

Flood Risk Database Technical Reference

DRAFT

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Table of Contents

Table of Contents	ii
List of Tables	v
1. Flood Risk Database Overview	6
2. Database Schema Properties	11
2.1 fGDB Field Properties	11
2.2 SHP Field Properties	11
2.3 Required and Optional Fields	12
2.4 Primary and Foreign Keys	12
2.5 Null Values	13
3. Tables and Feature Classes	15
Feature Class: S_AOMI_Pt – Areas of Mitigation Interest	16
Feature Class: S_Carto_Ar – Cartographic Areas	18
Feature Class: S_Carto_Ln – Cartographic Lines	20
Feature Class: S_Carto_Pt – Cartographic Points	22
Feature Class: S_CenBlk_Ar – Census Blocks	24
Feature Class: S_Cr_Fac_Pt – Critical Facilities	26
Feature Class: S_CSLF_Ar – Changes Since Last FIRM	28
Feature Class: S_Cst_Inc_Inundation_Ar - Coastal Increased Inundation Areas	33
Feature Class: S_Cst_Wave_Haz_Ar – Coastal Wave Hazard	35
Feature Class: S_Dams_XS_Ln – Cross Sections for Dam Analyses	37
Feature Class: S_DS_Inundation_Ar – Inundation Areas Downstream of Dams	39
Feature Class: S_Easement_Ar – Easements associated with Dams	41
Feature Class: S_ErDune_Pk_Ln – Erosion Dune Peak	43
Feature Class: S_FRD_Pol_Ar – Flood Risk Database Political Areas	45
Feature Class: S_FRD_Proj_Ar – Flood Risk Database Project Area	49
Feature Class: S_FRM_Callout_Ln – Flood Risk Map Callouts	51
Feature Class: S_HUC_Ar – Hydrologic Unit Code Boundaries	53
Feature Class: S_Lev_Breach_Pt - Community-Supplied Breach and Armored Overtopping Locations	54
Feature Class: S_Lev_Elements_Pt – Levee Element Locations	56
Feature Class: S_Lev_Freeboard_Ln – Levee Freeboard	58
Feature Class: S_Lev_Inundation_Ar – Levee Analysis Impact Area	59
Feature Class: S_Lev_Rating_Curve_Pt – Levee Rating Curve Locations	61
Feature Class: S_Levee_Ln – Levee Locations	62

Flood Risk Database Technical Reference

Feature Class: S_PFD_Ersn_Ar - Primary Frontal Dune (PFD) Erosion Areas	64
Feature Class: S_RM_Dams_Pt – Risk Map Dam Locations	66
Feature Class: S_UDF_Pt – User Defined Facility Locations	69
Feature Class: S_US_Inundation_Ar – Inundation Areas Upstream of Dams.....	71
Table: FRD_Model_Info – Engineering Model Information.....	73
Table: FRD_Study_Info – Study Information.....	75
Table: FRR_Custom – Flood Risk Report Custom Text.....	78
Table: FRR_Images – Flood Risk Report Images.....	80
Table: FRR_Project – Flood Risk Report Project Information	81
Table: L_AOMI_Summary – Area of Mitigation Interest Community Summary Table.....	82
Table: L_Claims – Community Claims Table	84
Table: L_CSLF_Summary – CSLF Community Summary Table	86
Table: L_Dam_Scenario – Dam Scenario Definition Table	90
Table: L_Dams_XS_MDL_Results – Model Results by Cross-Sections	92
Table: L_Exposure – Exposure by Community	93
Table: L_Local_GBS – Local General Building Stock.....	99
Table: L_RA_AAL- - Risk Assessment AAL Study Results	101
Table: L_RA_Composite- - Risk Assessment Composite Results.....	104
Table: L_RA_Refined- - Risk Assessment Refined Analysis Results	107
Table: L_RA_Summary – Risk Analysis Summary by Community	110
Table: L_RA_UDF_Refined – Refined Risk Analysis Results for User Defined Facilities	113
Table: L_Source_Cit – Source Citations.....	115
4. Raster Datasets	118
Raster: Arrv_xxxxxxxx – Dam Release Flood Wave Arrival Time Grid.....	118
Raster: CstDpthxxxpct - Coastal Flooding Depth Grid.....	119
Raster: Depth_xxxpct – Riverine Flooding Depth Grid.....	120
Raster: Dpth_xxxx – Levee Analysis Flooding Depth Grid	122
Raster: DVS_xxxxxxxx – Dam Release Depth and Velocity Severity Grid.....	123
Raster: DVS_xxxxx – Levee Analysis Depth and Velocity Severity Grid.....	125
Raster: FID_xxxxxxxx – Dam Release Flood Inundation Duration Grid.....	126
Raster: Hillshade	127
Raster: Pct30yrChance- -30 year Flooding Probability Grid	128
Raster: PctAnnChance- -Annual Chance Flooding Probability Grid.....	129
Raster: Peak_xxxxxxxx – Dam Release Flood Wave Time to Peak Time Grid	130
Raster: Vel_xxxpct – Riverine Flooding Velocity Grid.....	131

Flood Risk Database Technical Reference

Raster: Vel_xxxxxxxx – Dam Release Flooding Velocity Grid	132
Raster: Vel_xxxxx – Levee Analysis Flooding Velocity Grid.....	133
Raster: WSE_xxxpct – Water Surface Elevation Grid.....	134
Raster: WSE_xxxxxxxx – Dam Release Water Surface Elevation Grid.....	135
Raster: WSE_xxxxx – Levee Analysis Water Surface Elevation Grid.....	136
Raster: WSE_Change –Water Surface Elevation Change Grid	137
Raster: Wvht_xxxpct - Coastal Wave Height Grid	138
5. Spatial Reference Systems	139
6. Topology Rules	140
7. Relationship Classes.....	141
8. Domains	145

List of Tables

Table 1.	Flood Risk Database Tables	6
Table 2.	Flood Risk Database Rasters	8
Table 3.	Dam Scenario Naming Standards.....	90
Table 4.	Levee Scenario Naming Standards.....	97
Table 5.	Source Citation Field Properties – S_Lev_Elements_Pt Type Abbreviations.....	115
Table 6.	Topology Rules.....	140
Table 7.	FRD Relationship Classes	142
Table 8.	FRD Domains	145

1. Flood Risk Database Overview

The Flood Risk Database (FRD) is the key product that will support all other flood risk products. It is a database of non-regulatory flood risk data which contains the digital data used to prepare the Flood Risk Report (FRR) and Flood Risk Map (FRM), as well as other ancillary data generated during a flood risk project.

The FRD tables prefixed with “S_” have a spatial component associated with them. The tables that begin with “L_” are tabular (often referred to as a look-up or business tables); there is no direct spatial component included in these tables. The spatial tables (feature classes) also have a suffix describing the type of feature contained within the table. These include a) _Ar (for polygonal areal features), b) _Ln (for linear features), and c) _Pt (for point features).

Table 1 provides a list of tables included in the FRD. The listing is ordered with spatial tables (feature classes) first, followed by non-spatial (business) tables, and lookup tables last.

Table 1. Flood Risk Database Tables

FRD Table Name	Table Type	Table Description
S_AOMI_Pt	Spatial	Areas of mitigation interest points that contribute to flood losses; or highlight flood issues and/or associated effects.
S_Carto_Ar	Spatial	Polygons used for cartographic representations only on the Flood Risk Map.
S_Carto_Ln	Spatial	Lines used for cartographic representations only on the Flood Risk Map.
S_Carto_Pt	Spatial	Points used for cartographic representations only on the Flood Risk Map.
S_CenBlk_Ar	Spatial	Census Block polygons.
S_Cr_Fac_Pt	Spatial	Location and attributes of critical facilities identified for modeled dam release or levee breaches scenarios in the flood risk project.
S_CSLF_Ar	Spatial	Changes Since Last FIRM polygons depicting areas of change between new and previous flood hazards.
S_Cst_Inc_Inundation_Ar	Spatial	Polygons reflecting the additional areas of inundation associated with a 1, 2, or 3 feet increase to the base flood level.
S_Cst_Wave_Haz_Ar	Spatial	Polygons reflecting the relative level of wave hazard severity within the 1% annual chance floodplain.
S_Dams_XS_Ln	Spatial	Location and attributes for cross sections used for dam inundation modeling in the flood risk project.
S_DS_Inundation_Ar	Spatial	Location and attributes for the downstream inundation areas of the dams studied in the flood risk project.
S_Easement_Ar	Spatial	Location and attributes for the easements associated with the dams studied in the flood risk project.
S_ErDune_Pk_Ln	Spatial	3D line representing the peak of the dune, as identified during the erosion analysis.

Flood Risk Database Technical Reference

FRD Table Name	Table Type	Table Description
S_FRD_Pol_Ar	Spatial	Location and attributes for political jurisdictions shown on the FIRM(s) utilized in the flood risk project.
S_FRD_Proj_Ar	Spatial	Polygon representing the extents of the flood risk project area.
S_FRM_Callout_Ln	Spatial	Represents the leaders on the FRM for callouts.
S_HUC_Ar	Spatial	HUC boundaries in and adjacent to the flood risk project area.
S_Levee_Ln	Spatial	Location and attributes for the levee as a line feature along the top of a levee.
S_Lev_Breach_Pt	Spatial	Location and attributes for community-supplied levee breach and armored overtopping points.
S_Lev_Elements_Pt	Spatial	Location and attributes for drainage and protection features along a levee.
S_Lev_Freeboard_Ln	Spatial	Location and attributes for freeboard information associated with a levee scenario.
S_Lev_Inundation_Ar	Spatial	Location and attributes for the inundation area associated with levee scenarios.
S_Lev_Rating_Curve_Pt	Spatial	Location for points along a levee where a rating curve has been developed.
S_PFD_Ersn_Ar	Spatial	Spatial extent of the FEMA regulatory Primary Frontal Dune (PFD), delineated between the dune toe and heel.
S_RM_Dams_Pt	Spatial	Location and attributes for dams studied in the flood risk project.
S_UDF_Pt	Spatial	Locations of user-defined facilities used in site-specific risk analysis.
S_US_Inundation_Ar	Spatial	Location and attributes for the upstream inundation areas of the dams studied in the flood risk project.
FRD_Model_Info	Non-Spatial	Information about engineering models used in prior and updated analysis.
FRD_Study_Info	Non-Spatial	General information about the FIRM database(s) utilized in the flood risk project.
FRR_Custom	Non-Spatial	Stores the custom text for the FRR.
FRR_Images	Non-Spatial	Stores the custom images for the FRR.
FRR_Project	Non-Spatial	Provides project level information for FRR generation / storage.
L_AOMI_Summary	Lookup	Area of Mitigation Interest Summary table used for the FRR.
L_Claims	Lookup	Claims data for each community or partial community and project area (1 record each).
L_CSLF_Summary	Lookup	Changes Since Last Firm Summary table by community or partial community and project area used for the FRR.
L_Dams_XS_MDL_Results	Lookup	Results by cross section from the model of the dam release scenarios for the dams studied in the flood risk project.
L_Dam_Scenario	Lookup	Scenario for each model dam release in the flood risk project.
L_Exposure	Lookup	Exposure data for each community or partial community and project area (1 record each).
L_Levee_Scenario	Lookup	Scenarios associated with levees in the flood risk project.
L_Lev_Rating_Curve	Lookup	Attributes used to develop a rating curve associated with rating curve points.
L_Local_GBS	Lookup	Local general building stock data by Census Block.

Flood Risk Database Technical Reference

FRD Table Name	Table Type	Table Description
L_RA_AAL	Lookup	Stores Average Annualized Loss (AAL) risk assessment results by Census Block or partial Census Block, by frequency and by hazard type (riverine, coastal, levee).
L_RA_Composite	Lookup	Stores composite risk assessment results by Census Block or partial Census Block, by frequency.
L_RA_Refined	Lookup	Stores refined risk assessment results by Census Block or partial Census Block, by frequency and by hazard type (riverine, coastal, levee).
L_RA_Summary	Lookup	Risk assessment summary table by community or partial community and project area.
L_RA_UDF_Refined	Lookup	Refined risk assessment results for user-defined facilities.
L_Source_Cit	Lookup	Source citations for data sources used in the project; used to correlate with metadata.

In addition to feature classes and tables stored in the geodatabase, several raster datasets will be delivered as part of each flood risk project. Table 2 provides a list of these rasters which are further described in Section 4.

Table 2. Flood Risk Database Rasters

FRD Raster Name	Data Description
Arrv_xxxxxxx	Arrival time in minutes for the xxxxxxxx scenario dam release.
Cstdpthxxxpct	Coastal depth for the xxx percent annual chance flood event.
Depth_0_2pct	Depth for the 0.2 percent annual chance flood event.
Depth_01pct	Depth for the 1 percent annual chance flood event.
Depth_02pct	Depth for the 2 percent annual chance flood event.
Depth_04pct	Depth for the 4 percent annual chance flood event.
Depth_10pct	Depth for the 10 percent annual chance flood event.
Depth_01plus	Depth for the 1% plus annual chance flood event .
Depth_xxxpct	Depth for the xxx percent annual chance flood event.
Dpth_xxxxxxx	Flooding Depth for the xxxxxxxx scenario dam release.
Dpth_xxxxx	Flooding Depth for the xxxxx levee scenario.
DVS_xxxxxxx	Stream Depth and Velocity Severity (DVS) for the xxxxxxxx scenario dam release.
DVS_xxxxx	Stream Depth and Velocity Severity (DVS) for the xxxxx levee scenario.
FID_xxxxxxx	Flood Inundation Duration - Time in minutes of the duration of the flood inundation of the xxxxxxxx scenario dam release.
Hillshade	Hillshade for use on the FRM
Pct30yrchance	Percent chance of flooding over a 30-year period.
Pctannchance	Percent annual chance of flooding.
Peak_xxxxxxx	Time in minutes for the peak of the xxxxxxxx scenario dam release.
Vel_xxxpct	Velocity for the xxx percent annual chance flood event.
Vel_xxxxxxx	Velocity for the xxxxxxxx scenario dam release.
Vel_xxxxx	Velocity for the xxxxx levee scenario.

Flood Risk Database Technical Reference

FRD Raster Name	Data Description
WSE_0_2pct	Water surface elevation for the 0.2 percent annual chance flood event.
WSE_01pct	Water surface elevation for the 1 percent annual chance flood event.
WSE_02pct	Water surface elevation for the 2 percent annual chance flood event.
WSE_04pct	Water surface elevation for the 4 percent annual chance flood event.
WSE_10pct	Water surface elevation for the 10 percent annual chance flood event.
WSE_01plus	Water surface elevation for the 1% plus annual chance flood event.
WSE_change	Water surface elevation change since last FIRM.
WSE_xxxpct	Water surface elevation for the xxx percent annual chance flood event.
WSE_xxxxxxxx	Water surface elevation for the xxxxxxxx scenario dam release.
WSE_xxxxx	Water surface elevation for the xxxxx levee scenario.
Wvht_xxxpct	Wave height in feet resulting from overland wave propagation.

The ‘xxx’ from Table 2 represents a percent chance flood event; examples include:

- 0_2 – 0.2 percent annual chance flood event (also known as (aka) 500-year event)
- 0_5 – 0.5 percent annual chance flood event (aka 200-year event)
- 01 – 1 percent annual chance flood event (aka 100-year event)

In naming the above rasters, the xxx should be replaced with the percent annual chance flood event that is represented by the particular raster. For example, if a particular project requires the modeling of the 5 percent annual chance flood event, the depth raster would be named depth_05pct.

Some aspects of the depth and analysis rasters resulting from release analyses are unique to dams. In order to accommodate the wide variety of release analyses among state dam safety programs, the following naming convention should be used to determine the value of ‘xxxxxxx’. The name of the rasters would be composed of the type of raster (Depth, Water Surface Elevation, Velocity, Depth & Velocity Severity), followed by Event, Release Type, and Reservoir Condition respectively listed in the L_Dam_Scenario table. Refer to the chart shown for the L_Dam_Scenario table for the possible combinations. Examples include:

Dpth_01pctPA – Depth Raster for the 1% annual chance event with a piping failure and the water surface in the reservoir at the auxiliary spillway.

Vel_0_2OF – Velocity Raster for the 0.2% annual chance event with the dam being overtopped and a full reservoir.

DVS_FOR – Stream Depth & Velocity Severity Raster for the Flood of Record.

Flood Risk Database Technical Reference

For a scenario which is not covered by the combinations described above, a unique identifier will be used in the identifier field of the L_Dam_Scenario table. That identifier will then be used for the scenario portion of the raster's name.

Some aspects of the depth and analysis rasters resulting from failure analyses are unique to levees. In particular, levee analyses are based on a particular scenario, which is composed of an event, levee accreditation status, and flooding source. Other aspects, such as non-accredited levee analysis type such as natural valley or breach locations are also unique to levee analyses. In order to capture and communicate these unique aspects, additional raster datasets have been developed, each of which is dependent on the scenario modeled which is represented by the value of 'xxxxx' in Table 2.

The name of the rasters would be composed of the type of raster (Depth, Water Surface Elevation, Velocity, Depth & Velocity Severity), followed by event, levee accreditation status, and flooding source respectively listed in the L_Levee_Scenario table. Refer to the chart shown for the L_Levee_Scenario table for the possible combinations. Examples include:

Dpth_01AC – Depth Raster for the 1% annual chance event for an accredited levee from coastal flooding source.

Vel_0_2PD – Velocity Raster for the 0.2% annual chance event for a provisionally accredited levee from a dam release flooding source.

DVS_HISNR – Stream Depth & Velocity Severity Raster for historical event for a non-accredited levee from a riverine flooding source.

The United States Geological Survey (USGS) and Natural Resources Conservation Service (NRCS) have defined and cataloged watersheds by unique Hydrologic Unit Codes (HUCs). Because this data is regularly updated, the standard to be used for the definition of HUC-8, HUC-10, and HUC-12 cataloging units for Risk MAP projects is the Watershed Boundary Dataset (WBD) used for the most recent FEMA prioritization. The WBD is a companion dataset to the National Hydrography Dataset (NHD). The WBD used for each annual prioritization will be made available by FEMA.

2. Database Schema Properties

Table attribute structure defines the required fields and field properties. For a GIS feature class or business table, field properties specify the type, field width, and how the data is stored. Generally these properties are identified as the field name, field type, field length, field precision, and field scale. The field name is the unique term used to identify the table column (e.g., CEN_BLK_ID). The field type indicates the type of data that is stored in the table column. Common field types include text, date, float (i.e., a small fractional number), double (i.e., a large fractional number), short integer (i.e., a small integer number), and long integer (i.e., a large integer number). The following two sections describe these field properties as they pertain to the file geodatabase (fGDB) and shapefile (SHP) formats being delivered.

2.1 fGDB Field Properties

For the text field type in a fGDB, the user should specify the field length for each field based on the Field Properties listed in each feature class. The field length indicates the number of characters that may be stored in the table column (e.g., a text field that has a length of 100 may store no more than 100 alphanumeric characters). Since only the data type and length (for text fields) must be declared for the fGDB, the tables in this Technical Reference identifying the field properties will not include a specification for precision and scale.

For date and numeric field types in a fGDB, the length is the number of bytes required to store the data and is controlled internally by the software based on the data type and cannot be changed by the user. The precision and scale in a fGDB are not utilized and will show only as a 0 value.

The file geodatabase schema provides support for Binary Large Object (Blob) and Raster data types. However, the SHP specification does not support those data types. Therefore, those fields will not be exported to SHP format. Those Blob and Raster objects can be extracted directly from the source FRR or FRM, as well as the fGDB version of the FRD.

2.2 SHP Field Properties

For the text field type in the SHP format, the user should specify the field length for each field based on Table 8. The field length indicates the number of characters that may be stored in the table column (e.g., a text field that has a length of 100 may store no more than 100 alphanumeric characters). Since only the data type and length (for text fields) must be declared for SHP format, the tables in this Technical Reference identifying the field properties will not include a specification for precision and scale.

For numeric field types in a SHP format, the field length is ignored. The precision defines the number of digits that can be stored in the field. The scale defines the number of digits to the right of

the decimal place. For those data types that store fractional values (e.g., double and float), the user may define the precision and scale. For example, the number 3456.78 has a precision of 6 and a scale of 2. If the user opts to accept the default values of 0 for the precision and scale, any number of decimal places may be stored. For those data types that store integer values (e.g., short integer and long integer), the user may only define the precision since the field value may not be fractional. For compatibility with the fGDB format of the FRD, the precision and scale are not specified in the following table and feature class data dictionaries.

For the date field type in a SHP format, the length, precision, and scale are inherent and cannot be specified by the user. Date fields in the SHP format are stored in the native date format.

2.3 Required and Optional Fields

In the table documentation in Section 3 each field name is followed by a letter code as follows:

- R – Required for all records.
- A – Required if applicable to that particular spatial feature.
- E – Required if that enhancement is part of SOW, MAS, or IAA.
- O – Optional; the Mapping Partner determines if the data for this field are available.

Most FRD tables also have the following, required fields:

- a) HUC8_CODE identifying the sub-basin for that feature,
- b) CASE_NO identifying the FEMA project with which each feature is associated, and
- c) VERSION_ID that stores the version of the FRD standard that was used to compile the data. Determination of the version identifier to assign is explained in the *Risk MAP - Versioning Implementation Plan*.

2.4 Primary and Foreign Keys

Each FRD table and feature class has an OBJECTID field defined. This is a sequential number maintained internally in the geodatabase by ESRI ArcGIS software. This OBJECTID field provides a mechanism for the software to uniquely access each record in the table. This field is required by the geodatabase schema.

Each FRD table and feature class also has a primary key defined that may be made up of one or more fields. This primary key is used to provide unique access to a record in the table. If the primary key is a single field, the field is usually suffixed with 'ID'. Where possible, these fields are designed to use identifications (IDs) that are known unique values. For example, in the S_CenBlk_Ar feature class, the primary key is the CEN_BLK_ID field, which is the character

string that is created by concatenating the State and County Federal Information Processing Standards (FIPS) codes, followed by the Census tract, block group, and block numbers. Allowance has been made for future Censuses that may add an alphabetic suffix to the Census Block id.

In some cases, no ‘natural’ key field exists. For example, the S_AOMI_Pt feature class does not currently have any unique identifier assigned to it. In these cases, the Mapping Partner will sequentially assign a unique number to each feature in the feature class. In the S_AOMI_Pt example, the AOMI_ID field is populated with “1”, “2”, “3”, etc., for each successive feature. The Mapping Partner may choose another numbering method provided it is logical, documented, and consistently implemented, and results in a unique ID value for each record in the table.

In some cases, a single primary key field uniquely identifies each record. However, the use of two or more non-system fields may also be used to uniquely identify a record. For example, in the L_CSLF_Summary table, there are fields for the CSLFSUMMID, which is either the CID for the individual community records or the CASE_NO for the project total records. For each community, there are three records based on the LOCATION field, one each for SFHA, non-SFHA, and Floodway. So a combination of the CSLFSUMMID field and the LOCATION field will uniquely identify each record.

2.5 Null Values

Although the fGDB format supports “true” null values for data types, the SHP format does not. To provide consistency between the fGDB and SHP formats of the FRD standards, the following conventions for inserting pseudo null values into the tables is followed for both fGDB and SHP formats.

The value to use for non-populated data for each field that is required by the FRD technical specification or the SOW is as follows:

- Text: “NP”
- Numeric: -8888
- Date: 8/8/8888

The value to use for fields that are optional or required when applicable either by the FRD technical specification or the SOW is as follows:

- Text: Null (or “”, the empty string)
- Numeric: -9999
- Date: 9/9/9999

Flood Risk Database Technical Reference

For raster data, the value 'NODATA' should be used to represent the absence of data or null values. Generally, all areas outside the project area (i.e., the polygon in S_FRD_Proj_Ar) will be set to 'NODATA' in the depth and analysis rasters.

3. Tables and Feature Classes

Each of the feature classes and tables present in an FRD are described by the following:

Overview – a short paragraph describing the table or feature class and its purpose

Attribute Definitions – a description of each attribute

Field Properties – the database schema for the table or feature class

Relationships – a description of the relationships with other tables in the FRD, if applicable

In the field properties sections in the following table definitions, the key type column uses several abbreviations designating which fields are keys and what type they represent. These abbreviations are defined below:

- PK – Primary Key – This field is the internal primary key field used and maintained by ArcGIS software for all tables and feature classes registered in a geodatabase.
- UPK – User-defined Primary Key – This field(s) is the primary key to be used in accessing records in the table or feature class.
- FK – Foreign Key – This field is related to a UPK in another table.

Feature Class: S_AOMI_Pt - Areas of Mitigation Interest

This feature class is intended to be used as a communication tool to direct users to areas and issues that warrant further investigation or research for possible mitigation, as well as to highlight prior mitigation successes.

This feature class contains one record for each AoMI type at a location on the FRM. Additionally, the features are used to create a summary by community and classification in the L_AOMI_Summary table. There is no direct link between the S_AOMI_Pt feature class and the L_AOMI_Summary table.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_AOMI_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
AOMI_ID	Area of Mitigation Interest Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this AoMI lies. See the definition in S_FRD_Pol_Ar for more detail. If the AoMI point does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the AoMI lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the AoMI does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
AOMI_CLASS	Area of Mitigation Interest Class. This is the general class to which the AoMI belongs (e.g., Riverine, Coastal, Past Floods, uses D_AOMI_Class).
AOMI_TYP	Type of Mitigation Interest. This is the general type to which the AoMI belongs (e.g., Dam, Levee, Erosion, etc., uses D_AOMI_Typ).
AOMI_CAT	Area of Mitigation Interest Source Category. This is the general category from which the AoMI Information originated (uses D_AOMI_SourceCat).
AOMI_SRCE	Source of the AoMI information (e.g., SHMO, NFIP, Local Agency). Care should be taken in standardization of the names of these sources within a project. The L_AOMI_Summary table can be semi-automatically generated if a consistent naming convention is used.

Flood Risk Database Technical Reference

Attribute Definitions – S_AOMI_Pt

AOMI_INFO	AoMI Information. This field provides the specific reasons this location is considered an AoMI.
NOTES	Comments explaining the relevance of this AoMI point. The size of this field provides the user space to supply more detail in a free form format regarding the relevance of this AoMI.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the AoMI point lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Field Properties – S_AOMI_Pt

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
AOMI_ID	UPK	R	Text	25		N/A
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
AOMI_CLASS		R	Text	4		D_AOMI_Class
AOMI_TYP		R	Text	4		D_AOMI_Typ
AOMI_CAT		R	Text	4		D_AOMI_SourceCat
AOMI_SRCE		R	Text	50		N/A
AOMI_INFO		A	Text	254		N/A
NOTES		A	Text	1000		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Note: Because of the length of the Notes field and the dBASE limitation of 254 character field width, when this feature class is exported to SHP format, the Mapping Partner should create four fields to contain the data in the NOTES field (i.e., NOTES1, NOTES2, NOTES3, and NOTES4).

Feature Class: S_Carto_Ar - Cartographic Areas

This polygon feature class is used to provide a cartographic background for the FRM. The features contained in the feature class are primarily large hydrographic areas that are best represented as polygons and polygons representing the restudy areas, significant cultural features (e.g., parks, military bases, national forests, etc.). Other potential features include portions of communities clipped by the S_FRD_Proj_Ar polygon, but yet are required to show in the project locator inset on the FRM. The S_Carto_Ar feature class does not need to be clipped by the S_FRD_Proj_Ar polygon.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_Carto_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CART_AR_ID	Cartographic Area Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
F_TYPE	Feature Subtype for symbolization. Uses D_Carto_Typ.
F_CODE	Feature Code for symbolization. Uses D_Carto_Hydro_Code.
NAME	Feature Name use for labeling on the FRM. This should be the name for the body of water or other feature name.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the feature lies. If the feature crosses a HUC-8 boundary, the field shall be populated with the HUC-8 value in which the majority of the feature lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Flood Risk Database Technical Reference

Field Properties – S_Carto_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CART_AR_ID	UPK	R	Text	25		N/A
F_TYPE		R	Short Integer	Default		D_Carto_Typ
F_CODE		A	Long Integer	Default		D_Carto_Hydro_Code
NAME		A	Text	80		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Feature Class: S_Carto_Ln - Cartographic Lines

This polyline feature class is used to provide a cartographic background for the FRM. The features contained in the feature class are primarily streams and transportation features (i.e., roadways). The S_Carto_Ln feature class does not need to be clipped by the S_FRD_Proj_Ar polygon.

The feature class is subdivided into subtypes (Hydrographic, Transportation, and User-Defined) to facilitate categorization and symbolization on the FRM.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_Carto_Ln

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CART_LN_ID	Cartographic Line Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
F_TYPE	Feature Subtype for symbolization. Uses D_Carto_Typ.
F_CODE	Feature Code for symbolization. Uses D_Carto_Hydro_Code for possible values when F_TYPE = 100 Hydrographic and D_Carto_Trans_Code for F_TYPE=200 Transportation; Should be null for other F_TYPES.
NAME	Feature Name use for labeling on the FRM. This should be the name for the stream, roadway, or other feature.
HWY_NUM	Highway Number or Route Number to place on shield.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the feature lies. If a feature crosses a HUC-8 boundary, the field shall be populated with the HUC-8 value in which the majority of the feature lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.

Flood Risk Database Technical Reference

Field Properties – S_Carto_Ln

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CART_LN_ID	UPK	R	Text	25		N/A
F_TYPE		R	Short Integer	Default		D_Carto_Typ
F_CODE		A	Long Integer	Default		D_Carto_Hydro_Code D_Carto_Trans_Code
NAME		A	Text	80		N/A
HWY_NUM		A	Short Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_Carto_Pt - Cartographic Points

This point feature class is used to provide a cartographic background for the FRM.

The feature class is subdivided into subtypes (Hydrographic, Transportation, and User-Defined) to facilitate categorization and symbolization on the FRM. The feature class does not need to be clipped by the S_FRD_Proj_Ar feature class.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_Carto_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CART_PT_ID	Cartographic Point Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
F_TYPE	Feature Subtype for symbolization. Uses D_Carto_Typ.
F_CODE	Feature Code for symbolization. Uses D_Carto_Hydro_Code for possible values when F_TYPE = 100 Hydrographic and D_Carto_Trans_Code for F_TYPE = 200 Transportation; Should be null for other F_TYPES.
NAME	Feature Name used for labeling on the FRM. This should be the name for the stream, roadway, or other feature.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the feature lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Field Properties – S_Carto_Pt

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CART_PT_ID	UPK	R	Text	25		N/A
F_TYPE		R	Short Integer	Default		D_Carto_Typ
F_CODE		A	Long Integer	Default		D_Carto_Hydro_Code D_Carto_Trans_Code

Flood Risk Database Technical Reference

Field Properties – S_Carto_Pt

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
NAME		A	Text	80		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Feature Class: S_CenBlk_Ar - Census Blocks

The S_CenBlk_Ar feature is a polygon feature class. This class is the spatial foundation for the flood risk assessments. All of the inventory and damage estimates for flood risk assessments are stored and performed at the Census Block level, except for the User Defined Facilities (UDFs). This feature class contains the spatial location of the Census Blocks for the project. This feature class also stores the Asset Replacement Value, as well as the estimated structure and population counts for each block. The risk assessment results are stored in other tables (e.g., L_RA_AAL).

The feature class should contain one record for each Census Block in or partially in the project area.

This feature class is linked to the inventory (L_Local_GBS) and results tables (i.e., L_RA_AAL, L_RA_Refined, and L_Composite). This feature class is also linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_CenBlk_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CEN_BLK_ID	This field should be populated with the Census Block identifier. This identifier is based on the following format with an optional single alphabetic character suffix to accommodate the 2010 decennial Census:

060710036021003

State
County
Census tract
Census block
Block group

POPULATION	Population Count for the Census Block.
ARV_BG_TOT	Asset Replacement Value of Buildings of All Structure Types. Obtained from General Building Stock data, in whole dollars.
ARV_CN_TOT	Asset Replacement Value of Contents for All Structure Types. Obtained from General Building Stock data, in whole dollars.
ARV_BG_RES	Asset Replacement Value of Residential Buildings. Obtained from General Building Stock data, in whole dollars.
ARV_CN_RES	Asset Replacement Value of Contents for Residential Structures. Obtained from General Building Stock data, in whole dollars.
ARV_BG_COM	Asset Replacement Value of Commercial Buildings. Obtained from General Building Stock data, in whole dollars.
ARV_CN_COM	Asset Replacement Value of Contents for Commercial Structures. Obtained from General Building Stock data, in whole dollars.
ARV_BG_OTH	Asset Replacement Value of Buildings of Other Structure Types. Obtained from General Building Stock data, in whole dollars.

Flood Risk Database Technical Reference

Attribute Definitions – S_CenBlk_Ar

ARV_CN_OTH	Asset Replacement Value of Contents of Other Structure Types. Obtained from General Building Stock data, in whole dollars.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the Census Block lies. If a Census Block crosses a HUC-8 boundary, the field shall be populated with the HUC-8 value in which the majority of the Census Block lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Field Properties – S_CenBlk_Ar

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CEN_BLK_ID	UPK, FK	R	Text	17		L_RA_AAL L_RA_Refined L_RA_Composite L_Local_GBS
POPULATION		R	Long Integer	Default		N/A
ARV_BG_TOT		R	Long Integer	Default		N/A
ARV_CN_TOT		R	Long Integer	Default		N/A
ARV_BG_RES		R	Long Integer	Default		N/A
ARV_CN_RES		R	Long Integer	Default		N/A
ARV_BG_COM		R	Long Integer	Default		N/A
ARV_CN_COM		R	Long Integer	Default		N/A
ARV_BG_OTH		R	Long Integer	Default		N/A
ARV_CN_OTH		R	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_Cr_Fac_Pt - Critical Facilities

This feature class includes point locations of critical facilities that could be impacted by the upstream or downstream inundation areas associated with a dam or a levee.

Attribute Definitions – S_Cr_Fac_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CRITFAC_ID	Critical Facility Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
NAME	Name of Critical Facility.
CRIT_STAGE	The flood stage elevation at which damages occur at the facility. The datum for the critical stage shall be documented in the S_FRD_Proj_Ar. For the majority of cases, the datum should be NAVD88. Uses D_V_Datum domain table.
RM_DAMS_ID	Risk Map Dams Identifier. Foreign Key to S_RM_Dams_Pt feature class.
LEVEE_ID	Foreign Key to Risk Map Levees (S_Levee_Ln feature class)
AOMI_ID	Area of Mitigation Interest Identifier. Foreign Key to the S_AOMI_Pt feature class.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this Critical Facility lies. See the definition in S_FRD_Pol_Ar for more detail. If the Critical Facility point does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the Critical Facility lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the Critical Facility does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
CF_DESCRIP	A brief description of why the facility is considered critical. Quantification of significance is highly encouraged. Examples include a primary hospital for a 3 county area, the only fire station for the community, a factory that employs 30% of the county's workforce.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the point representing the facility lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Flood Risk Database Technical Reference

Field Properties – S_Cr_Fac_Pt

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CRITFAC_ID	UPK	R	Text	25		N/A
NAME		R	Text	50		N/A
CRIT_STAGE		R	Double	Default	Default	N/A
RM_DAMS_ID	FK	R	Text	25		S_RM_Dams_Pt
LEVEE_ID	FK	A	Text	25		S_Levee_Ln
AOMI_ID	FK	R	Text	25		S_AOMI_Pt
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
CF_DESCRIP		R	Text	128		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Feature Class: S_CSLF_Ar - Changes Since Last FIRM

The S_CSLF_Ar is a polygon feature class. It depicts the changes in spatial extents between the previous and newly revised FIRMs. If the CSLF polygon spans FIRM panels that have different effective dates, then those polygons should be divided at the panel boundaries.

This feature class is linked to the FRD_Model_Info table by the NEW_MODEL and PRE_MODEL fields allowing the user to easily find which models were associated with the CSLF polygons. The feature class is also related to the L_SourceCit table by the PRE_SRCCIT, NEW_SRCCIT, and SOURCE_CIT fields to document the previous and current FIRM databases used to develop the CSLF. Although a formal relationship class cannot exist to a different database, the feature class is associated with the Coordinated Needs Management Strategy (CNMS) data using the CNMS_ID field.

Attribute Definitions – S_CSLF_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CSLF_ID	CLSF Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
CNMS_ID	CNMS Identifier. Foreign Key to S_Studies_Ln feature class in the CNMS Database. This identifier is composed of the 5-digit county FIPS code, '01' indicating the S_Studies_Ln feature class, and a 5-digit unique sequential number.
AREA_SF	Area of the change polygon, measured in square feet in the local projection.
PRE_ZONE	Previous Flood Zone Designation . This is the flood zone designation from the previous, effective FIRM. Uses D_Zone domain.
PRE_ZONEST	Previous Flood Zone Subtype Designation. This is the designation from the previous, effective FIRM. Uses D_ZoneSubtype domain.
PRE_MODEL	Models used for previous, effective FIRM. This is a foreign key to the Model_Info table.
PRE_TOPO	Topographic Type used for previous delineation. Uses D_Topo_Typ domain.
PRE_SRCCIT	Source Citation for previous FIRM. This is a foreign key to the L_Source_Cit table.
NEW_ZONE	New Flood Zone Designation. This is the flood zone designation from the current project. Uses D_Zone domain.
NEW_ZONEST	New Flood Zone Subtype Designation. This is the flood zone designation from the current project. Uses D_ZoneSubtype domain.

Flood Risk Database Technical Reference

Attribute Definitions – S_CSLF_Ar

NEW_MODEL	Models used for new delineation. This is a foreign key to the Model_Info table.
NEW_TOPO	Topographic Type used for new delineation. Uses D_Topo_Typ domain.
NEW_SRCCIT	Source Citation for new FIRM. This is a foreign key to the L_Source_Cit table.
PEAKDSCHG	Peak Discharge Change. The change to the study's peak discharges that may have impacted analysis (e.g., Increase/Decrease/Negligible/Unknown) [aka, CNMS element C2]. Uses D_Change domain. This is an enhanced field.
MDLMETHODS	Model Methods Change. The presence of significant changes to primary assumptions associated with the updated model methodology since last the last study (e.g., True/False/Unknown) [aka, CNMS element C3]. Uses D_TrueFalse domain. This is an enhanced field.
FLD_CTRLCHG	Flood Control Structures Change. The change to the study's major flood control structure(s) that may have impacted analysis since the last study (e.g., Increase/Decrease/Negligible/Unknown). [aka, CNMS element C4]. Uses D_Change domain. This is an enhanced field.
HYDSTRCHG	Hydraulic Structures Change. The change to the study's number of hydraulic structures that may have impacted analysis since the last study (e.g., Increase/Decrease/Negligible/Unknown). [aka, CNMS element C6 & S4]. Uses D_Change domain. This is an enhanced field.
TOPOCHG	Topography Change. The change in the underlying topography used for mapping the floodplain may have impacted the analysis since the last study (e.g., True/False/Unknown). Uses D_TrueFalse domain. This is an enhanced field.
SEDCHG	Sediment Change. The presence of significant changes to channel sedimentation since last the last study (e.g., True/False/Unknown) [aka, CNMS element C7]. Uses D_Change domain. This is an enhanced field.
EROSIONCHG	Erosion Change. The presence of significant changes to channel erosion or scour since last the last study (e.g., True/False/Unknown) [aka, CNMS element C7]. Uses D_Change domain. This is an enhanced field.
CHANNELCHG	Channel Change. The presence of significant changes to channel geometry since last the last study (e.g., True/False/Unknown) [aka, CNMS element C5 & S5]. Uses D_TrueFalse domain. This is an enhanced field.

Flood Risk Database Technical Reference

Attribute Definitions – S_CSLF_Ar

LEVEECHG	Levee Change. The change in the levee status or modeling parameters/scenario for the levee may have impacted the analysis since the last study (e.g., True/False/Unknown). Uses D_TrueFalse domain. This is an enhanced field.
RUNOFFCHG	Runoff Change. The change to the study's runoff characteristics due landuse, vegetation or imperviousness changes that may have impacted analysis (e.g., Increase/Decrease/Negligible/Unknown) [aka, CNMS elements S3 & S7]. Uses D_Change domain. This is an enhanced field.
DUNECHG	Dune Change. The presence of significant changes to frontal dunes since last the last study (e.g., True/False/Unknown) [aka, CNMS element S8]. Uses D_Change domain. This is an enhanced field.
OTHCHG	Other Changes. The description of other changes the Mapping Partner believes to have contributed to the results of the analysis. This is an enhanced field.
SFHACHG	SFHA Change. The type of SFHA change for each CSLF polygon based upon previous and new flood zones (i.e., does this polygon indicate an Increase/Decrease/Zero change in the SFHA). Uses D_Change domain.
FLDWYCHG	Floodway Change. The type of floodway change for each CSLF polygon based upon previous and new flood zones (i.e., does this polygon indicate an Increase/Decrease/Zero change in the floodway area). Uses D_Change domain.
NONSFHACHG	Non-SFHA Change. The type of non-SFHA change for each CSLF polygon based upon previous and new flood zones (i.e., does this polygon indicate an Increase/Decrease/Zero change in the non-SFHA area). Uses D_Change domain.
CHHACHG	Increase or decreases in the SFHA in coastal communities that have been newly added into, or removed from, the coastal high hazard areas (VE or V Zones). This field is not meant to capture changes in V zone elevations (e.g. VE10 to VE12, VE9 to VE8, etc.). Uses D_Change domain.
STRUCTURES	The estimated count of affected structures within the area of change. This is an enhanced field.
POPULATION	The estimated affected population within the area of change. This is an enhanced field.
CID	This is the six-digit CID assigned by FEMA in which this CSLF polygon lies. See the definition in S_FRD_Pol_Ar for more detail. If the CSLF polygon does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.

Flood Risk Database Technical Reference

Attribute Definitions – S_CSLF_Ar

HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the CSLF polygon feature lies. If a feature crosses a HUC-8 boundary, the field shall be populated with the HUC-8 value in which the majority of the feature lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail. This field should be populated with the SOURCE_CIT for the current flood risk project.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Field Properties – S_CSLF_Ar

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CSLF_ID	UPK	R	Text	25		N/A
CNMS_ID	FK	R	Text	12		S_Studies_Ln (CNMS)
AREA_SF		R	Double	Default	Default	N/A
PRE_ZONE		R	Text	4		D_Zone
PRE_ZONEST		R	Text	4		D_ZoneSubtype
PRE_MODEL	FK	A	Text	11		Model_Info
PRE_TOPO		A	Text	4		D_Topo_Typ
PRE_SRCCIT	FK	A	Text	25		L_Source_Cit
NEW_ZONE		R	Text	4		D_Zone
NEW_ZONEST		R	Text	4		D_ZoneSubtype
NEW_MODEL	FK	R	Text	11		Model_Info
NEW_TOPO		R	Text	4		D_Topo_Typ
NEW_SRCCIT	FK	R	Text	25		L_Source_Cit
PEAKDSCHG		E	Text	1		D_Change
MDLMETHODS		E	Text	1		D_TrueFalse
FLD_CTRLCHG		E	Text	1		D_Change
HYDSTRCHG		E	Text	1		D_Change
TOPOCHG		E	Text	1		D_TrueFalse
SEDCHG		E	Text	1		D_Change

Flood Risk Database Technical Reference

Field Properties – S_CSLF_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
EROSIONCHG		E	Text	1		D_Change
CHANNELCHG		E	Text	1		D_TrueFalse
LEVEECHG		E	Text	1		D_TrueFalse
RUNOFFCHG		E	Text	1		D_Change
DUNECHG		E	Text	1		D_Change
OTHCHG		E	Text	25		N/A
SFHACHG		A	Text	1		D_Change
FLDWYCHG		A	Text	1		D_Change
NONSFHACHG		A	Text	1		D_Change
CHHACHG		A	Text	1		D_Change
STRUCTURES		E	Long Integer	Default		N/A
POPULATION		E	Double	Default	Default	N/A
CID	FK	R	Text	6		S_FRD_Pol_Ar
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Feature Class: S_Cst_Inc_Inundation_Ar - Coastal Increased Inundation Areas

This feature class represents the hypothetical increase of 1, 2, or 3 feet above the base flood elevation level associated with a particular annual chance event. These are calculated as the inland extent of the coastal depth grid plus the increased inundation. Individual polygons can be produced based on any combination of the coastal depth grid (e.g. 10%, 1%, etc.) and increase (1, 2, or 3 ft.). Additional increases besides 1, 2, or 3 feet are allowed, including fractional values (e.g., 1.5, 2.75 feet) if specifically requested.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_Cst_Inc_Inundation_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CIIA_ID	Coastal Increased Inundation Area Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which S_Cst_Inc_Inundation_Ar lies. See the definition in S_FRD_Pol_Ar for more detail.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which S_Cst_Inc_Inundation_Ar lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail.
RETURN_PER	Return Period. Indicates the return period for which the remaining fields apply. The valid values for this field are in the domain D_Event.
INCREASE	Increase in feet (1, 2, 3, etc.). The standard increments will be in whole feet, but fractional values are permissible (e.g., 1.5, 2.75, etc.) if specifically requested.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the coastal inundation area lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Flood Risk Database Technical Reference

Attribute Definitions – S_Cst_Inc_Inundation_Ar

SHAPE_LENGTH Internal field used by ArcGIS software to store the length of the feature's geometry.

SHAPE_AREA Internal field used by ArcGIS software to store the area of the feature's geometry.

Field Properties– S_Cst_Inc_Inundation_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CIIA_ID	UPK	R	Text	25		N/A
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
RETURN_PER		R	Text	6		D_Event
INCREASE		R	Float	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_Cst_Wave_Haz_Ar - Coastal Wave Hazard

This feature class represents the relative level of wave hazard severity within the coastal 1% annual chance floodplain.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_Cst_Wave_Haz_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
WAVHAZ_ID	Coastal Wave Hazard Area Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which S_Cst_Wave_Haz_Ar lies. See the definition in S_FRD_Pol_Ar for more detail.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which S_Cst_Wave_Haz_Ar lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail.
WAVE_HAZ	Wave Hazard Level. Indicates the relative level of wave hazard severity within the coastal 1% annual chance floodplain. The valid values for this field are in the domain D_Wave_Haz: HIGH (areas designated as coastal high hazard areas – V or VE, including the primary frontal dune if present), MODERATE (non-V Zone areas with wave heights between 1.5 and 3 feet), and MINIMAL (non-V Zone areas with wave heights less than 1.5 feet).
BLDG_COUNT	Optional field that can be populated with a count of the number of buildings within each wave hazard feature polygon if a building footprint feature class exists.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the coastal inundation area lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Flood Risk Database Technical Reference

Attribute Definitions – S_Cst_Wave_Haz_Ar

SHAPE_LENGTH Internal field used by ArcGIS software to store the length of the feature's geometry.

SHAPE_AREA Internal field used by ArcGIS software to store the area of the feature's geometry.

Field Properties – S_Cst_Wave_Haz_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
WAVHAZ_ID	UPK	R	Text	25		N/A
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
WAVE_HAZ		R	Text	4		D_Wave_Haz
BLDG_COUNT		O	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_Dams_XS_Ln - Cross Sections for Dam Analyses

This feature class includes cross sections from the models of the dam release scenarios. This feature class is related to the L_Dams_XS_MDL_Results table using the DAMS_XS_ID field.

Attribute Definitions – S_Dams_XS_Ln

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
DAMS_XS_ID	Risk Map Dams Cross Section Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table. This identifier should match the identifiers from the S_XS feature class in the FIRM database. In the case of a model that was not previously incorporated in a Flood Insurance Study, the identifiers should match those in the original model.
RM_DAMS_ID	Risk Map Dams Identifier. Foreign Key to S_RM_Dams_Pt feature class.
STREAM_STA	Stream Station (in feet or miles) referenced in the S_XS feature class in the FIRM database. In the case of a model that was not previously incorporated in a Flood Insurance Study, the stream station should match those in the original model. The metadata should indicate which unit is being used as well as the origin of the stream stationing.
DS_DIST	The distance downstream (in feet or miles) from the toe of the dam referenced in RM_DAMS_ID to the cross section. The units used for DS_DIST should be the same as for STREAM_STA.
LEN_UNIT	Stream Station and downstream distance units using the D_Length_Unit domain table.
STREAM_NM	Stream Name. The name used should match the stream name on the FIRM panel and in the DFIRM database.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the cross section line lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.

Flood Risk Database Technical Reference

Field Properties – S_Dams_XS_Ln

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
DAMS_XS_ID	UPK	R	Text	25		N/A
RM_DAMS_ID	FK	R	Text	25		S_RM_Dams_Pt
STREAM_STA		R	Double	Default	Default	N/A
DS_DIST		R	Double	Default	Default	N/A
LEN_UNIT		R	Text	4		D_Length_Units
STREAM_NM		R	Text	128		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_DS_Inundation_Ar - Inundation Areas Downstream of Dams

This feature class contains flood inundation areas downstream of a dam for various release scenarios.

Attribute Definitions – S_DS_Inundation_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
DS_INUN_ID	Downstream Inundation Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
RM_DAMS_ID	Risk Map Dams Identifier. Foreign Key to S_RM_Dams_Pt feature class.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this inundation area lies. This may require subdividing the inundation areas using the S_FRD_Pol_Ar feature class. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the inundation lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
SCENAR_ID	Scenario Identifier. Foreign Key to the L_Dam_Scenario table.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the inundation area lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Flood Risk Database Technical Reference

Field Properties – S_DS_Inundation_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
DS_INUN_ID	UPK	R	Text	25		N/A
RM_DAMS_ID	FK	R	Text	25		S_RM_Dams_Pt
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
SCENAR_ID	FK	R	Text	25		L_Dam_Scenario
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_Easement_Ar - Easements associated with Dams

This feature class contains existing easement polygons (where available) that limit or restrict development near dams.

Attribute Definitions – S_Easement_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
ESMT_ID	Easement Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
RM_DAMS_ID	Risk Map Dams Identifier. Foreign Key to S_RM_Dams_Pt feature class.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this easement lies. This may require subdividing the easement areas using the S_FRD_Pol_Ar. See the definition in S_FRD_Pol_Ar for more detail. If the easement does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the easement lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the easement does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
OWNER	Name of the property owner or easement grantor. The grantee is presumed to be the owner of the dam.
ESMT_DATE	Date the easement was acquired.
ESMT_TYPE	Nature of the restriction of the easement (drainage, flowage, conservation). Uses D_Esmt_Typ domain table.
ESMT_PURPS	Description of the purpose for the easement by providing the event or elevation the easement is based on (e.g., 3.0' above the 1937 flood stage).
IMAGE	Scanned image of the plat or legal document used to convey the easement.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the easement lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Flood Risk Database Technical Reference

Field Properties – S_Easement_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
ESMT_ID	UPK	R	Text	25		N/A
RM_DAMS_ID	FK	R	Text	25		S_RM_Dams_Pt
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
OWNER		R	Text	128		N/A
ESMT_DATE		R	Date	Default		N/A
ESMT_TYPE		R	Text	6		D_Esmt_Typ
ESMT_PURPS		R	Text	128		N/A
IMAGE		A	Blob	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_ErDune_Pk_Ln - Erosion Dune Peak

This 3D polyline feature class (i.e., PolylineZ) is used to define the crest or peak, of the dune, as identified during the erosion analysis. This line would be delineated based on the topography and/or shoreline survey data available, augmented with aerial photographs as needed. The creation of this dataset is only applicable in coastal areas where dunes are present.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_ErDune_Pk_Ln

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
DUNEPK_ID	Dune Peak Identifier. User-defined Primary Key/Unique Identifier. This field should be sequentially numbered for all records in the table.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this S_ErDune_Pk_Ln lies. See the definition in S_FRD_Pol_Ar for more detail.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the S_ErDune_Pk_Ln lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail.
TOPO_SRC	Source of topographic data from which the dune peak is developed.
TOPO_DATE	Date of the topographic data source from which the PFD was delineated.
DELIN_DATE	Date of feature delineation.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the dune peak lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.

Flood Risk Database Technical Reference

Field Properties – S_ErDune_Pk_Ln

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
DUNEPK_ID	UPK	R	Text	25		N/A
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
TOPO_SRC		R	Text	100		N/A
TOPO_DATE		R	Date	Default		N/A
DELIN_DATE		R	Date	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_FRD_Pol_Ar - Flood Risk Database Political Areas

This feature class is the combination of the S_Pol_Ar feature class from all FIRM databases in the project area. There should be one record (polygon) per community. This will necessitate the use of multi-part polygons for non-contiguous community boundaries. The polygon(s) should be clipped at the project boundary using the S_FRD_Proj_Ar feature class.

This feature class is also linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_FRD_Pol_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
POL_AR_ID	Political Area Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table. This field should be renumbered after appending all the constituent S_Pol_Ar feature classes to provide uniqueness in this feature class.
DFIRM_ID	Flood Risk Project Identifier. For a single-jurisdiction flood risk project, the value is composed of the 2-digit state FIPS code and the 4-digit FEMA CID code (e.g., 480001). For a countywide flood risk project, the value is composed of the 2-digit state FIPS code, the 3-digit county FIPS code, and the letter “C” (e.g., 48107C). Within each FIRM database, the DFIRM_ID value is identical.
CID	Community Identification Number. This is the six-digit community number assigned by FEMA. If the jurisdiction does not have a community number assigned by FEMA, the CID is created by combining the state FIPS code with the abbreviation contained in the COMM_NO field (i.e., FED, ST, or OTHR), followed by a sequential number (e.g., a tribal land may be 36OTHR01).
POL_NAME1	Political Area Name 1 - This is the primary name of the community. This is the area with Floodplain Management Jurisdiction. This would correspond to the official name of this jurisdiction used by the FEMA within the NFIP. For unincorporated areas of a county, this must be the county name (e.g., Montgomery County). For cities, towns, and villages the name should be of the format “City of Floodville” or “Town of Waterloo”. In the case where FED, ST, or OTHR is used in the CID field, the Mapping Partner must enter an appropriate name describing the political area.

Flood Risk Database Technical Reference

Attribute Definitions – S_FRD_Pol_Ar

POL_NAME2	Political Area Name 2. This is the secondary name of the area shown on FIRM panels. Populated if there is a common name for an area other than the official jurisdiction name. Also used in situations where islands, National Parks, National Forests, military bases, or other area boundaries and/or labels need to be shown on the FRM.
CO_FIPS	County FIPS Code. This is the three-digit county FIPS code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4.
ST_FIPS	State FIPS. This is the two-digit code that corresponds to the state FIPS code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4. Acceptable values for this field are listed in the D_State_FIPS domain.
COMM_NO	Community Number. This is the four-digit number assigned by FEMA to each community for tracking purposes under the NFIP. This number can be obtained from the community status book that can be viewed at www.msc.fema.gov .
POPULATION	Population for portion of community in this project area.
TOT_POP	Total population of the community.
PCT_POP	Percent of the community's population in this project area.
LND_AR_SM	Land Area. Area in square miles of the community in this project area.
TOT_LND_AR	Total Land Area. Total land area of the community in square miles.
PCT_LND_AR	Percentage Land Area. Percentage of the community's land area in this project area.
NFIPSTATUS	NFIP Status. This is a true/false status field which indicates if the community participates in the NFIP. If the community has been placed in suspended status, a value of false should be used to designate that the community is no longer participating. D_TrueFalse contains valid values for this field.
CRS_RATING	FEMA Community Rating System (CRS) Classification for the community (1 ~ 10).
PASTDECLAR	Past Declarations. Number of past federal flood emergency declarations. Since declarations are normally made at the county level, if the portion of the community for this project is in that county, then that declaration would apply in tallying the declarations for the community. The data in this field should not be aggregated to larger political areas because of the potential for counting the same declaration multiple times.
FLD_POLICY	Flood Policies. Number of flood insurance policies for this portion of the community in the project area.
POLICY_COV	Flood Policy Coverage. Dollar amount of flood insurance coverage for this portion of the community in the project area.

Flood Risk Database Technical Reference

Attribute Definitions – S_FRD_Pol_Ar

HMP_STATUS	HMP Status . This is a true/false status field indicating if the community participates in a FEMA approved Hazard Mitigation Plan. D_TrueFalse contains valid values for this field.
HMP_NAME	Name of the Hazard Mitigation Plan in which the community participates.
HMP_EXPIRE	Expiration date of the Hazard Mitigation Plan in which the community participates.
POL_TYP	Political Boundary Type (i.e., Local, County, State, Federal) – Used for symbology on the FRM.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the community lies. If a community is in multiple HUC-8 sub-basins, the sub-basin in which the portion of the community being studied lies shall be used. If the portion of the community being studied is in multiple sub-basins, the sub-basin in which the greatest portion of the community lies shall be used.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail. See the definition in L_Source_Cit for additional detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature’s geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature’s geometry.

Field Properties – S_FRD_Pol_Ar

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
POL_AR_ID	UPK	R	Text	25		N/A
DFIRM_ID		R	Text	6		N/A
CID	UPK, FK	R	Text	12		L_CSLF_Summary, L_AOMI_Summary, L_Claims, L_Exposure, and L_RA_Summary
POL_NAME1		R	Text	50		N/A
POL_NAME2		A	Text	50		N/A
CO_FIPS		R	Text	3		N/A
ST_FIPS		R	Text	2		D_State_FIPS

Flood Risk Database Technical Reference

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
COMM_NO		R	Text	4		N/A
POPULATION		R	Long Integer	Default		N/A
TOT_POP		R	Long Integer	Default		N/A
PCT_POP		R	Double	Default	Default	N/A
LND_AR_SM		R	Double	Default	Default	N/A
TOT_LND_AR		R	Double	Default	Default	N/A
PCT_LND_AR		R	Double	Default	Default	N/A
NFIPSTATUS		R	Text	1		D_TrueFalse
CRS_RATING		R	Short Integer	Default		D_CRS_Rating
PASTDECLAR		R	Long Integer	Default		N/A
FLD_POLICY		R	Long Integer	Default		N/A
POLICY_COV		R	Double	Default	Default	N/A
HMP_STATUS		R	Text	1		D_TrueFalse
HMP_NAME		A	Text	100		N/A
HMP_EXPIRE		A	Date	Default		N/A
POL_TYP		R	Text	3		D_Pol_Typ
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_FRD_Proj_Ar - Flood Risk Database Project Area

This feature class represents the spatial ‘footprint’ of the project (or portion of the project if multiple suites of products are created for the project). The single polygon that ‘best’ represents the project area should be used. These features shall be multi-part polygons to support non-contiguous PMR project footprints.

This feature class is used to clip other feature classes delivered in the FRD and is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_FRD_Proj_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description. The FEMA case number is an alphanumeric identifier assigned to this project which is generated by the MIP. An example of a FEMA case number for a flood risk project is 06-03-0002S, which is of the format YY-RR-####A. The YY represent the last two digits of the year, the RR is the FEMA region, #### is a sequential number, and A is an alphabetic suffix, which is usually S for studies. The case number shall be entered into the field in this format, including hyphens.
PROJ_NM	Project Name (e.g., Watershed, USA).
H_DATUM	Horizontal Datum used for all feature classes and rasters used in the project. Normally this would be NAD83 [NSRS2007]. D_Horiz_Datum contains valid values for this field.
V_DATUM	Vertical Datum used for all feature classes and rasters used in the project. Normally this would be NAVD88. D_V_Datum contains valid values for this field.
PROJECTION	Projection used for all feature classes in project. Normally this would be GCS. D_Projection contains valid values for this field.
PROJ_ZONE	Projection Zone for the PROJECTION defined above, if applicable. Otherwise, use a null value.
PROJ_UNIT	Projection Unit for the PROJECTION defined above. Normally this would be Decimal Degrees (DECDEG) for FRDs where the vector data is in un-projected GCS.
V_UNITS	Vertical Units for rasters, elevations stored in attributes, etc., normally US Survey Feet (USFT). D_Length Units contains valid values for this field.
META_NM	Metadata filename (e.g., FRD_YRR1234S_metadata.xml).

Flood Risk Database Technical Reference

Attribute Definitions – S_FRD_Proj_Ar

HAZUS_VER	Hazus Version. The version of Hazus used in the risk assessments (e.g., ‘MR4’ or ‘MR5’).
CENSUS	Year of Census data used (e.g., 2000, 2010, etc.) for the Hazus analysis.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the project lies. If the project area spans multiple HUCs (e.g., large coastal study), populate this field with ‘MULTI’.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature’s geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature’s geometry.

Field Properties – S_FRD_Proj_Ar

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CASE_NO	UPK	R	Text	12		N/A
PROJ_NM		R	Text	50		N/A
H_DATUM		R	Text	6		D_Horiz_Datum
V_DATUM		R	Text	6		D_V_Datum
PROJECTION		R	Text	6		D_Projection
PROJ_ZONE		A	Text	4		N/A
PROJ_UNIT		R	Text	6		D_Proj_Unit
V_UNITS		R	Text	4		D_Length_Units
META_NM		R	Text	50		N/A
HAZUS_VER		R	Text	4		N/A
CENSUS		R	Text	4		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_FRM_Callout_Ln - Flood Risk Map Callouts

This polyline feature class is used to display the callout/leader lines on the FRM. The line must be digitized from a centroid of the callout box to the geographic feature being highlighted by the callout box.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_FRM_Callout_Ln

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
CALLOUT_ID	Callout Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
IMG_TITLE	Image Title. Title for placement with the callout box.
IMG_HEIGHT	Image Height. Height of the callout image depicted in inches on the map.
IMG_WIDTH	Image Width. Width of the callout image depicted in inches on the map.
IMG_CPTION	Image Caption. Caption to be placed under the image.
IMG_BINARY	Image Binary. The binary formatted image being depicted within the callout box. This image is stored as a managed raster as an attribute of the feature class.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.

Field Properties – S_FRM_Callout_Ln

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
CALLOUT_ID	UPK	R	Text	25		N/A
IMG_TITLE		R	Text	50		N/A
IMG_HEIGHT		R	Float	Default	Default	N/A
IMG_WIDTH		R	Float	Default	Default	N/A

Flood Risk Database Technical Reference

Field Properties – S_FRM_Callout_Ln

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
IMG_CPTION		R	Text	254		N/A
IMG_BINARY		R	Raster	N/A		N/A
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_HUC_Ar - Hydrologic Unit Code Boundaries

The S_HUC_Ar feature class depicts the watersheds in and around the project area. This feature class has sub-types by the level of hydrologic unit (i.e., 8, 10, 12, or 14) and using DIGITS as the sub-type field.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_HUC_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
HUC_CODE	HUC Identifier (Primary Key). This should be the HUC identifier assigned by WBD.
HUC_NAME	Name of basin / sub-basin from WBD.
DIGITS	Number of digits in HUC-Code (8, 10, 12, or 14).
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Field Properties – S_HUC_Ar

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
HUC_CODE	UPK	R	Text	14		N/A
HUC_NAME		R	Text	80		N/A
DIGITS		R	Short Integer	Default		N/A
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Feature Class: S_Lev_Breach_Pt - Community-Supplied Breach and Armored Overtopping Locations

This feature class provides specific points provided by the community that identify a high-risk location for breaches or armored overtopping locations along the levee. Types of breaches can include historic locations, overtopping locations, and potential engineered breach locations. This dataset can also include Armored Overtopping locations where the levee crest is below the base flood elevation, but is expected to withstand the overtopping without an erosive breach.

Attribute Definitions – S_Lev_Breach_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
BR_PT_ID	Levee Elements Points Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
LEVEE_ID	Foreign Key to Risk Map Levees
PT_TYP	Levee Elements Point Type. Uses D_Levee_Pt_Typ domain table.
ORIGIN	Origin of the Data.
BR_DATE	Date of breach or overtopping (if historical).
BR_IN_WID	Initial width in feet of breach or overtopping.
BR_MAX_WID	Maximum width in feet of breach or overtopping.
BR_IN_HGT	Initial height in feet of breach or overtopping.
BR_MAX_HGT	Maximum height in feet of breach or overtopping.
BR_IN_TIME	Initial time in minutes of breach or overtopping.
BR_DEV_TIME	Time in minutes of development for breach or overtopping.
BR_MAX_TIME	Time in minutes to maximum breach or overtopping
SCENAR_ID	Levee Scenario Identifier (Link to L_Levee_Scenario)
DESCRIP	Additional Descriptive Information
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the levee breach point lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.

Flood Risk Database Technical Reference

Field Properties – S_Lev_Breach_Pt

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
BR_PT_ID	UPK	R	Text	25		N/A
LEVEE_ID	FK	R	Text	25		S_Levee_Ln
PT_TYP		R	Text	1		D_Breach_Pt_Typ
ORIGIN		R	Text	50		N/A
BR_DATE		R	Date	8		N/A
BR_IN_WID		R	Double	Default	Default	N/A
BR_MAX_WID		R	Double	Default	Default	N/A
BR_IN_HGT		R	Double	Default	Default	N/A
BR_MAX_HGT		R	Double	Default	Default	N/A
BR_IN_TIME		R	Double	Default	Default	N/A
BR_DEV_TIME		R	Double	Default	Default	N/A
BR_MAX_TIME		R	Double	Default	Default	N/A
SCENAR_ID	FK	R	Text	25		L_Levee_Scenario
DESCRIP		R	Text	50		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Feature Class: S_Lev_Elements_Pt - Levee Element Locations

This feature class contains point locations and information (such as capacity) for drainage and protection features along the levee. These include, but are not limited to, pumps, gravity conduits, sleeves, and closure structures.

Attribute Definitions – S_Lev_Elements_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
LEV_PT_ID	Levee Elements Points Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
LEVEE_ID	Foreign Key to Risk Map Levees (S_Levee_Ln)
LEV_PT_TYP	Levee Elements Point Type. Uses D_Levee_Pt_Typ domain table.
DESCRIP	Additional Descriptive Information
ORIGIN	Additional information on the origin of the data.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the point lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.

Field Properties – S_Lev_Elements_Pt

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
LEV_PT_ID	UPK	R	Text	25		N/A
LEVEE_ID	FK	R	Text	25		S_Levee_Ln
LEV_PT_TYP		R	Text	5		D_Levee_Pt_Typ
DESCRIP		R	Text	50		N/A
ORIGIN		R	Text	50		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar

Flood Risk Database Technical Reference

Field Properties – S_Lev_Elements_Pt

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Feature Class: S_Lev_Freeboard_Ln - Levee Freeboard

This feature class contains freeboard information along the levee for different scenarios.

Attribute Definitions – S_Lev_Freeboard_Ln

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
FREEBRD_ID	Freeboard identifier. Primary Key-Unique Identifier.
LEVEE_ID	Foreign Key to Risk Map Levees. (S_Levee_Ln)
SCENAR_ID	Levee Scenario Identifier (Link to L_Levee_Scenario)
FRB_VAL	Freeboard Range Associated with this Line Segment, Rounded to Nearest Foot, -1-0 shown as 0, 0-1 shown as 1, 1-2 shown as 2, 2-3 shown as 3
DESCRIP	Additional Descriptive Information
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the levee freeboard line lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.

Field Properties – S_Lev_Freeboard_Ln

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
FREEBRD_ID	UPK	R	String	25		N/A
LEVEE_ID	FK	R	Text	25		S_Levee_Ln
SCENAR_ID	FK	R	Text	25		L_Levee_Scenario
FRB_VAL		R	Small Integer	2		N/A
DESCRIP		R	Text	50		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_Lev_Inundation_Ar - Levee Analysis Impact Area

This feature class contains extents of flooding behind a levee for various scenarios such as different precipitation events. This includes the Levee Shadow event to represents extents of impacted area behind a levee based on levee crest elevation.

Attribute Definitions – S_Lev_Inundation_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
LEV_INUN_ID	Levee inundation area identifier. Primary Key-Unique Identifier.
LEVEE_ID	Foreign Key to Risk Map Levees. (S_Levee_Ln)
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this inundation area lies. This may require subdividing the inundation areas using the S_FRD_Pol_Ar feature class. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the inundation lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
SCENAR_ID	Levee Scenario Identifier (Link to L_Levee_Scenario)
AREA_SF	Area of Inundation in Square Feet
AREA_SM	Area of Inundation in Square Miles
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the inundation area lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Flood Risk Database Technical Reference

Field Properties – S_Lev_Inundation_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
LEV_INUN_ID	UPK	R	Text	25		N/A
LEVEE_ID	FK	R	Text	25		S_Levee_Ln
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
SCENAR_ID	FK	R	Text	25		L_Levee_Scenario
AREA_SF		R	Double	Default	Default	N/A
AREA_SM		R	Double	Default	Default	N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_Lev_Rating_Curve_Pt - Levee Rating Curve Locations

This feature class contains point locations along a levee where a rating curve has been developed.

Attribute Definitions – S_Lev_Rating_Curve_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
RATCURPTID	Rating curve point identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table. This is also the Foreign Key to the Levee Rating Curve Table.
LEVEE_ID	Foreign Key to Risk Map Levees. (S_Levee_Ln)
DESCRIP	Additional Descriptive Information
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the levee rating curve point lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.

Field Properties – S_Lev_Rating_Curve_Pt

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
RATCURPTID	UPK	R	Text	25		N/A
LEVEE_ID	FK	R	Text	25		S_Levee_Ln
DESCRIP		R	Text	50		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Feature Class: S_Levee_Ln - Levee Locations

This feature class contains location and attributes for the levee as a line feature along the top of a levee.

Attribute Definitions – S_Levee_Ln

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
LEVEE_ID	Levee Identifier. Primary Key-Unique Identifier.
NAME	Common Name of Levee
FEMA_LEV_ID	FEMA National Inventory of Levees Identifier
AOMI_ID	Foreign Key to Area of Mitigation Interest
OWNER	Name of Owner, as Well as Builder and/or Designer if Applicable
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this inundation area lies. This may require subdividing the inundation areas using the S_FRD_Pol_Ar feature class. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the inundation lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
LENGTH_FT	Length of levee in feet as described in levee analysis
HEIGHT_FT	Average height of levee in feet as described in levee analysis
TOP_WIDTH	Average width at top of levee in feet as described in levee analysis
BOT_WIDTH	Average width at bottom of levee in feet as described in levee analysis
FREEBOARD	Design Freeboard in Feet
EAP	Existence of Emergency Action Plan
EAP_ORG_NM	Name of Organization that Maintains the EAP
EAP_ORG_URL	URL of the Organization that Maintains the EAP
YEAR_BUILT	Year Levee was Built (YYYY)
CONST_TYPE	Construction Type
DESCRIP	Additional Descriptive Information
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the levee lies.

Flood Risk Database Technical Reference

Attribute Definitions – S_Levee_Ln

CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.

Field Properties – S_Levee_Ln

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
LEVEE_ID	UPK	R	Text	25		N/A
NAME		R	Text	128		N/A
FEMA_LEV_ID	FK	R	Text	25		[Include final table name from FEMA levee database]
AOMI_ID	FK	R	Text	25		S_AOMI_Pt
OWNER		R	Text	100		N/A
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
LENGTH_FT		R	Double	Default	Default	N/A
HEIGHT_FT		R	Double	Default	Default	N/A
TOP_WIDTH		R	Double	Default	Default	N/A
BOT_WIDTH		R	Double	Default	Default	N/A
FREEBOARD		R	Double	Default	Default	N/A
EAP		R	Text	1		D_TrueFalse
EAP_ORG_NM		R	Text	128		N/A
EAP_ORG_URL		R	Text	50		N/A
YEAR_BUILT		R	Text	4		N/A
CONST_TYPE		R	Text	4		D_Const_Typ
DESCRIP		R	Text	128		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A

Feature Class: S_PFD_Ersn_Ar - Primary Frontal Dune (PFD) Erosion Areas

This feature class depicts the spatial extent of the FEMA regulatory Primary Frontal Dune (PFD), delineated between the dune toe and heel, as defined in FEMA G & S and 44.CFR.59.1.

Delineations are generally based on the topography and/or shoreline survey data available and augmented with aerial photographs as needed. These simple, non-overlapping polygon features can be further subdivided to show the spatial extent of the eroded ground as estimated from the erosion analysis conducted for the 1%-annual-chance flood. These erosion areas within this dataset would be delineated between the dune toe and the inland extent of the eroded reach of the profile. The polygon attributes will help indicate where the removal or retreat erosion geometry was applied based on FEMA G&S criteria. The creation of this dataset is only applicable in coastal areas where dunes are present.

This feature class is linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_PFD_Ersn_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
PFDERSN_ID	PFD Erosion Area Identifier. User-defined Primary Key/Unique Identifier. This field should be sequentially numbered for all records in the table.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this S_PFD_Ersn_Ar lies. See the definition in S_FRD_Pol_Ar for more detail.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the S_PFD_Ersn_Ar lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail.
TOPO_SRC	Source of the topographic data from which the PFD was delineated.
TOPO_DATE	Date of the topographic data source from which the PFD was delineated.
DELIN_DATE	Date of feature delineation.
PFD_TF	Part of the PFD (True or False).
ERSN_TYP	Erosion type. This is the eroded dune geometry expected to result from the base flood as determined by the erosion analysis for the flood study. Valid values for this field are in the domain D_Ersn_Typ – ERODED (dune reservoir is less than 540 square feet and dune is destroyed), RETREATED (dune reservoir is greater than 540 square feet and a scarp is formed), or NONE (erosion not a hazard or hazard not evaluated for FIS).
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the primary frontal dune erosion area lies.

Flood Risk Database Technical Reference

Attribute Definitions – S_PFD_Ersn_Ar

CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

Field Properties – S_PFD_Ersn_Ar

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
PFDERSN_ID	UPK	R	Text	25		N/A
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
TOPO_SRC		R	Text	100		N/A
TOPO_DATE		R	Date	Default		N/A
DELIN_DATE		R	Date	Default		N/A
PFD_TF		R	Text	1		D_TrueFalse
ERSN_TYP		R	Text	4		D_Ersn_Typ
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Feature Class: S_RM_Dams_Pt - Risk Map Dam Locations

This feature class includes point locations for dams that are included as part of the flood risk project.

Attribute Definitions – S_RM_Dams_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
RM_DAMS_ID	Risk Map Dams Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
NAME	Name most commonly used to reference the dam.
DESCRIP	Description of dam to be used in Flood Risk Report.
NID_ID	National Inventory of Dams Identifier. Foreign Key to the National Inventory of Dams database.
AOMI_ID	Area of Mitigation Interest Identifier. Foreign Key to the S_AOMI_Pt feature class.
OWNER	Name of the dam owner, as well as builder and/or designer if applicable. For example if a municipality was the current owner/operator of a dam which was designed and constructed by the US Army Corps of Engineers, an appropriate entry to this field would be “City of Smallville / USACE”.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this dam lies. See the definition in S_FRD_Pol_Ar for more detail. If the dam point does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the Dam lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the Dam does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
ST_FIPS	State FIPS code for the state where the dam is located
HAZ_CLASS	Hazard classification (High, Significant, Low). Metadata must provide state definitions for each classification and how the state classifications were translated into the standardized classifications above.
YEAR_BUILT	Year in which the dam was constructed (YYYY).
CONST_TYPE	The type of construction of the dam (RCC, Earth Fill, etc.).
LENGTH_FT	The length of the dam (measured in feet).
HEIGHT_FT	The height of the dam (measured in feet).
DRN_AR_SM	The drainage area (measured in square miles).

Flood Risk Database Technical Reference

Attribute Definitions – S_RM_Dams_Pt

NORMSTORAF	The volume of water stored at normal pool (measured in acre-feet).
TODSTORAF	The total volume of water stored when pool is at the top of dam (measured in acre-feet).
TOD_ELEV	The top of dam elevation (measured in feet). The datum and units for the top of dam elevation shall be documented in the S_FRD_Proj_AR. For the majority of cases, the datum should be NAVD88. Uses D_V_Datum domain table.
EAP	Existence of an Emergency Action Plan (T/F).
EAP_ORG_NM	The name of the organization where the EAP is maintained, if the field above is false, the organization name will be listed as Null.
EAP_ORG_URL	The internet URL for the organization where the EAP is maintained, if the field above is false, the organizations URL will be listed as Null.
DEFICIENCS	Existence of any known dam safety deficiencies (T/F).
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the dam point lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.

Field Properties – S_RM_Dams_Pt

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
RM_DAMS_ID	UPK	R	Text	25		N/A
NAME		R	Text	128		N/A
DESCRIP		R	Text	128		N/A
NID_ID	FK	R	Text	25		N/A
AOMI_ID	FK	R	Text	25		S_AOMI_Pt
OWNER		R	Text	100		N/A
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
ST_FIPS		R	Text	2		D_State_FIPS
HAZ_CLASS		R	Text	4		D_HAZ_Class
YEAR_BUILT		R	Text	4		N/A
CONST_TYPE		R	Text	4		D_Const_Typ

Flood Risk Database Technical Reference

Attribute Definitions – S_RM_Dams_Pt

LENGTH_FT		R	Double	Default	Default	N/A
HEIGHT_FT		R	Double	Default	Default	N/A
DRN_AR_SM		R	Double	Default	Default	N/A
NORMSTORAF		R	Double	Default	Default	N/A
TODSTORAF		R	Double	Default	Default	N/A
TOD_ELEV		R	Double	Default	Default	N/A
EAP		R	Text	1		D_TrueFalse
EAP_ORG_NM		A	Text	128		N/A
EAP_ORG_URL		A	Text	128		N/A
DEFICIENCS		R	Text	1		D_TrueFalse
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Feature Class: S_UDF_Pt - User Defined Facility Locations

This enhanced feature class locates UDFs for which site or location-specific risk assessments are performed. There is one record for each UDF assessed. The results are stored in a risk assessment table (L_RA_UDF_Summary) and related to this point feature class (at the centroid of the building footprint, parcel boundary, etc.).

This feature class provides the location and inventory data where site-specific risk assessments were performed. This table is linked with the L_RA_UDF_Refined table to allow presentation of the UDF analysis on a thematic map. This feature class is also linked to the L_Source_Cit table to document the sources for the data.

Attribute Definitions – S_UDF_Pt

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
UDF_ID	UDF Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
CEN_BLK_ID	Census Block Identifier. See the CEN_BLK_ID field in the S_CenBlk_Ar feature class for more detail.
OCCUP_TYP	Specific Occupancy Type from risk assessment analysis. Uses D_Occupancy_Typ for valid values.
FACLTYP_TYP	Facility Type. Uses D_Facility_Typ for valid values.
ARV_BLDG	Asset Replacement Value of Building.
ARV_CNTNT	Asset Replacement Value of Contents.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the point representing the facility lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Field Properties – S_UDF_Pt

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SHAPE		R	Geometry	Default		N/A
UDF_ID	UPK, FK	R	Text	25		L_RA_UDF_Refined

Flood Risk Database Technical Reference

Field Properties – S_UDF_Pt

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
CEN_BLK_ID	FK	R	Text	17		S_CenBlk_Ar
OCCUP_TYP		R	Text	5		D_Occupancy_Typ
FACLTYP		R	Text	4		D_Facility_Typ
ARV_BLDG		R	Long Integer	Default		N/A
ARV_CNTNT		R	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Feature Class: S_US_Inundation_Ar - Inundation Areas Upstream of Dams

This feature class contains flood inundation areas upstream of a dam for various scenarios.

Attribute Definitions – S_US_Inundation_Ar

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SHAPE	Shape Geometry Field. Internal field used by ArcGIS software to store the feature geometry.
US_INUN_ID	Upstream Inundation Identifier. User-defined Primary Key/Unique Identifier. This field should be sequentially numbered for all records in the table.
RM_DAMS_ID	Risk Map Dams Identifier. Foreign Key to S_RM_Dams_Pt feature class.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA in which this inundation area lies. This may require subdividing the inundation areas using the S_FRD_Pol_Ar feature class. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
POL_NAME1	Political Area Name 1. This is the primary name of the community in which the inundation area lies. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. If the inundation area does not lie in an area covered by a FEMA community identifier, this field shall be populated with a null value.
SCENAR_ID	Scenario Identifier. Foreign Key to the L_Dam_Scenario table.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the inundation area lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.
SHAPE_LENGTH	Internal field used by ArcGIS software to store the length of the feature's geometry.
SHAPE_AREA	Internal field used by ArcGIS software to store the area of the feature's geometry.

. Field Properties – S_US_Inundation_Ar

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A

Flood Risk Database Technical Reference

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
SHAPE		R	Geometry	Default		N/A
US_INUN_ID	UPK	R	Text	25		N/A
RM_DAMS_ID	FK	R	Text	25		S_RM_Dams_Pt
CID	FK	A	Text	6		S_FRD_Pol_Ar
POL_NAME1		A	Text	50		N/A
SCENAR_ID	FK	R	Text	25		L_Dam_Scenario
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit
SHAPE_LENGTH		R	Double	Default	Default	N/A
SHAPE_AREA		R	Double	Default	Default	N/A

Table: FRD_Model_Info - Engineering Model Information

This table describes the models that were used in the most recent update completed for a flood risk project and the prior analyses. This table will have one record for each unique combination of models used to create the SFHAs that were used to develop the S_CSLF_Ar feature class. Each record in the table could apply to many polygons in the S_CSLF_Ar feature class.

Generally, each polygon in the S_CSLF_Ar feature class will refer to two records in the FRD_Model_Info table, one for the previous models used to delineate the prior floodplains and one for the new models used to generate the current floodplains. If a CSLF polygon has multiple models of the same type (e.g., two hydrologic models), then the CSLF polygons should be subdivided accordingly. If the CSLF polygon spans FIRM panels that have different effective dates, then those polygons should be divided at the panel boundaries.

This table is the intermediary between the S_CSLF_Ar feature class and the FRD_Study_Info table.

This table is linked to the S_CSLF_Ar table to provide an easy way to determine which model(s) are associated with each CSLF polygon.

Attribute Definitions – FRD_Model_Info

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
MDL_NFO_ID	Model Info Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
STD_NFO_ID	Study Info Identifier. Foreign Key to FRD_Study_Info table to uniquely identify which study the model came from.
EFF_DATE	Effective Date for FIRM created with this model combination.
ANLYS_DATE	Analysis date when models were run. If the varying models are executed on different dates (e.g., the hydrologic model was executed a month before the hydraulic model), then the ANLYS_DATE field is populated with the latter of all the model execution dates.
STUDY_TYP	Study Type. Describes the type of study for which modeling was performed. Uses D_Study_Typ for possible values.
HYDRO_MDL	Hydrologic Model used for the Analysis; null if not applicable. Uses D_Hydro_Mdl for possible values.
HYDRA_MDL	Hydraulic Model used for the Analysis; null if not applicable. Uses D_Hydra_Mdl for possible values.
SURGE_MDL	Surge Model used for the Analysis; null if not applicable. Uses D_Surge_Mdl for possible values.
WAVEHT_MDL	Wave Height Model used for the Analysis, null if not applicable. Uses D_Wave_Mdl for possible values.

Flood Risk Database Technical Reference

Attribute Definitions – FRD_Model_Info

RUNUP_MDL	Run-up Model used for the Analysis, null if not applicable. Uses D_Runup_Mdl for possible values.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin that the modeling represents. If the model affects multiple sub-basins, then populate this field with 'MULTI'.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – FRD_Model_Info

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
MDL_NFO_ID	UPK	R	Text	25		S_CSLF_Ar
STD_NFO_ID	FK	R	Text	25		FRD_Study_Info
EFF_DATE		R	Date	Default		N/A
ANLYS_DATE		R	Date	Default		N/A
STUDY_TYP		R	Text	4		D_Study_Typ
HYDRO_MDL		A	Text	4		D_Hydro_Mdl
HYDRA_MDL		A	Text	4		D_Hydra_Mdl
SURGE_MDL		A	Text	4		D_Surge_Mdl
WAVEHT_MDL		A	Text	4		D_Wave_Mdl
RUNUP_MDL		A	Text	4		D_Runup_Mdl
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Flood Risk Database Technical Reference

Table: FRD_Study_Info - Study Information

The FRD_Study_Info table contains details about the FIRM projects in the flood risk project. There should be one record for each FIRM within the project extents whose data has been incorporated into the FRD.

Attribute Definitions – FRD_Study_Info

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
STD_NFO_ID	Study Info Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table. After aggregating the Study_Info tables from multiple FIRM databases, this field will likely need to be renumbered to provide unique values for all records in the table.
DFIRM_ID	Flood Risk Project Identifier. For a single-jurisdiction flood risk project, the value is composed of the 2-digit state FIPS code and the 4-digit FEMA CID code (e.g., 480001). For a countywide flood risk project, the value is composed of the 2-digit state FIPS code, the 3-digit county FIPS code, and the letter “C” (e.g., 48107C). Within each FIRM database, the DFIRM_ID value is identical.
STUDY_PRE	Study Prefix. This is the prefix of the flood risk project name such as ‘City of’ or ‘Town of’. This field is applicable for single-jurisdiction maps where the type of jurisdiction precedes the name of the jurisdiction in the map title. For county-wide maps or maps of the unincorporated portions of a county, this field is null. Acceptable values for this field are listed in the D_Study_Prefix domain.
STUDY_NM	Study Name. This attribute contains the main portion of the flood risk project name, which is shown in the title block of the hardcopy FIRM. For county-wide FIRMs, or FIRMs for the unincorporated portions of counties, the name should include the county or county equivalent descriptor (e.g., Washington County or Iberia Parish).
STATE_NM	State Name. This attribute contains the state name for the flood risk project and is shown in the title block of the hardcopy FIRM. Acceptable values are listed in the D_State_Name domain.
CNTY_NM	County Name. This is the county (or county equivalent) name that the flood risk project falls within. The name should include the county or county equivalent descriptor (e.g., Washington County or Iberia Parish). The county name is also shown in the title block section of the hardcopy FIRM. If the study affects multiple counties, then populate this field with ‘MULTI’.

Flood Risk Database Technical Reference

Attribute Definitions – FRD_Study_Info

JURIS_TYP	Political Jurisdiction Type. This attribute contains the type of jurisdiction for the political entity. This field is populated when the political entity has an associated jurisdiction type. If there is data in this attribute, it is also shown in the title block section of the hardcopy FIRM. Acceptable values for this field are listed in the D_Jurisdiction_Typ domain. If the study affects multiple jurisdictions, then populate this field with ‘9999 – Other’.
H_DATUM	Horizontal Datum. Valid entries for this attribute include NAD27 or NAD83. This is the horizontal datum used for the printed FIRM. The horizontal datum describes the reference system on which the horizontal coordinate information shown on the FIRM is based. NAD83 is the preferred horizontal datum. Acceptable values for this field are listed in the D_Horiz_Datum domain.
V_DATUM	Vertical Datum. This is the vertical datum of the printed FIRM. The vertical datum describes the reference surface from which elevation on the map is measured. Normally this would be NAVD88 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
PROJECTION	Map Projection used for hardcopy FIRM publication. Acceptable values for this field are listed in the D_Projection domain.
PROJ_ZONE	Projection Zone. Many map projections and coordinate systems are divided into zones. This field is populated based on the projection selected for the final hardcopy map production. Applies if the projection used has a zone parameter such as UTM or state plane. The zone should be stated as the appropriate UTM or FIPS zone.
PROJ_UNIT	Projection Unit. When using map projections and coordinate systems, there is a unit associated with the projection defined in the PROJECTION field. This field is populated based on the projection selected for the final hardcopy map production. Acceptable values for this field are listed in the D_Proj_Unit table.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – FRD_Study_Info

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
STD_NFO_ID	UPK	R	Text	25		N/A
DFIRM_ID		R	Text	6		N/A
STUDY_PRE		A	Text	4		D_Study_Prefix

Flood Risk Database Technical Reference

Field Properties – FRD_Study_Info

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
STUDY_NM		R	Text	128		N/A
STATE_NM		R	Text	4		D_State_Name
CNTY_NM		R	Text	128		N/A
JURIS_TYP		A	Text	4		D_Jurisdiction_Typ
H_DATUM		R	Text	6		D_Horiz_Datum
V_DATUM		R	Text	6		D_V_Datum
PROJECTION		R	Text	6		D_Projection
PROJ_ZONE		A	Text	4		N/A
PROJ_UNIT		R	Text	6		D_Proj_Unit
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: FRR_Custom - Flood Risk Report Custom Text

This table stores custom text written for the project and communities in Section 3 of the FRR, Flood Risk Analysis Results. The actual text is to be stored as an Office Open XML 2.0 compliant markup fragment containing only text and styles. There is one record for each community and one record for the project level summary for Section 3 of the FRR.

Attribute Definitions – FRR_Custom

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
FRR_CUSTID	FRR Custom ID. For the case of the community records in this table, this is the six-digit CID assigned by FEMA. See the CID field in FRD_Pol_Ar for a more detailed explanation. For the case of the project summary record, the FRR_CUSTID field should be populated with the FEMA Case Number in the same format as the CASE_NO field below.
OVERVIEW_1	Custom text for overview paragraphs <u>before</u> the table in the Overview section of each community. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
OVERVIEW_2	Custom text for overview paragraphs <u>after</u> the table in the Overview section of each community. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
CSLF_1	Custom report text for changes since last FIRM paragraphs <u>before</u> the table in the CSLF section of each community. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
CSLF_2	Custom report text for changes since last FIRM paragraphs <u>after</u> the table in the CSLF section of each community. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
PRV_EFFDAT	Previous Effective Date. Custom text for previous FIRM effective date in plain text (e.g., “September 10, 2004”). Appears below the CSLF table in Section 3 of the FRR.
CUR_EFFDAT	Current Effective Date. Custom text for current FIRM effective date in plain text (e.g., “September 30, 2008”). Appears below the CSLF table in Section 3 of the FRR.
FDAG	Flood Depth and Analysis Grids text. Custom text for flood depth and analysis grids paragraphs. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
ELI_1	Custom text for estimated loss information (ELI) paragraphs <u>before</u> the table in the estimated loss information section of each community. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.

Flood Risk Database Technical Reference

Attribute Definitions – FRR_Custom

ELI_2	Custom text for ELI paragraphs <u>after</u> the table in the estimated loss information section of each community. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
AOMI_1	Custom text for areas of mitigation interest paragraphs <u>before</u> the table in the AoMIs section for each community in Section 3 of the FRR. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
AOMI_2	Custom text for areas of mitigation interest paragraphs <u>after</u> the table in the AoMIs section for each community in Section 3 of the FRR. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – FRR_Custom

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
FRR_CUSTID	UPK, FK	R	Text	25		S_FRD_Pol_Ar
OVERVIEW_1		R	Blob	Default		N/A
OVERVIEW_2		A	Blob	Default		N/A
CSLF_1		R	Blob	Default		N/A
CSLF_2		A	Blob	Default		N/A
PRV_EFFDAT		R	Text	18		N/A
CUR_EFFDAT		R	Text	18		N/A
FDAG		R	Blob	Default		N/A
ELI_1		R	Blob	Default		N/A
ELI_2		A	Blob	Default		N/A
AOMI_1		R	Blob	Default		N/A
AOMI_2		A	Blob	Default		N/A
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Flood Risk Database Technical Reference

Table: FRR_Images - Flood Risk Report Images

This table stores custom images in the FRR. This includes the FRM image at the beginning of Section 3 that is displayed once, as well as custom sidebar images in each of the community results. If an image is for a community within Section 3, the CID field is populated. If it is not, it is assumed to be the FRM image.

Attribute Definitions – FRR_Images

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
FRR_IMG_ID	FRR Image Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
CID	Community Identification Number. This is the six-digit CID assigned by FEMA that this image pertains to and appears in that communities' section of the FRR. See S_FRD_Pol_Ar for more detail. For images in the project level custom text, use the FEMA Case Number to populate this field.
IMG_BINARY	Binary field containing the image. The image is stored in the fGDB as a managed raster, not a link to a location in the folder structure for the project.
IMG_HEIGHT	Height of the image in the document in inches.
IMG_WIDTH	Width of the image in the document in inches.
IMG_CPTION	Caption placed on the image.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties - FRR_Images

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
FRR_IMG_ID	UPK	R	Text	25		N/A
CID	FK	R	Text	12		S_FRD_Pol_Ar
IMG_BINARY		R	Raster	N/A		N/A
IMG_HEIGHT		R	Float	Default	Default	N/A
IMG_WIDTH		R	Float	Default	Default	N/A
IMG_CPTION		R	Text	50		N/A
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Flood Risk Database Technical Reference

Table: FRR_Project - Flood Risk Report Project Information

This table stores report material specific to the entire project (i.e., project-level, custom text for Section 7 of the FRR). Any text is to be stored as an Office Open XML 2.0 compliant markup fragment containing only text and styles. There should be one record in this table.

Attribute Definitions - FRR_Project

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
FRR_PRJ_ID	FRR Project Identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
DATA_USED	Custom text for Section 7, <i>Data Used to Develop Flood Risk Products</i> in the FRR. This is an Office Open XML 2.0 compliant markup fragment containing only text and styles.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties - FRR_Project

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
FRR_PRJ_ID	UPK	R	Text	25		N/A
DATA_USED		R	Blob	Default		N/A
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_AOMI_Summary - Area of Mitigation Interest Community Summary Table

This enhanced table stores summary counts by various classifications of AoMI points by community or partial community within the project area. There is one record for each unique combination of community, mitigation interest type, and data source. There is also a set of summary records for the project area. This table is linked with the S_FRD_Pol_Ar to allow visualization of this summary on a thematic map.

Attribute Definitions – L_AOMI_Summary

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
AOMISUMMID	AoMI Summary Identification Number. For the case of the community records in this table, this is the six-digit CID assigned by FEMA. See the CID field in FRD_Pol_Ar for a more detail explanation. For the case of the project summary record, the AOMISUMMID should be populated with the FEMA Case Number in the same format as the CASE_NO field below.
POL_NAME1	Political Area Name 1 - This is the primary name of the community. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail.
AOMI_CLASS	AOMI Classification. Describes the class of the AOMI (e.g., Riverine, Coastal, Past Claims, and Mitigation). Refer to the D_AOMI_Class domain for possible values.
AOMI_TYP	AOMI Type. Identifies the type of the AOMI (e.g., Dams, Levee Status, etc.). This field is used as the first column in the sample FRR table above. There should be one row in the above table for each different AOMI_TYP. Refer to the D_AOMI_Typ domain for possible values.
AOMI_CAT	AOMI Category. Categorizes the various information sources for standardization of names. Refer to D_AOMI_SourceCat for possible values.
AOMI_SRCE	AOMI Source. Describes the information source of the AoMIs data (e.g., State CTP, local public works, etc.). The Mapping Partner should exercise care in standardizing the spelling of data sources within a flood risk project (i.e., the AOMI_SRCE field in S_AOMI_Pt feature class, so that this summary table can be generated semi-automatically based on unique AOMI_SRCE in that feature class.
TOTAL	This is the total count of the number of AoMIs for each AoMI Type by AoMI Source in the S_AOMI_Pt feature class.

Flood Risk Database Technical Reference

Attribute Definitions – L_AOMI_Summary

HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the community lies. If a community is in multiple HUC-8 sub-basins, the sub-basin in which the portion of the community being studied lies shall be used. If the portion of the community being studied is in multiple sub-basins, the sub-basin in which the greatest portion of the community lies shall be used. For the project-level record (i.e., AOMISUMMID = CASE_NO), this field should be populated with “NP”.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_AOMI_Summary

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
AOMISUMMID	UPK, FK	R	Text	12		S_FRD_Pol_Ar
POL_NAME1		R	Text	50		N/A
AOMI_CLASS		R	Text	4		D_AOMI_Class
AOMI_TYP	UPK	R	Text	4		D_AOMI_Typ
AOMI_CAT		R	Text	4		D_AOMI_SourceCat
AOMI_SRCE	UPK	R	Text	50		N/A
TOTAL		R	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_Claims - Community Claims Table

This table stores historic claims and repetitive loss information for each community or partial community within the project area. There should be one record in the table for each community or partial community in the project area. There should also be an additional record for the totals for the entire project area. For this totals record, the CLAIMS_ID field should be populated with the FEMA Case Number in the same format as the CASE_NO field. This table is linked with the S_FRD_Pol_Ar to allow visualization of this summary for ad-hoc thematic mapping.

Attribute Definitions – L_Claims

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
CLAIMS_ID	Claims Identification Number. For the case of the community records in this table, this is the six-digit CID assigned by FEMA. See the FRD_Pol_Ar CID field for a more detailed explanation. For the case of the project summary record, the CLAIMS_ID should be populated with the FEMA Case Number in the same format as the CASE_NO field below.
POL_NAME1	Political Area Name 1 - This is the primary name of the community. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. For the Project summary record (i.e., CLAIMS_ID = CASE_NO), the POL_NAME1 field should be populated with the project / sub-basin name (e.g., Watershed USA).
CLAIMS	Number of claims for the community or project area
CLAIMS_VAL	Total value of all claims for the community or project area. The value shall be stored in whole dollars, not thousands (e.g., \$1,000,000, not \$1,000 representing \$1 million).
RLP_RES	Residential Repetitive Loss Properties. Count of Residential NFIP-recognized Repetitive Loss Properties.
RLP_COM	Commercial Repetitive Loss Properties. Count of Commercial NFIP-recognized Repetitive Loss Properties.
RLV_RES	Value of Residential NFIP-recognized Repetitive Loss Properties. The value shall be stored in whole dollars, not thousands (e.g., \$1,000,000, not \$1,000 representing \$1 million).
RLV_COM	Value of Commercial NFIP-recognized Repetitive Loss Properties. The value shall be stored in whole dollars, not thousands (e.g., \$1,000,000, not \$1,000 representing \$1 million).
SRL_RES	Severe Repetitive Loss Properties. Count of Residential NFIP-recognized Severe Repetitive Loss Properties.

Flood Risk Database Technical Reference

Attribute Definitions – L_Claims

HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the community lies. If a community is in multiple HUC-8 sub-basins, the sub-basin in which the portion of the community being studied lies shall be used. If the portion of the community being studied is in multiple sub-basins, the sub-basin in which the greatest portion of the project area lies shall be used. For the project-level record (i.e., CLAIMS_ID = CASE_NO), this field should be populated with “NP.”
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_Claims

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
CLAIMS_ID	UPK, FK	R	Text	12		S_FRD_Pol_Ar
POL_NAME1		R	Text	50		N/A
CLAIMS		R	Long Integer	Default		N/A
CLAIMS_VAL		R	Double	Default	Default	N/A
RLP_RES		R	Long Integer	Default		N/A
RLP_COM		R	Long Integer	Default		N/A
RLV_RES		R	Double	Default	Default	N/A
RLV_COM		R	Double	Default	Default	N/A
SRL_RES		R	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_CSLF_Summary - CSLF Community Summary Table

This table stores summary statistics of the CSLF analysis by Community, including the changes in area, population, and number of buildings in the SFHA, non-SFHA, and Floodway.

The table contains up to three records for each community with a unique CID in the project area. The three records are for the SFHA, non-SFHA, and floodway areas for each community. The table also contains up to three records (SFHA, non-SFHA, and FLDWY) for the project total summaries. For those project total summary records, the CSLFSUMMID field should be populated with the FEMA Case Number. The combination of the CSLFSUMMID and LOCATION fields provide access to a unique record in this table.

In creating the L_CSLF_Summary table, the Mapping Partner should aggregate the polygon attribute values (i.e., area, population, and building counts) in the S_CSLF_Ar feature class by community (e.g., city, town, village, or unincorporated portion of a county). If individual CSLF polygons extend outside the project boundary in S_FRD_Proj_Ar, only the portion within the project boundary should be aggregated. The aggregated values should represent the totals for that portion of the community in the project area.

Attribute Definitions – L_CSLF_Summary

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
CSLFSUMMID	CSLF Summary Identification Number. For the case of the community records in this table, this is the six-digit CID assigned by FEMA. See the CID field in S_FRD_Pol_Ar for more detail explanation. For the case of the project summary record, the CSLFSUMMID should be populated with the FEMA Case Number in the same format as the CASE_NO field below.
POL_NAME1	Political Area Name 1. This is the primary name of the community. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. For the Project summary record (i.e., CSLFSUMMID = CASE_NO), the POL_NAME1 field should be populated with the project / watershed name (e.g., Watershed USA).
LOCATION	This field is the location for which the summary statistic is being totaled. Available coded values include SFHA, non-SFHA, and FLDWY, which are controlled by the D_SFHA_FLDWY domain.

Flood Risk Database Technical Reference

Attribute Definitions – L_CSLF_Summary

AREA_SM	Area in square miles. This field is populated with the area in square miles for the respective location (SFHA, non-SFHA, or FLDWAY) for that community. The area shall be measured based on the local coordinate system used during data compilation. The result shall be expressed to the nearest 0.1 square mile.
AREA_INCR	Area Increase. This field is populated with the increase in area in square miles for the respective location (SFHA, non-SFHA, or FLDWAY) since the last FIRM for that community. The area shall be measured based on the local coordinate system used during data compilation. The result shall be expressed to the nearest 0.1 square mile.
AREA_DECR	Area Decrease. This field is populated with the decrease in area in square miles for the respective location (SFHA, non-SFHA, or FLDWAY) since the last FIRM for that community. The area shall be measured based on the local coordinate system used during data compilation. The result shall be expressed to the nearest 0.1 square mile. The value should include the negative sign indicating a decrease in area.
AREA_NET	Net Area. This field is populated with the net change in area in square miles for the respective location (SFHA, non-SFHA, or FLDWAY) since the last FIRM for that community. The area shall be measured based on the local coordinate system used during data compilation. The result shall be expressed to the nearest 0.1 square mile. If applicable, the value should include the negative sign indicating a decrease in area.
POP_INCR	Population Increase. This field is populated with the increase in population for the respective location (SFHA, non-SFHA, or FLDWY) since the last FIRM for that community. This is an Enhanced field and shall be required if the enhanced option is designated in the MAS. This field is null for the project-level record.
POP_DECR	Population Decrease. This field is populated with the decrease in population for the respective location (SFHA, non-SFHA, or FLDWY) since the last FIRM for that community. This is an Enhanced field. The value should include the negative sign indicating a decrease in population. This field is null for the project-level record.
POP_NET	Population Net Change. This field is populated with the net change in population for the respective location (SFHA, non-SFHA, or FLDWY) since the last FIRM for that community. This is an Enhanced field. If applicable, the value should include the negative sign indicating a decrease in population. This field is null for the project-level record.

Flood Risk Database Technical Reference

Attribute Definitions – L_CSLF_Summary

BLDG_INCR	Building Increase. This field is populated with the increase in the number of buildings for the respective location (SFHA, non-SFHA, or FLDWY) since the last FIRM for that community. This is an Enhanced field. This field is null for the project-level record.
BLDG_DECR	Building Decrease. This field is populated with the decrease in the number of buildings for the respective location (SFHA, non-SFHA, or FLDWY) since the last FIRM for that community. This is an Enhanced field. The value should include the negative sign indicating a decrease in affected buildings. This field is null for the project-level record.
BLDG_NET	Building Net Change. This field is populated with the net change in the number of buildings for the respective location (SFHA, non-SFHA, or FLDWY) since the last FIRM for that community. This is an Enhanced field. If applicable, the value should include the negative sign indicating a decrease in affected buildings. This field is null for the project-level record.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the community lies. If a community is in multiple HUC-8 sub-basins, the sub-basin in which the portion of the community being studied lies shall be used. If the portion of the community being studied is in multiple sub-basins, the sub-basin in which the greatest portion of the project area lies shall be used. For the project-level record (i.e., CSLFSUMMID = CASE_NO), this field should be populated with “NP”.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_CSLF_Summary

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain / Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
CSLFSUMMID	UPK, FK	R	Text	12		S_FRD_PoL_Ar
POL_NAME1		R	Text	50		N/A
LOCATION	UPK	R	Text	7		D_SFHA_FLDWY
AREA_SM		R	Double	Default	Default	N/A
AREA_INCR		R	Double	Default	Default	N/A
AREA_DECR		R	Double	Default	Default	N/A
AREA_NET		R	Double	Default	Default	N/A
POP_INCR		E	Long Integer	Default		N/A

Flood Risk Database Technical Reference

Field Properties – L_CSLF_Summary

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain / Related Table
POP_DECR		E	Long Integer	Default		N/A
POP_NET		E	Long Integer	Default		N/A
BLDG_INCR		E	Long Integer	Default		N/A
BLDG_DECR		E	Long Integer	Default		N/A
BLDG_NET		E	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Flood Risk Database Technical Reference

Table: L_Dam_Scenario - Dam Scenario Definition Table

This table describes each scenario that has been modeled for a dam. The scenario is defined as the unique combination of the domains defining the flooding event, release type and the condition of the reservoir at the time of the release. The following table illustrates the possible combinations that can be used to define a scenario.

Table 3. Dam Scenario Naming Standards

Event (D_Event)	Release Type (D_Release_Typ)	Reservoir Condition (D_Reservoir_Cond)
0_2 – 0.2% annual chance event 01pct – 1% annual chance event 02pct – 2% annual chance event 04pct – 4% annual chance event 10pct – 10% annual chance event PMF – Probable Maximum Flood PMF14 – ¼ of PMF PMF13 – ⅓ of PMF PMF12 – ½ of PMF PMF34 – ¾ of PMF PMP – Probable Maximum Precipitation PMP14 – ¼ of PMP PMP13 – ⅓ of PMP PMP12 – ½ of PMP PMP34 – ¾ of PMP SUN – Sunny Day FOR – Flood of Record (to be described in L_Dam_Scenario and metadata)	<u>P</u> iping <u>O</u> vertop <u>G</u> ate Failure	<u>F</u> ull <u>N</u> ormal Pool <u>A</u> uxiliary Spillway <u>P</u> rimary Spillway <u>W</u> ithout Dam

Attribute Definitions – L_Dam_Scenario

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
SCENAR_ID	Scenario Identification. Concatenation of Event, Release Type and Reservoir Condition or a unique identifier for non-standard scenarios.
EVENT	This is the precipitation event for which the upstream inundation area was developed. The D_Event domain from the riverine version of the FRD can be used with a few additions (e.g., PMP – Probable Maximum Precipitation, SUN – Sunny Day [no precipitation], FOR - Flood of Record). This field may be null for certain values in RSVR_COND.

Flood Risk Database Technical Reference

Attribute Definitions – L_Dam_Scenario

RELEA_TYP	This is the release type for which the downstream inundation area was developed. This should be controlled by a domain. P – Piping, O – Overtop, and G – Gate Failure. This value would be null for upstream inundation scenarios.
RSVR_COND	This is the reservoir condition under which the dam was assumed to be operating for the scenario modeled. Typical values for the reservoir condition are: F – Full, N – Normal Pool, A – Auxiliary Spillway, P – Primary Spillway, and W – Without Dam.
RSVR_ELEV	The pool elevation of the reservoir at the dam for the condition modeled. The datum and units of the reservoir elevation shall be documented in the S_FRD_Proj_Ar. For the majority of cases, the datum should be NAVD88. Uses D_V_Datum domain table.
DESCRIP	Free form text field for providing additional descriptive information about the scenario (e.g., describe the flood of record).
MDL_NFO_ID	Foreign Key to FRD_Model_Info table for the models used to estimate the results for this scenario.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Field Properties – L_Dam_Scenario

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SCENAR_ID	UPK	R	Text	25		N/A
EVENT		R	Text	6		D_Event
RELEA_TYP		R	Text	2		D_Release_Typ
RSVR_COND		R	Text	2		D_Reservoir_Cond
RSVR_ELEV		R	Double	Default	Default	N/A
DESCRIP		R	Text	50		N/A
MDL_NFO_ID	FK	R	Text	25		FRD_Model_Info
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Table: L_Dams_XS_MDL_Results - Model Results by Cross-Sections

This table contains the results by cross section from the model of the dam release scenarios. This dataset is related to the S_Dams_XS_Ln feature class by a relationship class.

Attribute Definitions – L_Dams_XS_MDL_Results

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
DAMS_XS_ID	Risk Map Dams Cross Section Identifier. Foreign Key to S_Dams_XS_Ln.
SCENAR_ID	Scenario Identification. Foreign Key to L_Dam_Scenario.
WSE	Water Surface Elevation of the scenario modeled. The datum and units for the WSE shall be documented in the S_FRD_Proj_Ar. For the majority of cases, the datum should be NAVD88. Uses D_V_Datum domain table.
TIME_PK	Time to the peak of the dam release (measured in minutes, x.x).
TIME_ARV	Time to the arrival of the dam release (measured in minutes, x.x), when the water surface elevation raises 1.0' above pre-scenario base flow.
TIME_DUR	Time of the duration of the flood wave (measured in minutes, x.x). From when the water surface elevation raises 1.0' above pre-scenario base flow till it returns to within 1.0' of pre-scenario base flow.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Field Properties – L_Dams_XS_MDL_Results

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
DAMS_XS_ID	UPK	R	Text	25		N/A
SCENAR_ID	FK	R	Text	25		L_Dam_Scenario
WSE		R	Double	Default	Default	N/A
TIME_PK		A	Double	Default	Default	N/A
TIME_ARV		A	Double	Default	Default	N/A
TIME_DUR		A	Double	Default	Default	N/A
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Table: L_Exposure - Exposure by Community

This table stores data regarding flood risk exposure for each community or partial community within the project area. The Mapping Partner shall use appropriate techniques (e.g., area-weighted summations) to aggregate the Census Block based risk assessment results by community, or partial community, and totaled for the project area. If the Asset Replacement Values in S_CenBlk_Ar feature class represent values outside the project area, area-weighting should be used to determine the values for the portion(s) of the community within the project area. Note that the data stored in the L_Exposure table are in whole dollars, but the data exported from Hazus are in \$1,000s.

There should be one record in the table for each community or partial community in the project area. If a community extends beyond the project footprint, the summary results in this table should represent only the portion within the project area. There should also be an additional record for the totals for the entire project area. For this totals record, the EXPOS_ID field should be populated with the FEMA Case Number in the same format as the CASE_NO field.

This table is linked with the S_FRD_Pol_Ar to allow visualization of this exposure data on a thematic map.

Attribute Definitions – L_Exposure

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
EXPOS_ID	Exposure Identification Number. For the case of the community records in this table, this is the six-digit CID assigned by FEMA. See the CID field in S_FRD_Pol_Ar for more detail. For the case of the project summary record, the EXPOS_ID should be populated with the FEMA Case Number in the same format as the CASE_NO field below.
POL_NAME1	Political Area Name 1. This is the primary name of the community. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail. For the Project summary record (i.e., CLAIMS_ID = CASE_NO), the POL_NAME1 field should be populated with the project / watershed name (e.g., Watershed USA).
ARV_TOT	Asset Replacement Value of all Buildings. Total building and contents asset replacement value of all buildings for the community within the project area; obtained from the Hazus inventory data and/or supplemented with local general building stock data. The value is expressed in whole dollars.
ARV_RES	Asset Replacement Value of Residential Buildings. Total residential building and contents replacement value of all buildings for the community within the project area; obtained from the Hazus inventory data and/or supplemented with local general building stock data. The value is expressed in whole dollars.

Flood Risk Database Technical Reference

Attribute Definitions – L_Exposure

- ARV_COM** Asset Replacement Value of Commercial Buildings. Total commercial building and contents replacement value of all buildings for the community within the project area; obtained from the Hazus inventory data and/or supplemented with local general building stock data. The value is expressed in whole dollars.
- ARV_OTH** Asset Replacement Value of Buildings of Other Types. Total building and contents replacement value of all other building types for the community within the project area; obtained from the Hazus inventory data and/or supplemented with local general building stock data. The value is expressed in whole dollars.
- HUC8_CODE** WBD 8-digit Hydrologic Unit Code for the sub-basin in which the community lies. If a community is in multiple HUC-8 sub-basins, the sub-basin in which the portion of the community being studied lies shall be used. If the portion of the community being studied is in multiple sub-basins, the sub-basin in which the greatest portion of the project area lies shall be used. For the project-level record (i.e., EXPOS_ID = CASE_NO), this field should be populated with “NP”.
- CASE_NO** FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
- VERSION_ID** Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_Exposure

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
EXPOS_ID	UPK, FK	R	Text	12		S_FRD_Pol_Ar
POL_NAME1		R	Text	50		N/A
ARV_TOT		R	Double	Default	Default	N/A
ARV_RES		R	Double	Default	Default	N/A
ARV_COM		R	Double	Default	Default	N/A
ARV_OTH		R	Double	Default	Default	N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Flood Risk Database Technical Reference

Table: L_Lev_Rating_Curve - Levee Rating Curve Table

This table provides information for a rating curve associated with a rating curve point location. The rating curve may include information for a range of levee scenarios.

Attribute Definitions – L_Lev_Rating_Curve

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
RAT_CUR_ID	Rating curve identifier. User-defined Primary Key / Unique Identifier. This field should be sequentially numbered for all records in the table.
RATCURPTID	Associates the Rating Curve with the Location on the Levee System. Foreign Key to the S_Lev_Rating_Curve_Pt feature class.
WSEL_VAL	Water Surface Elevation value (ft.), x coordinate.
DIS_VAL	Discharge value (cfs), y coordinate.
SPC_TYP	Special identifier type to use to on rating curve graphic. Uses D_Levee_Event domain table.
DESCRIP	Additional Descriptive Information
SCENAR_ID	Levee Scenario Identifier (Link to L_Levee_Scenario)
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the levee rating curve point lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in the S_FRD_Proj_Ar feature class for a more detailed description.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_Source_Cit. See field definition in L_Source_Cit for more detail.

Field Properties – L_Lev_Rating_Curve

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
RAT_CUR_ID	UPK	R	Text	25		N/A
RATCURPTID	FK	R	Text	25		S_Lev_Rating_Curve_Pt
WSEL_VAL		R	Double	Default	Default	N/A
DIS_VAL		R	Double	Default	Default	N/A
SPC_TYP		R	Text	3		D_Levee_Event
DESCRIP		R	Text	50		N/A
SCENAR_ID	FK	R	Text	25		L_Levee_Scenario
HUC8_CODE	FK	R	Text	8		S_HUC_Ar

Flood Risk Database Technical Reference

Field Properties – L_Lev_Rating_Curve

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT	FK	R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Table: L_Levee_Scenario - Levee Scenario Table

This table describes each scenario that has been modeled for the levee. The scenario is defined as the unique combination of the domains defining the flooding event, levee accreditation status, and the source of the flooding event. The following table illustrates the possible combinations that can be used to define a scenario. These scenarios are used to define the attribute for describing varying levee impact areas and raster naming conventions for depth, velocity, water surface elevation, and depth and velocity severity grids

Table 4. Levee Scenario Naming Standards

Event (D_Levee_Event)	Levee Accreditation Status (D_Levee_Accreditation)	Flood Hazard Source Type (D_Flooding_Source)
0_2 – 0.2% annual chance event 01 – 1% annual chance event 02 – 2% annual chance event 04 – 4% annual chance event 10 – 10% annual chance event HIS – Historical flood event LS – Levee Shadow (extents of impacted area behind a levee based on levee crest elevation) OVT – Overtop TOE – Levee toe (wet side of levee) LC – Levee Crest LT – Landward Toe	A - Accredited P – Provisionally Accredited N - Non-Accredited	R - Riverine C - Coastal D - Dam O – Other

Attribute Definitions – L_Levee_Scenario

- OBJECTID** Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
- SCENAR_ID** Scenario Identification. Concatenation of Event, Levee Accreditation Status, and Flooding Source. For non-standard scenarios and multiple scenarios with the same identifier, a unique identifier should be used. Examples: 04AR, 01ND1, 01ND2, LSPC. Primary Key - Unique Identifier
- EVENT** This is the event for which the levee analysis was developed. (Uses D_Levee_Event domain table)
- LEV_AC_TYP** Levee Accreditation Status (Uses D_Levee_Accreditation domain table)
- FLOOD_SRC** Flood Hazard Source Type (Uses D_Flooding_Source domain table)
- LEV_AN_TYP** Levee Analysis Type (Uses D_Levee_Analysis_Type domain table)

Flood Risk Database Technical Reference

Attribute Definitions – L_Levee_Scenario

DAM_SCE_ID	Dam Scenario Identifier (Link to L_Dam_Scenario). When a levee scenario is based on a dam scenario, this field will be populated to link the dam non-regulatory scenario datasets.
MDL_NFO_ID	Foreign Key to FRD_Model_Info table that describes the set of models used to determine the inundation area.
DESCRIP	Free form text field for providing additional descriptive information about the scenario (e.g., describe the flood of record).
LEV_LOC	Additional information about the Levee Location
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the levee lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
SOURCE_CIT	Source Citation from L_SOURCE_CIT. See field definition in L_Source_Cit for more detail.

Field Properties – L_Levee_Scenario

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
SCENAR_ID	UPK	R	Text	25		N/A
EVENT		R	Text	3		D_Levee_Event
LEV_AC_TYP		R	Text	1		D_Levee_Accreditation
FLOOD_SRC		R	Text	1		D_Flooding_Source
LEV_AN_TYP		R	Text	3		D_Levee_Analysis_Type
DAM_SCE_ID		R	Text	25		L_Dam_Scenario
MDL_NFO_ID		R	Text	25		FRD_Model_Info
DESCRIP		R	Text	50		N/A
LEV_LOC		R	Text	25		N/A
HUC8_CODE		R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A
SOURCE_CIT		R	Text	25		L_Source_Cit

Flood Risk Database Technical Reference

Table: L_Local_GBS - Local General Building Stock

This enhanced table stores data collected from local sources to replace the General Building Stock data from Hazus used in the AAL analysis. This table has one record for each Census Block with updated General Building Stock data. This data should be compiled for the entire Census Block, not restricted to the area inside the project boundary, nor just inside the floodplain.

The Asset Replacement Value fields in this table are in whole dollars (i.e., \$1,000,000 to represent \$1 million as opposed to \$1,000 representing \$1 million in thousands of dollars).

Attribute Definitions – L_Local_GBS

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
CEN_BLK_ID	Census Block Identifier. See the CEN_BLK_ID field in the S_CenBlk_Ar feature class for more detail.
POPULATION	Population for the Census Block.
ARV_BG_TOT	Asset Replacement Value of all building types.
ARV_CN_TOT	Asset Replacement Value of the contents for all building types.
ARV_BG_RES	Asset Replacement Value of residential buildings.
ARV_CN_RES	Asset Replacement Value of the contents for residential buildings.
ARV_BG_COM	Asset Replacement Value of commercial buildings.
ARV_CN_COM	Asset Replacement Value of the contents for commercial buildings.
ARV_BG_OTH	Asset Replacement Value of buildings of other types.
ARV_CN_OTH	Asset Replacement Value of the contents for buildings of other types.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the Census Block lies. If a Census Block is in multiple HUC-8 sub-basins, the sub-basin in which the largest portion of the Census Block lies shall be used.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_Local_GBS

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
CEN_BLK_ID	UPK, FK	R	Text	17		S_CenBlk_Ar
POPULATION		R	Long Integer	Default		N/A
ARV_BG_TOT		R	Long Integer	Default		N/A
ARV_CN_TOT		R	Long Integer	Default		N/A

Flood Risk Database Technical Reference

Field Properties – L_Local_GBS

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
ARV_BG_RES		R	Long Integer	Default		N/A
ARV_CN_RES		R	Long Integer	Default		N/A
ARV_BG_COM		R	Long Integer	Default		N/A
ARV_CN_COM		R	Long Integer	Default		N/A
ARV_BG_OTH		R	Long Integer	Default		N/A
ARV_CN_OTH		R	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_RA_AAL- - Risk Assessment AAL Study Results

This table stores the Hazus output data from the Level 1 AAL analysis conducted nationally for each county. This table is linked with the S_CenBlk_Ar to allow visualization of this data by Census Block on a thematic map.

Attribute Definitions – L_RA_AAL

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
CEN_BLK_ID	Census Block Identifier. See the CEN_BLK_ID field in the S_CenBlk_Ar feature class for more detail.
HAZARD_TYP	Hazard Type. Indicates the Hazard Type for which the remaining fields apply. The valid values for this field are in the domain D_Hazard_Typ and include Riverine, Coastal, Levee and Total. In addition to a set of records for each of the individual hazard types for which analysis was performed, a set of records should be included for the sum of the constituent hazard types.
RETURN_PER	Return Period. Indicates the return period for which the remaining fields apply. The valid values for this field are in the domain D_Event. In addition to one record for each percent chance event (10%, 2%, 1%, 0.5%, 0.2%) used in the assessment, a record should be included for the average annualized event.
TOT_LOSSES	Total Losses. For each Census Block, the estimate of the total value of all losses for the combination of hazard type and return period.
BL_TOT	Total Building Losses. For each Census Block, the estimate of total value of building for the combination of hazard type and return period.
CL_TOT	Total Content Losses. For each Census Block, the estimate of total value of content loss for the combination of hazard type and return period.
BL_RES	Residential Building Loss. For each Census Block, the estimate of total value of residential building for the combination of hazard type and return period.
CL_RES	Residential Content Loss. For each Census Block, the estimate of total value of content loss for residential buildings for the combination of hazard type and return period.
BL_COM	Commercial Building Loss. For each Census Block, the estimate of total value of commercial building for the combination of hazard type and return period.
CL_COM	Commercial Content Loss. For each Census Block, the estimate of total value of content loss for commercial buildings for the combination of hazard type and return period.

Flood Risk Database Technical Reference

Attribute Definitions – L_RA_AAL

BL_OTH	Building Loss for Other Building Types. For each Census Block, the estimate of total value of building losses for other types of buildings for the combination of hazard type and return period. Other buildings type categories are industrial, agricultural, education, religious, and government.
CL_OTH	Content Loss for Other Building Types. For each Census Block, the estimate of total value of content losses for other types of building for the combination of hazard type and return period. Other buildings type categories are industrial, agricultural, education, religious, and government.
BUS_DISRPT	Business Disruption. For each Census Block, the estimate of business disruption costs for the combination of hazard type and return period.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the Census Block lies. If a Census Block is in multiple HUC-8 sub-basins, the sub-basin in which the portion of the Census Block being studied lies shall be used.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_RA_AAL

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
CEN_BLK_ID	UPK, FK	R	Text	17		S_CenBlk_Ar
HAZARD_TYP	UPK	R	Text	4		D_Hazard_Typ
RETURN_PER	UPK	R	Text	6		D_Event
TOT_LOSSES		R	Double	Default	Default	N/A
BL_TOT		R	Double	Default	Default	N/A
CL_TOT		R	Double	Default	Default	N/A
BL_RES		R	Double	Default	Default	N/A
CL_RES		R	Double	Default	Default	N/A
BL_COM		R	Double	Default	Default	N/A
CL_COM		R	Double	Default	Default	N/A
BL_OTH		R	Double	Default	Default	N/A
CL_OTH		R	Double	Default	Default	N/A
BUS_DISRPT		R	Double	Default	Default	N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar

Flood Risk Database Technical Reference

Field Properties – L_RA_AAL

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_RA_Composite- - Risk Assessment Composite Results

This table stores the results of the composite risk analysis, where the AAL data and the refined data are combined. For a given Census Block, the composite dataset should represent either the refined or AAL results for all data fields. The field RA_SOURCE indicates if the results in this table are for the Refined or AAL analysis.

This table contains one record for each Census Block for each return period analyzed per hazard type. In addition, the table contains one record for the average annual loss per hazard type for each Census Block. The table is used in combination with the S_CenBlk_Ar and S_FRD_Pol_Ar feature classes to derive the L_RA_Summary table, which presents the risk assessments results by community. This table is linked with the S_CenBlk_Ar to allow visualization of this data by Census Block on a thematic map.

Attribute Definitions – L_RA_Composite

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
CEN_BLK_ID	Census Block Identifier. See the CEN_BLK_ID field in the S_CenBlk_Ar feature class for more detail.
HAZARD_TYP	Hazard Type. Indicates the Hazard Type for which the remaining fields apply. The valid values for this field are in the domain D_Hazard_Typ and include Riverine, Coastal, Levee and Total. In addition to a set of records for each of the individual hazard types for which analysis was performed, a set of records should be included for the sum of the constituent hazard types.
RETURN_PER	Return Period. Indicates the return period for which the remaining fields apply. The valid values for this field are in the domain D_Event. In addition to one record for each percent chance event (10%, 2%, 1%, 0.5%, 0.2%) used in the assessment, a record should be included for the average annualized event.
RA_SOURCE	Risk Assessment Source. Indicates if the results in this table for this record are for the Refined or AAL analysis.
TOT_LOSSES	Total Losses. For each Census Block, the estimate of the total value of all losses for the combination of hazard type and return period.
BL_TOT	Total Building Losses. For each Census Block, the estimate of total value of building for the combination of hazard type and return period.
CL_TOT	Total Content Losses. For each Census Block, the estimate of total value of content loss for the combination of hazard type and return period.
BL_RES	Residential Building Loss. For each Census Block, the estimate of total value of residential building for the combination of hazard type and return period.

Flood Risk Database Technical Reference

Attribute Definitions – L_RA_Composite

CL_RES	Residential Content Loss. For each Census Block, the estimate of total value of content loss for residential buildings for the combination of hazard type and return period.
BL_COM	Commercial Building Loss. For each Census Block, the estimate of total value of commercial building for the combination of hazard type and return period.
CL_COM	Commercial Content Loss. For each Census Block, the estimate of total value of content loss for commercial buildings for the combination of hazard type and return period.
BL_OTH	Building Loss for Other Building Types. For each Census Block, the estimate of total value of building losses for other types of buildings for the combination of hazard type and return period. Other buildings type categories are industrial, agricultural, education, religious, and government.
CL_OTH	Content Loss for Other Building Types. For each Census Block, the estimate of total value of content losses for other types of buildings for the combination of hazard type and return period. Other buildings type categories are industrial, agricultural, education, religious, and government.
BUS_DISRPT	Business Disruption. For each Census Block, the estimate of business disruption costs for the combination of hazard type and return period.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the Census Block lies. If a Census Block crosses a HUC-8 boundary, the field shall be populated with the HUC-8 value in which the majority of the Census Block lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_RA_Composite

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
CEN_BLK_ID	UPK, FK	R	Text	17		S_CenBlk_Ar
HAZARD_TYP	UPK	R	Text	4		D_Hazard_Typ
RETURN_PER	UPK	R	Text	6		D_Event
RA_SOURCE		R	Text	3		D_RA_Source
TOT_LOSSES		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Field Properties – L_RA_Composite

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
BL_TOT		R	Double	Default	Default	N/A
CL_TOT		R	Double	Default	Default	N/A
BL_RES		R	Double	Default	Default	N/A
CL_RES		R	Double	Default	Default	N/A
BL_COM		R	Double	Default	Default	N/A
CL_COM		R	Double	Default	Default	N/A
BL_OTH		R	Double	Default	Default	N/A
CL_OTH		R	Double	Default	Default	N/A
BUS_DISRPT		R	Double	Default	Default	N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_RA_Refined- - Risk Assessment Refined Analysis Results

This table stores the results of the refined risk analysis. This table contains one record for each Census Block for each return period or scenario analyzed per hazard type for the area being studied. In addition, the table contains one record for the average annual loss per hazard type for each Census Block. This table is linked with the S_CenBlk_Ar to allow visualization of these data by Census Block on a thematic map.

Attribute Definitions – L_RA_Refined

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
CEN_BLK_ID	Census Block Identifier. See the CEN_BLK_ID field in the S_CenBlk_Ar feature class for more detail.
HAZARD_TYP	Hazard Type. Indicates the Hazard Type for which the remaining fields apply. The valid values for this field are in the domain D_Hazard_Typ and include Riverine, Coastal, Levee and Total. In addition to a set of records for each of the individual hazard types for which analysis was performed, a set of records should be included for the sum of the constituent hazard types.
RETURN_PER	Return Period. Indicates the return period for which the remaining fields apply. The valid values for this field are in the domain D_Event. In addition to one record for each percent chance event (10%, 2%, 1%, 0.5%, 0.2%) used in the assessment, a record should be included for the average annualized event. The RETURN_PER and SCENAR_ID fields are mutually exclusive. If one is populated the other should be null.
SCENAR_ID	Levee Scenario Identification. The RETURN_PER and SCENAR_ID fields are mutually exclusive. If one is populated the other should be null.
TOT_LOSSES	Total Losses. For each Census Block, the estimate of the total value of all losses for the combination of hazard type and return period.
BL_TOT	Total Building Losses. For each Census Block, the estimate of total value of building for the combination of hazard type and return period.
CL_TOT	Total Content Losses. For each Census Block, the estimate of total value of content loss for the combination of hazard type and return period.
BL_RES	Residential Building Loss. For each Census Block, the estimate of total value of residential building for the combination of hazard type and return period.
CL_RES	Residential Content Loss. For each Census Block, the estimate of total value of content loss for residential buildings for the combination of hazard type and return period.
BL_COM	Commercial Building Loss. For each Census Block, the estimate of total value of commercial building for the combination of hazard type and return period.

Flood Risk Database Technical Reference

Attribute Definitions – L_RA_Refined

CL_COM	Commercial Content Loss. For each Census Block, the estimate of total value of content loss for commercial buildings for the combination of hazard type and return period.
BL_OTH	Building Loss for Other Building Types. For each Census Block, the estimate of total value of building losses for other types of buildings for the combination of hazard type and return period. Other buildings type categories are industrial, agricultural, education, religious, and government.
CL_OTH	Content Loss for Other Building Types. For each Census Block, the estimate of total value of content losses for other types of buildings for the combination of hazard type and return period. Other buildings type categories are industrial, agricultural, education, religious, and government.
BUS_DISRPT	Business Disruption. For each Census Block, the estimate of business disruption costs for the combination of hazard type and return period.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the Census Block lies. If a Census Block crosses a HUC-8 boundary, the field shall be populated with the HUC-8 value in which the majority of the Census Block lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_RA_Refined

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
CEN_BLK_ID	UPK, FK	R	Text	17		S_CenBlk_Ar
HAZARD_TYP	UPK	R	Text	4		D_Hazard_Typ
RETURN_PER	UPK	A	Text	6		D_Event
SCENAR_ID	FK	A	Text	25		L_Levee_Scenario
TOT_LOSSES		R	Double	Default	Default	N/A
BL_TOT		R	Double	Default	Default	N/A
CL_TOT		R	Double	Default	Default	N/A
BL_RES		R	Double	Default	Default	N/A
CL_RES		R	Double	Default	Default	N/A
BL_COM		R	Double	Default	Default	N/A
CL_COM		R	Double	Default	Default	N/A

Flood Risk Database Technical Reference

Field Properties – L_RA_Refined

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
BL_OTH		R	Double	Default	Default	N/A
CL_OTH		R	Double	Default	Default	N/A
BUS_DISRPT		R	Double	Default	Default	N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_RA_Summary - Risk Analysis Summary by Community

This table summarizes the results by community of the composite analysis performed by Census Block. The Mapping Partner shall use appropriate techniques (e.g., area-weighted summations) to aggregate the L_RA_Composite data, which stores the risk assessment loss estimates by Census Block, to the L_RA_Summary table, which stores the loss estimates by community.

This table contains one record for each community or partial community within the project area for each hazard type for each return period analyzed, including the average annual loss. If a community extends beyond the project footprint, the summary results in this table should represent only the portion within the project area. The table also has one record for each hazard type for each return period for the project area.

This table is linked with the S_FRD_Pol_Ar to allow visualization of this summary on a thematic map.

Attribute Definitions – L_RA_Summary

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
RA_SUMM_ID	Summary Identification Number. For the case of the community records in this table, this is the six-digit CID assigned by FEMA. See S_FRD_Pol_Ar for more detail. For the case of the project summary record, the RA_SUMM_ID should be populated with the FEMA Case Number in the same format as the CASE_NO field below.
POL_NAME1	Political Area Name 1. This is the primary name of the community. This field is included in this table instead of retrieval by joining to S_FRD_Pol_Ar table to make querying for the FRR easier. See the definition in S_FRD_Pol_Ar for more detail.
HAZARD_TYP	Hazard Type. Indicates the Hazard Type for which the remaining fields apply. The valid values for this field are in the domain D_Hazard_Typ and include Riverine, Coastal, Levee and Total. In addition to a set of records for each of the individual hazard types for which analysis was performed, a set of records should be included for the sum of the constituent hazard types.
RETURN_PER	Return Period. Indicates the return period for which the remaining fields apply. The valid values for this field are in the domain D_Event. In addition to one record for each percent chance event (10%, 2%, 1%, 0.5%, 0.2%) used in the assessment, a record should be included for the average annualized event.
TOT_LOSSES	Total Losses. The estimate of total value of all losses for the combination of hazard type and return period.

Flood Risk Database Technical Reference

Attribute Definitions – L_RA_Summary

BC_TOT	Total Building and Content Loss. The estimate of total loss of all building types and contents for the combination of hazard type and return period.
BC_RES	Residential Building and Content Loss. The estimate of total loss of residential buildings and contents for the combination of hazard type and return period.
BC_COM	Commercial Building and Content Loss. The estimate of total loss of commercial buildings and contents for the combination of hazard type and return period.
BC_OTH	Building and Content Loss for Buildings of Other Types. The estimate of total loss of buildings and contents for other types of buildings for the combination of hazard type and return period. Other buildings type categories are industrial, agricultural, education, religious, and government.
BUS_DISRPT	Business Disruption. The estimate of business disruption costs for the combination of hazard type and return period.
LR_TOT	The Total Loss Ratio for each combination of hazard type and return period.
LR_BC	The Loss Ratio for all buildings and contents for each combination of hazard type and return period.
LR_BC_RES	The Loss Ratio for residential buildings and contents for each combination of hazard type and return period.
LR_BC_COM	The Loss Ratio for commercial buildings and contents for each combination of hazard type and return period.
LR_BC_OTH	The Loss Ratio for other building types and contents for each combination of hazard type and return period.
AAL_PERCAP	The Average Annualized Loss Per Capita. There should be one record in the table for each community and project area by hazard type. The RETURN_PER for these records should be AvgAnn. For all other return periods, this field should be populated with a null value. This loss should be reported to the nearest whole dollar.
HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the community lies. If a community is in multiple HUC-8 sub-basins, the sub-basin in which the portion of the community being studied lies shall be used. If the portion of the community being studied is in multiple sub-basins, the sub-basin in which the greatest portion of the project area lies shall be used. For the project-level record (i.e., RA_SUMM_ID = CASE_NO), this field should be populated with “NP.”
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.

Flood Risk Database Technical Reference

Attribute Definitions – L_RA_Summary

VERSION_ID Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Notes:

1. Total Building and Content Losses = Residential Building and Content Loss + Commercial Building and Content Loss + Other Building and Content Loss.
2. Loss ratio = Dollar Losses / Estimated Value. Loss ratios are computed using actual loss and value numbers from the risk assessment analysis, not rounded numbers. Populate the table to the nearest percent.
3. Dollar losses under \$100,000 should be rounded to the nearest \$10,000. Dollar losses over \$100,000 should be rounded to the nearest \$100,000.

Field Properties – L_RA_Summary

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
RA_SUMM_ID	UPK, FK	R	Text	12		S_FRD_Pol_Ar
POL_NAME1		R	Text	50		N/A
HAZARD_TYP	UPK	R	Text	4		D_Hazard_Typ
RETURN_PER	UPK	R	Text	6		D_Event
TOT_LOSSES		R	Double	Default	Default	N/A
BC_TOT		R	Double	Default	Default	N/A
BC_RES		R	Double	Default	Default	N/A
BC_COM		R	Double	Default	Default	N/A
BC_OTH		R	Double	Default	Default	N/A
BUS_DISRPT		R	Double	Default	Default	N/A
LR_TOT		R	Double	Default	Default	N/A
LR_BC		R	Double	Default	Default	N/A
LR_BC_RES		R	Double	Default	Default	N/A
LR_BC_COM		R	Double	Default	Default	N/A
LR_BC_OTH		R	Double	Default	Default	N/A
AAL_PERCAP		A	Double	Default	Default	N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Table: L_RA_UDF_Refined - Refined Risk Analysis Results for User Defined Facilities

This enhanced table stores the results of refined analyses for each User Defined Facility. This table contains one record for each facility for each hazard type for each return period analyzed, including the average annual loss estimate. This table is linked with the S_UDF_Pt to allow visualization of these risk assessment results on a thematic map.

Attribute Definitions – L_RA_UDF_Refined

OBJECTID	Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
UDF_ID	Unique Identifier for this facility. See S_UDF_Pt for more detailed explanation.
HAZARD_TYP	Hazard Type. Indicates the Hazard Type for which the remaining fields apply. The valid values for this field are in the domain D_Hazard_Typ and include Riverine, Coastal, Levee and Total. In addition to a set of records for each of the individual hazard types for which analysis was performed, a set of records should be included for the sum of the constituent hazard types.
RETURN_PER	Return Period. Indicates the return period for which the remaining fields apply. The valid values for this field are in the domain D_Event. In addition to one record for each percent chance event (10%, 2%, 1%, 0.5%, 0.2%) used in the assessment, a record should be included for the average annualized event. The RETURN_PER and SCENAR_ID fields are mutually exclusive. If one is populated the other should be null.
SCENAR_ID	Scenario Identification. Used for either dam scenario (L_Dam_Scenario) or levee scenario (L_Levee_Scenario). The RETURN_PER and SCENAR_ID fields are mutually exclusive. If one is populated the other should be null.
BLDG_LOSS	Building Loss. Asset Value Loss to the nearest dollar for the Building for the combination of Hazard Type and Return Period.
BLDGPCTDAM	Percent damage to building for the combination of Hazard Type and Return Period. The result should be expressed to the nearest tenth of a percent (0.1%).
CNT_LOSS	Contents Loss. Asset Value Loss to the nearest dollar for the contents of the building for the combination of Hazard Type and Return Period.
CNT_PCTDAM	Percent Damage for the contents of the building for the combination of Hazard Type and Return Period. The result should be expressed to the nearest tenth of a percent (0.1%).
INV_LOSS	Inventory Loss. Asset Value Loss to the nearest dollar for the inventory for the combination of Hazard Type and Return Period.

Flood Risk Database Technical Reference

Attribute Definitions – L_RA_UDF_Refined

HUC8_CODE	WBD 8-digit Hydrologic Unit Code for the sub-basin in which the facility lies.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_RA_UDF_Refined

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A
UDF_ID	UPK, FK	R	Text	25		S_UDF_Pt
HAZARD_TYP	UPK	R	Text	4		D_Hazard_Typ
RETURN_PER	UPK	A	Text	6		D_Event
SCENAR_ID	FK	A	Text	25		N/A
BLDG_LOSS		R	Long Integer	Default		N/A
BLDGPCTDAM		R	Double	Default	Default	N/A
CNT_LOSS		R	Long Integer	Default		N/A
CNT_PCTDAM		R	Double	Default	Default	N/A
INV_LOSS		R	Long Integer	Default		N/A
HUC8_CODE	FK	R	Text	8		S_HUC_Ar
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

Flood Risk Database Technical Reference

Table: L_Source_Cit - Source Citations

The L_Source_Cit table should contain a record for each data source used (both vector and raster), and the FRD metadata file should also contain a corresponding Source Citation entry in the Lineage section under Data Quality. Source Citation Type Abbreviations, followed by sequential numbers, should be used in creating the references. These citations provide a link to the metadata where the data sources are more fully described. These abbreviations are presented in the following table.

Table 5. Source Citation Type Abbreviations

Source Citation Type Abbreviations	Use
BASE	For all base map sources (includes roads, railroads, airports, hydrography). This abbreviation would typically be used for S_Carto_Ar, S_Carto_Ln and the hillshade raster.
FIRM	For features extracted from an existing FIRM database.
LOMC	For information derived from a Letter of Map Change (LOMC).
HAZUS	For features extracted from or developed during a Hazus assessment. Would typically be used for S_CenBlk_Ar.
FIS	For information taken from a previously published FIS report, including Floodway Data Tables and Flood Profiles.
STUDY	For information developed or acquired for the current flood risk project. This abbreviation would typically be used for S_AOMI_Pt, S_CSLF_Ar, S_FRD_Proj_Ar and S_FRD_Pol_Ar.

Many of the records for this table can be compiled from the L_Source_Cit tables in the individual FIRM databases. In order to minimize work by having to sequentially renumbering all the SOURCE_CIT values from combining the L_Source_Cit tables from multiple FIRM databases, the Mapping Partner may suffix the SOURCE_CIT from the source FIRM database with the DFIRM_ID to provide a unique identifier.

This table has an entry for each different data source used in the flood risk project and is linked with all the feature classes to document the sources for the data.

Attribute Definitions – L_Source_Cit

- OBJECTID** Object Identifier. Internal Primary Key used by ArcGIS software to provide unique access to each record.
- SOURCE_CIT** Source Citation identifier used in the FIRM Database and in the FIRM metadata file. Source citations start with the type of source followed by sequential numbers, for example “BASE1”, “BASE2”, etc.

Flood Risk Database Technical Reference

Attribute Definitions – L_Source_Cit

DFIRM_ID	Flood Risk Project Identifier. For a single-jurisdiction flood risk project, the value is composed of the 2-digit state FIPS code and the 4-digit FEMA CID code (e.g., 480001). For a countywide flood risk project, the value is composed of the 2-digit state FIPS code, the 3-digit county FIPS code, and the letter “C” (e.g., 48107C). Within each FIRM database, the DFIRM_ID value is identical.
CITATION	Citation Used in FIS Report text and Bibliography and References Table. A short and unique citation name (Author and Year) used within the FIS report to reference this publication, such as “U.S. Census 2010.”
PUBLISHER	Publisher Name Used in FIS Report Bibliography and References Table. This is the name of the publishing entity.
TITLE	Title of referenced publication or data Used in FIS Report Bibliography and References Table. Should include the volume number if applicable.
AUTHOR	Author/Editor Used in FIS Report Bibliography and References Table. This is the author or editor of the reference. Multiple authors may be listed in this field.
PUB_PLACE	Publication Place Used in FIS Report Bibliography and References Table. This is the place of publication (e.g., “Washington DC”).
PUB_DATE	Publication Date Used in FIS Report Bibliography and References Table. This is the date of publication or date of issuance.
WEBLINK	Reference Web Address Used in FIS Report Bibliography and References Table. This is the web address for the reference, if applicable.
SRC_SCALE	Scale of the source data, if applicable. For example 1:24000. Used in FIS Report Bibliography and References Table.
MEDIA	Media through which the source data were received.
CASE_NO	FEMA Case Number. See the CASE_NO field in S_FRD_Proj_Ar for more detail.
VERSION_ID	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.

Field Properties – L_Source_Cit

Field	Key Type	R/A/E/O	Type	Length/Precision	Scale (SHP Only)	Domain or Related Table
OBJECTID	PK	R	ObjectID	Default		N/A

Flood Risk Database Technical Reference

Field Properties – L_Source_Cit

Field	Key Type	R/A/E/O	Type	Length/ Precision	Scale (SHP Only)	Domain or Related Table
SOURCE_CIT	UPK, FK	R	Text	25		S_Huc_Ar, S_Carto_Ar, S_Carto_Ln, S_Carto_Pt, S_FRM_Callout_Ln, S_FRD_Pol_Ar, S_FRD_Proj_Ar, S_CSLF_Ar, S_CenBlk_Ar, S_AOMI_Pt, S_UDF_Pt
DFIRM_ID	FK	R	Text	6		FRD_Study_Info
CITATION		R	Text	25		N/A
PUBLISHER		R	Text	254		N/A
TITLE		R	Text	254		N/A
AUTHOR		A	Text	254		N/A
PUB_PLACE		A	Text	100		N/A
PUB_DATE		R	Date	Default		N/A
WEBLINK		A	Text	128		N/A
SRC_SCALE		A	Text	12		N/A
MEDIA		R	Text	50		N/A
CASE_NO	FK	R	Text	12		S_FRD_Proj_Ar
VERSION_ID		R	Text	11		N/A

4. Raster Datasets

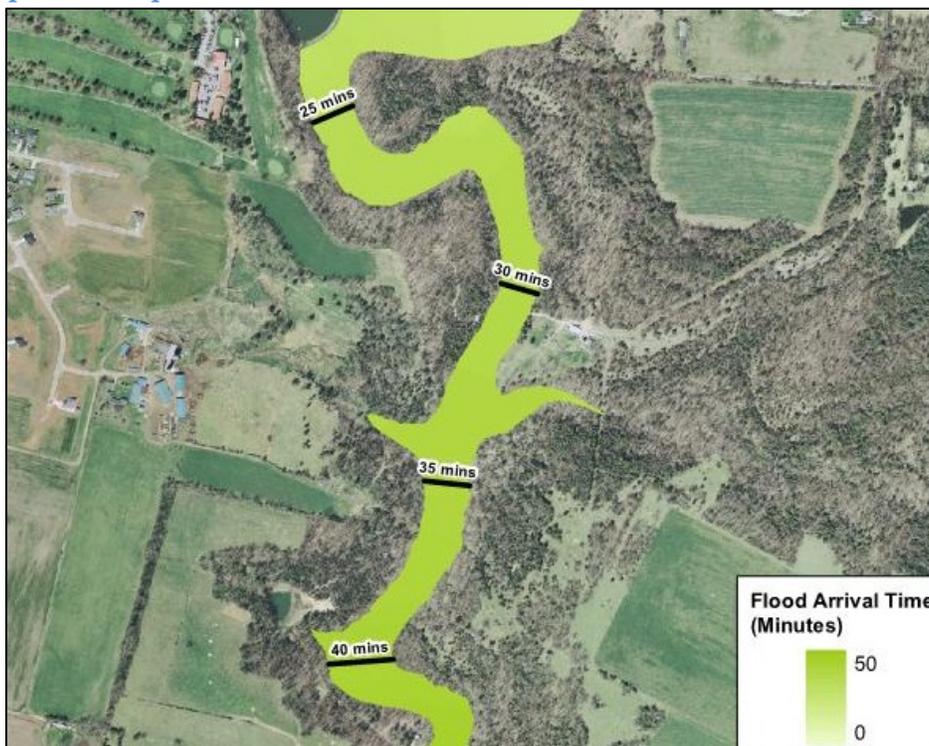
All depth and analysis rasters shall be floating point with data rounded to the nearest tenth of a unit (i.e., 0.1 feet, 0.1 feet/second, or 0.1%) and shall have the same spatial reference, origin, resolution, and rotation.

The extents for the dam release analysis rasters described below should be based on the inundation area for the peak flow rate for the scenario being considered. For example, when developing the arrival time raster, the extents of the raster would be based on the inundation area for the peak flow, not the flow at the initial arrival time.

Raster: Arrv_XXXXXXXX - Dam Release Flood Wave Arrival Time Grid

This raster dataset depicts the arrival time (in minutes) of the flood wave resulting from a dam release. This is defined as 1.0 foot of rise in WSE from the pre-scenario base flow. Unique combinations of flooding event, release type and the hydrologic condition of the reservoir at the time of the release are used to differentiate the arrival times. See Table 3 in the description of the L_Dam_Scenario table for the appropriate naming convention.

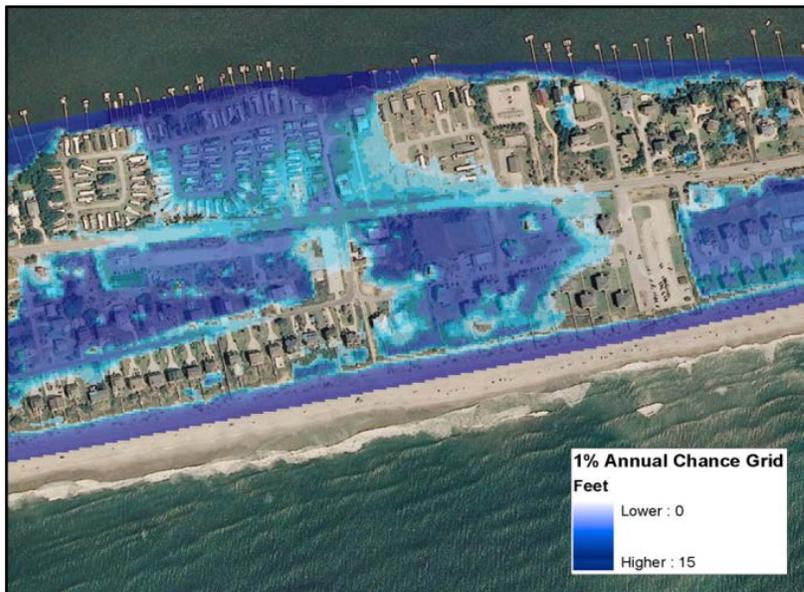
Cartographic Example



Raster: CstDpthxxxpct - Coastal Flooding Depth Grid

This raster dataset contains the total water level depths calculated as the difference (in feet) between the wave crest elevations, obtained from the WHAFIS model, and the ground. The depth grid is created using a combination of wave setup, stillwater, and wave height elevations. The wave crest elevation will not be created in areas controlled by wave runup. This grid should only be produced for recurrence intervals for which the wave crest elevations have been calculated/estimated, so as to represent the total depth of flooding, and not just the portion attributed to stillwater. Therefore, coastal flood depth rasters are typically generated for only the 1% annual chance flood unless wave heights have been computed for the other flood frequencies. If the coastal depth grid is created in areas dominated by wave runup and/or sheet flow (e.g. bluffs, cliffs, or areas protected by coastal structures), special care must be taken so that the flood depths are reflective of the runup conditions, rather than based on the difference between a static water surface elevation and the ground. Additionally, for the flood depth grids created along the coast, there will be instances where certain sections of the dunes are higher than the total water level. Rather than reporting negative flood depths, the flood depth grid should reflect “NO DATA” or depths of zero in these locations.

Cartographic Example



Raster: Depth_xxxpct - Riverine Flooding Depth Grid

This raster dataset represents water depth in feet for a riverine analysis and is obtained by subtracting the ground surface model from the water surface elevation model for a given flood event. Flood Depth Rasters are typically generated for all riverine flooding return periods available for a particular flooding source. For the standard flood risk project scope, this corresponds to the 0.2%, 1%, 2%, 4%, and 10% flooding return periods.

Cartographic Example



Raster: DPTH_XXXXXXXX - Dam Release Flooding Depth Grid

This raster dataset contains flood depths resulting from a dam release. Unique combinations of flooding event, release type and the hydrologic condition of the reservoir at the time of the release are used to differentiate the depth rasters. See Table 3 in the description of the L_Dam_Scenario table for the appropriate naming convention.

Cartographic Example

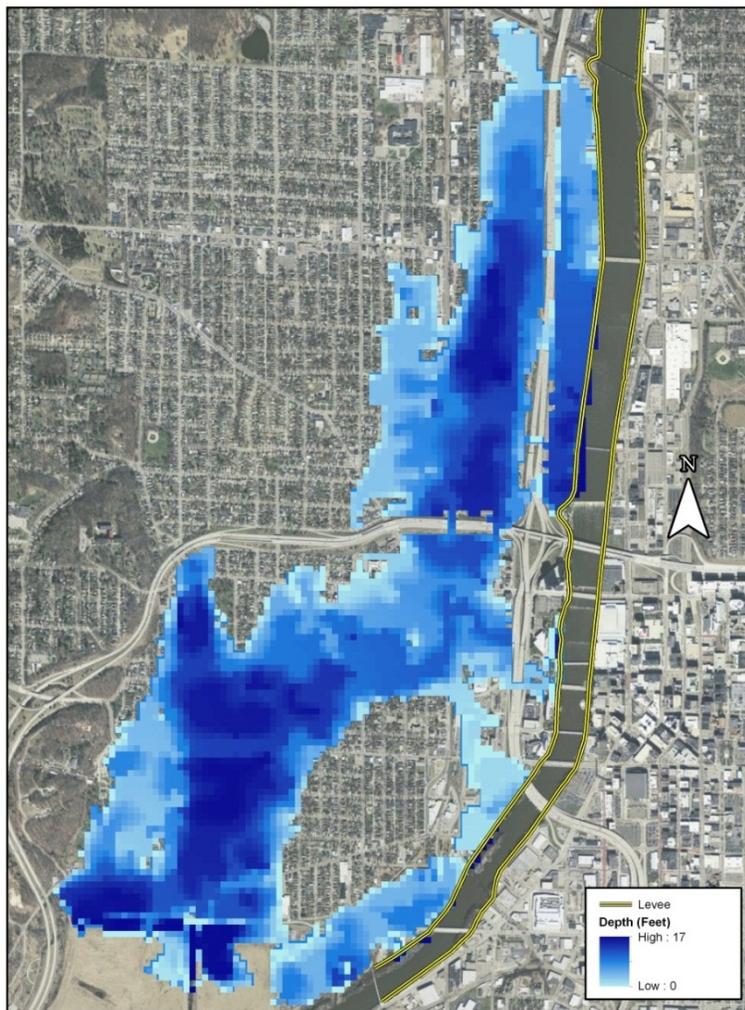


Flood Risk Database Technical Reference

Raster: Dpth_XXXXX - Levee Analysis Flooding Depth Grid

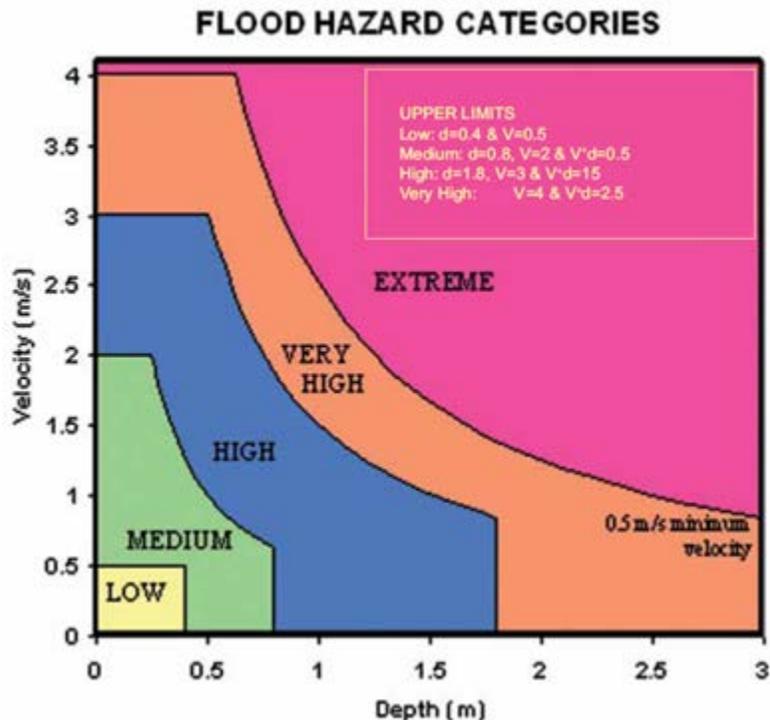
This raster dataset contains average flood depths for each cell resulting from a levee scenario. Unique combinations of flooding event, levee accreditation status, and flood source are used to differentiate the rasters. See Table 4 in the description of the L_Levee_Scenario table for the appropriate naming convention.

Cartographic Example



Raster: DVS_XXXXXXX - Dam Release Depth and Velocity Severity Grid

This raster dataset represents the combined effect of depth and velocity from a dam release scenario categorized into Low, Medium, High, Very High and Extreme Hazard. Categorization is shown below and is based on studies in Australia and published in Designing Safer Subdivisions - Guidance on Subdivision Design in Flood Prone Areas¹, 2006 which is derived from earlier work from the New South Wales Floodplain Development Manual (2005). Unique combinations of flooding event, release type and the hydrologic condition of the reservoir at the time of the release are used to differentiate the stream depth and velocity severity rasters.

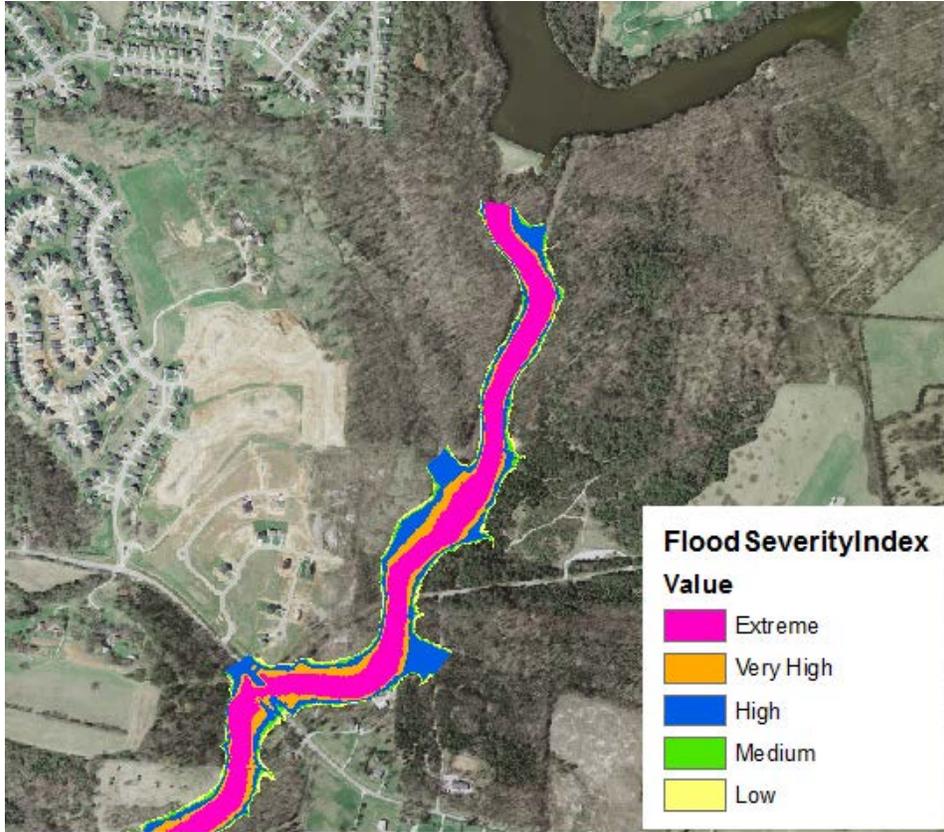


FEMA recognizes that other flood hazard classifications exist, such as the US Bureau of Reclamation ACER Technical Memorandum No. 11², to communicate the combined effects of flood depth and velocity on structures, mobile homes, varying types of vehicles, and pedestrians. The Project Team may utilize an alternate classification method. However, documentation and explanation of the calculations, classification breaks, etc., must be provided.

¹ http://www.ses.nsw.gov.au/content/documents/pdf/resources/Subdivision_Guidelines.pdf

² <http://www.ose.state.nm.us/doing-business/DamSafety/ACER-11-DownstreamHazClass.pdf>

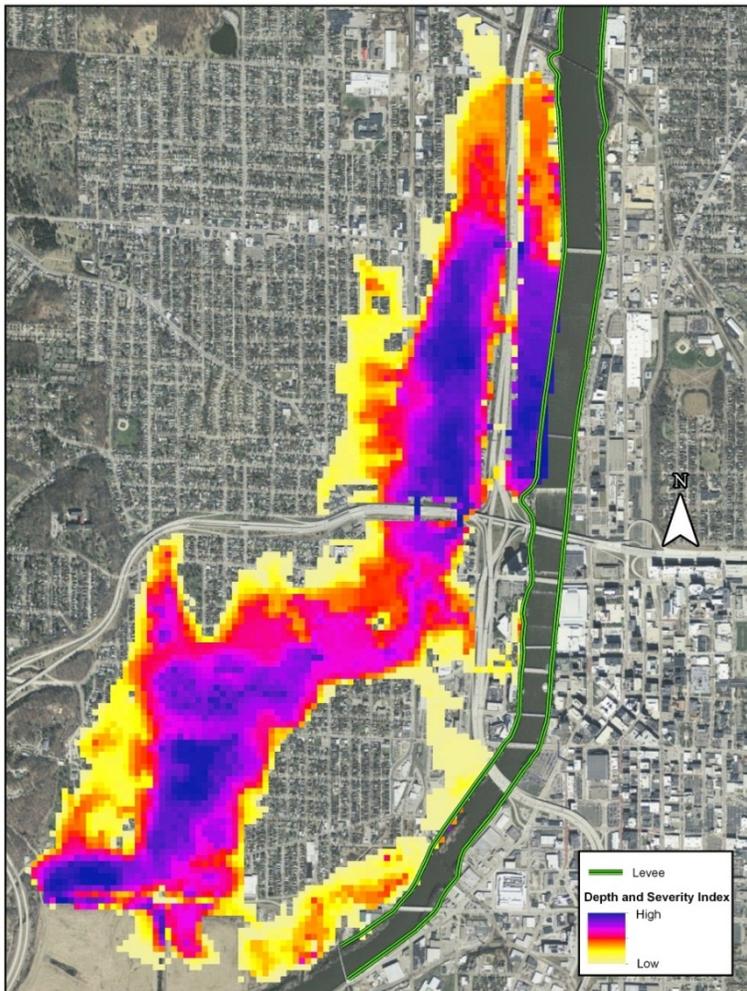
Cartographic Example



Raster: DVS_XXXXX - Levee Analysis Depth and Velocity Severity Grid

This raster dataset represents the combined effect of depth and velocity from a levee scenario categorized into Low, Medium, High, Very High and Extreme Hazard. Levee raster will use the same categorization as described for the dam non-regulatory datasets. See Table 4 in the description of the L_Levee_Scenario table for the appropriate naming convention.

Cartographic Example

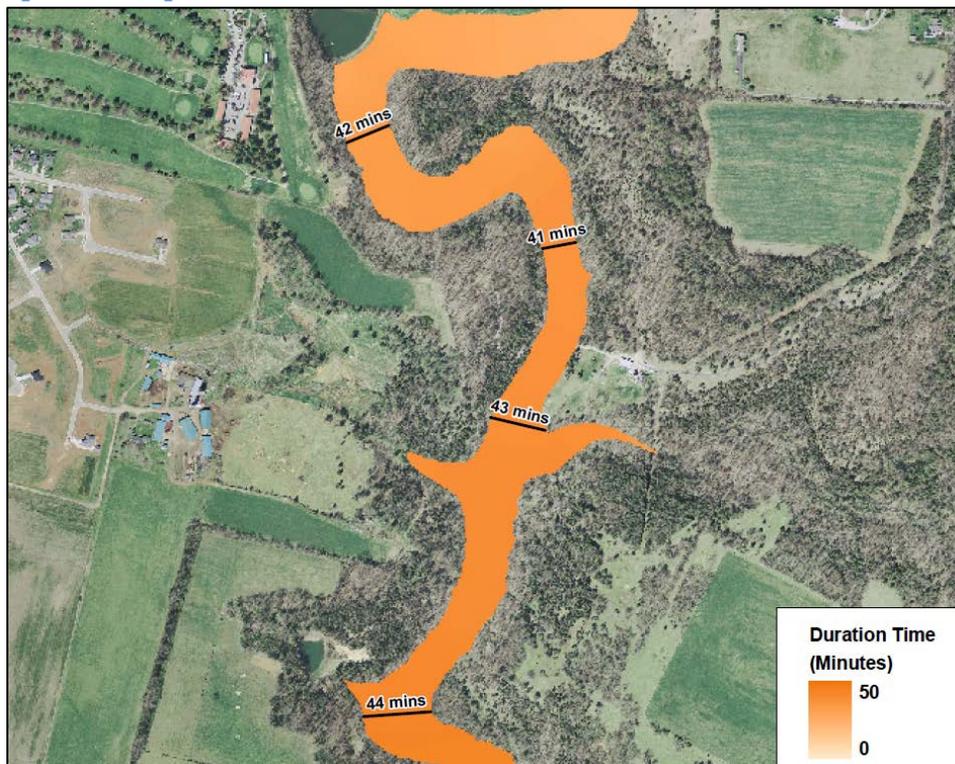


Flood Risk Database Technical Reference

Raster: FID_XXXXXXXX - Dam Release Flood Inundation Duration Grid

This raster dataset depicts the amount of time it takes a flood wave to arrive at, pass through, and leave a particular location. The arrival time is defined as when the WSE rises 1.0' above the pre-scenario base flow. Similarly, the end of the duration is when the WSE returns to within 1.0 foot of the pre-scenario base flow. Time is measured in minutes. Unique combinations of flooding event, release type and the hydrologic condition of the reservoir at the time of the release are used to differentiate the flood inundation duration rasters. See Table 3 in the description of the L_Dam_Scenario table for the appropriate naming convention.

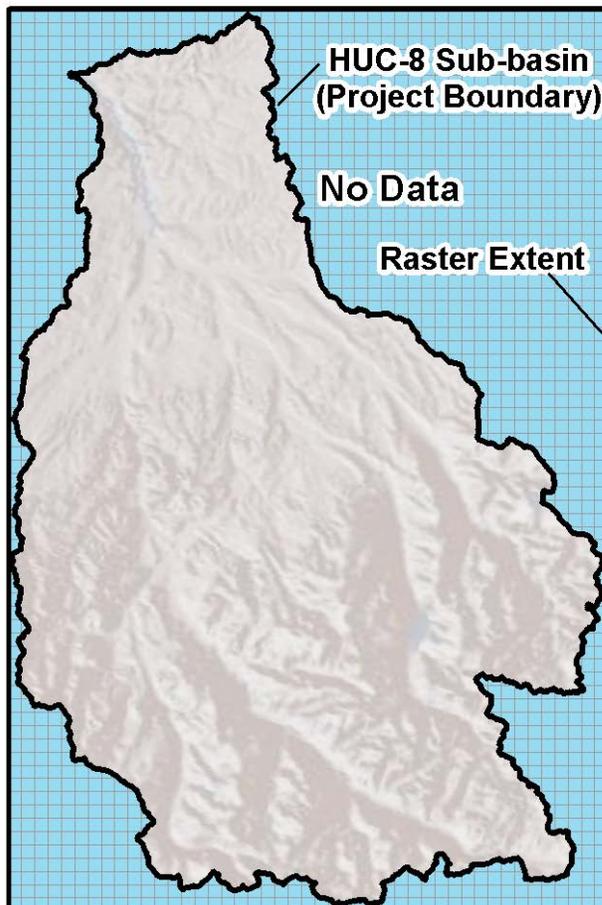
Cartographic Example



Raster: Hillshade

This integer raster dataset is used as a backdrop for the FRM. The hillshade is a shaded relief dataset using a Digital Elevation Model (DEM) raster as the input and considering an illumination source. The hillshade raster should have the same spatial reference, cell size, rotation, and origin as the other rasters delivered with output values ranging from 0 to 255.

Cartographic Example



Flood Risk Database Technical Reference

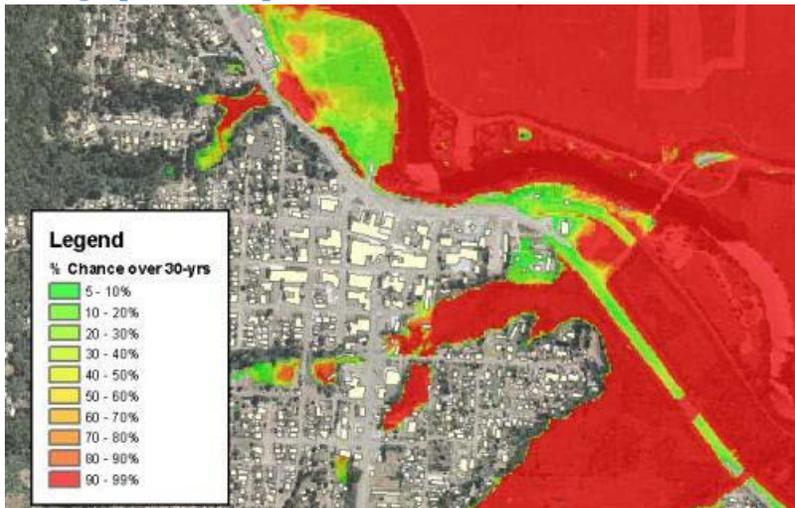
Raster: Pct30yrChance- -30 year Flooding Probability Grid

This raster dataset represents the probability of flooding at least once within a 30-year period for all locations within the extent of the 0.2% annual chance floodplain. Therefore, the units are expressed as a percent (e.g., 5.1%). This percent chance is calculated at each cell of the raster using the PctAnnChance raster as input, according to the following equation:

$$\text{Cell Value} = 1 - (1 - p)^n$$

Where: p is the percent annual chance of flooding (PctAnnChance), and $n = 30$

Cartographic Example



Raster: PctAnnChance- -Annual Chance Flooding Probability Grid

This raster dataset represents the percent annual chance of flooding for locations along the flooding source within the 0.2% chance floodplain. Therefore, the units are expressed as a percent (e.g., 5.1%). This dataset is calculated using the five standard water surface elevation grids.

Cartographic Example

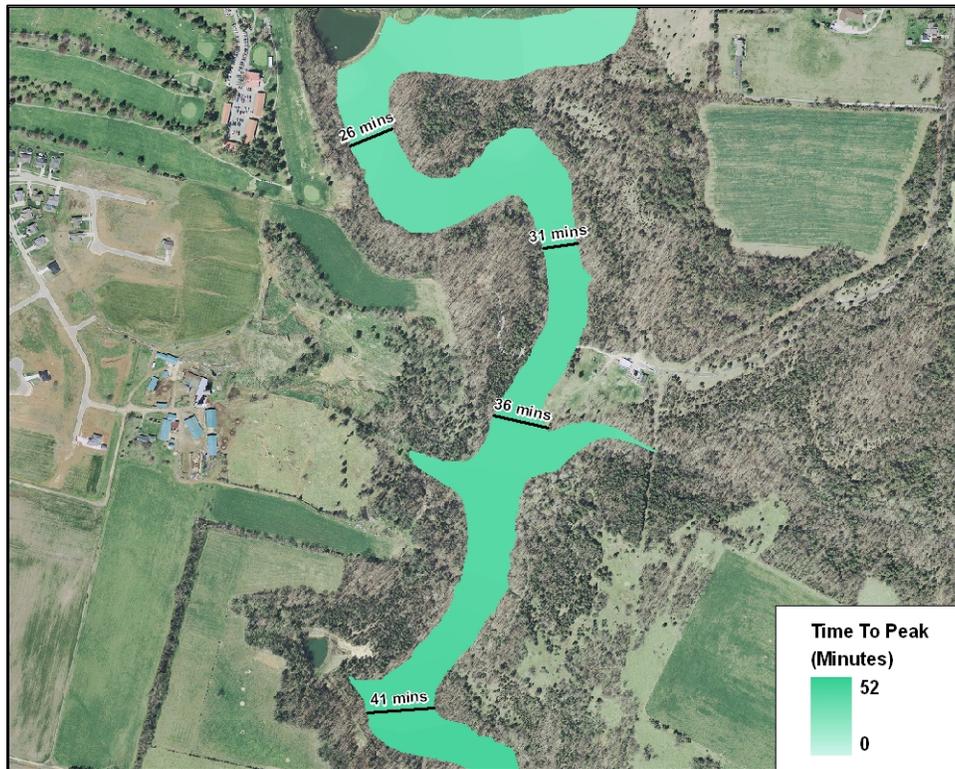


Flood Risk Database Technical Reference

Raster: Peak_XXXXXXXX - Dam Release Flood Wave Time to Peak Time Grid

This raster dataset depicts the time it takes for the peak of the inundation to reach a particular location. Time is measured in minutes. Unique combinations of flooding event, release type and the hydrologic condition of the reservoir at the time of the release are used to differentiate the time to peak rasters. See Table 3 in the description of the L_Dam_Scenario table for the appropriate naming convention.

Cartographic Example



Flood Risk Database Technical Reference

Raster: Vel_xxxpct - Riverine Flooding Velocity Grid

Velocity rasters represent the flood water velocities (in feet/second) within the floodplain for a given annual chance flood event.

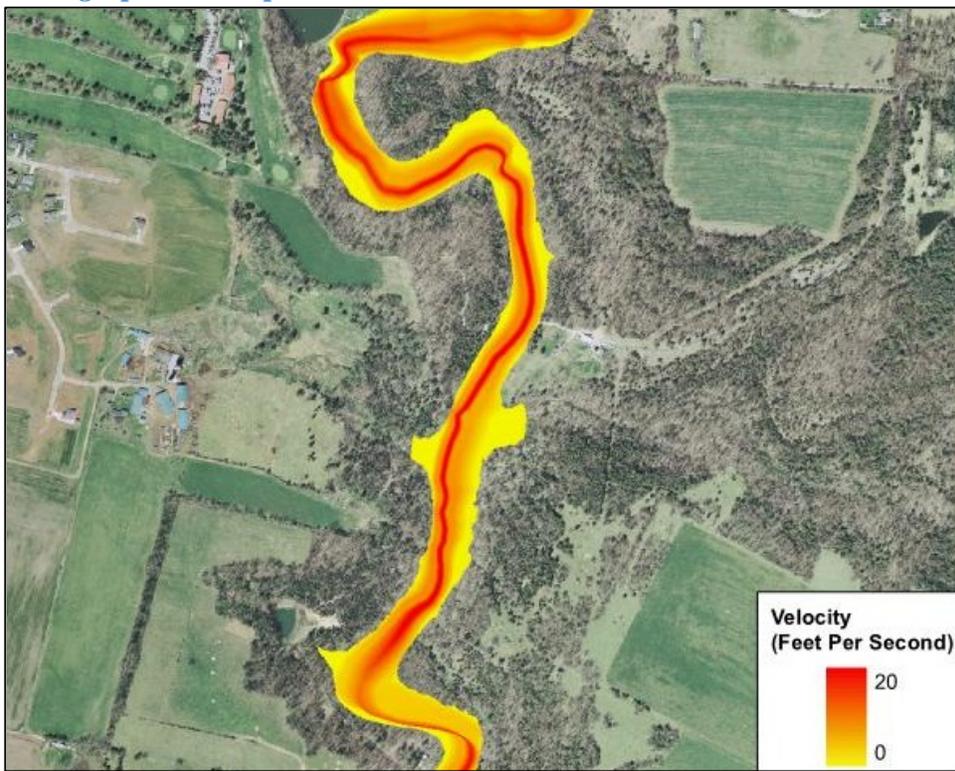
Cartographic Example



Raster: Vel_XXXXXXXX - Dam Release Flooding Velocity Grid

This raster dataset contains flood velocities resulting from a dam release. Unique combinations of flooding event, release type and the hydrologic condition of the reservoir at the time of the release are used to differentiate the velocity rasters. See Table 3 in the description of the L_Dam_Scenario table for the appropriate naming convention.

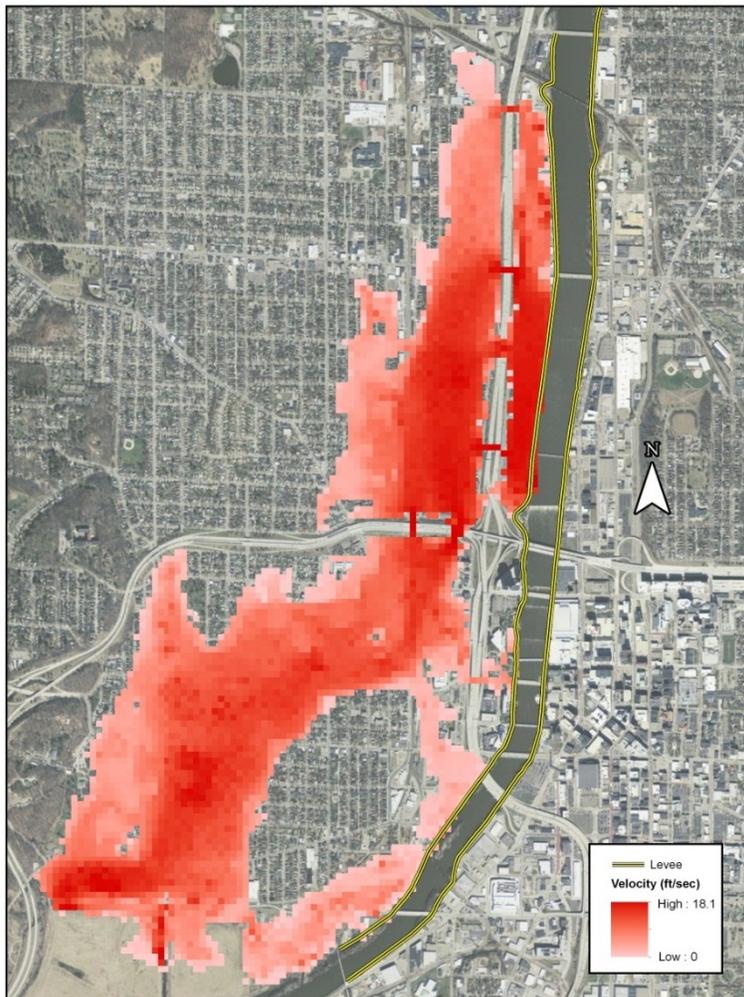
Cartographic Example



Raster: Vel_XXXXX - Levee Analysis Flooding Velocity Grid

This raster dataset contains average flood velocities for each cell resulting from a levee scenario. Unique combinations of flooding event, levee accreditation status, and flood source are used to differentiate the rasters. See Table 4 in the description of the L_Levee_Scenario table for the appropriate naming convention.

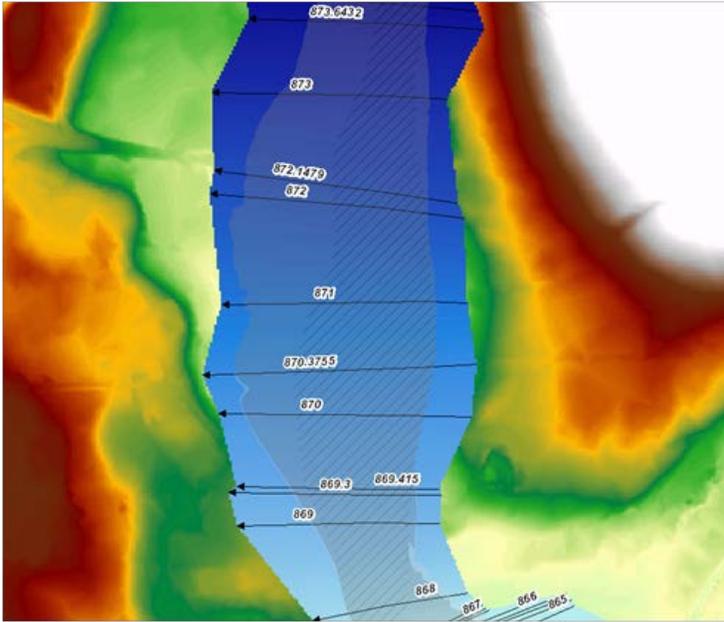
Cartographic Example



Raster: WSE_xxxpct - Water Surface Elevation Grid

This raster dataset represents the water surface elevation for a given flood event.

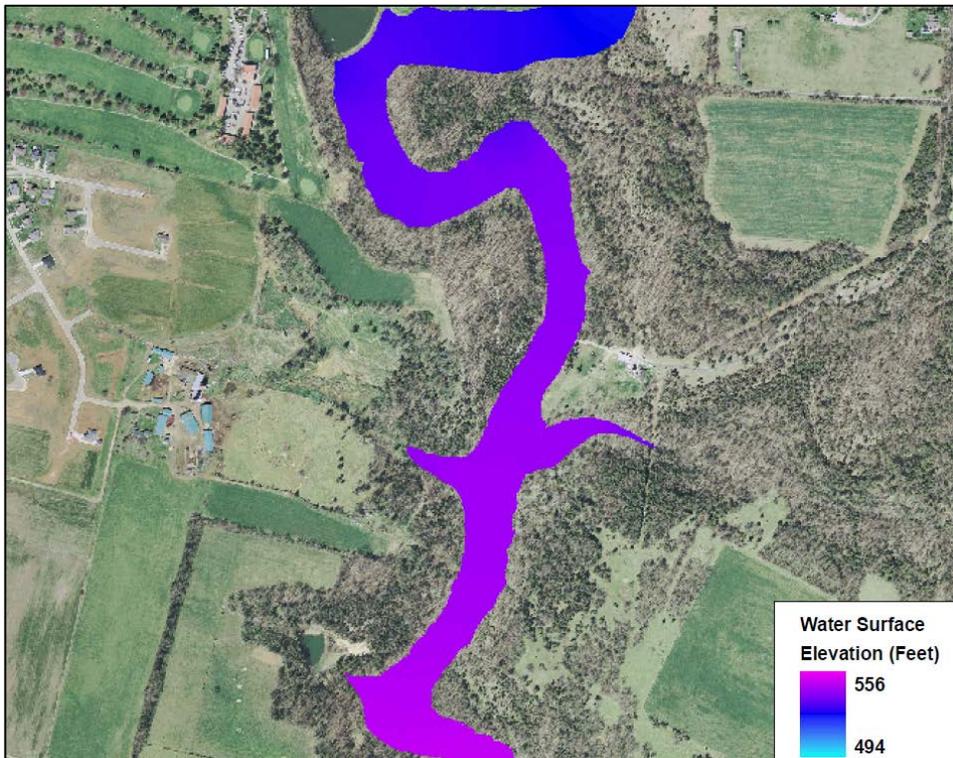
Cartographic Example



Raster: WSE_XXXXXXXX - Dam Release Water Surface Elevation Grid

This raster dataset depicts the peak water surface elevation resulting from a dam release. Unique combinations of flooding event, release type and the hydrologic condition of the reservoir at the time of the release are used to differentiate the water surface elevation rasters. See Table 3 in the description of the L_Dam_Scenario table for the appropriate naming convention.

Cartographic Example



Flood Risk Database Technical Reference

Raster: WSE_XXXXX - Levee Analysis Water Surface Elevation Grid

This raster dataset depicts the peak water surface elevation resulting from a levee scenario. Unique combinations of flooding event, levee accreditation status, and flood source are used to differentiate the rasters. See Table 4 in the description of the L_Levee_Scenario table for the appropriate naming convention.

Cartographic Example

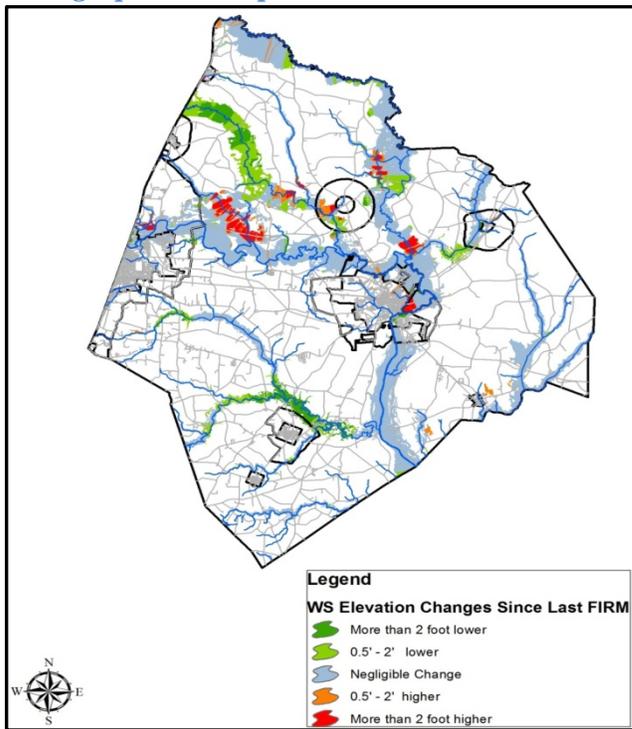


Flood Risk Database Technical Reference

Raster: WSE_Change -Water Surface Elevation Change Grid

The Water Surface Elevation (WSE) Change raster reflects the changes in water surface elevation for the 1 percent annual chance flood event, to the nearest tenth of a foot between successive FIRM studies.

Cartographic Example

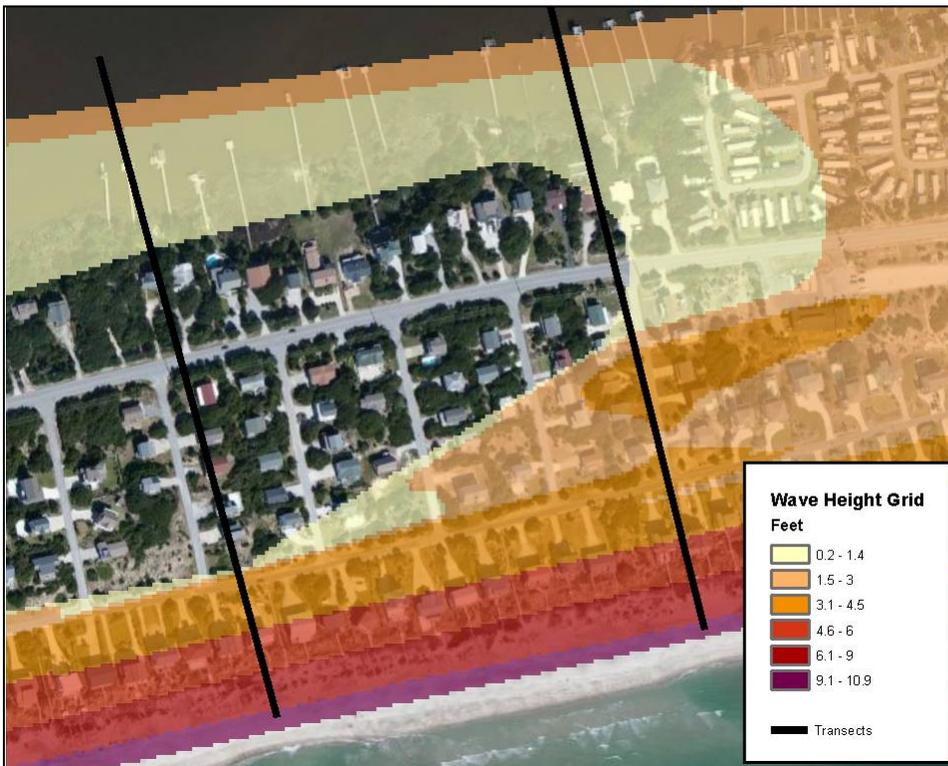


Flood Risk Database Technical Reference

Raster: Wvht_xxxpct - Coastal Wave Height Grid

This raster dataset contains the controlling wave height resulting from overland wave propagation. Typically this is computed along transects by the Wave Height Analysis for Flood Insurance Studies (WHAFIS) model for the 1% (and sometimes the 0.2%) annual-chance flood and represents the full wave height, not just the portion of the wave crest that lies above the SWEL. If WHAFIS results are not available for a referenced event, approximate methods may be used to estimate the corresponding wave heights. The creation of this dataset is only applicable in areas where waves contribute to the overall flood hazard.

Cartographic Example



5. Spatial Reference Systems

Delivered FRD vector datasets shall have the following spatial reference standards:

Coordinate System: Geographic (GCS)

- Spheroid:
 - o Name: GRS_1980
 - o Semi major Axis: 6378137
 - o Semi minor Axis: 6356752.3141403561
- Angular Unit
 - o Name: Degree
 - o Radians per unit: 0.017453292519943299
- Prime Meridian
 - o Name: Greenwich
 - o Longitude 00° 00' 00"

Horizontal Datum: NAD83(NSRS-2007)

Horizontal Units: Decimal Degrees (dd)

Vertical Datum: NAVD88

Vertical Units: US Survey Feet

Cluster Tolerance: 0.000000784415 dd

Spatial Resolution: 0.000000784415 dd

Delivered FRD raster datasets shall have the following spatial reference standards:

Projection: Universal Transverse Mercator (UTM)

Zone: Single zone which best covers the project area.

Horizontal Datum: NAD83 (NRS_2007)

Horizontal Units: Meters

Cell Size: no larger than 10m

Vertical Datum: NAVD88

Vertical Units: US Survey Feet

All elevation data, including water surface elevation rasters, shall reference the North American Vertical Datum of 1988 (NAVD88) with units of US Survey Feet. The use of other datums or vertical units (e.g., the use of meters in areas such as Puerto Rico where Base Flood Elevations [BFEs] are expressed in meters) will require approval of the FEMA Project Officer.

Non-geodatabase formats shall maintain these spatial reference standards where allowable by file type and format.

6. Topology Rules

Spatial FRD feature classes in the file geodatabase (fGDB) exist within one feature dataset. The feature dataset, FRD_Spatial_Layers, is required for the creation of topology. Non-spatial tables and rasters will exist outside of the FRD_Spatial_Layers feature dataset, as standalone business tables and rasters at the 'root' level inside the fGDB. The complete list of topology rules are listed in Table 6 .

Table 6. Topology Rules

Topology Class	Spatial Layer	Topology Rule	Parameter
CSLF_Topology	S_CSLF_Ar	Must Be Larger Than Cluster Tolerance*	
CSLF_Topology	S_CSLF_Ar	Must Not Overlap	
CSLF_Topology	S_CSLF_Ar	Must Not Have Gaps	
CenBlk_Topology	S_CenBlk_Ar	Must Be Larger Than Cluster Tolerance*	
Pol_Proj_Topology	S_FRD_Pol_Ar	Must Be Larger Than Cluster Tolerance*	
Pol_Proj_Topology	S_FRD_Pol_Ar	Must Not Overlap	
Pol_Proj_Topology	S_FRD_Pol_Ar	Must Not Have Gaps	
Pol_Proj_Topology	S_FRD_Pol_Ar	Must be covered by feature class of	S_FRD_Proj_Ar
Pol_Proj_Topology	S_FRD_Proj_Ar	Must Be Larger Than Cluster Tolerance*	
Pol_Proj_Topology	S_FRD_Proj_Ar	Must Not Overlap	
Pol_Proj_Topology	S_FRD_Proj_Ar	Must Not Have Gaps	

*Inherent for all polygon and polyline feature classes in each topology.

7. Relationship Classes

To enable easier and consistent use of the FRD, pre-defined relationships have been established between certain tables using what is known as a “relationship class.” The use of table relationship classes will allow Mapping Partners to create or update information stored in one table and simply “relate” that information to another table based on a common field. In Figure 1 below, the attributes of the Average Annualized Loss table (L_RA_AAL) are related to the Census Block polygons (S_CenBlk_Ar) using a relationship class (CenBlk_AAL) and a common field (CEN_BLK_ID).

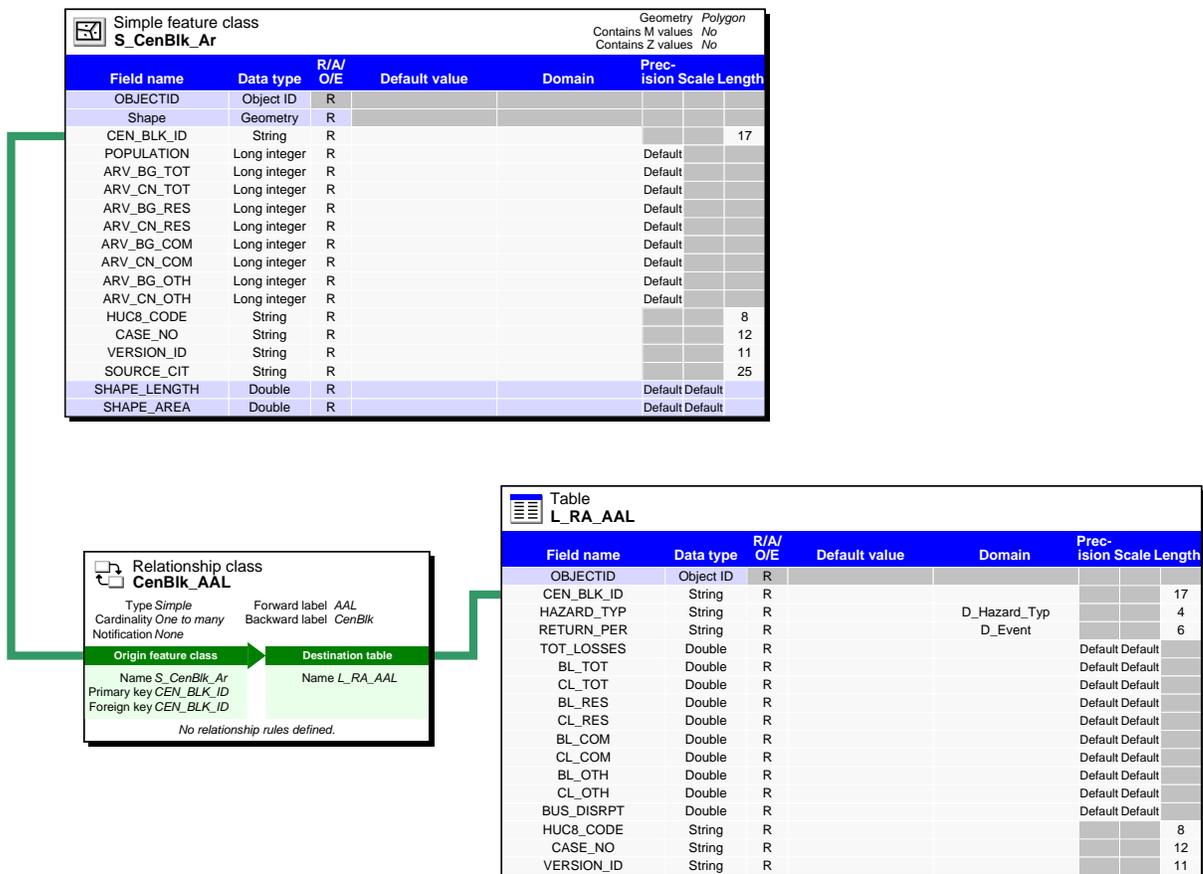


Figure 1. Example Relationship Class

Table 7 lists all of the relationship classes in the FRD.

Flood Risk Database Technical Reference

Table 7. FRD Relationship Classes

Relationship Class Name	Origin Table	Origin Field	Destination Table	Destination Field	Cardinality
Model_Study	FRD_Model_Info	STD_NFO_ID	FRD_Study_Info	STD_NFO_ID	1:1
AOMI_SourceCit	S_AOMI_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
CartoAr_SourceCit	S_Carto_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
CartoLn_SourceCit	S_Carto_Ln	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
CartoPt_SourceCit	S_Carto_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
CenBlk_LocalGBS	S_CenBlk_Ar	CEN_BLK_ID	L_Local_GBS	CEN_BLK_ID	1:1
CenBlk_AAL	S_CenBlk_Ar	CEN_BLK_ID	L_RA_AAL	CEN_BLK_ID	1:M
CenBlk_Composite	S_CenBlk_Ar	CEN_BLK_ID	L_RA_Composite	CEN_BLK_ID	1:M
CenBlk_Refined	S_CenBlk_Ar	CEN_BLK_ID	L_RA_Refined	CEN_BLK_ID	1:M
CenBlk_SourceCit	S_CenBlk_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
CF_AOMI	S_Cr_Fac_Pt	AOMI_ID	S_AOMI_Pt	AOMI_ID	1:1
CF_SourceCit	S_Cr_Fac_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
CSLF_New_Model	S_CSLF_Ar	NEW_MODEL	FRD_Model_Info	MDL_NFO_ID	1:1
CSLF_Pre_Model	S_CSLF_Ar	PRE_MODEL	FRD_Model_Info	MDL_NFO_ID	1:1
CSLF_Pre_SourceCit	S_CSLF_Ar	PRE_SRCCIT	L_Source_Cit	SOURCE_CIT	1:1
CSLF_New_SourceCit	S_CSLF_Ar	NEW_SRCCIT	L_Source_Cit	SOURCE_CIT	1:1
CSLF_SourceCit	S_CSLF_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
N/A ¹	S_CSLF_Ar	CNMS_ID	S_Studies_Ln (CNMS)	CNMS_ID	1:1
Cst_Inc_SourceCit	S_Cst_Inc_Inundation_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Cst_Wav_SourceCit	S_Cst_Wave_Haz_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
XS_SourceCit	S_Dams_XS_Ln	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Dams_XS_MDL	S_Dams_XS_Ln	DAMS_XS_ID	L_Dams_XS_MDL_Results	DAMS_XS_ID	1:M
DS_INUN_Dam_Scenario	S_DS_Inundation_Ar	SCENAR_ID	L_Dam_Scenario	SCENAR_ID	1:1
DS_INUN_SourceCit	S_DS_Inundation_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
ESMT_SourceCit	S_Easement_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
ErDune_SourceCit	S_ErDune_Pk_Ln	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
PFD_SourceCit	S_PFD_Ersn_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
PolAr_AOMI_Sum	S_FRD_Pol_Ar	CID	L_AOMI_Summary	AOMISUMMID	1:M
PolAr_Claims	S_FRD_Pol_Ar	CID	L_Claims	CLAIMS_ID	1:1
PolAr_CSLF_Sum	S_FRD_Pol_Ar	CID	L_CSLF_Summary	CSLFSUMMID	1:M
PolAr_Exposure	S_FRD_Pol_Ar	CID	L_Exposure	EXPOS_ID	1:1
PolAr_RA_Sum	S_FRD_Pol_Ar	CID	L_RA_Summary	RA_SUMMID	1:M
PolAr_SourceCit	S_FRD_Pol_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Proj_SourceCit	S_FRD_Proj_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Callout_SourceCit	S_FRM_Callout_Ln	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
HUC_SourceCit	S_HUC_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Levee_CF	S_Levee_Ln	LEVEE_ID	S_Cr_Fac_Pt	LEVEE_ID	1:M
Levee_INUN	S_Levee_Ln	LEVEE_ID	S_Lev_Inundation_Ar	LEVEE_ID	1:M
Levee_AOMI	S_Levee_Ln	AOMI_ID	S_AOMI_Pt	AOMI_ID	1:M

Flood Risk Database Technical Reference

Relationship Class Name	Origin Table	Origin Field	Destination Table	Destination Field	Cardinality
Levee_Elements	S_Levee_Ln	LEVEE_ID	S_Lev_Elements_Pt	LEVEE_ID	1:M
Levee_Breach	S_Levee_Ln	LEVEE_ID	S_Lev_Breach_Pt	LEVEE_ID	1:M
Levee_RAT_Curve	S_Levee_Ln	LEVEE_ID	S_Lev_Rating_Curve_Pt	LEVEE_ID	1:M
Levee_Freeboard	S_Levee_Ln	LEVEE_ID	S_Lev_Freeboard_Ln	LEVEE_ID	1:M
Levee_SourceCit	S_Levee_Ln	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Elements_SourceCit	S_Lev_Elements_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Breach_Levee_Scenario	S_Lev_Breach_Pt	SCENAR_ID	L_Levee_Scenario	SCENAR_ID	1:1
Breach_SourceCit	S_Lev_Breach_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Freeboard_Levee_Scenario	S_Lev_Freeboard_Ln	SCENAR_ID	L_Levee_Scenario	SCENAR_ID	1:1
Freeboard_SourceCit	S_Lev_Freeboard_Ln	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
INUN_Levee_Scenario	S_Lev_Inundation_Ar	SCENAR_ID	L_Levee_Scenario	SCENAR_ID	1:1
INUN_SourceCit	S_Lev_Inundation_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
LEV_RAT_Curve	S_Lev_Rating_Curve_Pt	RATCURPTID	L_Lev_Rating_Curve	RATCURPTID	1:M
RAT_Curve_SourceCit	S_Lev_Rating_Curve_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
PFD_SourceCit	S_PFD_Ersn_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Dams_AOMI	S_RM_Dams_Pt	AOMI_ID	S_AOMI_Pt	AOMI_ID	1:1
Dams_CF	S_RM_Dams_Pt	RM_DAMS_ID	S_Cr_Fac_Pt	RM_DAMS_ID	1:M
Dams_ESMT	S_RM_Dams_Pt	RM_DAMS_ID	S_Easement_Ar	RM_DAMS_ID	1:M
Dams_XS	S_RM_Dams_Pt	RM_DAMS_ID	S_Dams_XS_Ln	RM_DAMS_ID	M:M
Dams_DS_INUN	S_RM_Dams_Pt	RM_DAMS_ID	S_DS_Inundation_Ar	RM_DAMS_ID	1:M
Dams_US_INUN	S_RM_Dams_Pt	RM_DAMS_ID	S_US_Inundation_Ar	RM_DAMS_ID	1:M
Dams_SourceCit	S_RM_Dams_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Dams_XS	S_RM_Dams_Pt	RM_DAMS_ID	S_Dams_XS_Ln	RM_DAMS_ID	M:M
UDF_RA_UDF	S_UDF_Pt	UDF_ID	L_RA_UDF_Refined	UDF_ID	1:M
UDF_SourceCit	S_UDF_Pt	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
US_INUN_Dam_Scenario	S_US_Inundation_Ar	SCENAR_ID	L_Dam_Scenario	SCENAR_ID	1:1
US_INUN_SourceCit	S_US_Inundation_Ar	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Dam_Scenario_MDL	L_Dam_Scenario	MDL_NFO_ID	FRD_Model_Info	MDL_NFO_ID	1:1
Dam_Scenario_SourceCit	L_Dam_Scenario	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Levee_Scenario_Dam_Scenario	L_Dam_Scenario	SCENAR_ID	L_Levee_Scenario	DAM_SCE_ID	1:1
Results_Dam_Scenario	L_Dams_XS_MDL_Results	SCENAR_ID	L_Dam_Scenario	SCENAR_ID	1:1
Results_SourceCit	L_Dams_XS_MDL_Results	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
LEV_RAT_Curve_Levee_Scenario	L_Lev_Rating_Curve	SCENAR_ID	L_Levee_Scenario	SCENAR_ID	1:M
LEV_RAT_Curve_SourceCit	L_Lev_Rating_Curve	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
Levee_Scenario_MDL	L_Levee_Scenario	MDL_NFO_ID	FRD_Model_Info	MDL_NFO_ID	1:1
Levee_Scenario_SourceCit	L_Levee_Scenario	SOURCE_CIT	L_Source_Cit	SOURCE_CIT	1:1
RA_LEV_Scenario	L_RA_Refined	SCENAR_ID	L_Levee_Scenario	SCENAR_ID	1:1
UDF_Dam_Scenario	L_RA_UDF_Refined	SCENAR_ID	L_Dam_Scenario	SCENAR_ID	1:1
UDF_LEV_Scenario	L_RA_UDF_Refined	SCENAR_ID	L_Levee_Scenario	SCENAR_ID	1:1

Flood Risk Database Technical Reference

¹ This is not a relationship class because the S_Studies_Ar featureclass exists in another database. The information is shown here to illustrate that the FRD and CNMS databases are inter-related.

1:1 indicates a one-to-one relationship.

1:M indicates a one-to-many relationship.

M:M indicates a many-to-many relationship.

8. Domains

The FRD uses geodatabase domains to provide standardized lists of acceptable values for some fields. Many of the domains in the FRD are shared with the FIRM, Data Capture Standards (DCS), and CNMS database designs. See the *Domain Tables Technical Reference* for details on the individual domains and the process for updating the domains. The FRD domain tables are listed in Table 8.

Table 8. FRD Domains

Domain Name	Table	fGDB SHP Code Field	SHP Description Field Name	SHP Field Width
D_AOMI_Class	S_AOMI_PT	AOMI_CLASS	D_AOMICLSS	30
	L_AOMI_Summary			
D_AOMI_SourceCat	S_AOMI_Pt	AOMI_CAT	D_AOMICAT	30
	L_AOMI_Summary			
D_AOMI_Typ	L_AOMI_Summary	AOMI_TYP	D_AOMITYP	60
	S_AOMI_Pt			
D_Breach_Pt_Typ	S_Lev_Breach_Pt	PT_TYP	D_PT_TYP	60
D_Carto_Hydro_Code	S_Carto_Ar	F_CODE	D_F_CODE	25
	S_Carto_Ln			
	S_Carto_Pt			
D_Carto_Trans_Code	S_Carto_Ln	F_CODE	D_F_CODE	25
	S_Carto_Pt			
D_Carto_Typ	S_Carto_Ar	F_TYPE	D_F_TYPE	30
	S_Carto_Ln			
	S_Carto_Pt			
D_Change	S_CSLF_Ar	PEAKDSCHG	D_PEAKDSCH	12
		FLD_CTRLCHG	D_FLDCTRC	
		HYDSTRCHG	D_HYDSTRC	
		SEDCHG	D_SEDCHG	
		EROSIONCHG	D_EROSCHG	
		RUNOFFCHG	D_RNOFFCHG	
		DUNECHG	D_DUNECHG	
		SFHACHG	D_SFHACHG	
		FLDWYCHG	D_FLDWYCHG	
		NONSFHACHG	D_NONSFHA	
CHHACHG	D_CHHACHG			
D_Const_Typ	S_Levee_Ln	CONST_TYPE	D_CNST_TYP	20
	S_RM_Dams_Pt	CONST_TYP		
D_CRS_Rating	S_FRD_Pol_Ar	CRS_RATING		

Flood Risk Database Technical Reference

Domain Name	Table	fGDB SHP Code Field	SHP Description Field Name	SHP Field Width
D_Ersn_Typ	S_PFD_Ersn_Ar	ERSN_TYP	D_ERSN_TYP	20
D_Esmt_Typ	S_Easement_Ar	ESMT_TYP	D_ESMT_TYP	20
D_Event	L_Dam_Scenario	EVENT	D_EVENT	40
D_Event	S_Cst_Inundation_Ar	RETURN_PER	D_RETRNPER	40
	L_RA_AAL			
	L_RA_Composite			
	L_RA_Refined			
	L_RA_Summary			
L_RA_UDF_Refined				
D_Facility_Typ	S_UDF_Pt	FACTLY_TYP	D_FAC_TYP	20
D_Flooding_Source	L_Levee_Scenario	FLOOD_SRC	D_FLD_SRC	8
D_HAZ_Class	S_RM_Dams_Pt	HAZ_CLASS	D_HAZ_CLAS	20
D_Hazard_Typ	L_RA_AAL	HAZARD_TYP	D_HAZ_TYP	20
	L_RA_Composite			
	L_RA_Refined			
	L_RA_Summary			
	L_RA_UDF_Refined			
D_Horiz_Datum	S_FRD_Proj_Ar	H_DATUM	D_H_DAT	35
	FRD_Study_Info			
D_Hydra_Mdl	FRD_Model_Info	HYDRA_MDL	D_HYDRAMDL	100
D_Hydro_Mdl	FRD_Model_Info	HYDRO_MDL	D_HYDROMDL	100
D_Jurisdiction_Typ	FRD_Study_Info	JURIS_TYP	D_JURISTYP	25
D_Length_Units	S_Dams_XS_Ln	LEN_UNIT	D_LEN_UNIT	20
	S_FRD_Proj_Ar	V_UNITS	D_V_UNITS	20
D_Levee_Accreditation	L_Levee_Scenario	LEV_AC_TYP	D_LEVACTYP	30
D_Levee_Analysis_Typ	L_Levee_Scenario	LEV_AN_TYP	D_LEVANTYP	30
D_Levee_Event	L_Lev_Rating_Curve	SPC_TYP	D_SPC_TYP	30
	L_Levee_Scenario	EVENT	D_EVENT	30
D_Levee_Pt_Typ	S_Lev_Elements_Pt	LEV_PT_TYP	D_LEVPTTYP	25
D_Occupancy_Typ	S_UDF_Pt	OCCUP_TYP	D_OCCUPTYP	40
D_Pol_Typ	S_FRD_Pol_Ar	POL_TYP	D_POL_TYP	20
D_Proj_Unit	S_FRD_Proj_Ar	PROJ_UNIT	D_PRJUNIT	25
	FRD_Study_Info			
D_Projection	S_FRD_Proj_Ar	PROJECTION	D_PRJCTN	128
	FRD_Study_Info			
D_RA_Source	L_RA_Composite	RA_SOURCE	D_RASOURCE	25
D_Release_Typ	L_Dam_Scenario	RELEA_TYP	D_REL_TYP	20
D_Reservoir_Cond	L_Dam_Scenario	RSVR_COND	D_RSVR_CND	20
D_Runup_Mdl	FRD_Model_Info	RUNUP_MDL	D_RUNUPMDL	30
D_SFHA_FLDWY	L_CSLF_Summary	LOCATION	D_LOCATION	30

Flood Risk Database Technical Reference

Domain Name	Table	fGDB SHP Code Field	SHP Description Field Name	SHP Field Width
D_State_FIPs	S_FRD_Pol_Ar	ST_FIPS	D_ST_FIPS	35
	S_RM_Dams_Pt			
D_State_Name	FRD_Study_Info	STATE_NM	D_STATE_NM	30
D_Study_Prefix	FRD_Study_Info	STUDY_PRE	D_STUDYPRE	20
D_Study_Typ	FRD_Model_Info	STUDY_TYP	D_STUDYTYP	30
D_Surge_Mdl	FRD_Model_Info	SURGE_MDL	D_SURGEMDL	40
D_Topo_Typ	S_CSLF_Ar	PRE_TOPO	D_PRE_TOPO	20
		NEW_TOPO	D_NEW_TOPO	
D_TrueFalse	S_CSLF_Ar	MDLMETHODS	D_MDLMETH	10
		CHANNELCHG	D_CHNNLCHG	
		TOPOCHG	D_TOPOCHG	
		LEVEECHG	D_LEV_CHG	
	S_FRD_Pol_Ar	NFIPSTATUS	D_NFIPSTAT	
		HMP_STATUS	D_HMP_STAT	
	S_Levee_Ln	EAP	D_EAP	
	S_PFD_Ersn_Ar	PFD_TF	D_PFD_TF	
S_RM_Dams_Pt	EAP	D_EAP		
	DEFICIENCS	D_DEFCNCS		
D_V_Datum	S_FRD_Proj_Ar	V_DATUM	D_V_DATUM	40
	FRD_Study_Info	V_DATUM	D_V_DATUM	
D_Wave_Haz	S_Cst_Wave_Haz_Ar	WAVE_HAZ	D_WAVE_HAZ	20
D_Wave_Mdl	FRD_Model_Info	WAVEHT_MDL	D_WAVHTMDL	25
D_Zone	S_CSLF_Ar	PRE_ZONE	D_PRE_ZONE	35
		NEW_ZONE	D_NEW_ZONE	
D_ZoneSubtype	S_CSLF_Ar	PRE_ZONEST	D_PREZONST	60
		NEW_ZONEST	D_NEWZONST	