



NFHL GIS Services

Purpose and Appropriate Use

The Federal Emergency Management Agency (FEMA) provides access to the National Flood Hazard Layer (NFHL) and related data through GIS services, which are made available through a variety of different protocols. You can use the services to add web-based digital flood hazard maps, or access mapping attributes, within a variety of applications. FEMA publishes new Flood Insurance Rate Maps (FIRMs) in the form of paper maps, digital map images and digital geospatial flood hazard data like those in the NFHL. When used appropriately, these representations are equivalent to one another and represent official FEMA designations of Special Flood Hazard Areas (SFHAs), base flood elevations (BFEs), insurance risk zones and other regulatory information.

If you plan to use the map images provided by the WMS for official purposes, ensure that imagery and other map information displayed with the flood data meet FEMA's standards for map accuracy. Links to specific services can be found [here](#).

What is a GIS Service?

A GIS service provides web-based access to the NFHL database. It allows users to generate map images, query attribute information, or even directly download data.

It is recommended that only users already familiar with GIS applications use the NFHL GIS services directly. Users less familiar with GIS concepts and applications should access the NFHL through one of the provided kmz files: the [NFHL kmz](#) for users already familiar with floodplain mapping, or the [Stay Dry kmz](#) for users who are not. Users can also access the NFHL data through the [FEMA Geoportal](#).

The NFHL GIS services support a number of protocols. An ArcGIS REST service is exposed for users of ArcGIS Desktop or ArcGIS Online. A WMS-compliant service is offered for users to generate map images and perform queries. A WFS-compliant service is offered to support small data downloads and queries. A more robust download capability is planned for the autumn of 2013.

The NFHL is natively stored without projection (in GCS) in the NAD83 datum. All NFHL GIS services also support the Web Mercator Sphere projection commonly used in most modern web mapping applications.

Viewing Flood Hazard Data Using NFHL GIS Services

FEMA's GIS services portray the full range of NFHL map features and supporting information. The map symbology is generally consistent with that of the FIRM Panels

Sources of Additional Information

If you have any questions about GIS services, please contact the FEMA Map Information eXchange (FMIX) at 1-877-FEMA-MAP or FEMAMapSpecialist@riskmapcds.com

To view and buy flood maps and data see the MSC Web site at <http://msc.fema.gov>

For information and resources associated with using or requesting changes to FEMA Flood Maps see the Flood Hazard Mapping Web site at <http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping>

For general information about flood risk, flood insurance, and the National Flood Insurance Program see the FloodSmart Web site at <http://www.floodsmart.gov>

except in cases where symbology has been changed to increase readability (such as Coastal Transects and Transect Baselines).

The layers are split up into four main scale groups (see Appendix A).

Commonly-Used Layers

Flood Hazard Zones

This layer indicates the regulatory flood zones as designated by FEMA. This is the primary layer showing the flood risk for a given area. The symbology for this layer is identical to that appearing on the FIRM Panels and is recommended to be viewed as a transparent overlay. More detailed flood zone labels (including Static BFE, Velocity, and Elevation values) can be seen when zoomed in past 1:10,000 scale.

Cross-sections

Normally, any FIRM that has associated flood profiles has cross sections. These lines usually represent the locations of channel surveys performed for input into the hydraulic model used to calculate flood elevations. The NFHL GIS services show the cross-section features with labels showing flood elevation and the cross-section letter as shown on a FIRM.

Base Flood Elevations

This layer indicates the computed elevation to which floodwater is anticipated to rise during the base flood. The BFE is the regulatory requirement for the elevation or floodproofing of structures. The relationship between the BFE and a structure's elevation determines the flood insurance premium. The NFHL GIS services show BFE features with labels indicating flood elevation.

FIRM Panels

This layer depicts FIRM Panel boundaries, with labels showing the FIRM Panel number and effective date for each area. Users can reference

the FIRM Panel number to retrieve FIRMs from the Map Service Center.

LOMRs

This layer shows the boundaries of map revisions made by Letters of Map Revision, with labels indicating the case number and effective date for each revision.



Flood Hazard Zones	
	1% Annual Chance Flood Hazard
	Regulatory Floodway
	Special Floodway
	Area of Undetermined Flood Hazard
	0.2% Annual Chance Flood Hazard
	Future Conditions 1% Annual Chance Flood Hazard
	Area with Reduced Risk Due to Levee

RiskMAP
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Appendix A: Scale Reference

Out Beyond 1:250,000

NFHL Availability

1:250,000 and Greater

LOMRs

LOMAs

FIRM Panels

Base Index

Topological Low Confidences Areas

River Mile Markers

Datum Conversion Points

Coastal Gages

Gages

Nodes

High Water Marks

Station Start Points

Profile Baselines

Water Lines

CBRS Areas

Political Jurisdictions

Hydrologic Reaches

Submittal Information

Alluvial Fans

1:100,000 and Greater

PLSS Boundaries

Coastal Transects

Subbasins

1:50,000 and Greater

Transect Baselines

Limit of Moderate Wave Action

Levees

General Structures

Primary Frontal Dunes

Flood Hazard Boundaries

Flood Hazard Zones (labels greater than
1:10,000)

Water Areas

1:24,000 and Greater

Cross-sections

Base Flood Elevations

RiskMAP

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