



FEMA



# The National Flood Hazard Layer

## Products and Services Using FEMA's Flood Hazard Data

### Definition

The National Flood Hazard Layer (NFHL) is a digital database that contains the flood hazard map information from FEMA's National Flood Insurance Program. This map data is derived from Flood Insurance Rate Map (FIRM) databases and Letters of Map Revision (LOMRs). NFHL data is searchable through the FEMA Flood Map Service Center (MSC).

### Benefits:

Benefits of the NFHL include:

- **Convenience:** The NFHL provides FIRM and LOMR data as one integrated dataset. You do not need to obtain individual FIRM databases or FIRM images and then locate and integrate the subsequent revisions on LOMRs. However, you still must review changes identified by property descriptions, such as Letters of Map Amendment (LOMAs) and Letters of Map Revision Based on Fill (LOMR-Fs). County and State NFHL database extracts are downloadable for free from MSC
- **Completeness:** An NFHL dataset includes all the digital flood hazard data that are effective and available as of the dataset access or download date
- **Flexibility:** Like FEMA's FIRM database product, the NFHL Geographic Information System (GIS) services can be integrated with other map data, providing new options for using FEMA flood hazard information

### Sources of Additional Information

A reference page describing the NFHL is available at

<http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/national-flood-hazard-layer-nfhl>.

To view and access flood maps and data: See the MSC website at <http://msc.fema.gov>.

For information and resources associated with FEMA flood hazard mapping: See the Risk MAP webpage at <http://www.fema.gov/risk-mapping-assessment-and-planning-risk-map>.

For general information about flood risk, flood insurance, and the National Flood Insurance Program (NFIP): See the FloodSmart website at <http://www.FloodSmart.gov>.

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## NFHL coverage

As of June 2013, the NFHL included coverage for approximately 92 percent of the U.S. population. If you need information for areas not covered by the NFHL, other FEMA flood hazard map products and services provide coverage for larger areas of the Nation. These products include FIRMs and [FIRMettes](#) (portions of FIRMs) created with the *FIRMette Web* or *FIRMette Desktop* tools.

## Access to NFHL flood hazard map products and services

The NFHL and other flood hazard map products and services are available through the FEMA Flood Map Service Center (MSC) at <https://msc.fema.gov>. An [NFHL resource page](#) is available on FEMA.gov. NFHL data is downloadable by County / Community and State via the search functionalities on the MSC.

## Listing of NFHL products and services

NFHL data is available through the following channels:

*FEMA GeoPlatform*. The NFHL can be viewed in [FEMA's GeoPlatform](#) (<http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30>). **This is the preferred method for using the NFHL, as it uses base maps that conform to FEMA's regulatory accuracy specifications.** View the [NFHL GeoPlatform Tutorial](#) (<https://www.fema.gov/media-library/assets/videos/83223>) to learn how to use the NFHL in the GeoPlatform.



Figure 1: NFHL on the FEMA GeoPlatform, zoomed in to show individual map panels.

*Google Earth™*. FEMA offers “.kmz” files for viewing [NFHL data in Google Earth](#) (<https://hazards.fema.gov/femaportal/wps/portal/NFHL/WMSkmzdownload>) (see Figures 1 and 2). This capability is simple to use and allows the viewing of basic map overlays. It does not provide access to all NFHL data or reports. To use this capability you need Google Earth installed on your computer, a high-speed Internet connection, and the .kmz files.



Figure 2: Opening view for the “Stay Dry” application. Areas of interest include the (A) welcome message, (B) “Stay Dry and Flood Smart!” folder in the Places panel, (C) “Search” entry field, (D) navigation controls, and (E) eye altitude readout.

FEMA provides two .kmz utilities, either of which may be most suitable, depending on the complexity of your needs. The first is the Stay Dry utility – a simple tool to convey flood risk as concisely as possible to users seeking basic flood hazard information. It is not intended for uses such as precise flood zone determinations.



Figure 3: Opening view for the FEMA NFHL utility. Areas of interest include the (a) Quick Start Guide, (b) status map overlay, (c) National Flood Hazard Layer (FEMA) folder, (d) navigation controls, (e) eye altitude readout, and (f) map legend.

FEMA's NFHL utility allows you to use *Google Earth* to view custom combinations of flood hazard information from FEMA's NFHL. View one, several, or all of the layers available in the application, including Special Flood Hazard Areas (SFHAs), Base Flood Elevations (BFEs), insurance risk zones, and other regulatory information.



Figure 4: WMS map overlay created from NFHL data.

**GIS Services.** FEMA provides access to the NFHL and related data using [GIS services](https://hazards.fema.gov/femaportal/wps/portal/NFHL/WMS) (<https://hazards.fema.gov/femaportal/wps/portal/NFHL/WMS>), which are made available through a variety of different protocols. You can use the services to add web-based digital flood hazard maps to business applications. You also can look up attribute information for data portrayed on the maps. FEMA publishes new FIRMs in the form of paper maps, digital map images, and digital geospatial flood hazard data like those in the NFHL. It allows users to generate map images, query attribute information, or even directly download data.

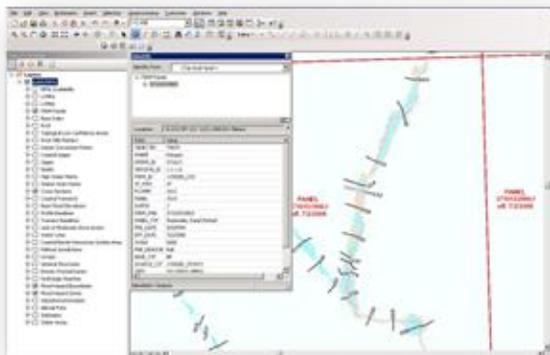


Figure 5: GIS map and attribute data viewed with GIS software.

The NFHL GIS services support a number of protocols. A Representative State Transfer (REST) service is exposed for users of GIS applications. A Web Map Service (WMS) service is offered for users to generate map images and perform queries. A Web Feature Service (WFS) service is offered to support data downloads for small areas of interest. It is recommended that only users already familiar with GIS applications use the NFHL GIS services directly.

### NFHL database update frequency

FEMA incorporates available new FIRM and LOMR data on their effective date. The KMZ files for Google Earth and the WMS, REST, and WFS services will display data immediately after incorporation in the NFHL. FEMA provides downloadable state-level and county / community-level extracts of NFHL data on the MSC. State-level data is updated biweekly and county / community data is updated daily. A listing of updates can be found at the [NFHL System Status webpage](http://www.floodmaps.fema.gov/NFHL/status.shtml). (<http://www.floodmaps.fema.gov/NFHL/status.shtml>)

### Official use of FEMA digital flood hazard data

In order to use the NFHL for official National Flood Insurance Program purposes, the NFHL should be shown over a base map that conforms to FEMA's horizontal accuracy specification. Base maps must have a horizontal radial accuracy better than or equal to 38 feet (11.58 meters) as measured using the National Standard for Spatial Data Accuracy. (This measure is equal to maps of scales larger than or equal to 1:12,000 under the old National Map Accuracy Standard.)

When using the NFHL for official purposes, couple the service with site location or base map data that meet this standard, or refer to the FIRM images on the MSC site. Currently, the only FEMA resource that meets this specification is the NFHL in the FEMA GeoPlatform when coupled with the [FEMA/USGS base map](http://stratus.cr.usgs.gov/) (<http://stratus.cr.usgs.gov/>) service. Other base maps, including Google Earth, may lack the required accuracy.

### Using NFHL web services with personal web maps, tools, or applications

These services are publicly available and FEMA does not restrict their use. However, FEMA advises that the services be used with base data that meets the accuracy standard, and that warnings be made available when this is not the case.

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