

Increasing Options with Digital Flood Data



The Federal Emergency Management Agency (FEMA) has been providing flood hazard maps since the 1970s to help manage and reduce risk for the more than 20,000 communities that participate in the National Flood Insurance Program (NFIP).

FLOOD HAZARD PRODUCTS

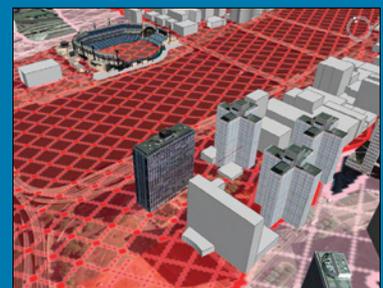
Historically, FEMA provided flood hazard information through paper Flood Insurance Rate Maps (FIRMs). FIRMs show zones with high flood risk, the height of the flood water, and other important information. FEMA has added digital products that show flood hazard. Users can still order a paper map from the Map Service Center (MSC) at <http://msc.fema.gov> or 1-800-358-9616, but the new digital products provide faster, more powerful options. These digital products, available through the MSC web site, include:

- **FIRM Scan:** For users who need straightforward access to flood hazard information for a town, county, or State, FIRM Scan images are digital pictures of entire flood maps. They can be downloaded or delivered on CD and viewed and printed from a computer. FIRM Scan images provide a simple, convenient alternative to paper maps, and are available in common file formats. To print the entire map, a specialized large format printer is needed, but FEMA provides *FIRMette - Desktop* software to extract and print a portion of the map (a *FIRMette*) on any printer.
- **FIRMette:** Online *FIRMettes* are the simplest way to see a flood hazard map for a specific location. *FIRMettes* show a section of a FIRM Scan image and the map scale, north arrow, and map identification information needed for NFIP activities. Users can save *FIRMettes* on their computers and print them. The *FIRMette - Web* tool provides users with the information they need immediately at no cost.
- **MapViewer - Web:** For users who want to do more than the simple *FIRMette* product allows and are comfortable with other online mapping sites, the *MapViewer - Web* tool provides additional capabilities. The viewer allows users to select the flood hazard information to be displayed and to create custom maps and reports.
- **Digital Flood Insurance Rate Map (DFIRM) Data:** Organizations with Geographic Information System (GIS) capabilities may be interested in DFIRM data. This product is designed for use with specialized GIS software, and provides data for mapping and analysis that is more powerful than traditional map products. DFIRM data are available for many of the highest flood risk areas. The data are available as community- or county-based **DFIRM Databases** that can be downloaded or delivered on CD. The data also are available as State-based **National Flood Hazard Layer (NFHL)** datasets that are delivered on DVD. These datasets include the content of DFIRM databases and subsequent changes from Letters of Map Revision. FEMA also offers a *MapViewer - Desktop* tool for viewing DFIRM databases and NFHL datasets loaded on your computer.

MODERNIZED FLOOD MAPS

With the implementation of the Policy for Use of Digital Flood Hazard Data, the release of the new National Flood Hazard Layer product, the reengineering of FEMA's production to focus on digital products, and the development of a suite of tools for using digital flood data and users guides for the new tools and products, FEMA has realized one of the key objectives of Flood Map Modernization.

These efforts open new ways of using flood hazard data, such as portraying the data in 3-D (see image).



Web Map Service for the National Flood Hazard Layer portrayed with 3-D terrain and buildings in Google Earth™ ¹.

¹ Names of products are provided for descriptive purposes only and do not represent an endorsement by the United States Government.



FEMA

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BENEFITS

The policy gives map users more choice by expanding options for obtaining data while continuing to support the ways in which FEMA flood maps have traditionally been used. DFIRM data users will have a more powerful tool for flood risk management, insurance activities, and disaster operations. Users will be able to integrate accurate and timely local data with FEMA flood hazard data to support their work on the NFIP, and take advantage of technology to streamline processes.

- **Web Map Service (WMS):** Some GIS users may wish to access the NFHL through a web map service. The web map service provides flood hazard information online, on demand, and can be used with most GIS software and web-based mapping applications.

Many users have already found the digital maps and data useful. Since FEMA began distributing digital maps and allowing the use of FIRMettes for official purposes, the demand for paper maps has been reduced by 50 percent. Because the online maps are always available instantly, many users no longer keep an inventory of paper maps on hand.

“USE OF DIGITAL FLOOD HAZARD DATA” POLICY

As directed in the Flood Insurance Reform Act of 2004, FEMA has implemented the following policy that allows the use of digital flood map data for all official NFIP purposes.

“The Federal Emergency Management Agency (FEMA) publishes new Flood Insurance Rate Maps (FIRMs) in the form of paper maps, digital map images (and the full size FIRM Scans and letter size FIRMettes) and digital geospatial flood hazard data (the Digital Flood Insurance Rate Map (DFIRM) Database product). The previously published maps are available only as paper maps or FIRM Scans / FIRMettes.

As required by 42 U.S.C 4101 note, FIRM Scans / FIRMettes, published paper FIRMs, DFIRM Database products and printed versions produced from official digital products are all equivalent to each other and represent official FEMA designations of the areas of special flood hazard, base flood elevations, insurance risk zones and other regulatory information, provided that all other geospatial data shown on the printed product meets or exceeds any accuracy standard promulgated by FEMA.

Beginning in 2001, most new FIRMs began showing a coordinate grid on the printed effective FIRM and are available as a DFIRM Database product. When a coordinate grid is shown on the printed FIRM or when the DFIRM Database version is available, the horizontal location of the flood hazard information is defined with respect to the primary coordinate system shown on the printed FIRM or stored in the DFIRM Database product. The horizontal location of the flood hazard information is not defined by its relationship to the base map features such as streets. If there are conflicting interpretations of the precise horizontal location of the areas of special flood hazard, the conflict shall be resolved using the grid coordinates shown on the printed FIRM or stored in the DFIRM Database product rather than the base map features.”

