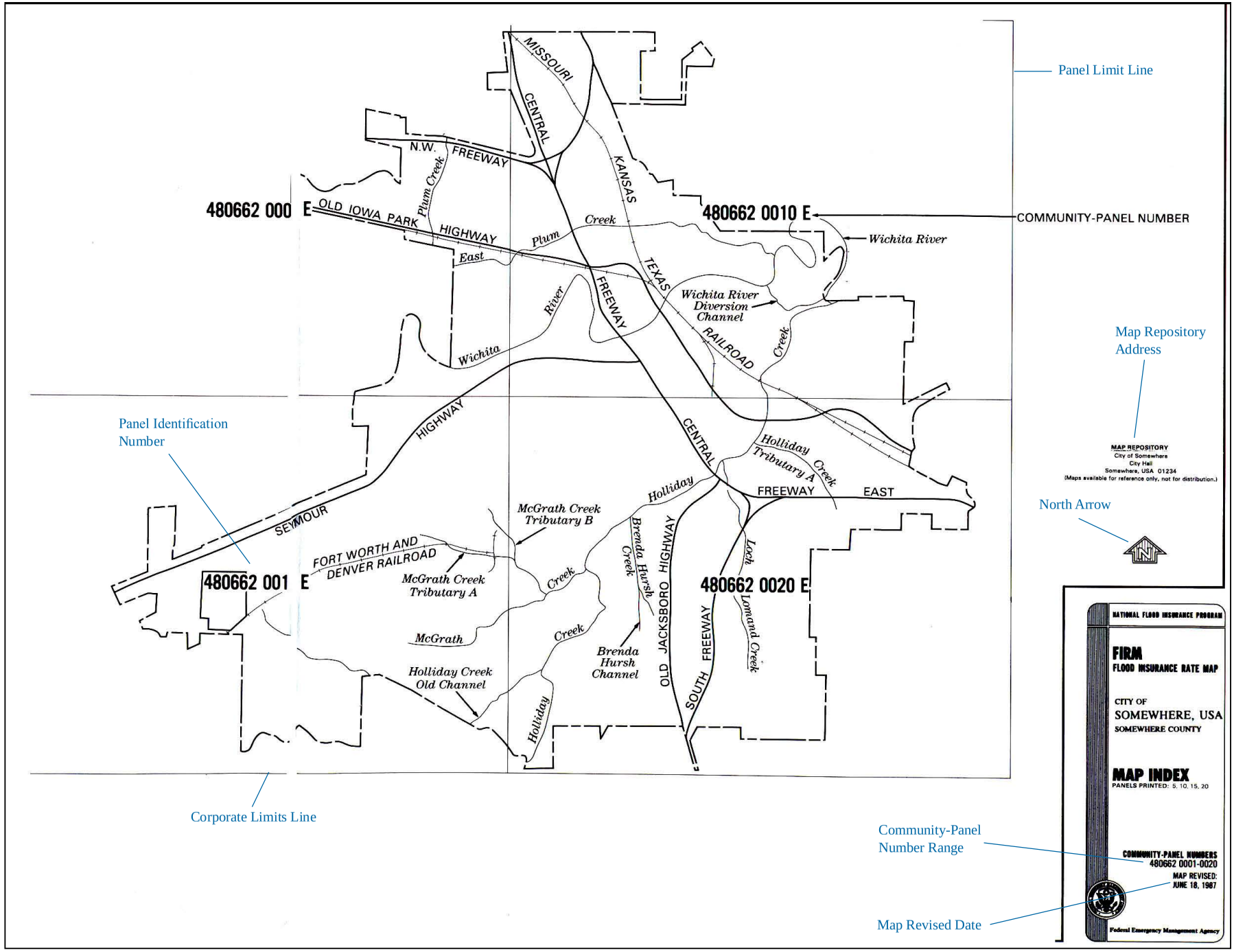


Figure 6. Sample Index for a Z-Fold Flood Map for an Individual Community

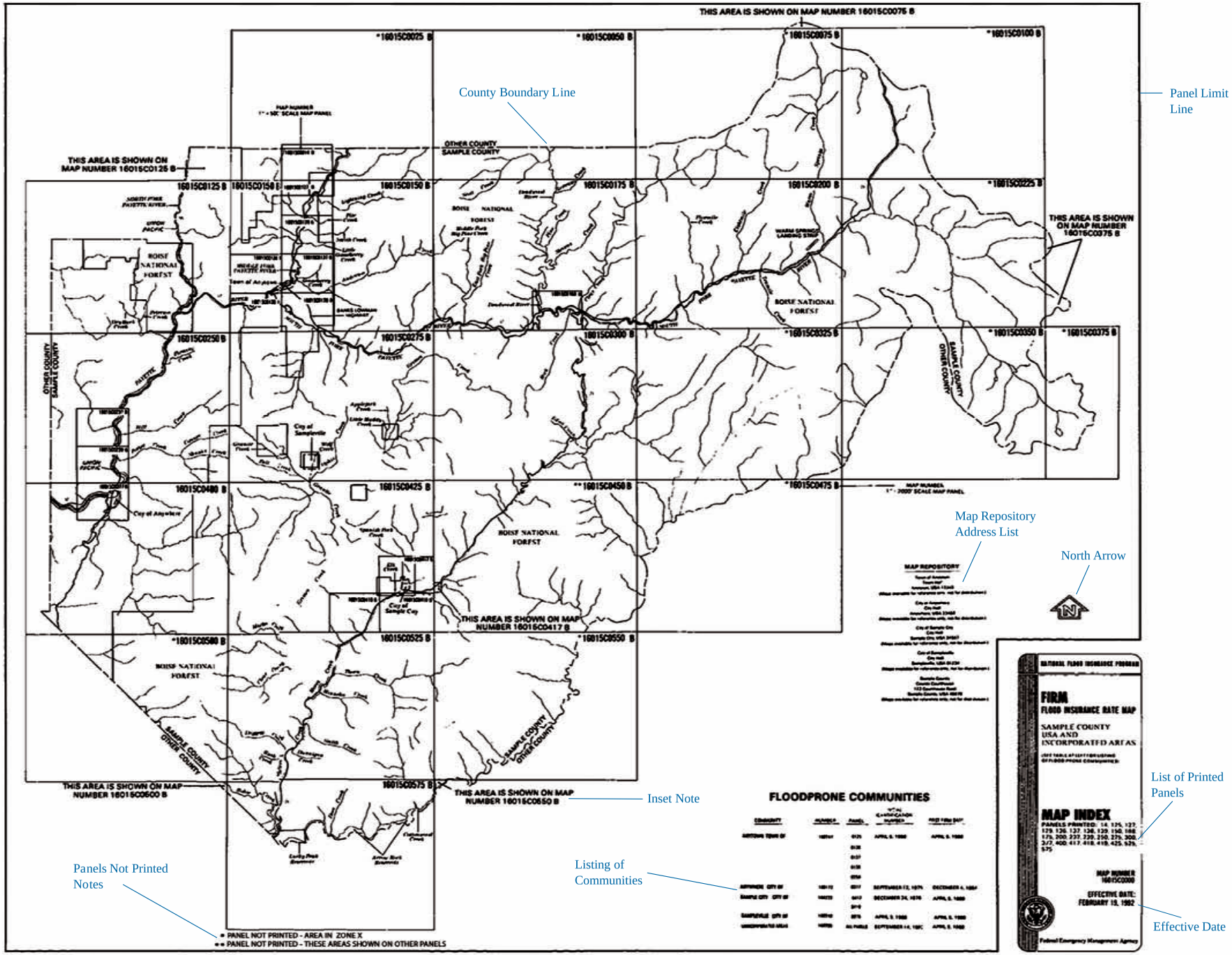


Figure 7. Sample Index for a Countywide Z-Fold Flood Map

of Flood Maps) on printed panels. The note identifies the panel on which the inset area is shown. Sample insets are provided on the sample Flood Map Index for a Flood Map prepared in Countywide Format that appears in Figure 7.

North Arrow

The north arrow orients the Flood Map. The north and appears to the left of the Key To Map on the Index for a Flat Flood Map as shown in Figure 5. The north arrow appears immediately above the title block on the Index for a Z-Fold Flood Map as shown in Figures 6 and 7.

Panel Limit Line

The panel limit line shows the extent of the area covered by each Flood Map panel shown on the Index. For example, in Figure 6, the panel limit lines are shown for four Flood Map Panels (0005, 0010, 0015, and 0020).

Panel-Not-Printed Notes

The Panel-Not-Printed notes identify the panels included in the Flood Map layout that are not printed and explain why they are not printed. For instance, when a panel covers an area of the community that falls entirely in one flood insurance risk zone, that panel may not be printed, so FEMA adds an explanatory note to the Index. In the sample Flood Map Index that appears in Figure 6, the Panel-Not-Printed footnote informs the user that a panel was not printed because no Special Flood Hazard Areas would be shown on that panel.

Additional information on the Panel-Not-Printed Footnotes, including a complete list of the acceptable content, can be found in Appendix K, Subsection K.3.1.3 of FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Panel Identification Number

A number that identifies each Flood Map panel that covers an indicated portion of a community appears on all Map Indexes. The format of the numbers varies, depending on the format of the Flood Map. The following table shows the type of numbers that appear on specific Flood Map formats along with samples of the numbers as they would appear on the Flood Map panels.

Map Format	Type of Number	Sample
Flat Flood Map	Panel number	01
Z-Fold Flood Map for Individual Community	Community-panel number	990099 0001
Z-Fold Flood Map in Countywide Format	Map number	99000C0001

Prominent Features and Landmarks

Significant cultural features, such as railroads, major roads, and highways, and other prominent manmade features and landmarks are included on the Flood Map Index to assist map users in finding a particular Flood Map panel or a section of a panel. These features and landmarks also are shown on the individual Flood Map panels.

Elements Found Only on Flat Flood Map Indexes

The Key To Map is the only element that is found only on Flat Flood Map Indexes. (See Figure 5 on page 12.) As mentioned earlier in this *Guide*, the Key To Map provides explanations of flood insurance risk zone designations, notes to map users, and dates for previously printed versions of the Flood Map. The Key to Map does not appear on the individual panels for a Flat Flood Map.

Elements Found on Z-Fold Flood Map Indexes

The elements that are found on the Z-Fold Flood Map Indexes are summarized below.

Effective Date or Map Revised Date

The effective date or map revised date is the date on which the Flood Map for a community becomes effective and all sanctions of the National Flood Insurance Program apply. (Note: A community is "sanctioned" if the community: (1) has been identified as floodprone for longer than 1 year, but has not chosen to enter the NFIP; or (2) has been identified as floodprone for longer than 1 year, but was later suspended from the NFIP for failure to adopt and/or enforce its floodplain management ordinance; or (3) has withdrawn from the NFIP voluntarily. Sanctioned communities are subject to limitations on Federal financial assistance. The Flood Disaster Protection Act of 1973 prohibits Federal officers or agencies from approving any form of loan, grant, guaranty, insurance, payment, rebate, subsidy, disaster assistance loan or grant, for acquisition or construction purposes within Special Flood Hazard Areas. In the case of disaster assistance under the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, as amended, this prohibition only applies to assistance in connection with a flood.)

The date on the Index is designated in the title block as "Effective Date" on the first Flood Map for a particular community and on the first Flood Map for a county prepared in the Countywide Format. The date on the Index is designated in the title block as "Map Revised" for all Flood Maps that have been revised at least once, including Flood Maps prepared in Countywide Format.

List of Printed Panels

As shown in the sample Flood Map Indexes in Figures 6 and 7 on pages 13 and 14, the list of printed panels appears in the title block immediately below the words "Map Index."

Elements Found Only on Z-Fold Flood Map Indexes Prepared in FEMA Countywide Format

The elements that are found on the Z-Fold Flood Map Indexes are summarized below.

Listing of Communities

The listing of communities, shown in the sample Flood Map Index in Figure 7 with the title Floodprone Communities, includes:

- The names of all communities (floodprone and non-floodprone) covered by the Flood Map;
- The six-digit community number for each community;
- The panels on which each community is located; hazards were first identified) for each community; and
- The Post-FIRM date (effective date of the first FEMA Flood Map) for each community.

Map Repository Address List

The Map Repository address list, as shown in the sample Index in Figure 7, provides the address of the official community offices where reference copies of the Flood Map and Flood Insurance Study report are stored and made available to the public for each of the communities included on a Flood Map prepared in Countywide Format.

Elements Found Only on Z-Fold Flood Map Indexes for Individual Communities

The community-panel number range, presented in the title block of the Z-Fold Flood Map Index for an individual community, gives the lowest and highest panels in the layout of the Flood Map. (See the sample Index in Figure 6 on page 13.) The panels are identified by 10-digit community-panel numbers.

Elements Found on Some Versions of Z-Fold Flood Map Indexes

The three elements described below are found on some Z-Fold Flood Map Indexes.

Floodprone Area Overview

Shown on a relatively small percentage of Flood Map Indexes, the Floodprone Area Overview provides a generalized depiction of the SFHAs shown on each panel. This element was intended to help the map user find the appropriate panel and oriented the map user to the Flood Map. It was not be used in place of the more detailed SFHA delineations on the panels. This element is not shown on Indexes for modernized Flood Maps.

Floodprone Street Index

Shown on a relatively small percentage of Flood Map Indexes, the Floodprone Street Index listed the streets in the mapped community that are partially or completely in the SFHA. It also indicated the panel(s) on which each street is shown. Grid coordinates that allowed the map user to locate the street on the panel were listed for each street. The Floodprone Street Index was shown either on the Map Index itself or on a separate panel. The Floodprone Street Index is not included in most of the newer Flood Maps, including the modernized Flood Maps.

Map Repository Address

The Map Repository address is the address of the official community office where reference copies of the Flood Map and Flood Insurance Study report are stored and made available to the public. This element appears on most of the newer Z-Fold Flood Maps. (See Figure 6 on page 13.)

Elements Found Only on Z-Fold Flood Map Indexes in Countywide Format

The elements that are found on the Z-Fold Flood Map Indexes are summarized below.

Listing of Communities

The listing of communities, shown in the sample Flood Map Index in Figure 7 with the title Floodprone Communities, includes:

- The names of all communities (floodprone and non-floodprone) covered by the Flood Map;
- The six-digit community number for each community;
- The panels on which each community is located;
- The initial identification date (the date that flood hazards were first identified) for each community; and
- The Post-FIRM date (effective date of the first FEMA Flood Map) for each community.

Map Repository Address List

The Map Repository address list, as shown in the sample Index in Figure 3, provides the address of the official community offices where reference copies of the Flood Map and Flood Insurance Study report are stored and made available to the public for each of the communities included on a Flood Map prepared in Countywide Format.

Elements Found Only on Z-Fold Flood Map Indexes for Individual Communities

The community-panel number range, presented in the title block of the Z-Fold Flood Map Index for an individual community, gives the lowest and highest panels in the layout of the Flood Map. (See the sample Index in Figure 6 on page 13.) The panels are identified by 10-digit community-panel numbers.

How to Read the Flood Map Panels

As discussed earlier in this *Guide*, when a Flood Map cannot be presented on one page, it is produced on several pages, known as panels. Flood Map panels depict the flood hazards and associated risks in different parts of a community. As shown in Figures 8 and 9, each panel includes a title block that contains the name of the community, the panel number, and other information.

In this section of the *Guide*, you will find descriptions of the information found on the Flood Map panels. Six items are found on all Flood Map panels. In addition to the items common to all panels, other items can be found on specific formats, as shown on Figures 12a and 12b and discussed below.

Some Information Repeats from the Index

All Flood Map panels, regardless of their format, include the elements listed below. Descriptions for these elements were provided in the "How to Read the Flood Map Index" section of this Guide. However, additional information on the north arrow as it is presented on the Flood Map panels is provided later in this section.

- Community Name
- Community Number
- Panel Number/Community-Panel Number/Map Number
- Corporate Limits or County Boundary Line
- North Arrow
- Effective Date or Map Revised Date

Elements Found on Most Flood Map Panels

The map elements described below, appearing in alphabetical order, are found on most Flood Map panels.

One-Percent-Annual-Chance Flood Elevation Line and Label

See the element description for "Base Flood Elevation Line and Label" below.

Area-Not-Included Label

The Area-Not-Included label identifies areas within a particular Flood Map panel that are not in the jurisdiction of the mapped community (or communities on a Flood Map prepared in the FEMA Countywide Format). No flood hazard or risk information is shown in an area labeled as "Area Not Included" on a Flood Map panel.

Base Flood Elevation Line and Label

For areas that have been studied using detailed engineering methods, the Base Flood Elevation, or BFE, line and label indicate the water-surface elevation of the base (1-percent-annual-chance) flood in relation to a standard set of geographic data in SFHAs.

When the BFE varies along a watercourse, a wavy line is used to show the BFE. (See Figure 12a on pages 28 and 29.) When the BFE is uniform across a large area, a label is used. The BFE label is most commonly used in areas affected by flooding from lakes, the Atlantic and Pacific Oceans, or the Gulf of Mexico. (See Figure 12b on pages 30 and 31.)

BFEs are usually expressed in feet referenced to a specific vertical datum (for older Flood Maps, the National Geodetic Vertical Datum of 1929 was used; for newer Flood Maps,

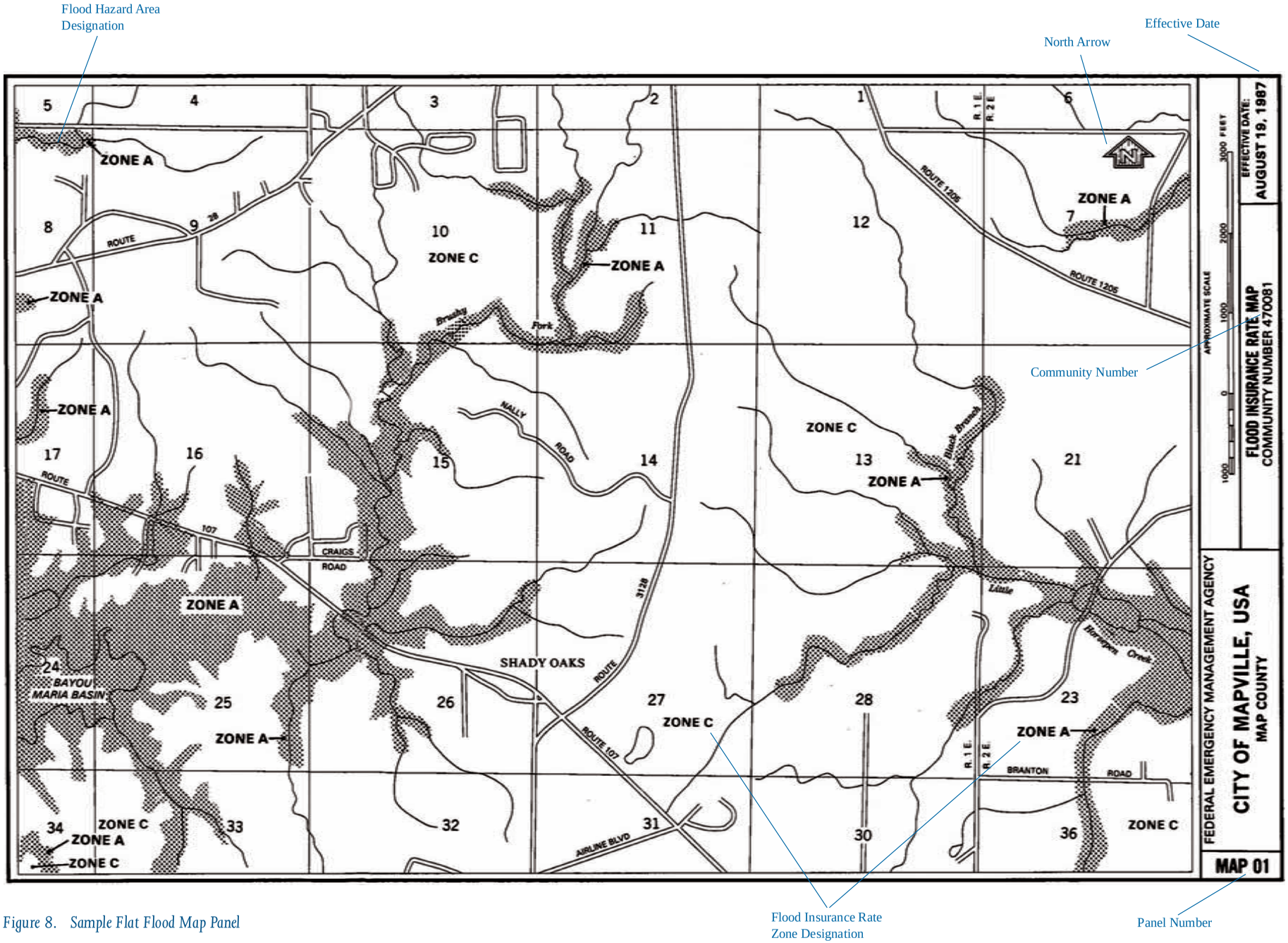


Figure 8. Sample Flat Flood Map Panel

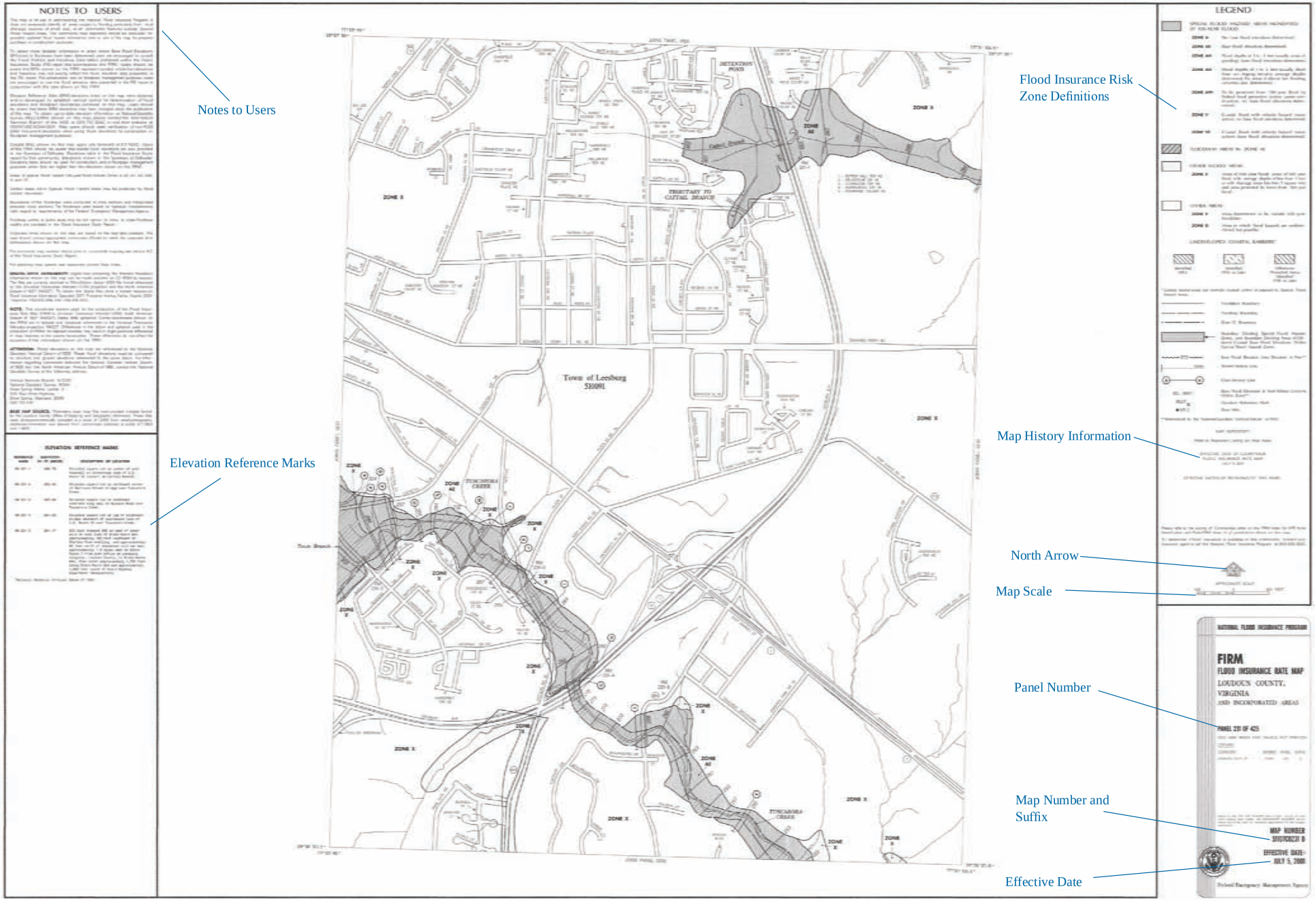


Figure 9. Sample Z-Fold Flood Map Panel

the North American Vertical Datum of 1988 is used). For some communities, however, the BFEs are shown in meters.

Flood Hazard Area Designations

The flood hazard area, or flood risk, designations appear as dark tint, light tint, or no tint. Dark tint is used to identify high-risk areas. Light tint is used to identify moderate-risk areas. No tint is used to identify minimal-risk areas and areas of undetermined, but possible risk.

On Flat Flood Maps and older Z-fold Flood Maps:

- Dark-tinted areas are Zones A, AO, AH, A1-A30, A99, AR, AR/A1-30, AR/AH, AR/AO, AR/A, V, and V1-V30.
- Light-tinted areas are Zone B.
- Areas with no tint are Zone C or Zone D (undetermined, but possible flood risk).

On newer Z-fold Flood Maps, including modernized Flood Maps:

- Dark-tinted areas are Zones A, AE, AH, AO, A99, AR, AR/AE, AR/AH, AR/AO, AR/A, V, and VE.
- Light-tinted areas are Zone X (comparable to Zone B).
- Areas with no tint are Zone X (comparable to Zone C) or Zone D (undetermined, but possible flood risk).

Flood Insurance Risk Zone Designations

The flood insurance risk zones—also referred to as risk premium rate zones or flood insurance rate zones in some FEMA publications—shown on a Flood Map are used to determine flood insurance premium rates for insurable structures in the area covered by the Flood Map. The definitions of the flood insurance risk zones that appear on the Flood Map are provided in the accompanying Flood Insurance Study report, in the Key To Map (for older Flood Maps), or in the Legend (for newer Flood Maps). The flood insurance risk zone definitions will vary, depending on when the Flood Map and Flood Insurance Study report were produced, the types of engineering studies that were performed for the mapped area, and the type of base map (e.g., U.S. Geological Survey topographic map, community-supplied street map that meets FEMA requirements or U.S. Geological Survey Digital Orthophoto Quarter Quadrangle map) that was used.

To view the various versions of the definitions, see the sample Key To Map in Figure 11a on page 24 and the sample Legends in Figures 11b 11e on pages 25, 26, and 27.

Flood Insurance Risk Zone Labels

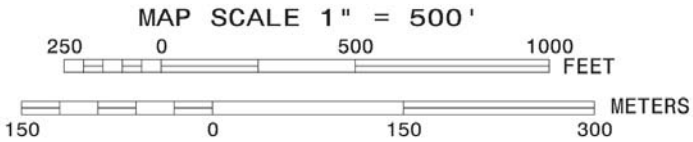
The flood insurance risk zone labels identify the flood insurance risk zone designations for specific areas.

Flood Zone Boundaries

For most Flood Maps, both the 1-percent-annual-chance (100-year) and 0.2-percent-annual-chance (500-year) flood zones are shown. As shown in Figure 12a (pages 28 and 29) and Figure 12b (pages 30 and 31), the flood zone boundaries mark the limits of these zones.

Map Scale

The map scale on each Flood Map panel (sample shown below) allows the user to relate distances measured on the Flood Map to actual distances on the ground.



As discussed earlier in this Guide, the scales most commonly used for Flood Maps are 1 inch=500 feet, 1 inch=1,000 feet, and 1 inch=2,000 feet. The map scale shown on a panel applies only to that panel. On Flat Flood Maps, the scale remains the same for every panel; on the Z-Fold Flood Map, the map scales may vary. On Flat Flood Maps, the map scale is shown within the title block area to the right of the panel. (See Figure 8.) On Z-Fold Flood Maps, the map scale is shown above the title block at the bottom of the Key to Map or Legend. (See Figure 9 on page 19.)

North Arrow

The north arrow, shown below, orients the Flood Map panels. The north arrow appears in the upper-right corner of each Flood Map panel for Flat Flood Maps. (See Figure 8 on page 18.) The north arrow appears immediately above the title block on each Flood Map panel for Z-Fold Flood Maps. (See Figure 9 on page 19.)

Notes to User on Key To Map and Legend

The Notes to User that appear on the Key to Map for older Z-Fold Flood Maps and in the Legend for newer Z-Fold Flood Maps will vary. Samples of the Notes to User on the Key to Map are provided in Figure 11a on page 24. Samples of the notes on the Legend are provided in Figures 11f and 11g on page 27. On the newer Z-Fold Flood Maps, the Notes to User appear on the left-hand border of each panel, rather than on the right-hand side. As discussed earlier in this Guide, these notes appear on the Key to Map on the Index for Flat Flood Maps. (See Figure 5 on page 12.)

Panel Number and Suffix

The panel number identifies the Flood Map panel. For different Flood Map formats, this number corresponds to different numbers as follows:

- Flat Flood Map – Matches panel number on Index

- Z-fold Flood Map for Individual Community – Last four digits of community-panel number
- Countywide Z-fold Flood Map – Last four digits of map number

The suffix, a single letter that appears at the end of the panel number, identifies the version of the Flood Map panel, based on how many times it has been revised. For example, in the sample title block in Figure 10a, the suffix for Panel 0003 is B, indicating Panel 0003 has been revised one time.

When a Flood Map is produced in the FEMA Countywide Format for the first time, FEMA establishes a new suffix for all of the Flood Map panels. The new suffix would be one letter higher than the "highest" suffix that is shown on the effective Flood Maps for the communities included on the countywide Flood Map.

Stream Line and Label

The stream line identifies the location of a watercourse. Narrower streams are usually shown by a single line, representing the approximate location of the stream centerline. Wider streams are often shown by double lines, representing the approximate streambank locations. The name of the stream may be shown on the stream line or apart from the stream line with a leader line pointing to the stream. This is done to improve readability. (See examples in Figure 12a on pages 28 and 29.)

Zone Division Line

The zone division line, also referred to in some FEMA documents as a gutter, separates SFHAs with different zone designations and separates SFHAs with similar zone designations but different whole-foot BFEs in coastal SFHAs. (See examples in Figures 12a and 12b on pages 30 and 31.)

Elements Found on Z-Fold Flood Map Panels Where Appropriate

The map elements described below are found on Z-Fold Flood Maps where they are appropriate.

One-Percent-Annual-Chance Flood Depths

See the element description in "Base Flood Depths" below.

Alphanumeric Grid

The alphanumeric grid is the basis of the coordinate system established for the Floodprone Street Index.

Area Not Included

An Area Not Included is an area that is excluded from the mapping for a subject community because (1) the area is under the jurisdiction of another community or county and is shown on the mapping for that community, or (2) access to the area is limited for security reasons (e.g., military installations).

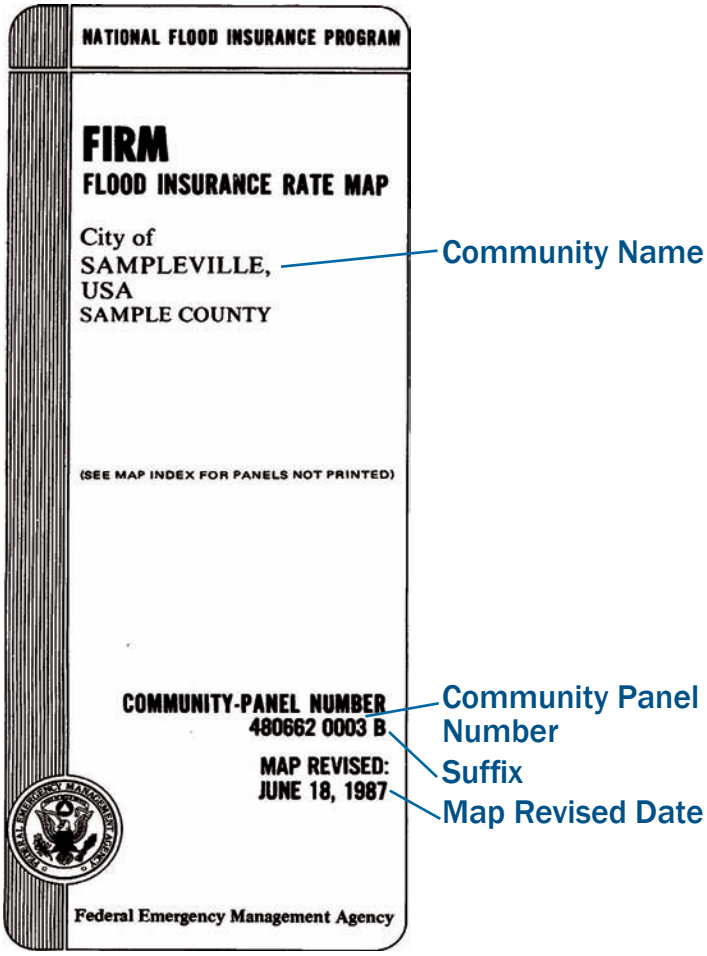


Figure 10a. Sample Title Block from a Z-Fold Flood Map for an Individual Community

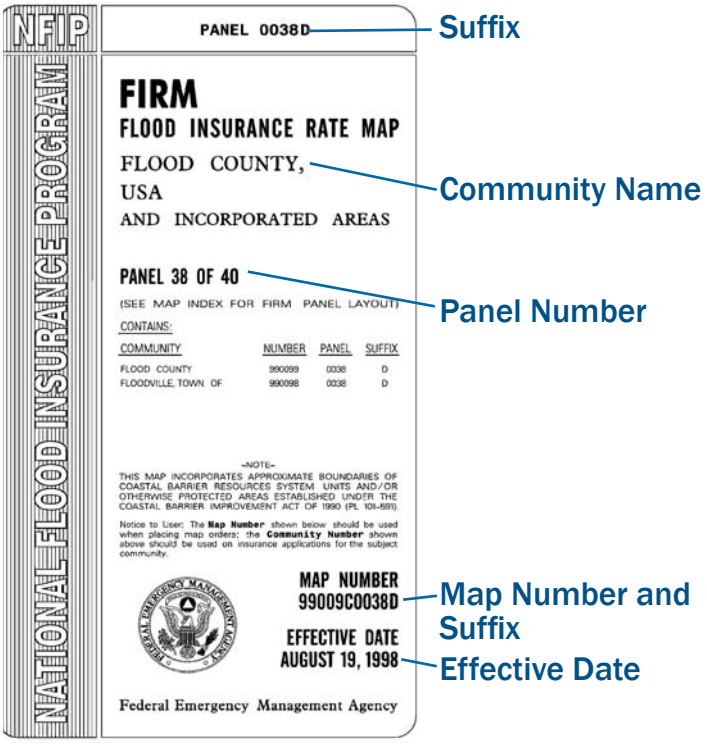


Figure 10b. Sample Title Block from a Countywide Z-Fold Flood Map

Base Flood Depths

Base flood depths are shown on a Flood Map when a special engineering study referred to as a shallow flooding analysis is performed for one or more areas of a community. When a shallow flooding analysis is performed, the flood insurance risk zone designation for the resulting SFHA is Zone AO, and whole-foot base flood depth labels (1, 2 or 3 feet) are shown below the flood insurance risk zone designation as follows:

Zone AO
(Depth 2)

Additional information on shallow flooding analysis is provided in Appendix E of FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Bench Marks

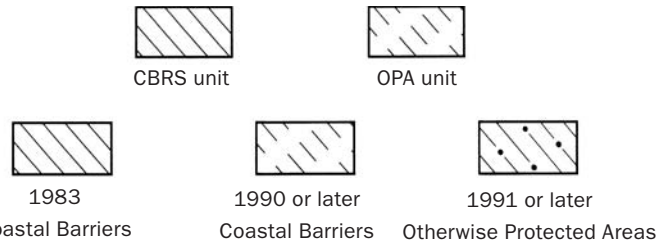
For newer Z-Fold Flood Maps, bench marks are shown on the map panel. A bench mark is a permanent monument established by any Federal, State, or local agency, whose elevation and description are well documented and referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988. Information on the source of the bench marks is provided in the Notes to User.

Coastal Barrier Symbols

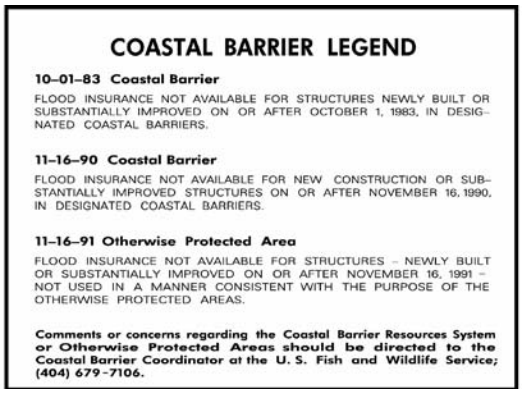
Found mostly on newer Z-Fold Flood Maps, coastal barrier symbols are used to identify areas on undeveloped coastal barriers in the Coastal Barrier Resources System, or CBRS, established by the Coastal Barrier Resources Act of 1982 and the Coastal Barrier Improvement Act of 1990 and other related information. The mapped areas are designated as "CBRS areas" or "Otherwise Protected Areas (OPAs)."

In cooperation with the U.S. Department of the Interior, Fish and Wildlife Service, FEMA transfers the CBRS area and OPA information directly from congressionally adopted source maps.

These areas are identified because no new flood insurance coverage may be provided after specified dates for new or substantially improved structures on any coastal barrier in the CBRS. The coastal barrier symbols will vary depending on the year the area was identified. The coastal barrier symbols are provided below and shown in the sample map section in Figure 12b. The symbols only appear on Flood Maps for communities located along the Atlantic Ocean, Gulf of Mexico, and Great Lakes.



If CBRS areas or OPAs are shown on a Flood Map, additional information to explain the information presented is provided in the Legend. A sample of the information provided in the Legend is presented below.



COASTAL BARRIER LEGEND

10–01–83 Coastal Barrier

FLOOD INSURANCE NOT AVAILABLE FOR STRUCTURES NEWLY BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER OCTOBER 1, 1983, IN DESIGNATED COASTAL BARRIERS.

11–16–90 Coastal Barrier

FLOOD INSURANCE NOT AVAILABLE FOR NEW CONSTRUCTION OR SUBSTANTIALLY IMPROVED STRUCTURES ON OR AFTER NOVEMBER 16, 1990, IN DESIGNATED COASTAL BARRIERS.

11–16–91 Otherwise Protected Area

FLOOD INSURANCE NOT AVAILABLE FOR STRUCTURES – NEWLY BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 16, 1991 – NOT USED IN A MANNER CONSISTENT WITH THE PURPOSE OF THE OTHERWISE PROTECTED AREAS.

Comments or concerns regarding the Coastal Barrier Resources System or Otherwise Protected Areas should be directed to the Coastal Barrier Coordinator at the U. S. Fish and Wildlife Service; (404) 679-7106.

Cross Section Symbols

The cross section symbol shows locations of floodplain cross sections used for computing BFEs. Symbols for Cross Sections A, B, and C on Cobb Brook are shown on Figure 12a.

Elevation Reference Marks

The Elevation Reference Marks, which appear on Flat Flood Maps, older Z-Fold Flood Maps, and some newer Z-Fold Flood Maps, identify points where ground elevations are established by survey. These elevations are usually expressed in feet; for some communities, however, the elevations are shown in meters. Descriptions of the marks, including their elevations, are provided; however, descriptions of locations appear in different places, depending on the format of the Flood Map, as shown below.

The Elevation Reference Marks have been replaced on most of the newer Flood Maps by permanent bench marks established by the National Geodetic Survey and Temporary Bench Marks established for a particular community of flood hazard study.

Flood Map Format	Elevation Reference Mark Description Location
Flat Flood Map	On last panel(s) of the Flood Map
Other Z-fold Flood Map	On panel where mark appears
Newer Z-fold Flood Map	On panel where mark appears or in Flood Insurance Study report

Horizontal Reference Grids

For most of the newer Flood Maps, a primary horizontal reference grid and secondary horizontal reference grid ticks are shown to orient map users to real-world coordinates; the latitude and longitude in degrees, minutes, and seconds

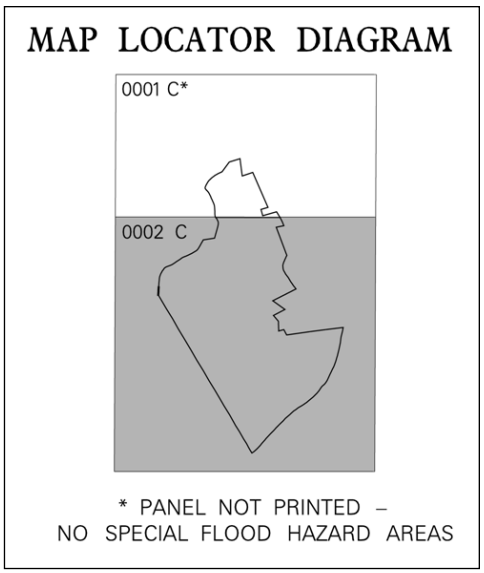
are referenced at each of the four corners of the map panel. Information on the source of the coordinate system is provided in the Notes to User. A horizontal reference grid is shown on the sample Z-Fold Flood Map panel in Figure 9 (page 19).

Hydraulic Structures

Hydraulic structures (dams, culverts, weirs, levees, and floodwalls) in or near mapped flood hazard areas are labeled on the Flood Map. The labels are placed near the structures, and leader lines are added from the structures to nearby spaces as appropriate. On Figure 12a, a culvert that contains the 0.2-percent-annual-chance (500-year) flood along Cobb Brook is identified.

Map Locator Diagrams

Found on a very limited number of older Z-Fold Flood Maps, the map locator diagrams serve the same function as the Map Indexes. The map locator diagrams (sample shown below) are used only when one panel is printed and the entire community does not fit inside the panel neatlines (i.e., there are non-printed panels).



Map Repository Addresses

The Map Repository addresses are the addresses of the official community offices where reference copies of the Flood Map and FIS report are stored and made available. For newer Flood Maps for single communities, the Map Repository address appears in the Legend, as shown in the sample Legends in Figures 11d and 11e on page 26. For Flood Maps prepared in the FEMA Countywide Format, the Map Repository addresses for all mapped communities are included in a table on the Index. (See Figure 7 on page 14.) On the Flood Map panels, a note appears in the Legend that re-directs map users to the Index. (See the sample Legends in Figures 11b and 11c on page 25.)

Panel Locator Diagram

The panel locator diagrams, which appear on a very limited number of older Z-Fold Flood Maps, show the area covered by a panel in relation to the outline of the community.

Regulatory Floodway Boundaries

The regulatory floodway boundaries show the limits of the regulatory floodways. The regulatory floodway is the channel of a river or other watercourse plus any adjacent floodplain areas that are reserved so that the 1-percent-annual-chance (100-year) flood discharge can be carried without increasing the 1-percent-annual-chance flood elevation more than a specified amount. (See Figure 12a on pages 28 and 29.)

Regulatory Floodway Designation

The regulatory floodway designation identifies regulatory floodway areas. The regulatory floodway designation can vary depending on when the Flood Map was produced and the type of base map that was used. The designations used for newer Z-Fold Flood Maps are shown below for orthophoto and vector bases, in the sample map section in Figure 12a (pages 28 and 29), and in the sample Legends in Figures 11b through 11e (pages 25, 26, and 27).

Orthophoto Vector

River Mile Marker

The river mile marker indicates the distance in miles from a reference point on a river or other major watercourse.

Transect Symbols

If detailed coastal engineering analyses are performed, transect symbols are shown on the Flood Map. A transect is a cross section that is taken perpendicular to the shoreline to represent a segment of coast with similar characteristics.

Elements Found Only on Z-Fold Flood Maps for Individual Communities

The map elements that appear only on Z-Fold Flood Maps for individual communities are described below.

Community-Panel Number

The community-panel number, as shown in the sample title block in Figure 10a on page 21, identifies the panel; it corresponds to a community-panel number shown on the index. A letter suffix follows the number and usually indicates the number of times a particular panel has been revised.

Initial Identification Date

The Initial Identification Date, appearing below the Notes to User in the Key to Map for older Z-Fold Flood Maps and the Legend for newer Z-Fold Flood Maps, indicates when the flood hazards in the mapped community were first identified. (See the sample Key to Map in Figure 11a.)

Flood Hazard Boundary Map Revisions Dates

The Flood Hazard Boundary Map Revisions Dates, appearing below the Initial Identification Date in the Key to Map for older Z-Fold Flood Maps and the Legend for newer Z-Fold Flood Maps, are the effective dates of revised versions of the Flood Hazard Boundary Map for the community, if revised versions of the Flood Hazard Boundary Map were printed. (See the sample Key to Map in Figure 11a on page 24.)

Flood Insurance Rate Map Effective Date

The Flood Insurance Rate Map Effective Date, appearing below the Flood Hazard Boundary Map Revisions Dates in the Key to Map for older Z-Fold Flood Maps and the Legend for newer Z-Fold Flood Maps, is the date that a Flood Insurance Rate Map was first printed and became effective for the community. (See the sample Key to Map in Figure 11a on page 24.)

Flood Insurance Rate Map Revisions Dates

The Flood Insurance Rate Map Revisions Dates, appearing below the Flood Insurance Rate Map Effective Date in the Key to Map for older Z-Fold Flood Maps and the Legend for newer Z-Fold Flood Maps, are the dates that the Flood Insurance Rate Map for the community was revised. (See the sample Key to Map in Figure 11a on page 24.)

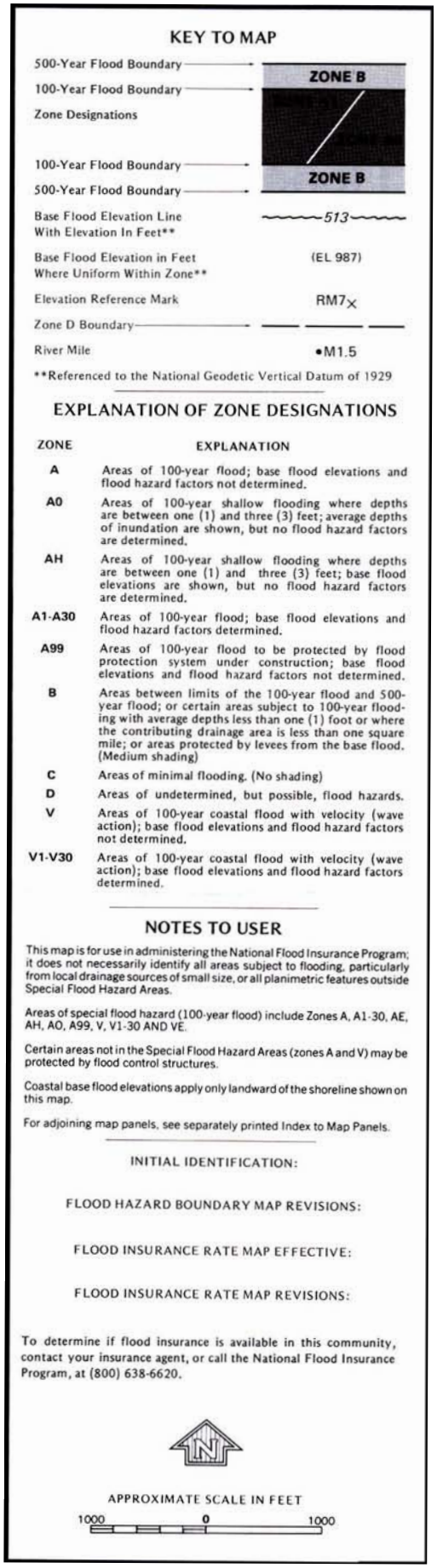
Elements Found Only on Flood Maps Prepared in FEMA Countywide Format

Effective Date of Countywide Flood Insurance Rate Map

The Effective Date of Countywide Flood Insurance Rate Map, which appears below the Notes to User on the Legend as shown in Figures 11b and 11c on page 25, is the date on which a Flood Map prepared in the FEMA Countywide Format first became effective. Flood Maps may have been in effect for one or more of the individual communities in the county before the countywide Flood Map was published. If so, the initial Flood Map effective dates for each community will be shown as Post-FIRM Dates in the Listing of Communities that is shown on the Map Index.

Map Number

The Map Number—composed of a five-digit code that identifies the county; a letter "C" for countywide mapping; and a four-digit panel number—appears in the title block of the Flood Map and identifies the individual Flood Map panel. See the sample title block for a countywide Flood Map panel in Figure 10b on page 21.



KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations
100-Year Flood Boundary
500-Year Flood Boundary
ZONE B
ZONE B

Base Flood Elevation Line With Elevation In Feet** — 513
Base Flood Elevation in Feet Where Uniform Within Zone** — (EL 987)
Elevation Reference Mark — RM7x
Zone D Boundary
River Mile — •M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in the Special Flood Hazard Areas (zones A and V) may be protected by flood control structures.

Coastal base flood elevations apply only landward of the shoreline shown on this map.

For adjoining map panels, see separately printed Index to Map Panels.

INITIAL IDENTIFICATION:

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:

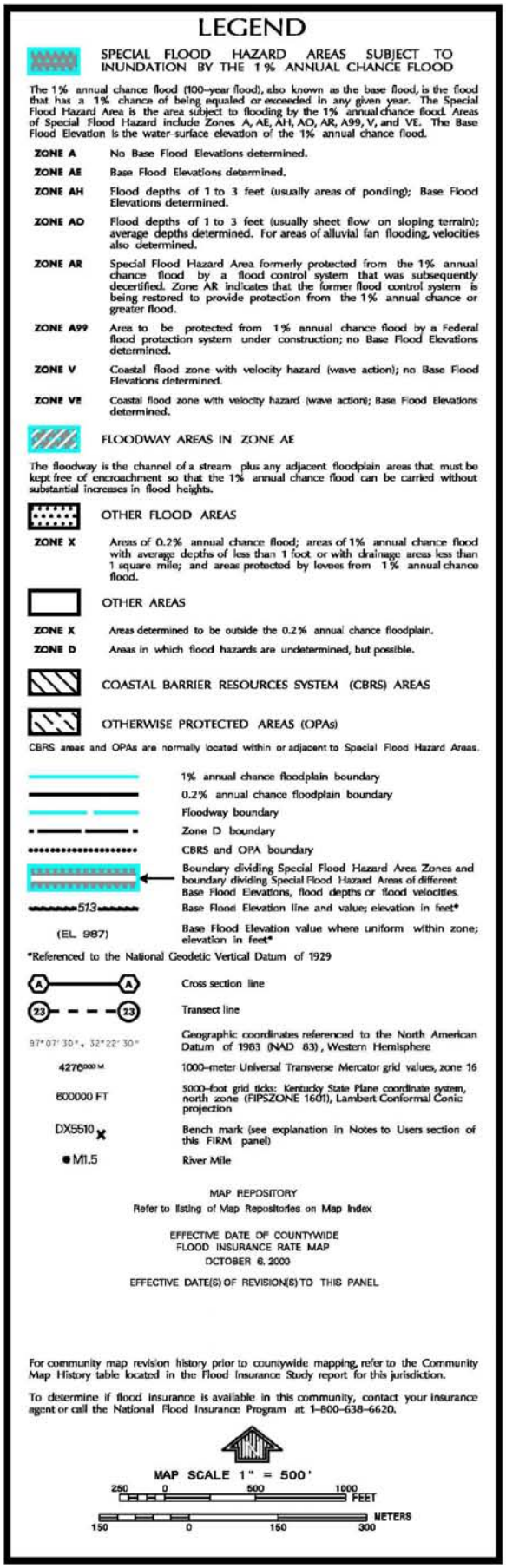
FLOOD INSURANCE RATE MAP REVISIONS:

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET
1000 0 1000

Figure 11a. Sample Key to Map



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section line
23 - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4276000 M	1000-meter Universal Transverse Mercator grid values, zone 16
600000 FT	5000-foot grid ticks: Kentucky State Plane coordinate system, north zone (FIPSZONE 1601), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
OCTOBER 6, 2000

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

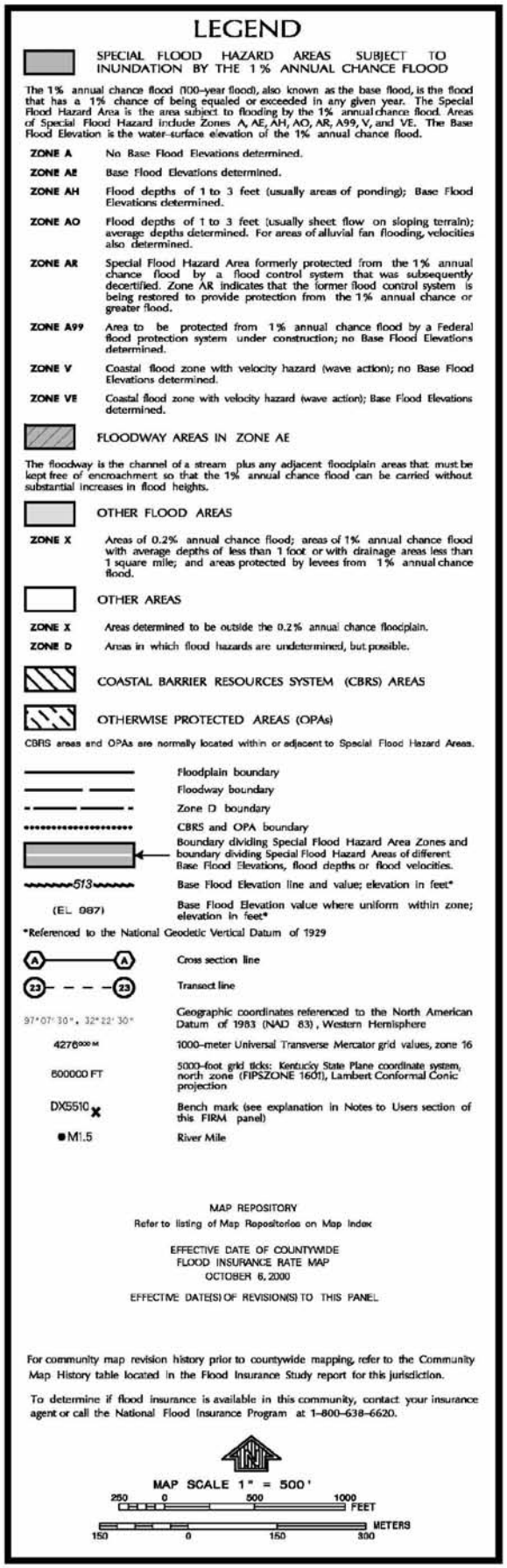
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

Figure 11b. Sample Legend for Modernized Countywide Flood Map (Orthophoto Base)



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section line
23 - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4276000 M	1000-meter Universal Transverse Mercator grid values, zone 16
600000 FT	5000-foot grid ticks: Kentucky State Plane coordinate system, north zone (FIPSZONE 1601), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
OCTOBER 6, 2000

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

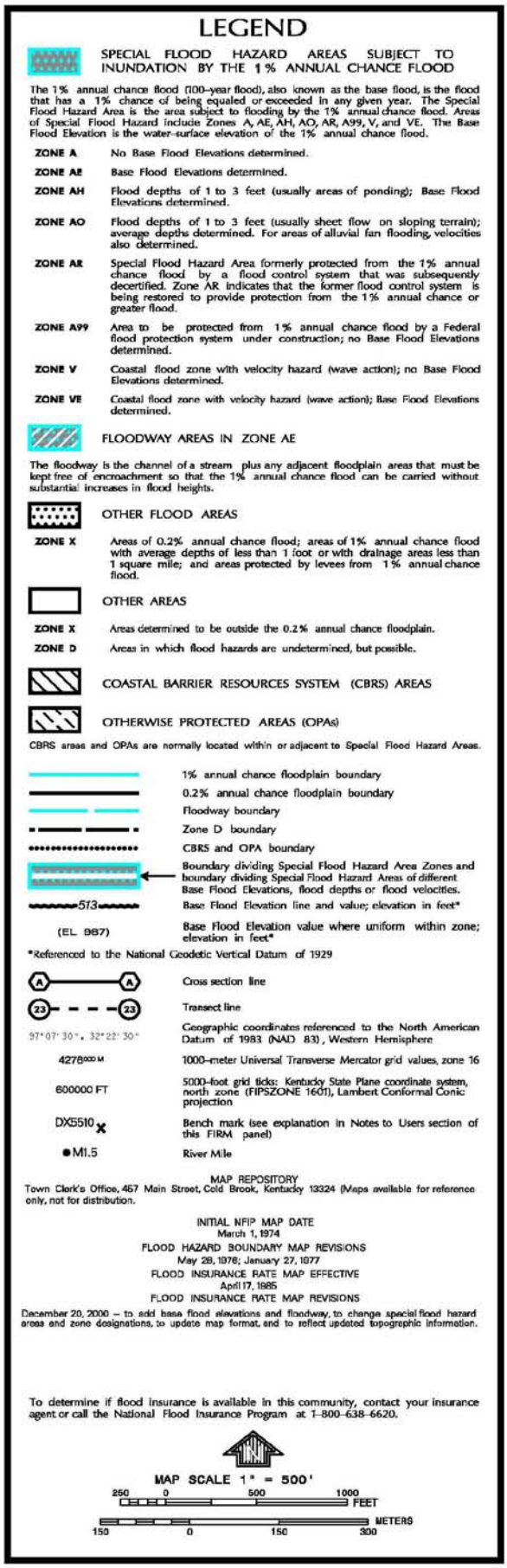
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

Figure 11c. Sample Legend for Modernized Countywide Flood Map (Vector Base)



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section line
23 - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4278000 M	1000-meter Universal Transverse Mercator grid values, zone 16
600000 FT	5000-foot grid ticks: Kentucky State Plane coordinate system, north zone (FIPSZONE 1601), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

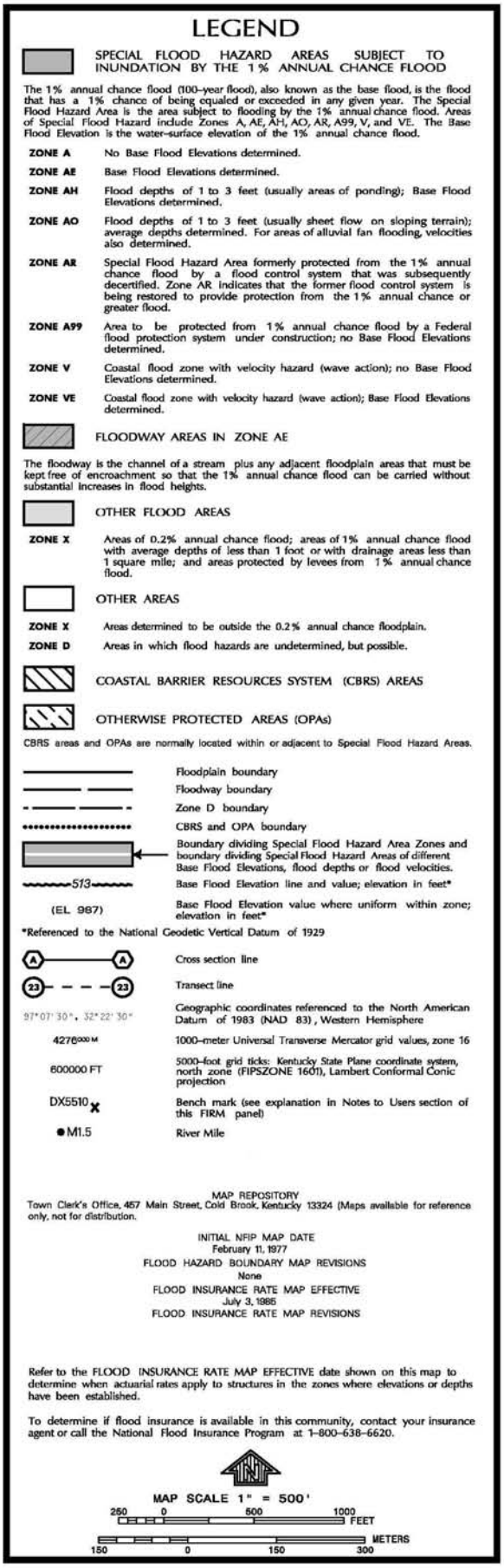
MAP REPOSITORY
Town Clerk's Office, 457 Main Street, Cold Brook, Kentucky 13324 (Maps available for reference only, not for distribution.

INITIAL NFIP MAP DATE
March 1, 1974
FLOOD HAZARD BOUNDARY MAP REVISIONS
May 28, 1976; January 27, 1977
FLOOD INSURANCE RATE MAP EFFECTIVE
April 17, 1985
FLOOD INSURANCE RATE MAP REVISIONS
December 20, 2000 – to add base flood elevations and floodway, to change special flood hazard areas and zone designations, to update map format, and to reflect updated topographic information.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

Figure 11d. Sample Legend for Single-Jurisdiction Modernized Flood Map (Orthophoto Base)



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section line
23 - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4276000 M	1000-meter Universal Transverse Mercator grid values, zone 16
600000 FT	5000-foot grid ticks: Kentucky State Plane coordinate system, north zone (FIPSZONE 1601), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Town Clerk's Office, 457 Main Street, Cold Brook, Kentucky 13324 (Maps available for reference only, not for distribution.

INITIAL NFIP MAP DATE
February 11, 1977
FLOOD HAZARD BOUNDARY MAP REVISIONS
None
FLOOD INSURANCE RATE MAP EFFECTIVE
July 3, 1985
FLOOD INSURANCE RATE MAP REVISIONS

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

Figure 11e. Sample Legend for Single-Jurisdiction Modernized Flood Map (Vector Base)

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 17. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit it's website at www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at www.fema.gov/msc.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at www.fema.gov.

Figure 11f. Sample Notes to Users on Modernized Flood Map (Orthophoto Base Map)

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 17. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit it's website at www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the Flood County Office of GIS. This information was photogrammetrically compiled at a scale of 1:4,800 from aerial photography dated February 1996.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

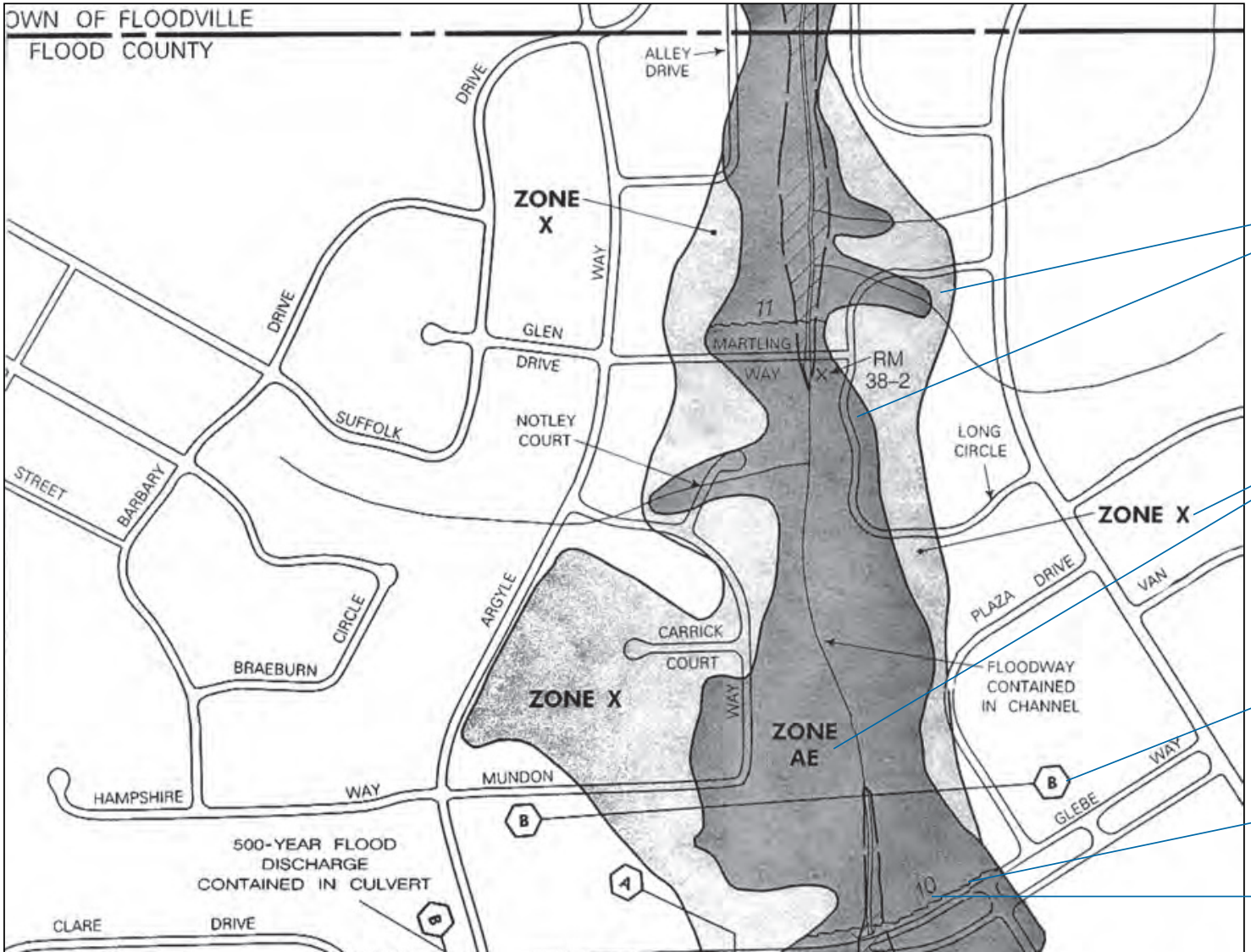
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at www.fema.gov/msc.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at www.fema.gov.

Figure 11g. Sample Notes to Users on Modernized Flood Map (Vector Base Map)



Corporate Boundary Line

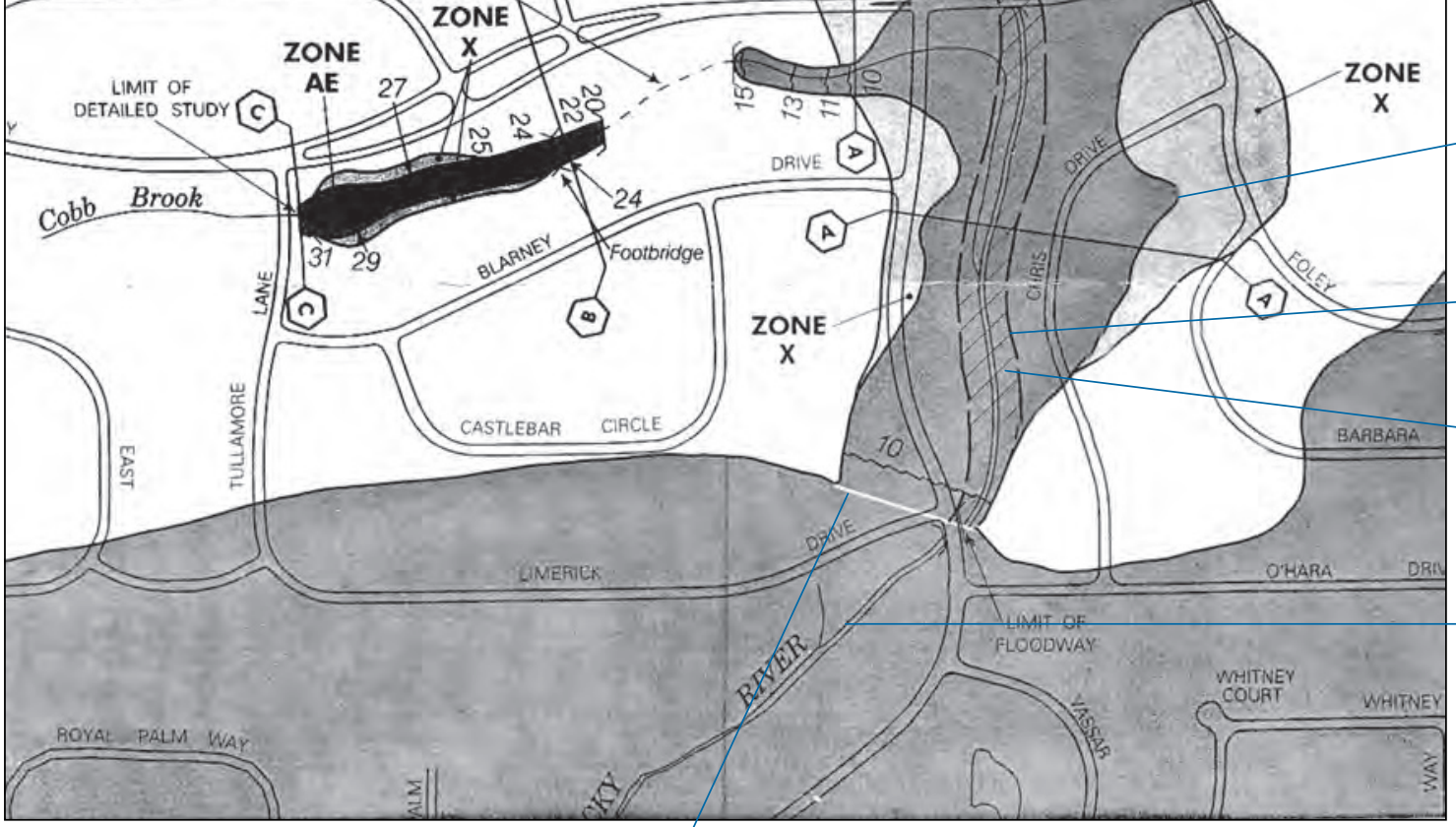
Flood Hazard Area Designation

Flood Insurance Risk Zone Label

Cross Section Symbol

Base Flood Elevation Line

Base



Floodplain Boundary

Regulatory Floodway Boundary

Regulatory Floodway Designation

Stream Line

Zone Divisions Line

Figure 12a. Flood Map Panel Elements for a Riverine Flood Hazard Area

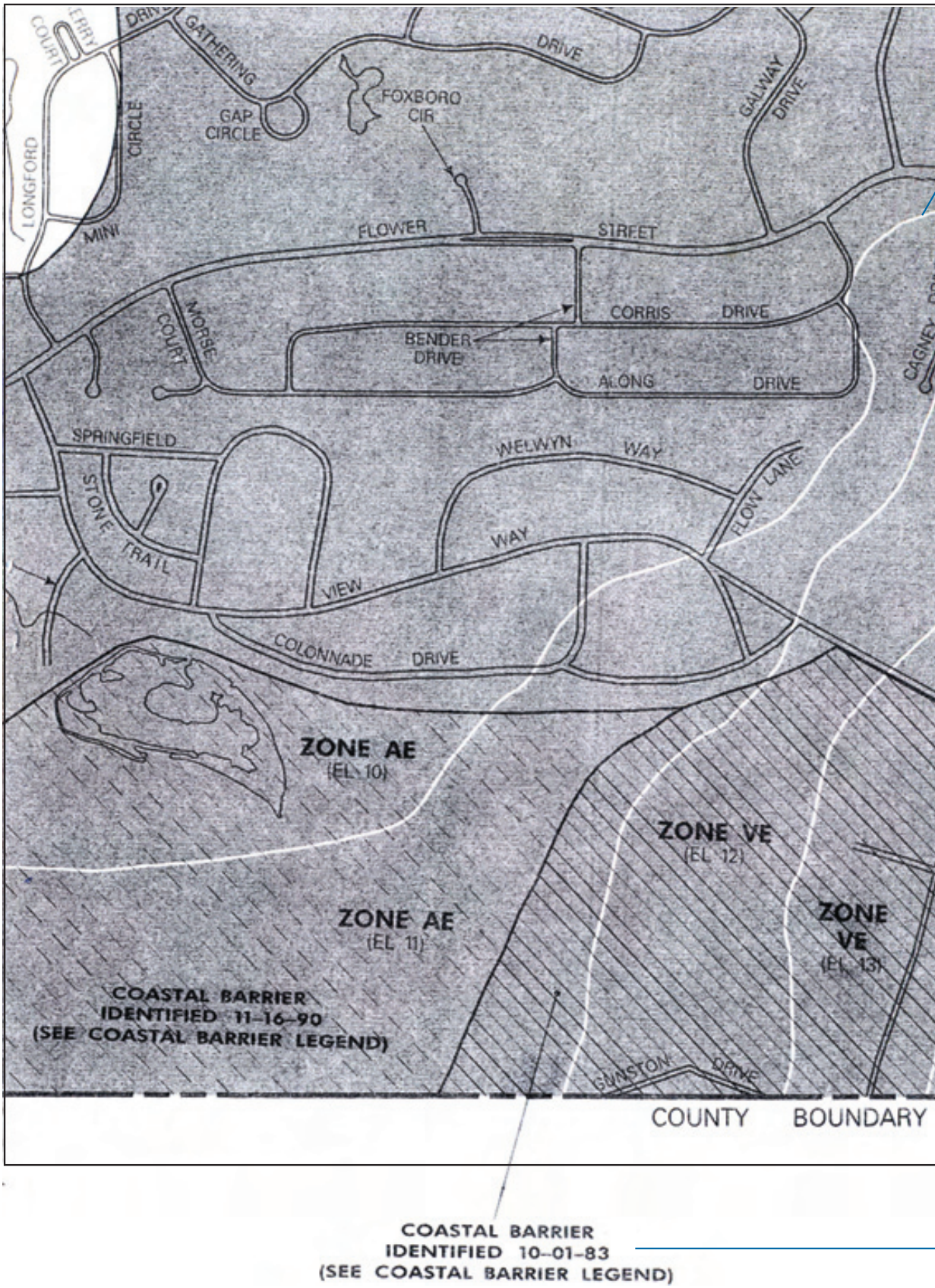
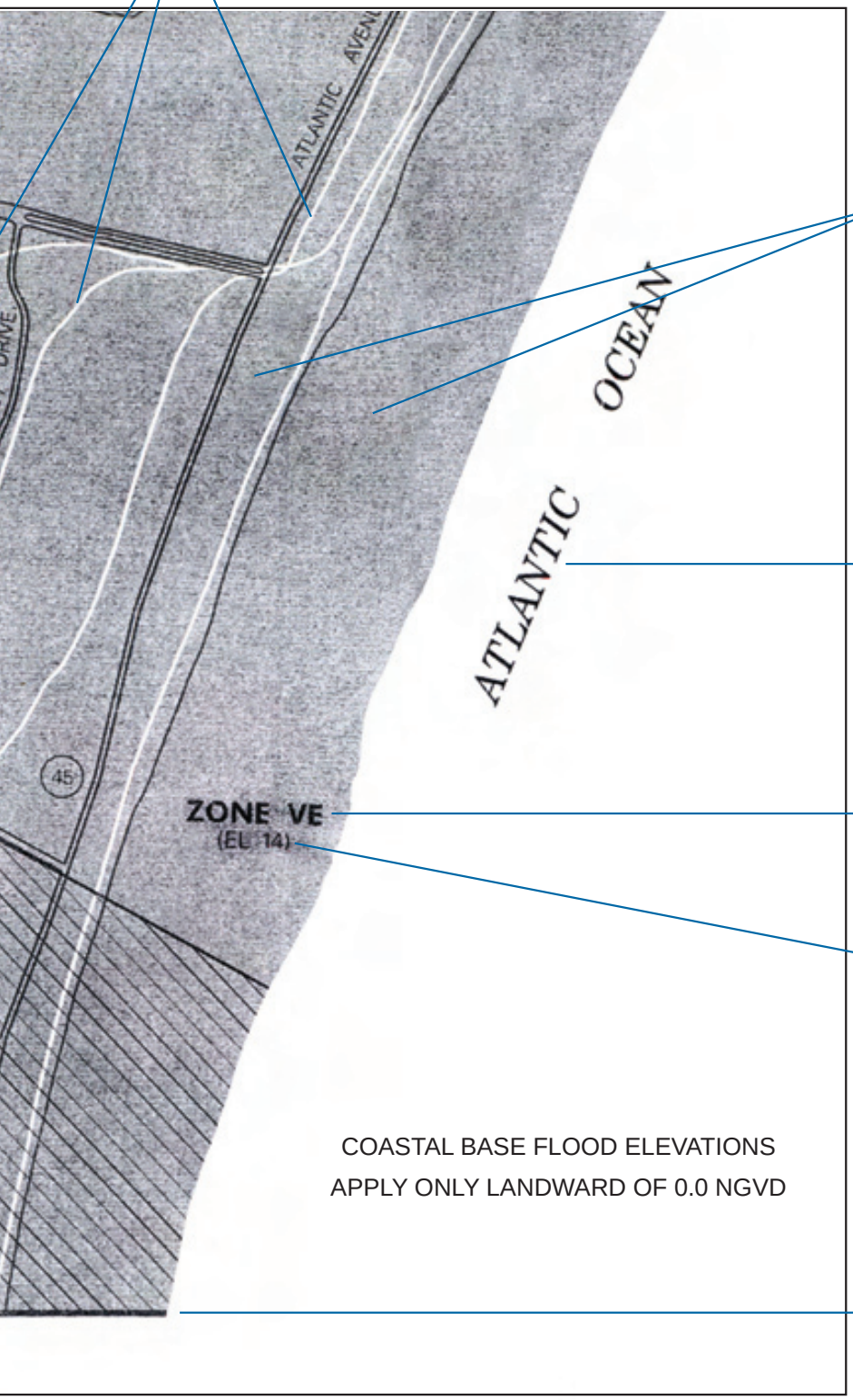


Figure 12b. Flood Map Panel Elements for a Coastal Flood Hazard Area



Zone Divisions Line

Flood Hazard Area Designation

Flooding Source Label

Flood Insurance Risk Zone Label

Base Flood Elevation Label

Corporate Boundary Line

Coastal Barrier Note

Using the Flood Map to Get Specific Information

As discussed in the earlier sections of this *Guide*, the Flood Map provides a wealth of flood hazard and risk information. The information shown on the Flood Map can be used by the following to assist them in understanding the flood risk posed to a specific area of a community or even a specific property:

- Community officials;
- Real estate, insurance, and lending industry professionals; and
- Individual business owners, homeowners, and condominium associations.

This section of the *Guide* presents a step-by-step process that property owners and other paper map users may follow to obtain information about the flood hazard and associated risk posed to a specific property or location. It is important to note, however, that a lender will rely on its own formal determination process, not on a determination made informally by a property owner, in determining whether the mandatory flood insurance purchase requirements of the NFIP apply to a specific house or other insurable structure.

Information on the mandatory purchase requirements are provided in a FEMA booklet titled "Mandatory Purchase of Flood Insurance Guidelines." This booklet is available from the FEMA Library (http://www.fema.gov/library/viewRecord.do?id=2954).

Homeowners, business owners, and renters also should consult with their insurance agent about their options for purchasing flood insurance protection for their property (buildings and/or contents). While the mandatory purchase requirements apply in high-risk Special Flood Hazard Areas, it is prudent to purchase flood insurance protection in low- and moderate-risk areas, where the insurance premiums may be significantly lower. In fact, more than one-fourth of the claims for flood-related damage to buildings and contents occur outside the mapped Special Flood Hazard Areas.

Effective October 1, 2009, only digital copies of Flood Map panels and FIS reports are available from the FEMA Map Service Center, See page 39 of this *Guide* for additional information regarding the FEMA transition to digital flood hazard information.

The process for locating a property on the Flood Map discussed in this section could be handled electronically using the "Map Search" feature available on the FEMA Map Service Center Web site (http://msc.fema.gov). That featureis available now and will continue to be available after September 30, 2009.

This section of the *Guide* also does not cover the formal administrative processes that FEMA has established for property owners and others to obtain formal determinations. To learn more about these processes, interested parties are encouraged to visit the Flood Hazard Mapping portion of the FEMA Web site, which is accessible through the following link: http://www.fema.gov/plan/prevent/fhm. A series of online tutorials is accessible through the following link: http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm.

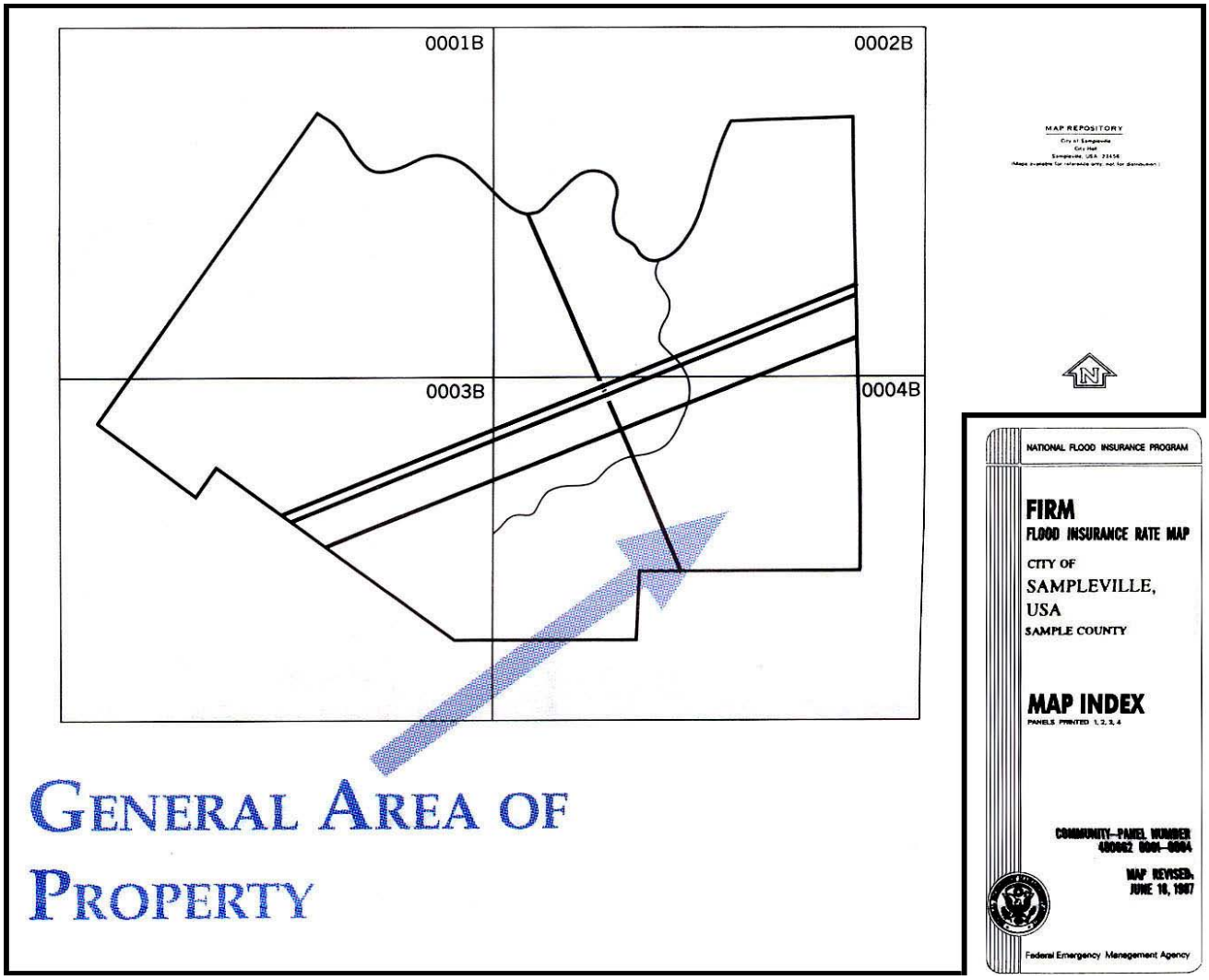


Figure 14. Sample Index from a Z-Fold Flood Map

The Situation

Harry and Harriet Homeowner, who now live in Hechinger County, USA, are considering buying a house on Water Street in the City Sampleville, Sample County, USA. Before they make any decisions regarding the house, they want to know the extent of the flood hazard in Sampleville and the risk of a flood occurring in the area where this house is located.

To help them do this, they will need to know if the house is located in an area that is designated as a high-risk Special Flood Hazard Area on the Flood Map. If they determine that the house is in the mapped Special Flood Hazard Area, they also will want to find the flood insurance risk zone designation and Base Flood Elevation that apply to the property.

Step 1. Find the Correct Panel

To find the panel that covers the property, the Homeowners will need to first refer to the Index for the effective Flood Map for Sampleville. (See Figure 14.) The Homeowners can do this by visiting the FEMA Map Service Center Web site (http://msc.fema.gov); calling the Map Service Center, toll free, at 1-800-358-9616; or by visiting the Community Map Repository in Sampleville.

By reviewing the Index, the Homeowners learn that the Flood Map they need to review was prepared in Z-Fold format and is composed of four panels. The title block on the Index indicates that all four panels (0001, 0002, 0003, and 0004) are printed. According to the north arrow on the Index, the Flood Map is oriented so that north is straight up.

The Homeowners know that the property on Water Street is located in the southeastern portion of the city, south of Interstate Highway 32. Although Water Street is not labeled on the Index, they are able to determine from the north arrow and the major roads shown on the Index that Water Street is on Panel 0004.

The Homeowners then check the title blocks on the individual Flood Map panels to find Panel 0004. (See Figure 15.)

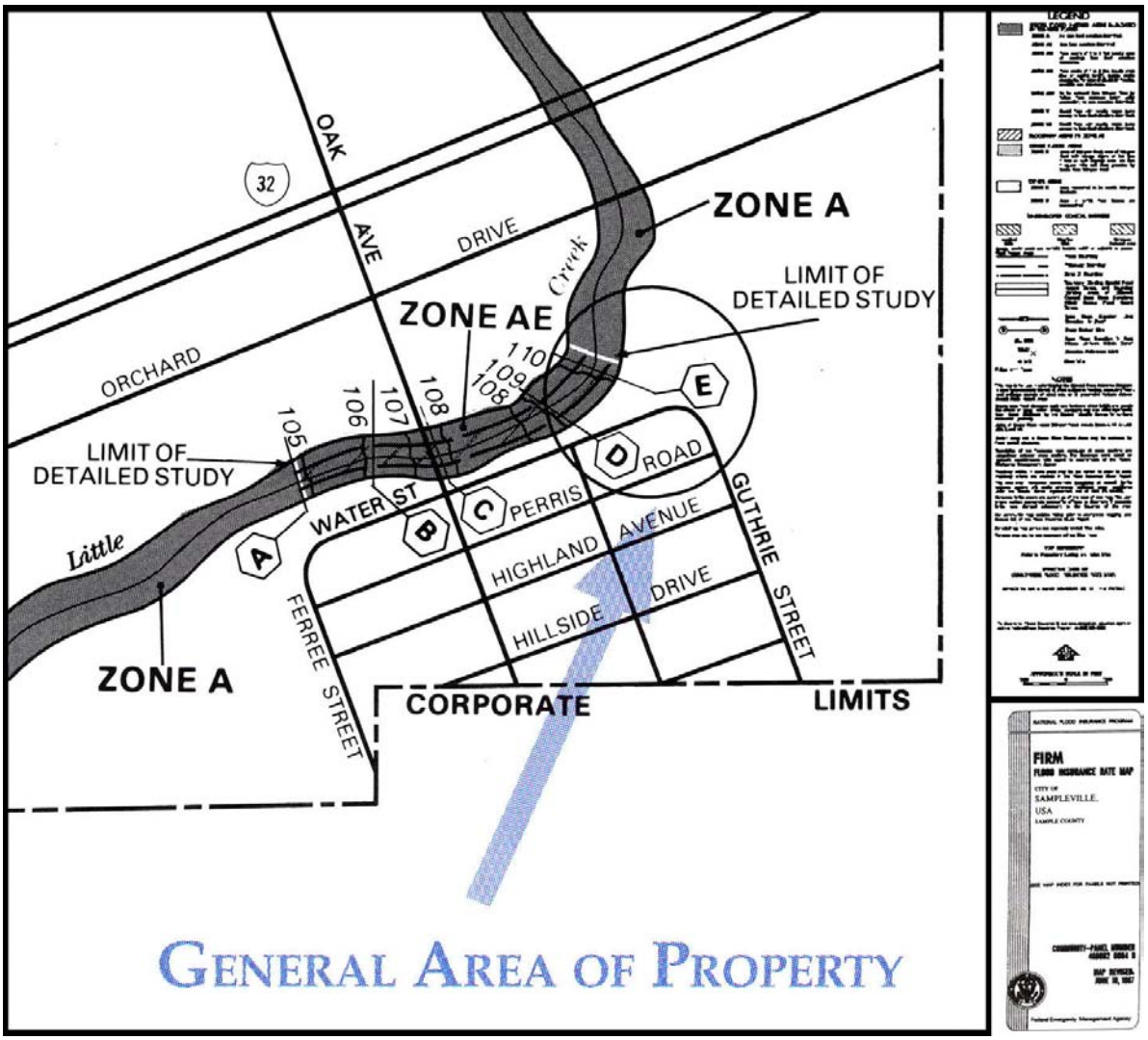


Figure 15. Sample Panel 0004 from a Z-fold Flood Map

Step 2. Find the General Location of the Property

Because the individual panel shows more roads and physical landmarks than the Index, the Homeowners use the panel to help locate the property. They know that the property is near the intersection of Oak Avenue and Water Street, and they can find that area on Panel 0004. (See Figure 15.)

Generally, FEMA labels only major roads and the roads in or near the flood hazard areas shown on a Flood Map. To find the general location of the property, paper map users may find it helpful to refer to another type of map that shows additional roads and physical landmarks in the community. Map users might try a city map, highway department map, or a tax assessor's map. Those users who have access to the Internet may also use one of the many commercial online services to find the property's location.

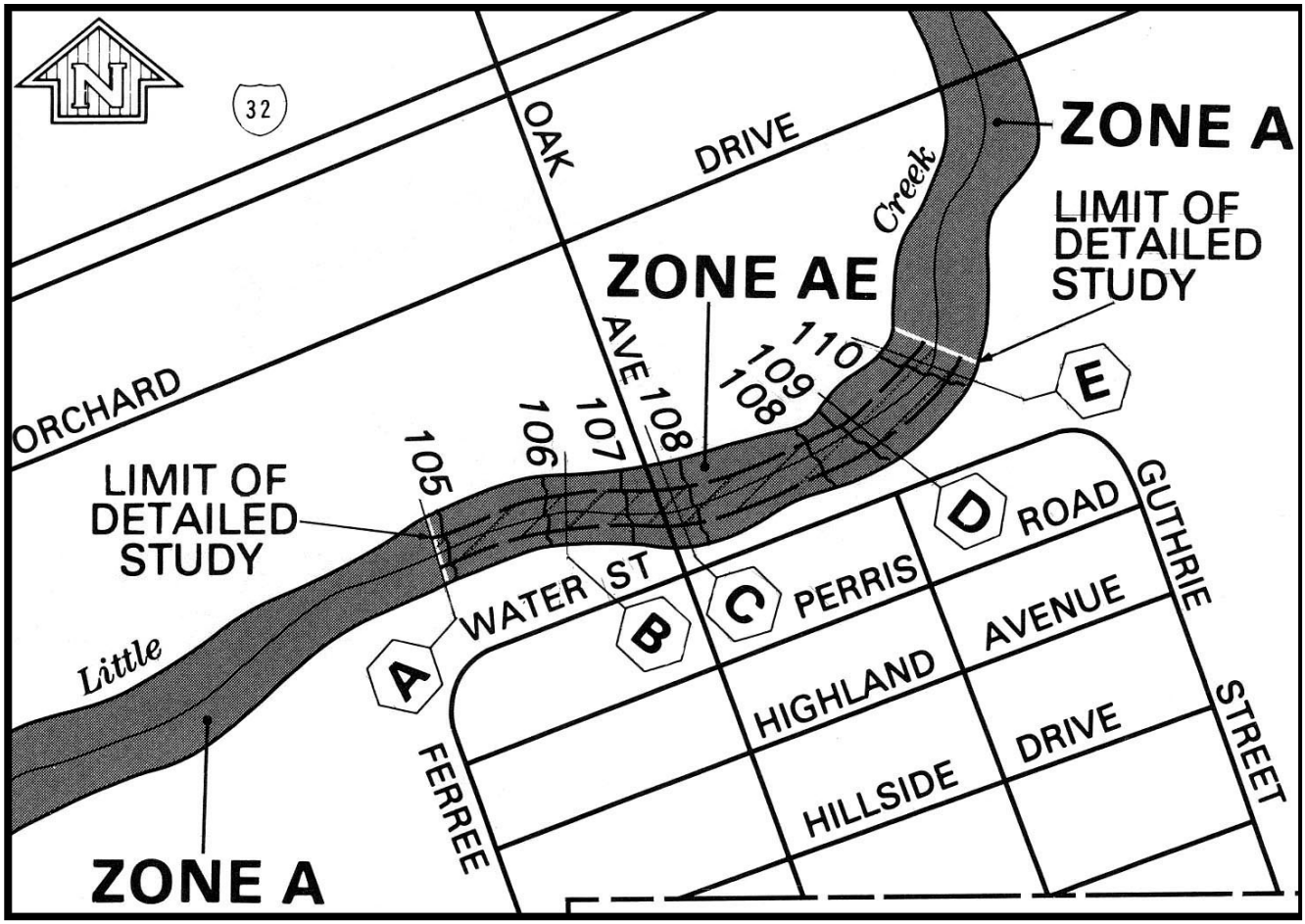


Figure 16. Finding the General Location of the Property

Step 3. Find the Specific Location of the Property

To find the specific property (land and building) location on the portion of the map shown in Figure 16, the Homeowners will need to use the map scale on the Flood Map. In addition, they may need to refer to a plat map of the property, tax assessor's map, or the property description found on the recorded deed.

The Homeowners know the property lies on the northern side of Water Street, east of the intersection of Oak Avenue and Water Street. First, they find the dimensions of the property on a tax assessor's map or a plat map or in a legal description.

Then, they convert the known dimensions to inches using the map scale and measurements on the Flood Map panel. For example, by looking at the map scale superimposed on the map portion shown in Figure 17 (1 inch = 500 feet), a map user could determine that 250 feet on the ground is equal to one-half (0.5) inch on the Flood Map, and 50 feet on the ground is equal to one-tenth (0.1) inch on the Flood Map.

After looking at a plat map, the Homeowners know the property line nearest Oak Avenue is 550 feet east of the centerline of Oak Avenue. At the map scale of 1 inch = 500 feet, 550 feet is equal to one and one-tenth (1.1) inches on the Flood Map. The Homeowners also know that the property is 188 feet wide and 156 feet deep; on the Flood Map, those dimensions become approximately three-eighths (0.375) inch by five-sixteenths (0.313) inch. They can then use the same method to locate the house on the property.

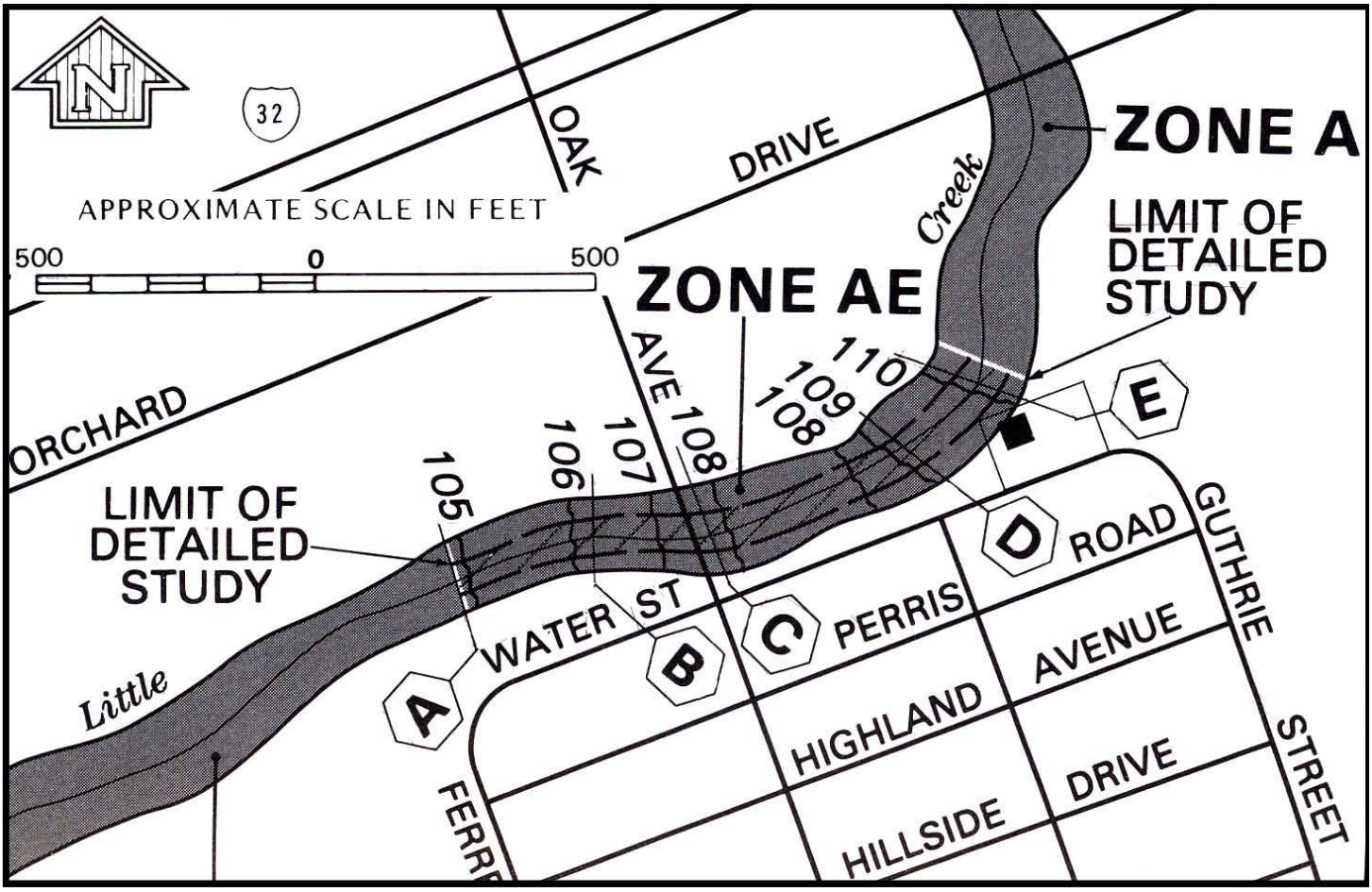


Figure 17. Finding the Specific Location of the Property

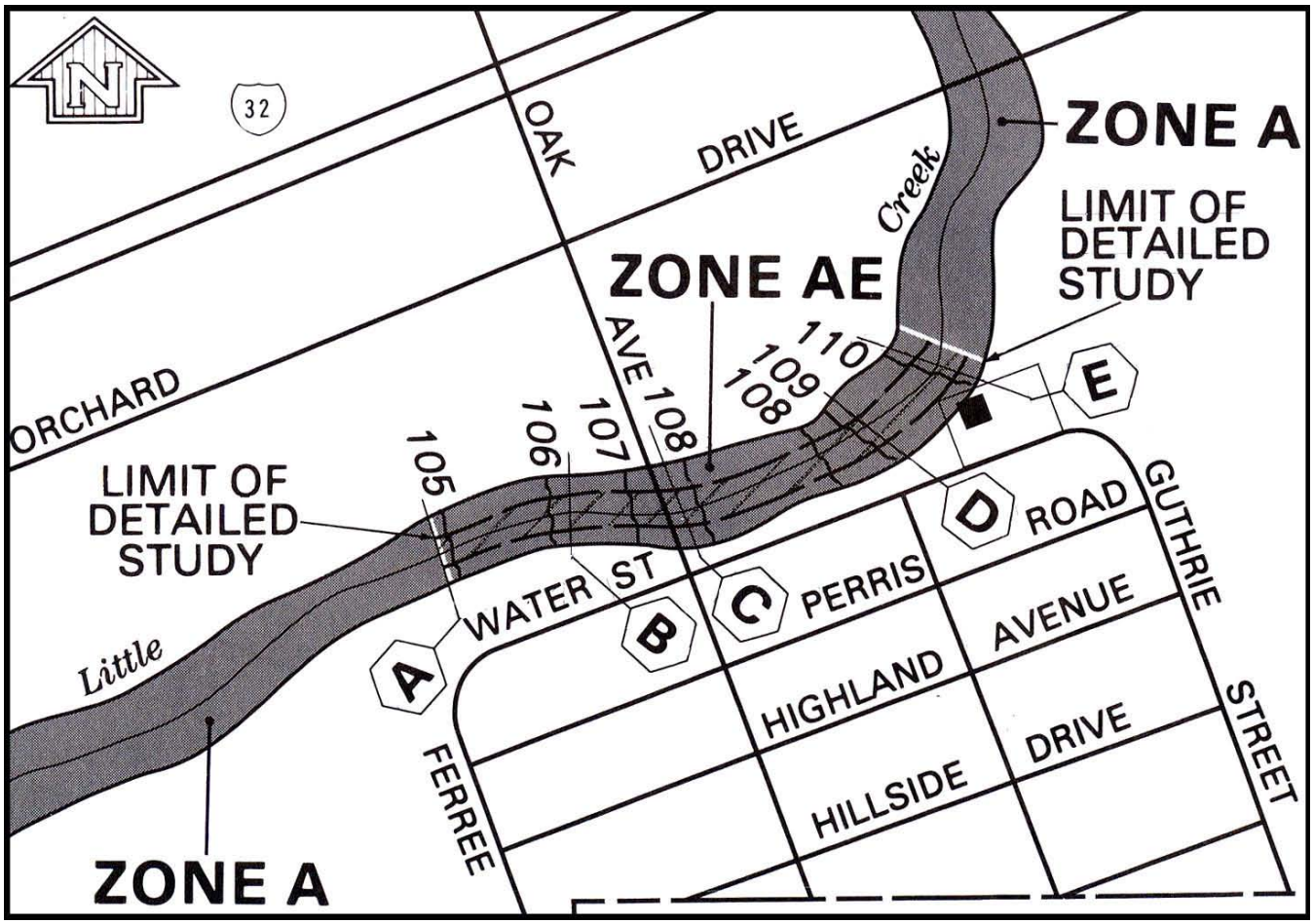


Figure 18. Finding the Flood Insurance Risk Zone Designation

Step 4. Identify the Flood Insurance Risk Zone Designation

As shown on the map in Figure 18, the property and house that the Homeowners are considering buying are partially in the Special Flood Hazard Area. For floodplain management purposes, a house that is partially in the Special Flood Hazard Area must be constructed in accordance with local floodplain management regulations. If a house is located partially in the Special Flood Hazard Area, the mandatory flood insurance purchase requirements of the NFIP would apply and a lender should require the purchase of a flood insurance policy as a condition of granting a loan.

The Homeowners can now identify the flood insurance risk zone designation for the property by finding the zone label. As shown in Figure 18, the Special Flood Hazard Area for the area of the property is labeled Zone AE. The zone designation applies both to the portion of the property in the Special Flood Hazard Area and to the house and any other insurable building on that portion.

Occasionally, when a property or building is close to the edge of the Special Flood Hazard Area, a map user may find it difficult to figure out whether one should consider the property or building to be in the Special Flood Hazard Area. The deciding factor for FEMA in such instances is the elevation of the property or, in the case of a house or other insurable building, the land directly adjacent to the building compared to the Base Flood Elevation. (See Step 5.)

If the property or building is shown to be within the Special Flood Hazard Area on the Flood Map, only FEMA may determine that it is not in the Special Flood Hazard Area by comparing these elevations. To learn more about the administrative processes, interested parties should visit the Flood Hazard Mapping portion of the FEMA Web site (http://www.fema.gov/plan/prevent/fhm). As cited earlier, an online tutorial series is accessible through http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm.

The Flood Map for the City of Sampleville also shows a regulatory floodway for Little Creek. As shown on the map segment in Figure 18, neither the land nor the house is in the regulatory floodway.

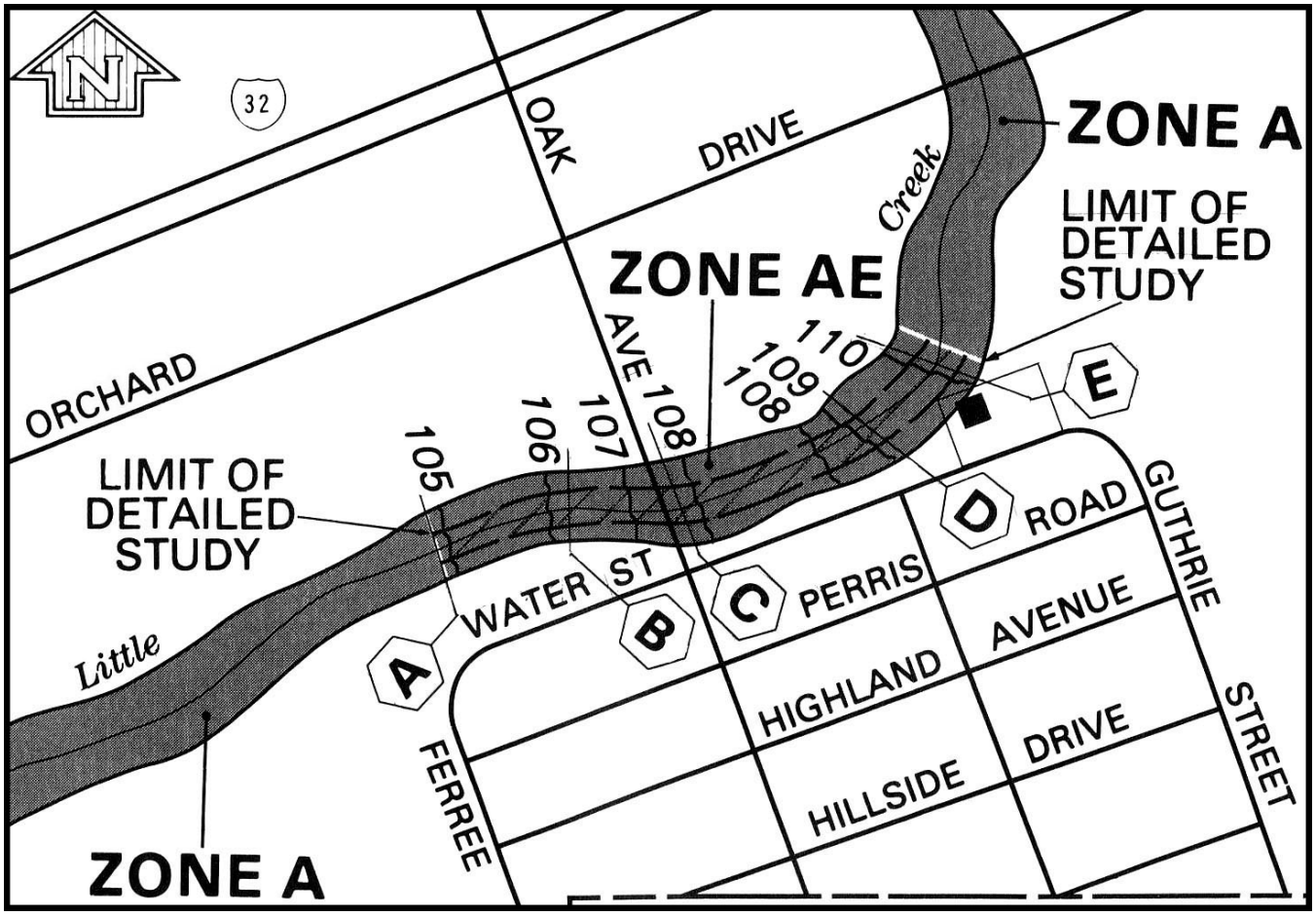


Figure 19. Identifying the Base Flood Elevation

Step 5. Identify the Base Flood Elevation at the Building

To identify the Base Flood Elevation for the house on the property, the Homeowners must find the Base Flood Elevation lines (or labels) shown near the property on the Flood Map. As shown on the map segment in Figure 19, Base Flood Elevation lines 109 and 110 are near the property, and 110 is the nearer of the two lines.

When a building is between two Base Flood Elevation lines, as in Figure 19, map users may obtain an accurate elevation number by referring to the Flood Profile(s) for the flooding source that appear in the Flood Insurance Study report for the community. The steps for determining a Base Flood Elevation using the Flood Profile are provided on pages 4-14 and 4-15 of FEMA 480, titled *National Flood Insurance Program (NFIP) Floodplain Management Requirements: A Study Guide and Desk Reference for Local Officials*. FEMA 480 is available from the FEMA Library through http://www.fema.gov/library/viewRecord.do?id=1443.

If the Homeowners had determined that the house and adjoining land were located in a Special Flood Hazard Area designated as Zone A, no Base Flood Elevations would have been shown on the Flood Map. For help in determining an approximate Base Flood Elevation in Zone A, the Homeowners would have had to consult community officials, such as the city floodplain administrator, or a Registered Professional Engineer FEMA guidance for determining Base Flood Elevations in Zone A areas is provided in "Managing Development in Approximate Zone Areas: A Guide for Obtaining and Developing Base (100-Year Flood Elevations" (FEMA 265), which is accessible through the FEMA Library (http://www.fema.gov/library/viewRecord.do?id=1526).

If the Homeowners had determined that the house and adjoining land were located in a Special Flood Hazard Area designated as Zone A, no Base Flood Elevations would have been shown on the Flood Map. For help in determining an approximate Base Flood Elevation in Zone A, the Homeowners would have had to consult community officials, such as the city floodplain administrator, or a Registered Professional Engineer FEMA guidance for determining Base Flood Elevations in Zone A areas is provided in "Managing Development in Approximate Zone Areas: A Guide for Obtaining and Developing Base (100-Year Flood Elevations" (FEMA 265), which is accessible through the FEMA Library (http://www.fema.gov/library/viewRecord.do?id=1526).

Next Steps

The Homeowners now know that the house on Water Street is at risk of being flooded during the 1-percent-annual-chance flood and that flood insurance will be required by their lender. With this information in hand, they can now discuss their situation with knowledgeable real estate, insurance, and lending professionals, who can help them understand the risk more thoroughly and can provide information on the amount of flood insurance that will be required.

If the Homeowners believe that the flood insurance premium rates quoted to them for the house are too high or that the house is above the Base Flood Elevation, they will want to consult with their local floodplain administrator to discuss their options for requesting a change to the Flood Map for the area of the property. The local floodplain administrator will provide the Homeowners with information on the map change options available to them and other property owners.

To learn more about the formal map change processes and procedures, the Homeowners also may:

- Call a Map Specialist in the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627);
- Review the information provided on the FEMA Web site at http://www.fema.gov/plan/prevent/fhm/fmc_loma.shtm; or
- View the series of online tutorials available at http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm.

How to Obtain Flood Maps and Related Products

Digital copies of Flood Maps, Flood Insurance Study (FIS) reports, and related products are made available by the FEMA Map Service Center for a nominal fee. Flood Maps may be viewed online through the FEMA Map Service Center Web site: http://www.msc.fema.gov/. Flood Maps, FIS reports, DFIRM Databases, and related products also may be downloaded from the Map Service Center Web site.

To assist users, the Map Service Center Web site provides instructions on how to find the Flood Map for a community using one of the following options: (1) Product Search by Address; (2) Product Catalog; (3) Map Search; and (4) Quick Order (See Figure 20 on page 42.)

To access these instructions, users should click on the "How do I find the flood map for my area?" link on the main page of the Web site. (See the circled area on the Web site image in Figure 20.)

If preferred, interested parties also may call the Map Service Center staff directly, toll free, at 1-800-358-9616, or transmit map orders by facsimile transmission, toll free, to 1-800-358-9620. Interested parties may also write to the Map Service Center at:

Federal Emergency Management Agency
Map Service Center
P.O. Box 1038
Jessup, MD 20794-1038
E-Mail: FEMA-MSCservice@dhs.gov

Note: Effective October 1, 2009, paper copies of Flood Map panels and FIS reports are no longer available from the FEMA Map Service Center. The Map Service Center will distribute only digital versions of the Flood Maps and FIS reports. To learn more about the FEMA transition to digital flood hazard information, please visit the following page on the FEMA Web site: http://www.fema.gov/plan/prevent/fhm/dfm_ptd.shtm.

To facilitate requests for digital copies of individual Flood Map panels, interested parties should review the current effective Flood Map on file at the Community Map Repository and obtain the following information before contacting the Map Service Center:

- Full name of the community shown on the Flood Map (including city, town, village; county; and state);
- For a Flat Flood Map, the community identification number and letter suffix that appear in the title block of the Index;
- For a Z-Fold Flood Map for an individual community, the community-panel number and letter suffix that appear on the title block of each panel;
- For a countywide Z-Fold Flood Map, the Flood Map number and letter suffix that appear in the title block of each panel.

The Map Service Center may provide copies of specific panels rather than a copy of the entire Flood Map. Therefore, before ordering, interested parties should know the following:

- A panel may not be printed for the portion of the community that is of interest. If so, as discussed in the "How To Read A Flood Map Index" portion of this Guide, a Panel-Not-Printed note on the Index will explain why. (Additional information on the Panel-Not-Printed Footnotes, including a complete list of

Figure 20. Map Service Center Homepage

the acceptable content, can be found in Appendix K, Subsection K.3.1.3 of FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*.)

- If the area of interest is not covered by a countywide Flood Map, the area of interest may not be in the community whose Flood Map someone has reviewed and is interested in obtaining. A property's post office address may include the name of a nearby incorporated community even though the property is really in the unincorporated area of the surrounding county. Therefore, it may be necessary to review the Flood Map for the county, which is available for review at the local Community Map Repository for the county.

For example, the post office address for a property of interest is 40990 State Road 499, Waterton, USA. This area, which is outside the actual corporate limits of Waterton, is shown on the Flood Map for the unincorporated areas of Water County, USA. Therefore, someone interested in the property located at 40990 State Road 499 would have to review the Flood Map for the unincorporated areas of Water County.

- Areas recently annexed by a community may not appear on the Flood Map for that community. To obtain flooding information for those areas, the Flood Map for the community from which the areas were annexed must be obtained.

- If someone cannot find a copy of the current effective Flood Map to identify the exact panel needed, that person may request that the Map Service Center provide a copy of the Flood Map Index. The Flood Map Index can then be used to identify the needed panel(s).

Once the necessary ordering information has been obtained, interested parties should contact the Map Service Center by one of the means mentioned above to place an order for digital products.

As noted earlier in this section, paper copies are no longer available from the FEMA Map Service Center. To view the printed paper Flood Maps, interested parties should contact the Community Map Repository for the community of interest.

FEMA Internet and Call Center Resources

As mentioned earlier in this Guide, a wealth of information about the Flood Maps, the FEMA flood hazard mapping effort, and the NFIP in general can be obtained by visiting the FEMA Web site. To obtain copies of the Flood Maps

FEMA and State Resources

Information on the FEMA Internet and Call Center Resources, FEMA Regional Office resources, and State resources that are available to map users is summarized below. The primary contacts for most map users who want specific answers regarding specific Flood Map issues are the FEMA Regional Offices and the State National Flood Insurance Program (NFIP) Coordinators in the states, commonwealths, and territories that make up our Nation. Information on how to contact the FEMA Regional Offices and State NFIP Coordinators is provided below.

or the other resources discussed in this Guide, interested parties also should visit the FEMA Map Service Center Web site.

In addition, the FEMA Map Assistance Center provides a variety of support services to map users. Internet addresses and toll-free telephone numbers for these resources are provided below.

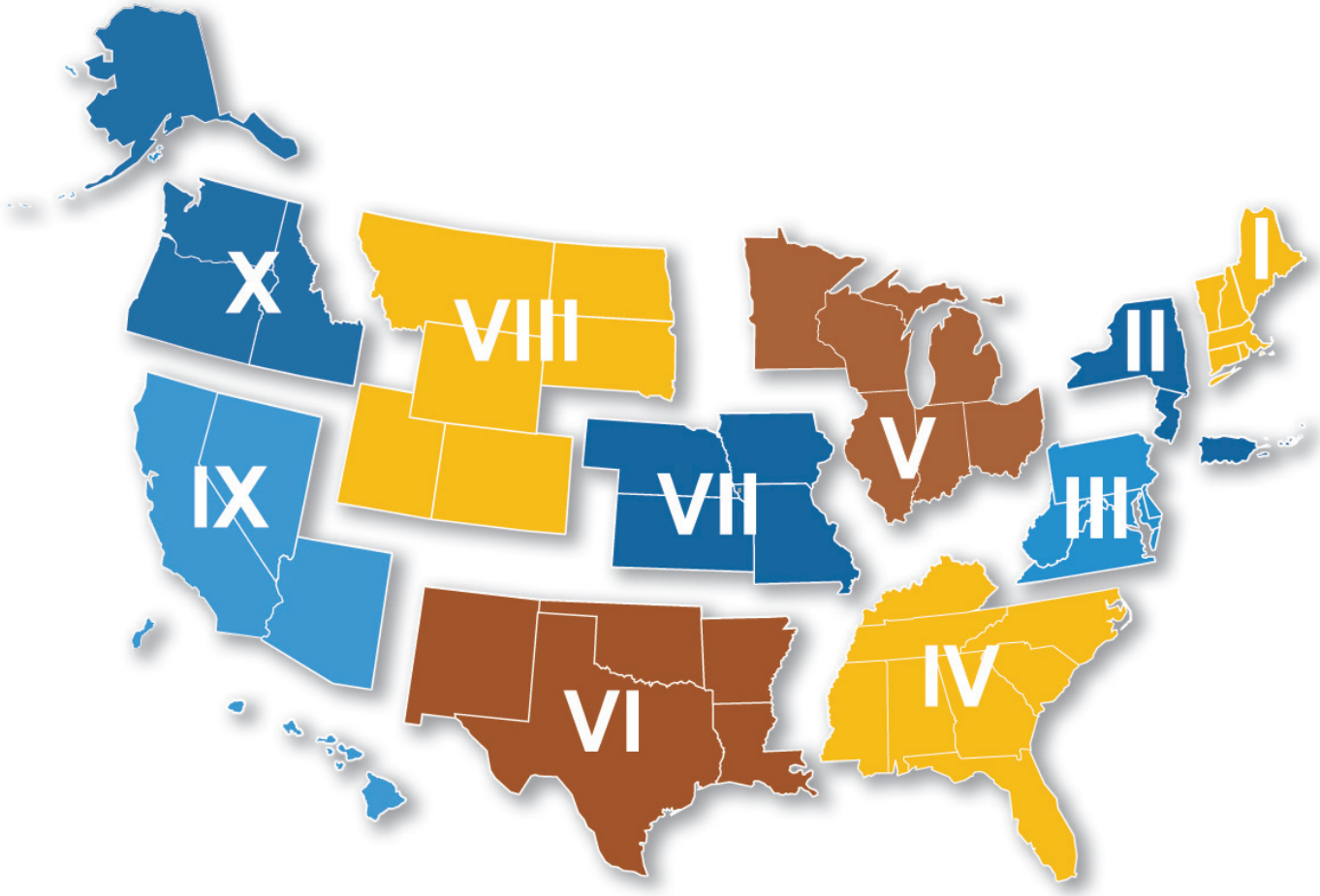
- FEMA Flood Hazard Mapping Contact Information
  http://www.fema.gov/plan/prevent/fhm
  1-877-FEMA MAP (1-877-336-2627)
  FEMAMapSpecialist@riskmapcds.com
- FEMA Flood Insurance Contact Information
  http://www.fema.gov/business/nfip/index.shtm
  1-800-427-4661
  asktheexpert@riskmapcds.com
- FEMA Floodplain Management Contact Information
  http://www.fema.gov/plan/prevent/floodplain/index.shtm
- FEMA Map Service Center Contact Information
  http://msc.fema.gov
  1-800-358-9616 (phone)
  1-800-358-9620 (fax)
- FEMA Map Assistance Center Contact Information
  http://www.fema.gov/plan/prevent/fhm/fmc_main.shtm
  1-877-FEMA MAP (1-877-336-2627)
  FEMAMapSpecialist@riskmapcds.com

FEMA Regional Resources

The contact information for the FEMA staff in 10 Regional Offices around the U.S. is provided on the following page.

State Office Resources

The State NFIP Coordinators, or State Coordinating Agencies, are the agencies of the State governments, or other offices designated by the Governor of the State or by State statute at the request of FEMA, to assist in the implementation of the NFIP in that state, commonwealth, or territory. The most up-to-date contact information—mailing address, telephone number, and e-mail address—for the State NFIP Coordinators can be found by visiting http://www.floods.org/StatePOCs/stcoor.asp.


X
VIII
I
II
IX
VII
V
III
VI
IV

Region I

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont

FEMA Region I
Mitigation Division
99 High Street
6th Floor
Boston, MA 02110

(617) 956-7506 (phone)
(617) 956-7519 (fax)

http://www.fema.gov/about/regions/regioni.shtm

Region II

New Jersey, New York, Puerto Rico, and the Virgin Islands

FEMA Region II
Mitigation Division
26 Federal Plaza
Room 1307
New York, NY 10278-0002

(212) 680-3600 (phone)
(New Jersey and New York)
(787) 296-3500 (phone)
(Puerto Rico and Virgin Islands)
(212) 680-3681 (fax)

http://www.fema.gov/about/contact/regionii.shtm

Region III

Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia

FEMA Region III
Mitigation Division
615 Chestnut Street
One Independence Mall, Sixth Floor
Philadelphia, PA 19106-4404

(215) 931-5608 (phone)
(215) 931-5621 (fax)

http://www.fema.gov/about/contact/regioniii.shtm

Region IV

Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee

FEMA Region IV
Mitigation Division
3003 Chamblee Tucker Road
Atlanta, GA 30341

(770) 220-5400 (phone)
(770) 220-5275 (fax)

http://www.fema.gov/about/contact/regioniv.shtm

Region V

Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin

FEMA Region V
Mitigation Division
536 South Clark Street
Sixth Floor
Chicago, IL 60605

(312) 408-5500 (phone)
(312) 408-5234 (fax)

http://www.fema.gov/about/contact/regionv.shtm

Region VI

Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

FEMA Region VI
Mitigation Division
Federal Regional Center
800 North Loop 288
Room 206
Denton, TX 76201-3698

(940) 898-5399 (phone)
(940) 898-5325 (fax)

http://www.fema.gov/about/contact/regionvi.shtm

Region VII

Iowa, Kansas, Missouri, and Nebraska

FEMA Region VII
Mitigation Dvision
9221 Ward Parkway
Suite 300
Kansas City, MO 64114-3372

(816) 283-7002 (phone)
(816) 283-7582 (fax)

http://www.fema.gov/about/contact/regionvii.shtm

Region VIII

Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming

FEMA Region VIII
Mitigation Division
Denver Federal Center
Building 710
Box 25267
Denver, CO 80225-0267

(303) 235-4830 (phone)
(303) 235-4976 (fax)

http://www.fema.gov/about/contact/regionviii.shtm

Region IX

Arizona, California, Hawaii, Nevada, Guam, American Samoa, and the Mariana Islands

FEMA Region IX
Mitigation Division
1111 Broadway
Suite 1200
Oakland, CA 94607-4052

(510) 627-7000 (phone)
(510) 627-7112 (fax)

http://www.fema.gov/about/contact/regionix.shtm

Region X

Alaska, Idaho, Oregon, and Washington

FEMA Region X
Mitigation Division
Federal Regional Center
130 228th Street SW
Bothell, WA 98021-8627

(425) 487-4600 (phone)
(425) 487-4622 (fax)

http://www.fema.gov/about/contact/regionx.shtm

Glossary of Terms

The terms defined below were used in the preparation of this *Guide*. A complete list of the terms that are used in other FEMA and National Flood Insurance Program (NFIP) publications is provided in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*. These documents and an array of other useful resources are accessible through the following link on the FEMA Web site: http://www.fema.gov/plan/prevent/fhm/frm_docs.shtm.

2-Percent-Annual-Chance Flood

This is the flood that has a 2-percent chance of being equaled or exceeded in any given year; also referred to as the 50-year flood.

10-Percent-Annual-Chance Flood

This is the flood that has a 10-percent chance of being equaled or exceeded in any given year; also referred to as the 10-year flood.

1-Percent-Annual-Chance Flood

This is the flood having a 1-percent chance of being equaled or exceeded in any given year; also referred to as the base, or 100-year, flood.

0.2-Percent-Annual Chance Flood

This is the flood having a 0.2-percent chance of being equaled or exceeded in any given year; also referred to as the 500-year flood.

Approximate Study

This is a flood hazard study that results in the delineation of floodplain boundaries for the 1-percent-annual-chance flood, but does not include the determination of Base Flood Elevations or base flood depths.

Area Not Included

This is area that is excluded from the map for a subject community because (1) the area is under the jurisdiction of another community and is shown on the mapping for that community, or (2) access to the area is limited for security reasons (e.g., military installations).

Base Flood Elevation

This is the elevation of a flood having a 1-percent chance of being equaled or exceeded in any given year.

Base Map

This is the map of the community that depicts cultural features (e.g., roads, railroad, bridges, dams, culverts), drainage features, and corporate limits.

Bench Mark

This is a permanent monument established by any Federal, State, or local agency, whose elevation and description are well documented and referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988.

Coastal Barrier Resources System

This is a system of protected coastal areas (including the Great Lakes. The areas within this System are defined as depositional geologic features consisting of unconsolidated sedimentary materials; subject to wave, tidal, and wind energies; and protecting landward aquatic habitats from direct wave attack.

Coastal Flooding

This is the flooding that occurs along the Great Lakes, the Atlantic and Pacific Oceans, and the Gulf of Mexico.

Coastal High Hazard Area

This is an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high-velocity wave actions from storms or seismic sources.

Community Identification Number

This is a six-digit code used by the Federal Emergency Management Agency (FEMA) to identify each community that is potentially subject to flood hazards.

Community Map Repository

This is the community office that stores copies of the Flood Map, Flood Insurance Study report, and related resources and makes them available for review.

Countywide Map

This is a Flood Map that shows flooding information for the entire geographic area of a county, including the incorporated communities in the county.

Cultural Features

These are prominent manmade features and landmarks shown on a Flood Map including railroads, airfields, streets, roads, highways, levees, dikes, seawalls, and dams and other flood-control structures.

Digital Flood Insurance Rate Map

This is a Flood Map that has been prepared as a digital product, which may involve converting an existing manually produced Flood Map to digital format, or creating a product from new digital data sources using a Geographic Information System environment. The Digital Flood Insurance Rate Map 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 Digital Flood Insurance Rate Map, 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.

Digital Flood Insurance Rate Map Database

This is a database designed to facilitate collecting, storing, processing, and accessing data developed by FEMA, enabling FEMA mapping partners and contractors to share the data necessary for the map production and conversion process. Where possible, all mapping and engineering data elements are linked to physical geographic features and georeferenced. The use of a Geographic Information System as a component of this spatial database provides the ability to georeference and overlay the mapping and engineering data, allowing the database to support a wide variety of existing and forthcoming FEMA engineering and mapping products.

Effective Date

This is the date on which the Flood Map for a community becomes effective and all sanctions of the National Flood Insurance Program apply.

Effective Map

This is the Flood Map issued by FEMA that is in effect as of the date shown in the title block of the map as "Effective Date," "Revised," or "Map Revised."

Elevation Reference Mark

This is the temporary vertical control monument established by a FEMA mapping partner or contractor during the performance of a new or updated engineering study.

Extraterritorial Jurisdiction

This is the authority of a community to establish land-use zones and issue building permits in areas outside its corporate limits.

Flood

This is a general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters or (2) the unusual and rapid accumulation or runoff of surface waters from any source.

Flood Boundary and Floodway Map

This is a floodplain management map issued by FEMA that shows, based on detailed and approximate analyses, the boundaries of the 1- and 0.2-percent-annual-chance floodplains and, when appropriate, the regulatory floodway. The Flood Boundary and Floodway Map does not show flood insurance risk zones, Base Flood Elevations, or base flood depths.

Flood Hazard Area

This is the land area subject to inundation by water from any flooding source.

Flood Hazard Boundary Map

This is the initial insurance map issued by FEMA that identifies, based on approximate analyses, the areas of the 1-percent-annual-chance flood hazard within a community.

Flood Insurance Rate Map

This 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 (100-year) 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, this map shows Base Flood Elevations to reflect the elevations of the 1-percent-annual-chance flood. For many communities, when detailed analyses are performed, this map also may show areas inundated by 0.2-percent-annual-chance (500-year) flood and regulatory floodway areas. These maps are also referred to as "FIRMs" by people who work with them frequently; however, for the purposes of this *Guide*, they are referred to simply as Flood Maps.

Flood Insurance Study

This is an engineering study performed by FEMA to identify flood hazard areas, flood insurance risk zones, and other flood data in a community.

Flood Insurance Study Report

This 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 Flood Insurance Study report are text, data tables, photographs, and Flood Profiles.

Flood Map

This is a general term used to described maps produced for the National Flood Insurance Program, and can be used to refer collectively to the following products: Flood Hazard Boundary Map, Flood Insurance Rate Map, Flood Boundary and Floodway Map, and Digital Flood Insurance Rate Map.

Floodplain

This is any land area that is susceptible to being inundated by water from any source.

Floodplain Management

This is the operation of a program of corrective and preventive measures for reducing flood damage, including, but not limited to, emergency preparedness plans, flood-control works, and floodplain management regulations.

Floodplain Management Regulations

These are the zoning ordinances, subdivision regulations, building codes, health regulations, special-purpose ordinances, and other applications of enforcement used by a community to manage development in its floodplain areas.

Flood Profile

A graph showing the relationship of water-surface elevation to location, with the latter generally expressed as distance above the mouth for a stream of water flowing in an open channel.

Floodway

See Regulatory Floodway.

Future-Conditions Flood Hazard Area

This is the land area that would be inundated by the 1-percent-annual-chance (100-year) flood based on future-conditions hydrology.

Future-Conditions Hydrology

These are the flood discharges associated with projected land-use conditions based on a community's zoning maps and/or comprehensive land-use plans and without consideration of projected future construction of flood detention structures or projected future hydraulic modifications within a stream or other waterway, such as bridge and culvert construction, fill, and excavation.

Geographic Information System

This is a system of computer hardware, software, and procedures designed to support the capture, manage¬ment, manipulation, analysis, modeling, and display of spatially referenced data for solving complex planning and management problems.

Hazard

This is an event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, and other types of loss or harm.

Hydraulic Analysis

This is an engineering analysis of a flooding source carried out to provide estimates of the elevations of floods of selected recurrence intervals.

Hydrologic Analysis

This is an engineering analysis of a flooding source carried out to establish peak flood discharges and their frequencies of occurrence.

Map Assistance Center

This is a FEMA customer service center staffed by Map Specialists that are specially trained to answer specific questions about the status of active and completed studies, restudies, conditional and final map revision requests, and conditional and final map amendment requests; answer questions about technical and administrative support data available from the FEMA archives; link callers with other FEMA service and fax numbers and the FEMA Web site; and provide information regarding, or copies of, FEMA products, brochures, and publications.

Mapping Project

See Flood Insurance Study.

Mitigation

This is a sustained action taken to reduce or eliminate long-term risk to people and property from flood hazards and their effects. Mitigation distinguishes actions that have a long-term impact from those are more closely associated with preparedness for, immediate response to, and short-term recovery from specific events.

National Flood Insurance Program

This is a Federal program to identify floodprone areas nationwide and make flood insurance available to the owners and lessees of property in the communities that voluntarily participate in the program. The communities participate by adopting and enforcing floodplain management standards that are consistent with Federal regulations.

National Geodetic Vertical Datum of 1929 and North American Vertical Datum of 1988

These are standard reference planes established by the Federal Government from which elevations are measured.

Non-Participating Community

This is a community that has been identified by FEMA as being floodprone but has chosen not to participate in the National Flood Insurance Program.

Participating Community

This is any community that voluntarily elects to participate in the National Flood Insurance Program by adopting and enforcing floodplain management regulations that are consistent with the standards of the National Flood Insurance Program.

Ponding

This is the result of runoff or flows collecting in a depression that may have no outlet, subterranean outlets, rim outlets, or manmade outlets such as culverts or pumping stations. Impoundments behind manmade obstructions are included in this type of shallow flooding as long as they are not backwater from a defined channel or do not exceed 3.0 feet in depth.

Regional Offices

These are the FEMA offices located in Boston, Massachusetts; New York, New York; Philadelphia, Pennsylvania; Atlanta, Georgia; Chicago, Illinois; Denton, Texas; Kansas City, Missouri; Denver, Colorado; San Francisco, California; and Bothell, Washington.

Regulatory Floodway

This is a floodplain management tool that is the regulatory area defined as the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the base flood discharge can be conveyed without increasing the Base Flood Elevations more than a specified amount. The regulatory floodway is not an insurance rating factor.

Riverine Flooding

This is the overbank flooding of rivers and streams.

River Mile Marker

This is a marker that indicates the distance in miles from a reference point on a river or other major watercourse.

Shallow Flooding

These are unconfined flows over broad, relatively low relief areas, such as alluvial plains; intermittent flows in arid regions that have not developed a system of well-defined channels; overbank flows that remain unconfined, such as on delta formations; overland flow in urban areas; and flows collecting in depressions to form ponding areas. For National Flood Insurance Program purposes, shallow flooding conditions are defined as flooding that is limited to 3.0 feet or less in depth where no defined channel exists.

Sheet Runoff

This is the broad, relatively unconfined downslope movement of water across sloping terrain that results from many sources, including intense rainfall and/or snowmelt, overflow from a channel that crosses a drainage divide, and overflow from a perched channel onto deltas or plains of lower elevation. Sheet runoff is typical in areas of low topographic relief and poorly established drainage systems.

Special Flood Hazard Area

This is the area delineated on a National Flood Insurance Program Flood Map as being subject to inundation by the 1-percent-annual-chance flood. SFHAs are determined using statistical analyses of records of riverflow, storm tides, and rainfall; information obtained through consultation with a community; floodplain topographic surveys; and hydrologic and hydraulic analyses.

State National Flood Insurance Program Coordinators

These are the agencies of the State governments, or other offices designated by the Governor of the State or by State statute at the request of FEMA, to assist in the implementation of the National Flood Insurance Program in that state.

Temporary Bench Mark

This is a bench marks established for a particular study/mapping project or community.

Undeveloped Coastal Barrier

This is an area, located adjacent to the Atlantic or Pacific Oceans, the Gulf of Mexico, or the Great Lakes, where flood insurance will not be available for substantially improved new construction or structures. These areas are protected by law to discourage development in an attempt to preserve dunes, beaches, and wildlife habitats.

Water-Surface Elevations

These are the heights of floods of various magnitudes and frequencies in flood hazard areas.

Zone Division Lines

These are boundaries, shown on Flood Maps, that divide Special Flood Hazard Areas with different Base Flood Elevations, base flood depths, flow velocities, or flood insurance risk zone designations. The zone division lines are often referred to as "zone gutters."