



National Flood Hazard Layer (NFHL) Database Schema

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective Flood Insurance Rate Map (FIRM) databases (a collection of the digital data that are used in GIS systems for creating new Flood Insurance Rate Maps) and Letters of Map Change (Letters of Map Amendment and Letters of Map Revision only) that create a seamless GIS data layer for United States and its territories.

The FIRM database has changed, and therefore the NFHL database schema has changed with it. The detailed table information for the new FIRM Database schema can be found in the [2013 FIRM Technical Reference Specifications](#). The associated revisions imposed on the new NFHL database are described in this document.

What changes are taking place to the NFHL Database schema?

The changes include:

1. Limiting the storage of all data needed to create Regulatory Products under the FIRM Database
2. Deletion of elements no longer needed on the FIRM and a reduction of acceptable values for database fields
3. Alignment of features to enable more automated map making for On Demand Mapping Tools
4. Addition of fields & tables to align with FIS Report/FIRM Panel changes
5. Removal of Monuments
6. Adding of lookup tables

Why are these changes taking place?

The reasons for these changes include the reduction of map creation costs, easy export of Flood Insurance Study (FIS) report directly from FIRM Database, and improved communication of levee and coastal data.

More Information

Direct your questions or comments about the FEMA NFHL data to MIPhelp@riskmapcds.com.

Please include the words "NFHL on DVD" in the subject of your message.

To view and buy flood maps and data visit the Map Service Center Website at <http://msc.fema.gov>.

For information and resources associated with using or requesting changes to FEMA Flood Maps please visit the Flood Hazard Mapping Website at <http://www.fema.gov/national-floodinsurance-program-flood-hazardmapping>.

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

Additional Links

[Download the 2013 FIRM Database Technical Reference](#)

[Using the NFHL in Google Earth and the GeoPlatform](#)



Table 1 below includes the additions, removals, or alterations of new NFHL database schema. The [2013 FIRM Technical Reference](#) Specifications and Table 2 include a summary of all tables found in FIRM Databases and the NFHL.

Table 1. 2013 FIRM Technical Reference Specification Changes for Spatial Tables*

Added	Altered	Removed
<ul style="list-style-type: none"> S_Levee: Levee features previously in S_Gen_Struct; now include more detailed levee specific information (PAL dates, NLD info) Alluvial fan data Coastal gages Datum conversion points High water marks Hydrologic analysis reach Limit of moderate wave action Data submission information Topographic confidence 	<ul style="list-style-type: none"> S_Fld_Haz_Ln: simplified to only 4 classifications S_Fld_Haz_Ar: simplified zone types and added flood zone sub-types S_Gen_Struct: Removed Levee features All labels will be in S_Label_Pt S_Shore_Ln replaced by S_Tsct_Basln S_Water_Gage replaced by S_Gage Profile Baselines previously located in S_Wtr_Ln will now be in S_Profil_Basln 	<ul style="list-style-type: none"> Benchmarks Public Land Survey System (PLSS) lines removed (areas retained) Political Lines: removed, political areas retained Overbank lines Precipitation gage locations

***Note: Not all new tables will be populated with data. These tables have been added or revised for the population of data generated as part of a new study or restudy and the tables will be populated as the data becomes available.**

Table 2 - FIRM Database Table Summary

FIRM Table Name	Table Type	Table Description
S_Alluvial_Fan	Spatial	Location and attributes of alluvial fan studies.
S_Base_Index	Spatial	Location and attributes of the raster base map files used for the FIRM.
S_BFE	Spatial	Location and attributes for Base Flood Elevations lines shown on FIRM.
S_CBRS	Spatial	Location and attributes for Coastal Barrier Resource System units on the FIRM.
S_Cst_Gage	Spatial	Location and attributes of coastal gages.
S_Cst_Tsct_Ln	Spatial	Location and attributes for coastal transect lines shown on the FIRM.
S_Datum_Conv_Pt	Spatial	Information regarding the location of points used to determine the datum conversion factor performed as part of this flood risk project.
S_FIRM_Pan	Spatial	Location and attributes for FIRM hardcopy map panels.
S_Fld_Haz_Ar	Spatial	Location and attributes for flood insurance risk zones on the FIRM.
S_Fld_Haz_Ln	Spatial	Location and attributes for boundaries of flood insurance risk zones on the FIRM.
S_Gage	Spatial	Information about gage locations used in this flood risk project.



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S_Gen_Struct	Spatial	Location and attributes for flood control structures shown on the flood profile and FIRM.
S_HWM	Spatial	Location of high water marks.
S_Hydro_Reach	Spatial	Location of hydrologic reach between nodes.
S_Label_Ld	Spatial	Location and attributes for label leader lines shown on the FIRM.
S_Label_Pt	Spatial	Location and attributes for labels shown on the FIRM.
S_Levee	Spatial	Location of levee centerlines, floodwalls, and closure structures protecting accredited and provisionally accredited levees.
S_LiMWA	Spatial	Location of Limit of Moderate Wave Action boundary.
S_LOMR	Spatial	Location and attributes for LOMRs not yet incorporated on the FIRM. Used only as part of the National Flood Hazard Layer (NFHL).
S_Nodes	Spatial	Location and attributes of points used to define the topology of the hydrologic network.
S_PFD_Ln	Spatial	Location and attributes for the primary frontal dune features for the coastal flood risk project area.
S_PLSS_Ar	Spatial	Location and attributes of sections, townships, and ranges on the FIRM.
S_Pol_Ar	Spatial	Location and attributes for political jurisdictions shown on the FIRM.
S_Profil_Basln	Spatial	Location and attributes for profile baseline and stream centerline features for the flood risk project area.
S_Riv_Mrk	Spatial	Location and attributes for river mile markers shown on the FIRM.
S_Stn_Start	Spatial	Location and attributes for starting points for stream distance measurements.
S_Subbasins	Spatial	Location and attributes for subbasins in the hydrologic analysis.
S_Submittal_Info	Spatial	Location of areas updated in this flood risk project along with attributes associated with each submittal.
S_Topo_Confidence	Spatial	Location of topographic low confidence areas required by Procedure Memorandum 61.
S_Trnsport_Ln	Spatial	Location and attributes for roads, railroads, and other transportation features shown on the FIRM.
S_Tsct_Basln	Spatial	Location of mapped coastal transect baselines and associated attribute information.
S_Wtr_Ar	Spatial	Location and attributes for hydrography features shown on FIRM as areas.
S_Wtr_Ln	Spatial	Location and attributes for hydrography features shown on FIRM as lines.
S_XS	Spatial	Location and attributes for cross section lines in the area covered by the FIRM. This layer must contain all cross sections in a model, not just the lettered cross sections.
Study_Info	Non-Spatial	General information about the FIRM.
L_Comm_Info	Lookup	Information about each community on the FIRM.
L_Comm_Revis	Lookup	Information about revisions to each communities maps used in the FIS Community Map History table.
L_Cst_Model	Lookup	Information about the coastal model used during the

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		engineering analysis. It is used to create the respective table(s) in the FIS report text.
L_Cst_Struct	Lookup	Information about coastal structures that affect local topography and flood hazards. It is used to create the respective table(s) in the FIS report text.
L_Cst_Tsct_Elev	Lookup	Information about the coastal model elevations at each mapped transect and those transects referenced in the FIS report.
L_ManningsN	Lookup	Information regarding Manning’s “n” values shown in the FIS report.
L_Meetings	Lookup	Information regarding the scoping and final community meetings that occur during the flood risk project. It is used to create the respective table(s) in the FIS report text.
L_MT2_LOMR	Lookup	Information regarding LOMRs incorporated into or superseded by the FIRM. It is used to create the respective table(s) in the FIS report text.
L_Mtg_POC	Lookup	Information regarding the scoping and final community meetings that occur during the flood risk project. It is used to create the respective table(s) in the FIS report text.
L_Pan_Revis	Lookup	Information about revisions to each FIRM panel.
L_Pol_FHBM	Lookup	Information listing communities that have ever had revisions to their historic FHBM maps.
L_Profil_Bkwtr_El	Lookup	Information about the backwater elevations for each flood frequency by stream. Required if and when the data can be exported from RASPLOTT in FIRM Database Technical Reference format.
L_Profil_Label	Lookup	This table stores the labels needed for FIS profiles by stream when the labels are not associated with specific cross sections or structures. Required if and when the data can be exported from RASPLOTT in FIRM Database Technical Reference format.
L_Source_Cit	Lookup	Listing and description of the sources of information used in the FIRM or referenced in the FIS report bibliography.
L_Summary_Discharges	Lookup	Information about the hydrologic discharge information associated with nodes referenced in the FIS report Summary of Discharges table.
L_Summary_Elevations	Lookup	Information about Special Flood Hazard Areas with static elevations that are referenced in the FIS report Summary of Elevations table.
L_Survey_Pt	Lookup	Collection of field survey points captured and used as part of this flood study, per the Data Capture Standards Technical Reference.
L_XS_Elev	Lookup	Information about the hydraulic model at each mapped cross section and those cross sections referenced in the FIS report Floodway Data Tables. This table is used to generate the Floodway Data Tables and contains lettered cross sections.
L_XS_Struct	Lookup	Information about the cross sections at structures needed for the profiles.