Map MODERNIZATION

Federal Emergency Management Agency

FEMA's Flood Hazard Mapping Program

Guidelines and Specifications *for* Flood Hazard Mapping Partners

Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databas

FEDERAL EMERGENCY MANAGEMENT AGENCY

http://www.fema.gov/fhm/dl_cgs.shtm

April 2003

Appendix L

Guidance for Preparing Draft Digital Data and DFIRM Database

The following Summary of Changes details revisions of Appendix L subsequent to the initial publication of the *Guidelines* in February 2002. These changes represent new or updated guidance for Flood Hazard Mapping Partners.

Date	Affected Section(s)	Summary of Change
April 2003	Purpose	Clarified that the FEMA Lead assigns tasks to the Mapping Partner(s).
April 2003	L.1	Corrected typographic errors.
April 2003	L.1	Expanded the description of the Standard and Enhanced DFIRM Databases.
April 2003	L.1	Rearranged table L-1 alphabetically.
April 2003	L.1	Removed L_Riv_Model from table L-1.
April 2003	L.1	Removed duplicate L_Stn_Start from table L-1.
April 2003	L.1	Added the Enhanced DFIRM Database tables to table L-1.
April 2003	L.1	Removed L_Cst_Model from table L-2.
April 2003	L.1	Removed L_Riv_Model from table L-2.
April 2003	L.1	Added the Enhanced DFIRM Database tables to table L-2.
April 2003	L.1	Added a discussion on Database Design Decisions.
April 2003	L.1.2	Expanded the discussion on what option Mapping Partners should follow for their submission.
April 2003	L.1.2	Corrected section cross-references.
April 2003	L.1.2	Clarified that Mapping Partners submitting Draft digital data may use either Preliminary and Final DFIRM Data structure or Draft Digital Data structure.
April 2003	L.1.2	Corrected typographic errors.
April 2003	L.2.1	Corrected typographic error.
April 2003	L.2.1	Clarified that the Appendix provides a standard schema.
April 2003	L.2.4	Corrected typographic error.
April 2003	L.2.4	Clarified the requirements for the study's projection.
April 2003	L.2.5	Clarified that the arrangements are made with the FEMA Lead.
April 2003	L.2.5.3	Corrected typographic error.
April 2003	L.2.5.3	Corrected formatting error.
April 2003	L.2.5.8	Added PLSS tables to base map tables that need not follow the DFIRM structure if existing data is used.

April 2003	L.2.5.8	Corrected typographic error.
April 2003	L.2.5.8	Modified discussion to explain the relationship between the base map to the flood hazard data.
April 2003	L.2.5.8	Removed the flood hazard data tables from Table L-5.
April 2003	L.2.5.9	Clarified that attribute tables are required to have a primary key that matches the spatial data table only when attribute data and spatial data are stored in separate files such as with a CADD data format or when attributes for GIS data are stored in a separate RDBMS.
April 2003	L.2.5.9	Corrected section cross-references.
April 2003	L.2.5.10	Added a discussion on Standard and Enhanced required components.
April 2003	L.2.5.10	Described the Standard/Enhanced code used L.4 and L7.
April 2003	L.2.5.10	Enhanced discussion of Null values for various data types. Added discussion of "Not Populated" values for situations where data does not follow requirements of specification.
April 2003	L.2.5.10	Added discussion of true/false fields in the DFIRM database.
April 2003	L.2.5.10	Corrected typographic errors.
April 2003	L.2.6	Corrected section cross-references.
April 2003	L.2.6	Corrected typographic error.
April 2003	L.2.7	Clarified that metadata file is provided in ASCII text format.
April 2003	L.2.7.2	Corrected section cross-references.
April 2003	L.2.7.2	Corrected typographic error.
April 2003	L.2.7.2	Added SID and PNG as acceptable raster formats.
April 2003	L.2.7.2	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.2.7.2	Modified the data directory structure.
April 2003	L.2.8	Corrected typographic error.
April 2003	L.2.8	Corrected structure of metdata file name.
April 2003	L.3.2.1	Corrected typographic error.
April 2003	L.3.2.1	Corrected section cross-references.
April 2003	L.3.5	Corrected section cross-references.
April 2003	L.3.5.1	Clarified discussion of Tiling.
April 2003	L.3.5.2	Clarified discussion of nodes and vertices for Topology.
April 2003	L.3.5.3	Corrected section cross-references.
April 2003	L.3.5.4	Corrected section cross-references.
April 2003	L.3.5.5	Corrected section cross-references.
April 2003	L.3.5.6	Clarified that issues will be resolved the the FEMA Lead.
April 2003	L.3.5.7	Corrected section cross-references.
April 2003	L.3.5.8	Added PLSS tables to base map tables that need not follow the DFIRM structure if existing data is used. Clarified the tables to which this exception applies.
April 2003	L.3.5.8	Modified discussion to explain the relationship between the base map to the flood hazard data.
April 2003	L.3.5.8	Removed the flood hazard data tables from Table L-7.
April 2003	L.3.5.11	Added a discussion on Standard and Enhanced required components.

		components.
April 2003	L.3.5.11	Described the Standard/Enhanced code used L.4 and L.7.
April 2003	L.3.5.11	Enhanced discussion of Null values for various data types. Added discussion of "Not Populated" values for situations where data does not follow requirements of specification.
April 2003	L.3.5.11	Corrected typographic error.
April 2003	L.3.5.11	Added discussion of true/false fields in the DFIRM database.
April 2003	L.3.7	Clarified that the Mapping Partner should submit the FEMA Mapping Information Checklist.
April 2003	L.3.7	Clarified that the FIS text should be in PDF format with appropriate bookmarks.
April 2003	L.3.7.2	Corrected typographic error.
April 2003	L.3.7.2	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.3.7.2	Corrected reference to format of preliminary data files for QA/QC.
April 2003	L.3.7.2	Modified the data directory structure.
April 2003	L.3.8	Corrected typographic error.
April 2003	L.3.8	Corrected structure of metdata file name.
April 2003	L.4 S_BFE	Corrected typographic error.
April 2003	L.4 S_BFE	Renamed UNITS_LID field to LEN_LID.
April 2003	L.4 S_CBRS	Changed CBRS_LID and CBRS_DATE to required if applicable instead of required.
April 2003	L.4 S_CBRS	Expanded description of the CBRS_TF field.
April 2003	L.4 S_CBRS	Clarified description of the S_CBRS table.
April 2003	L.4 S_CBRS	Clarified description of the CBRS_DATE field.
April 2003	L.4 S_Cst_Gage	Added the S_Cst_Gage table.
April 2003	L.4 S_Cst_Tsct_Ln	Removed CST_MDL_ID.
April 2003	L.4 S_Cst_Tsct_Ln	Added Enhanced attributes.
April 2003	L.4 S_DOQ_Index	Renamed the S_DOQ_Index table to S_Base_Index.
April 2003	L.4 S_DOQ_Index	Renamed DOQ_ID field to BASE_ID.
April 2003	L.4 S_DOQ_Index	Renamed DOQ_DATE field to BASE_DATE.
April 2003	L.4 S_DOQ_Index	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.4 S_FIRM_Pan	Changed the requirement for panels that extend past the administrative boundaries of the area mapped to extend out to the mapped panel neatlines rather than be clipped to the

		to the mapped panel neatlines rather than be clipped to the boundary of the area mapped.
April 2003	L.4 S_FIRM_Pan	Changed capitalization of PNP_REASON.
April 2003	L.4 S_Fld_Haz_Ar	Expanded description of SFHA_TF field.
April 2003	L.4 S_Fld_Haz_Ar	Clarified that the units field applies to depths as well as BFEs.
April 2003	L.4 S_Fld_Haz_Ar	Added a DEP_REVERT field to hold a depth value for AR zones that required depths for the reverted zone.
April 2003	L.4 S_Fld_Haz_Ar	Expanded discussion of SOURCE_CIT to say that the flood zones will be divided to track the sources of the most recent revision, but not previous revisions.
April 2003	L.4 S_Fld_Haz_Ar	Renamed UNIT_LID field to LEN_LID.
April 2003	L.4 S_Fld_Haz_Ar	Renamed VEL_UNITS field to VEL_LID.
April 2003	L.4 S_Fld_Haz_Ar	Added Enhanced attributes.
April 2003	L.4 S_Fld_Haz_Ln	Removed the SOURCE_CIT field.
April 2003	L.4 S_Gen_Struct	Changed the field WTR_NM to WTR_LID.
April 2003	L.4 S_Label_Ld	Corrected typographic error.
April 2003	L.4 S_Label_Pt	Expanded description of DEGREES field.
April 2003	L.4 S_LOMR	Clarified that the polygon is the outline shown on the LOMR attachment.
April 2003	L.4 S_LOMR	Added Enhanced attributes.
April 2003	L.4 S_Nodes	Added the S_Nodes table.
April 2003	L.4 S_Ovrbnkln	Added the S_Ovrbnkln table.
April 2003	L.4 S_Perm_Bmk	Corrected typographic error.
April 2003	L.4 S_PFD_Ln	Added the S_PFD_Ln table.
April 2003	L.4 S_PLSS_Ar	Corrected typographic error.
April 2003	L.4 S_PLSS_Ln	Changed the requirements for PLSS data to be analogous to Transportation and Water features. Existing data used for a DFIRM is not required to be restructured to follow the DFIRM database specification. The table is not required if the data used for the hard copy map is not available for free public distribution by FEMA.
April 2003	L.4	Fixed confusion between the COMM_NO and the CID

	S_Pol_Ar	fields. The CID field is the concatenation of the two-digit state FIPs code and COMM_NO.
April 2003	L.4 S_Pol_Ar	Added text values to use for COMM_NO when local jurisdiction does not apply to an area.
April 2003	L.4 S_Pol_Ar	Fixed capitalization of POL_NAME1 and POL_NAME2.
April 2003	L.4 S_Pol_Ar	Expanded description of ANI_TF field.
April 2003	L.4 S_Pol_Ar	Removed SOURCE_CIT field.
April 2003	L.4 S_Pol_Ar	Corrected typographic error.
April 2003	L.4 S_Precip_Gage	Added the S_Precip_Gage table.
April 2003	L.4 S_Profil_Basln	Added the S_Profil_Basln table.
April 2003	L.4 S_Quad	Renamed table S_Quad to S_Quad_Index.
April 2003	L.4 S_Shore_Ln	Added the S_Shore_Ln table.
April 2003	L.4 S_Stn_Start	Added the S_Stn_Start table.
April 2003	L.4 S_Subbasins	Added the S_Subbasins table.
April 2003	L.4 S_Trnsport_Ln	Changed NM_TYP field to NM_LID.
April 2003	L.4 S_Trnsport_Ln	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.4 S_Trnsport_Ln	Clarified that FEAT_NM1 should also be used for route numbers and "Intercoastal Waterway."
April 2003	L.4 S_Water_Gage	Added the S_Water_Gage.
April 2003	L.4 S_Wtr_Ar	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.4 S_Wtr_Ar	Changed reference to table name D_Wtr_Typ to D_Water_Typ.
April 2003	L.4 S_Wtr_Ln	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.4 S_Wtr_Ln	Changed reference to table name D_Wtr_Typ to D_Water_Typ.
April 2003	L.4 S_XS	Added fields for vertical datum and units that apply to the WSEL_100 field.
April 2003	L.4 S_XS	Removed field XS_NO.
April 2003	L.4 S_XS	Renamed WSEL_100 field to WSEL_REG.
April 2003	L.4	Renamed UNITS_LID field to LEN_LID.

	S_XS	
April 2003	L.4 S_XS	Corrected typographic error by renaming V_DATUM_LID field to V_DATM_LID.
April 2003	L.4 S_XS	Removed the RIV_MDL_ID field.
April 2003	L.4 S_XS	Fixed formatting error.
April 2003	L.4 S_XS	Clarified that XS_LTR can be either a letter or a number.
April 2003	L.4 S_XS	Added Enhanced attributes.
April 2003	L.4 Study_Info	Changed the STUDY_PRE field and JURIS_TYP field to required if applicable rather than required.
April 2003	L.4 Study_Info	Expanded description of OPP_TF field.
April 2003	L.4 Study_Info	Expanded description of CW_TF field.
April 2003	L.4 Study_Info	Expanded description of RTROFT_TF field.
April 2003	L.4 Study_Info	Added META_NM field.
April 2003	L.4 Study_Info	Removed UNIT_LID from matrix.
April 2003	L.4 Study_Info	Added Enhanced attributes.
April 2003	L.4 L_Aux_Data	Added the S_Aux_Data table.
April 2003	L.4 L_Case_Info	Added the S_Case_Info table.
April 2003	L.4 L_Comm_Info	Clarified that all communities within the area of study are included in the table.
April 2003	L.4 L_Comm_Info	Changed REPOS_ADR2 to required if applicable rather than required.
April 2003	L.4 L_Comm_Info	Expanded description of REPOS_ST.
April 2003	L.4 L_Comm_Info	Expanded description of IN_ID_DAT field.
April 2003	L.4 L_Comm_Info	Expanded description of IN_NFIP_DT field.
April 2003	L.4 L_Comm_Info	Expanded description of IN_FRM_DAT field.
April 2003	L.4 L_Comm_Info	Expanded description of IN_RECENT_DAT field.
April 2003	L.4 L_Cst_Model	Removed from Standard. Existing attributes and additional attributes were added as part of the Enhanced.
April 2003	L.4 L_Hydra_Model	Added the L_Hydra_Model table.

April 2003	L.4 L_Hydro_Model	Added the L_Hydro_Model table.
April 2003	L.4 L_Media	Added the L_Media table.
April 2003	L.4 L_MT1_LOMC	Added a value of "redetermined" for LOMCs included in Draft Digital Data submissions.
April 2003	L.4 L_MT1_LOMC	Changed the description of the FIRM_PAN field so that it is not described as a foreign key.
April 2003	L.4 L_Node_Disch	Added the L_Node_Disch table.
April 2003	L.4 L_Pan_Revis	Added REVIS_ID field as primary key.
April 2003	L.4 L_Pan_Revis	Changed description of FIRM_PAN field so that it is not described as a primary key.
April 2003	L.4 L_Pol_FHBM	Changed the name of the COMM_NO field to CID to remain consistent with the S_Pol_Ar table.
April 2003	L.4 L_Pol_FHBM	Added FHBM_ID as a primary key.
April 2003	L.4 L_Pol_FHBM	Changed description of CID so that it is not described as a primary key.
April 2003	L.4 L_Regression	Added the L_Regression table.
April 2003	L.4 L_Riv_Model	Removed the L_Riv_Model table.
April 2003	L.4 L_Stn_Start	Clarified that multiple reaches can share the same entry.
April 2003	L.4 L_Stn_Start	Added a requirement to include units of measure in the start description.
April 2003	L.4 L_Stn_Start	Removed the SOURCE_CIT field.
April 2003	L.4 L_Storm_Curve	Added the L_Storm_Curve table.
April 2003	L.4 L_Storm_Info	Added the L_Storm_Info table.
April 2003	L.4 L_Subbas_Disch	Added the L_Subbas_Disch table.
April 2003	L.4 L_Wtr_Nm	Removed L_Cst_Model table and L_Riv_Model table from WTR_NM_LID field's description.
April 2003	L.4 L_XS_Ratings	Added the L_XS_Ratings table.
April 2003	L.4	Replaced the previous chart showing table structure in Microsoft Access with detailed table structure for Microsoft Access, ESRI Shapefile, ESRI Coverage and MapInfo table formats for all tables.
April 2003	L.4	Removed acceptable domain values from this section and replaced them with detailed table structure for Microsoft Access, ESRI Shapefile, ESRI Coverage and MapInfo table formats. Added a new Section L.9 listing acceptable

		values for all standardized domains.
April 2003	L.4	Some domain tables had additional values added and typographic corrections made.
April 2003	L.4 D_Area_Units	Added the D_Area_Units table.
April 2003	L.4 D_CBRS_Typ	Corrected typographic error.
April 2003	L.4 D_Discharge_Units	Added the D_Discharge_Units table.
April 2003	L.4 D_Eros_Method	Added the D_Eros_Method table.
April 2003	L.4 D_Frequency	Added the D_Frequency table.
April 2003	L.4 D_Gage	Added the D_Gage table.
April 2003	L.4 D_Label_Typ	Corrected typographic error.
April 2003	L.4 D_Ln_Typ	Corrected typographic error.
April 2003	L.4 D_Ln_Typ	Capitalized 'pct' in LN_TYP field description and domain values.
April 2003	L.4 D_Ln_Typ	Added a discussion regarding the lines for SFHA boundaries.
April 2003	L.4 D_Ln_Typ	Added line type MEANDER to precedence for PLSS data.
April 2003	L.4 D_Method	Added the D_Method table.
April 2003	L.4 D_Nodes	Added the D_Nodes table.
April 2003	L.4 D_Runup_Mdl	Added the D_Runup_Mdl table.
April 2003	L.4 D_Shr_Rough	Added the D_Shr_Rough table.
April 2003	L.4 D_Shr_Typ	Added the D_Shr_Typ table.
April 2003	L.4 D_Storms	Added the D_Storms table.
April 2003	L.4 D_Surge_Mdl	Added the D_Surge_Mdl table.
April 2003	L.4 D_Time_Units	Added the D_Time_Units table.
April 2003	L.4 D_Trans_Typ	Added discussion on when the value undefined should be used.
April 2003	L.4 D_Units	Replaced with D_Length_Units.
April 2003	L.4 D_Velocity_Units	Added the D_Velocity_Units table.

April 2003	L.4 D_Volume_Units	Added the D_Volume_Units table.
April 2003	L.4 D_VZone	Added the D_VZone table.
April 2003	L.4 D_Water_Typ	Increased the width of the WATER_TYP field.
April 2003	L.4 D_Wave_Mdl	Added the D_Wave_Mdl table.
April 2003	L.4 D_Zone	Corrected typographic errors.
April 2003	L.4 D_Zone	Capitalized 'pct' in FLD_ZONE field description and domain values.
April 2003	L.5	Corrected typographic error.
April 2003	L.5	Added SID and PNG to list of raster data formats.
April 2003	L.6	Modified the metadata to be processed by mp with fewer errors.
April 2003	L.6	Removed "Right of ways" as a format for road data.
April 2003	L.6	Removed L_Riv_Model from the tables in the data set.
April 2003	L.6	Changed metadata file name.
April 2003	L.6	Added indents to clarify data structure relative to FGDC metadata standards.
April 2003	L.7 S_Base_Index	Corrected typographic error.
April 2003	L.7 S_BFE	Renamed UNITS field to LEN_UNIT.
April 2003	L.7 S_BFE	Corrected typographic error.
April 2003	L.7 S_CBRS	Changed CBRS_TYP and CBRS_DATE to required if applicable instead of required.
April 2003	L.7 S_CBRS	Expanded description of the CBRS_TF field.
April 2003	L.7 S_CBRS	Clarified description of the S_CBRS table.
April 2003	L.7 S_CBRS	Clarified description of the CBRS_DATE field.
April 2003	L.4 S_Cst_Gage	Added the S_Cst_Gage table.
April 2003	L.7 S_Cst_Tsct_Ln	Removed CST_MDL_ID field.
April 2003	L.7 S_Cst_Tsct_Ln	Added Enhanced attributes.
April 2003	L.7 S_DOQ_Index	Renamed the S_DOQ_Index table to S_Base_Index.
April 2003	L.7 S_DOQ_Index	Renamed DOQ_ID field to BASE_ID.
April 2003	L.7 S_DOQ_Index	Renamed DOQ_DATE field to BASE_DATE.

April 2003	L.7 S_DOQ_Index	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.7 S_FIRM_Pan	Changed the requirement for panels that extend past the administrative boundaries of the area mapped to extend out to the mapped panel neatlines rather than be clipped to the boundary of the area mapped.
April 2003	L.7 S_FIRM_Pan	Changed capitalization of PNP_REASON.
April 2003	L.7 S_Fld_Haz_Ar	Corrected typographic error.
April 2003	L.7 S_Fld_Haz_Ar	Capitalized 'pct' in FLD_ZONE field description.
April 2003	L.7 S_Fld_Haz_Ar	Expanded description of SFHA_TF field.
April 2003	L.7 S_Fld_Haz_Ar	Renamed UNITS field to LEN_UNIT.
April 2003	L.7 S_Fld_Haz_Ar	Clarified that the units field applies to depths as well as BFEs.
April 2003	L.7 S_Fld_Haz_Ar	Renamed VEL_UNITS to VEL_UNIT.
April 2003	L.7 S_Fld_Haz_Ar	Added a DEP_REVERT field to hold a depth value for AR zones that required depths for the reverted zone.
April 2003	L.7 S_Fld_Haz_Ar	Expanded discussion of SOURCE_CIT to say that the flood zones will be divided to track the sources of the most recent revision, but not previous revisions.
April 2003	L.7 S_Fld_Haz_Ar	Added Enhanced attributes.
April 2003	L.7 S_Fld_Haz_Ln	Corrected typographic error.
April 2003	L.7 S_Fld_Haz_Ln	Removed the SOURCE_CIT field.
April 2003	L.7 S_Label_Ld	Corrected typographic error.
April 2003	L.7 S_Label_Pt	Expanded description of DEGREES field.
April 2003	L.7 S_LOMR	Clarified that the polygon is the outline shown on the LOMR attachment.
April 2003	L.7 S_LOMR	Added Enhanced attributes.
April 2003	L.7 S_Nodes	Added the S_Nodes table.
April 2003	L.7 S_Ovrbnkln	Added the S_Ovrbnkln table.
April 2003	L.7 S_Perm_Bmk	Corrected typographic error.
April 2003	L.7 S_PFD_Ln	Added the S_PFD_Ln table.

April 2003	L.7 S_PLSS_Ar	Changed the requirements for PLSS data to be analogous to Transportation and Water features. Existing data used for a DFIRM is not required to be restructured to follow the DFIRM database specification. The table is not required if the data used for the hard copy map is not available for free public distribution by FEMA.
April 2003	L.7 S_PLSS_Ar	Corrected typographic errors.
April 2003	L.7 S_PLSS_Ln	Changed the requirements for PLSS data to be analogous to Transportation and Water features. Existing data used for a DFIRM is not required to be restructured to follow the DFIRM database specification. The table is not required if the data used for the hard copy map is not available for free public distribution by FEMA.
April 2003	L.7 S_PLSS_Ln	Corrected typographic errors.
April 2003	L.7 S_Pol_Ar	Fixed confusion between the COMM_NO and the CID fields. The CID field is the concatenation of the two digit state FIPs code and COMM_NO.
April 2003	L.7 S_Pol_Ar	Added text values to use for COMM_NO when local jurisdiction does not apply to an area.
April 2003	L.7 S_Pol_Ar	Fixed capitalization of POL_NAME1 and POL_NAME2.
April 2003	L.7 S_Pol_Ar	Expanded description of ANI_TF field.
April 2003	L.7 S_Pol_Ar	Removed SOURCE_CIT field.
April 2003	L.7 S_Pol_Ar	Corrected typographic error.
April 2003	L.7 S_Precip_Gage	Added the S_Precip_Gage table.
April 2003	L.7 S_Profil_Basln	Added the S_Profil_Basln table.
April 2003	L.7 S_Quad	Renamed table S_Quad to S_Quad_Index.
April 2003	L.7 S_Shore_Ln	Added the S_Shore_Ln table.
April 2003	L.7 S_Stn_Start	Added the S_Stn_Start table.
April 2003	L.7 S_Subbasins	Added the S_Subbasins table.
April 2003	L.7 S_Trnsport_Ln	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.7 S_Trnsport_Ln	Clarified that FEAT_NM1 should also be used for route numbers and "Intercoastal Waterway."
April 2003	L.7 S_Trnsport_Ln	Corrected typographic error.
April 2003	L.7 S_Water_Gage	Added the S_Water_Gage table.

April 2003	L.7 S_Wtr_Ar	Increased the width of the WATER_TYP field.
April 2003	L.7 S_Wtr_Ar	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.7 S_Wtr_Ar	Changed reference to table name D_Wtr_Typ to D_Water_Typ.
April 2003	L.7 S_Wtr_Ln	Increased the width of the WATER_TYP field.
April 2003	L.7 S_Wtr_Ln	Changed references to orthophotos to the less restrictive description of raster base maps.
April 2003	L.7 S_Wtr_Ln	Changed reference to table name D_Wtr_Typ to D_Water_Typ.
April 2003	L.7 S_XS	Added fields for vertical datum and units that apply to the WSEL_100 field.
April 2003	L.7 S_XS	Removed field XS_NO.
April 2003	L.7 S_XS	Renamed WSEL_100 field to WSEL_REG.
April 2003	L.7 S_XS	Renamed UNITS field to LEN_UNIT.
April 2003	L.7 S_XS	Removed the RIV_MDL_ID field.
April 2003	L.7 S_XS	Fixed formatting error.
April 2003	L.7 S_XS	Clarified that XS_LTR can be either a letter or a number.
April 2003	L.7 S_XS	Added Enhanced attributes.
April 2003	L.7 Study_Info	Changed the STUDY_PRE field and JURIS_TYP field to required if applicable rather than required.
April 2003	L.7 Study_Info	Expanded description of OPP_TF field.
April 2003	L.7 Study_Info	Expanded description of CW_TF field.
April 2003	L.7 Study_Info	Expanded description of RTROFT_TF field.
April 2003	L.7 Study_Info	Added META_NM field.
April 2003	L.7 Study_Info	Removed UNITS from the matrix.
April 2003	L.7 Study_Info	Added Enhanced attributes.
April 2003	L.7 L_Aux_Data	Added the L_Aux_Data table.
April 2003	L.7 L_Case_Info	Added the L_Case_Info table.
April 2003	L.7	Removed from Standard. Existing attributes and additional

	L_Cst_Model	attributes were added as part of the Enhanced.
April 2003	L.7 L_Comm_Info	Clarified that all communities within the area of study are included in the table.
April 2003	L.7 L_Comm_Info	Changed REPOS_ADR2 to required if applicable rather than required.
April 2003	L.7 L_Comm_Info	Expanded description of REPOS_ST.
April 2003	L.7 L_Comm_Info	Expanded description of IN_ID_DAT field.
April 2003	L.7 L_Comm_Info	Expanded description of IN_NFIP_DT field.
April 2003	L.7 L_Comm_Info	Expanded description of IN_FRM_DAT field.
April 2003	L.7 L_Comm_Info	Expanded description of IN_RECENT_DAT field.
April 2003	L.7 L_Hydra_Model	Added the L_Hydra_Model table.
April 2003	L.7 L_Hydro_Model	Added the L_Hydro_Model table.
April 2003	L.7 L_Media	Added the L_Media table.
April 2003	L.7 L_MT1_LOMC	Added a value of "redetermined" for LOMCs included in Draft Digital Data submissions.
April 2003	L.7 L_MT1_LOMC	Changed the description of the FIRM_PAN field so that it is not described as a foreign key.
April 2003	L.7 L_Node_Disch	Added the L_Node_Disch table.
April 2003	L.7 L_Pan_Revis	Added REVIS_ID field as primary key.
April 2003	L.7 L_Pan_Revis	Changed description of FIRM_PAN field so that it is not described as a primary key.
April 2003	L.7 L_Pol_FHBM	Changed the name of the COMM_NO field to CID to remain consistent with the S_Pol_Ar table.
April 2003	L.7 L_Pol_FHBM	Added FHBM_ID as a primary key.
April 2003	L.7 L_Pol_FHBM	Changed description of CID so that it is not described as a primary key.
April 2003	L.7 L_Regression	Added the L_Regression table.
April 2003	L.7 L_Riv_Model	Removed the L_Riv_Model table.
April 2003	L.7 L_Stn_Start	Clarified that multiple reaches can share the same entry.
April 2003	L.7 L_Stn_Start	Added a requirement to include units of measure in the start description.
April 2003	L.7 L_Stn_Start	Removed the SOURCE_CIT field.

April 2003	L.7 L_Storm_Curve	Added the L_Storm_Curve table.
April 2003	L.7 L_Storm_Info	Added the L_Storm_Info table.
April 2003	L.7 L_Subbas_Disch	Added the L_Subbas_Disch table.
April 2003	L.7 L_XS_Ratings	Added the L_XS_Ratings table.
April 2003	L.7	Replaced the previous chart showing table structure in Microsoft Access with detailed table structure for Microsoft Access, ESRI Shapefile, ESRI Coverage and MapInfo table formats for all tables.
April 2003	L.8	Modified the metadata to be processed by mp with fewer errors.
April 2003	L.8	Removed L_Riv_Model from the tables in the data set.
April 2003	L.8	Changed metadata file name.
April 2003	L.8	Added indents to clarify data structure relative to FGDC metadata standards.
April 2003	L.9	Added a new section, Section L.9, listing acceptable values for all standardized domains.
April 2003	L.9	Some domain tables had additional values added and typographic corrections made.
April 2003	L.9	Domain tables for the Enhanced attributes were added.

Appendix L

Draft Digital Data and Digital Flood Insurance Rate Map Database Specifications

The purpose of this Appendix is to provide guidance and specifications to the Mapping Partner that prepares draft digital data for Digital Flood Insurance Rate Map (DFIRM) production and the Mapping Partner that prepares the Preliminary and Final DFIRM and databases for transfer to the Federal Emergency Management Agency (FEMA). For a particular Flood Map Project, the FEMA Lead may assign both tasks to one Mapping Partner or each task to different Mapping Partners. This Appendix is not intended to specify in-process compilation or digitizing procedures, but rather to present specifications and requirements for output and deliverables.

L.1 Digital Flood Insurance Rate Map Database Overview

The FEMA Geographic Information System (GIS) databases will store the digital data used in the map production process, as well as the engineering backup data for floodplain studies. These databases will provide a standard, systematic method for FEMA to distribute comprehensive details of flood studies to the public and others in a digital format.

Preparing these data in digital format has significant advantages. Digital data allow for more efficient storage, update, records search and distribution. The most significant advantage is that the data are designed to work within a GIS environment. This means that the FEMA database can be used for automated analyses that are costly and impractical with paper products and is compatible with Internet applications.

FEMA will collect as much data as possible in digital format, and archive the data in the GIS database for each DFIRM created. For publication of these data, FEMA will provide two versions of the DFIRM database. The simplified version is called the Standard DFIRM Database. The Standard DFIRM Database is provided to end users who do not require the complete engineering backup data; however, it is not intended to limit the scope of the GIS data collected and submitted to FEMA. The full GIS database that contains all of the available flood study information is called the Enhanced DFIRM Database

The Standard DFIRM Database was designed to present the effective flood hazard information published by FEMA. Users who only need to know whether a structure is in or out of the Special Flood Hazard Area (SFHA), or what the base flood elevation is for a location will be able to use the Standard DFIRM Database. Users who want to reference the engineering analyses or utilize any of the supporting data behind the effective flood hazard data will need to use the Enhanced DFIRM Database.

This Appendix includes the specification for the Standard DFIRM Database and the core elements of the Enhanced DFIRM Database. All of the Standard DFIRM Database information is contained within the Enhanced DFIRM Database. In the sections below that detail the database structure, some database fields and some database tables are identified as "Enhanced". That means these fields or tables are only included with full GIS database that is built for a particular study. They are not included in the easier to use version, the Standard DFIRM Database, that is also available for the same study.

The amount of data that will be captured digitally and stored in the Enhanced DFIRM Database will vary for each flood study. In general, the production of any digital map will result in a complete Standard DFIRM Database. However, most studies will also have some additional data that will be stored in the Enhanced DFIRM Database. Even studies where existing effective flood hazard analyses are used to produce updated digital maps may include easily accessible elements of the Enhanced DFIRM Database. For new studies where new flood hazard analyses are performed, the core elements of the Enhanced Database described will be populated. For each digital map update undertaken, the Mapping Partner should coordinate with the FEMA Lead to determine how much of the Enhanced DFIRM Database should be completed.

For Preliminary or Final DFIRMs, all of the tables in the DFIRM database are required if they apply to the DFIRM being created. Some tables, like those that depict coastal features, do not apply to every DFIRM. The Mapping Partner that creates the DFIRM shall ensure that all of the applicable tables in the DFIRM database have been completed and documented in the metadata. Generally, the DFIRM database for a new DFIRM will cover the entire jurisdiction. Detailed specifications for the Preliminary or Final DFIRM database are provided in Section L.3. A summary of the standard DFIRM database tables is provided in Table L-1.

Table L-1. DFIRM Database Table Summary

DFIRM Table Name	Table Type	Table Description
L_Aux_Data	Lookup	Information about auxiliary data.
L_Case_Info	Lookup	Information about data specific to the study.
L_Comm_Info	Lookup	Information about each community on the DFIRM
L_Cst_Model	Lookup	Information about coastal models used in the engineering analysis.
L_Hydra_Model	Lookup	Information about hydraulic models used in the engineering analysis.
L_Hydro_Model	Lookup	Information about hydrologic models used in the engineering analysis.
L_Media	Lookup	Information about archived media that is linked to a spatial object.
L_MT1_LOMC	Lookup	Information about LOMCs on the DFIRM
L_Node_Disch	Lookup	Information about hydrologic routing.
L_Pan_Revis	Lookup	Information about revisions to each FIRM panel
L_Pol_FHBM	Lookup	Information about revisions to FHBMs for each community
L_Regression	Lookup	Information about regression equations utilized in the hydrologic modeling.
L_Stn_Start	Lookup	Location and attributes for starting points for stream distance measurements
L_Storm_Curve	Lookup	Information about Depth-Duration-Frequency and Intensity-Duration-Frequency relationships.
L_Storm_Info	Lookup	Information about basic precipitation patterns.
L_Subbas_Disch	Lookup	Information about outflow data for each subbasin and recurrence interval in the hydrologic analysis.
L_Wtr_Nm	Lookup	Information about hydrographic features on the DFIRM
L_XS_Ratings	Lookup	Information about cross sections.
S_Base_Index	Spatial	Location and attributes for a tiling index for raster data used for the DFIRM
S_BFE	Spatial	Location and attributes for base flood elevations lines shown on DFIRM
S_CBRS	Spatial	Location and attributes for Coastal Barrier Resource System units on the DFIRM
S_Cst_Gage	Spatial	Location and attributes for the coastal gages for the study area.
S_Cst_Tsct_Ln	Spatial	Location and attributes for coastal transect lines shown on the DFIRM
S_FIRM_Pan	Spatial	Location and attributes for DFIRM hardcopy map panels
S_Fld_Haz_Ar	Spatial	Location and attributes for flood insurance risk zones on the DFIRM
S_Fld_Haz_Ln	Spatial	Location and attributes for boundaries of flood insurance risk zones on the DFIRM
S_Gen_Struct	Spatial	Location and attributes for flood control structures shown on the DFIRM
S_Label_Ld	Spatial	Location and attributes for leader lines on transportation and hydrography labels shown on the DFIRM
S_Label_Pt	Spatial	Location and attributes for transportation and hydrography labels shown on the DFIRM
S_LOMR	Spatial	Location and attributes for LOMRs on the DFIRM
S_Nodes	Spatial	Location and attributes of points used to define the topology of the hydrologic network.
S_Ovrbnkln	Spatial	Location and attributes for the overbank flow lines features for the study area.
S_Perm_Bmk	Spatial	Location and attributes for bench marks on the DFIRM
S_PFD_Ln	Spatial	Location and attributes for the primary frontal dune features for the coastal study area.
S_PLSS_Ar	Spatial	Location and attributes of sections, townships and ranges on the DFIRM
S_PLSS_Ln	Spatial	Location and attributes section lines, township lines and range lines on

		the DFIRM
S_Pol_Ar	Spatial	Location and attributes for political jurisdictions shown on the DFIRM
S_Pol_Ln	Spatial	Location and attributes for political boundaries shown on the DFIRM
S_Precip_Gage	Spatial	Location and attributes for rain gages used in developing the hydrologic analysis.
S_Profil_Basln	Spatial	Location and attributes for profile baseline and stream centerline features for the study area.
S_Quad_Index	Spatial	Location and attributes for USGS quadrangle maps covering the DFIRM area
S_Riv_Mrk	Spatial	Location and attributes for river mile markers shown on the DFIRM
S_Shore_Ln	Spatial	Location and attributes for the shoreline used in the coastal flood hazard model.
S_Stn_Start	Spatial	Location and attributes for station points.
S_Subbasins	Spatial	Location and attributes for subbasins in the hydrologic analysis.
S_Trnsport_Ln	Spatial	Location and attributes for roads, railroads and other transportation features shown on the DFIRM
S_Water_Gage	Spatial	Location and attributes for non-rain gages used in developing the hydrologic analysis.
S_Wtr_Ar	Spatial	Location and attributes for hydrography features shown on DFIRM
S_Wtr_Ln	Spatial	Location and attributes for hydrography features shown on DFIRM
S_XS	Spatial	Location and attributes for cross-section lines in the area covered by the DFIRM
Study_Info	Non-Spatial	General information about the DFIRM

Mapping Partners that are assigned other tasks for a Flood Map Project will normally produce draft study components and draft DFIRM digital data. For Mapping Partners that create draft DFIRM digital data, not all the tables in the DFIRM database will apply. These Mapping Partners will often only submit data that cover the geographic area of their work. The tables that are applicable to a specific Flood Map Project will vary, depending on the specific scope of that activity. Table L-2 presents the DFIRM database tables that apply to specific components of a Flood Map Project. The scope of a particular project could include several of these activities and, therefore, all of the tables from each of the activities involved in the project will likely apply. Most Flood Map Projects will include the requirement of a digital base map that meets the requirements as outlined in Appendix K of these Guidelines.

Table L-2. Mapping Partner Activity Table

Digital FIRM Preparation	Digital FIRM Maintenance	Hydrologic and Hydraulic Analyses and Floodplain Mapping	Redelineation of Floodplain Boundaries Using Updated Topographic Data	Refinement of Approximate Zone A Boundaries	Digital Topographic Data Development	Coastal Hazard Analyses and Floodplain Mapping	Digital Base Map Development
L_Aux_Data	L_Aux_Data	L_Aux_Data	L_Aux_Data	L_Wtr_Nm	S_Perm_Bmk	L_Aux_Data	L_Wtr_Nm
L_Case_Info	L_Case_Info	L_Case_Info	L_Case_Info	S_Fld_Haz_Ar		L_Cst_Model	S_Base_Index
L_Comm_Info	L_Comm_Info	L_Hydra_Model	L_Hydra_Model	S_Fld_Haz_Ln		L_Media	S_Gen_Struct
L_Cst_Model	L_Cst_Model	L_Hydro_Model	L_Hydro_Model	S_LOMR		L_Wtr_Nm	S_Label_Ld
L_Hydra_Model	L_Hydra_Model	L_Media	L_Media	S_Perm_Bmk		S_BFE	S_Label_Pt
L_Hydro_Model	L_Hydro_Model	L_Node_Disch	L_Node_Disch	S_Wtr_Ar		S_CBRS	S_Perm_Bmk
L_Media	L_Media	L_Regression	L_Regression	S_Wtr_Ln		S_Cst_Gage	S_PLSS_AR
L_MT1_LOMC	L_MT1_LOMC	L_Stn_Start	L_Stn_Start			S_Cst_Tsct_Ln	S_PLSS_LN
L_Node_Disch	L_Node_Disch	L_Storm_Curve	L_Storm_Curve			S_Fld_Haz_Ar	S_Pol_Ar
L_Pan_Revis	L_Pan_Revis	L_Storm_Info	L_Storm_Info			S_Fld_Haz_Ln	S_Pol_Ln
L_Pol_FHBM	L_Pol_FHBM	L_Subbas_Disch	L_Subbas_Disch			S_Gen_Struct	S_Quad_Index
L_Regression	L_Regression	L_Wtr_Nm	L_Wtr_Nm			S_LOMR	S_Trnsport_Ln
L_Stn_Start	L_Stn_Start	L_XS_Ratings	L_XS_Ratings			S_Perm_Bmk	S_Wtr_Ar
L_Storm_Curve	L_Storm_Curve	S_BFE	S_BFE			S_PFD_Ln	S_Wtr_Ln
L_Storm_Info	L_Storm_Info	S_Fld_Haz_Ar	S_Fld_Haz_Ar			S_Shore_Ln	
L_Subbas_Disch	L_Subbas_Disch	S_Fld_Haz_Ln	S_Fld_Haz_Ln			S_Wtr_Ar	
L_Wtr_Nm	L_Wtr_Nm	S_Gen_Struct	S_Gen_Struct			S_Wtr_Ln	
L_XS_Ratings	L_XS_Ratings	S_LOMR	S_LOMR				
S_Base_Index	S_Base_Index	S_Nodes	S_Nodes				
S_BFE	S_BFE	S_Ovrbnkln	S_Ovrbnkln				
S_CBRS	S_CBRS	S_Perm_Bmk	S_Perm_Bmk				
S_Cst_Gage	S_Cst_Gage	S_Precip_Gage	S_Precip_Gage				
S_Cst_Tsct_Ln	S_Cst_Tsct_Ln	S_Profil_Basln	S_Profil_Basln				
S_FIRM_Pan	S_FIRM_Pan	S_Riv_Mrk	S_Riv_Mrk				
S_Fld_Haz_Ar	S_Fld_Haz_Ar	S_Stn_Start	S_Stn_Start				
S_Fld_Haz_Ln	S_Fld_Haz_Ln	S_Subbasins	S_Subbasins				
S_Gen_Struct	S_Gen_Struct	S_Water_Gage	S_Water_Gage				
S_Label_Ld	S_Label_Ld	S_Wtr_Ar	S_Wtr_Ar				
S_Label_Pt	S_Label_Pt	S_Wtr_Ln	S_Wtr_Ln				
S_LOMR	S_LOMR	S_XS	S_XS				
S_Nodes	S_Nodes						
S_Ovrbnkln	S_Ovrbnkln						
S_Perm_Bmk	S_Perm_Bmk						

S_PFD_Ln	S_PFD_Ln						
S_PLSS_Ar	S_PLSS_Ar						
S_PLSS_Ln	S_PLSS_Ln						
S_Pol_Ar	S_Pol_Ar						
S_Pol_Ln	S_Pol_Ln						
S_Precip_Gage	S_Precip_Gage						
S_Profil_Basln	S_Profil_Basln						
S_Quad_Index	S_Quad_Index						
S_Riv_Mrk	S_Riv_Mrk						
S_Shore_Ln	S_Shore_Ln						
S_Stn_Start	S_Stn_Start						
S_Subbasins	S_Subbasins						
S_Trnsport_Ln	S_Trnsport_Ln						
S_Water_Gage	S_Water_Gage						
S_Wtr_Ar	S_Wtr_Ar						
S_Wtr_Ln	S_Wtr_Ln						
S_XS	S_XS						
Study_Info	Study_Info						

Database Design Decisions

To facilitate the ease of use of the DFIRM database, FEMA will avoid the use of abbreviations and codes in the published data where feasible.

Where possible, all mapping and engineering data elements will be linked to physical geographic features that are georeferenced. A GIS has the ability to precisely overlay the mapping and engineering data. This approach supports a wide variety of existing and visionary FEMA engineering and mapping products, such as digital mapping; automated hydrologic and hydraulic modeling, automated mapping, web-based publishing, and direct links between modeling and mapping elements.

The DFIRM database is not intended to be used to produce an exact replica of the printed Flood Insurance Rate Map (FIRM). Instead, the DFIRM database is designed to allow a GIS user access to all of the information conveyed on the FIRM in a way that can best take advantage of the automated analysis capabilities of GIS. FEMA will provide a companion product in the form of a scanned or raster image of the hardcopy DFIRM that will allow users to reprint exact replicas of the whole FIRM or portions of the FIRM.

The DFIRM database will be designed to be usable in a standard Relational Database Management System (RDBMS), but will be software independent. Therefore, the products are defined as flat tables in public domain formats (e.g., ESRI Shapefiles, MapInfo MIF files). Users can import these formats into a wide variety of software packages. These file formats manage GIS data in discrete files, generally organized by data theme. As a result, they do not support the inter-table relationships and data integrity enforcement capabilities of an RDBMS. However, the data produced by FEMA will be designed, tested to follow these rules, and fully compatible with an RDBMS.

L.1.1 Spatial Data and Tabular Data

The complete DFIRM database product is a GIS database made up of spatial data describing the location of features on the earth and tabular data that describe the attributes of these spatial features. The tables described in Sections L.4 and L.7 that begin with "S_" have a spatial component associated with them.

FEMA will distribute Preliminary and Final DFIRM databases to end users in GIS formats where the links between the spatial data and the attribute data are inherent in the data structure.

L.1.2 Draft Digital Data Versus Preliminary and Final Digital Flood Insurance Rate Map Databases

To facilitate the submittal of digital flood hazard mapping data from all Mapping Partners, FEMA has established more flexible requirements for submitting draft DFIRM digital data than for Preliminary or Final DFIRM databases. Sections L.2 and L.4 provide options for submitting draft DFIRM spatial data in a Computer Assisted Drafting and Design (CADD) structure or a GIS structure. Mapping Partners preparing draft DFIRM data have the option of using one of the draft data formats or using the Preliminary or Final DFIRM database format described in L.3 and L.7. The Mapping Partner preparing draft DFIRM data should choose the option that works best for the project. Mapping Partners preparing Preliminary or Final DFIRM databases must follow the format described in L.3 and L.7.

Section L.4 also provides an option for the attribute table structure for DFIRMs that employs a more sophisticated relational structure. This option allows Mapping Partners that create draft DFIRM digital data to take advantage of relational database techniques to ensure data consistency and reduce database size. The Preliminary and Final DFIRM Databases have a simpler structure for ease of use by the general public. The primary difference between the draft table structure and the Preliminary and Final table structure is that domain tables are used in the draft structure and are not used in the Preliminary and Final structure.

The following discussion highlights the differences between the attribute table structure option available for draft DFIRM digital data and the attribute table structure for Preliminary and Final DFIRM Databases. Domain tables (tables in the database that begin with D_) were established to assist FEMA's Mapping Partners in the creation of the draft DFIRM database. These domain tables provide the Mapping Partner with valid or preferred attribute values for specific fields. A domain table also helps minimize entry differences by standardizing the value. For example, without domain tables, one user might enter "floodway" while another user might enter "FLDWY" while completing the FLOODWAY field in the S_Fld_Haz_Ar table. While both of these entries reflect the same idea, the inconsistency between the two forms makes it difficult to group similar features together. Using a domain table ensures that both users enter the same value (i.e., floodway) to describe the same feature. To capture local characteristics not included in the domain table, Mapping Partners also may add and use their own values in the domain table (e.g., a more restrictive locally regulated floodway could be added to the accepted domain values as "Local Floodway"). An example of a domain table is shown in Table L-3.

Table L-3. Sample Domain Table

FLDWAY_LID	FLOODWAY
1000	FLOODWAY
1010	COLORADO RIVER
1020	FLOODWAY CONTAINED IN CHANNEL
1030	FLOWAGE EASEMENT BOUNDARY
1040	STATE ENCROACHMENT
1050	AREA OF SPECIAL CONSIDERATION

Field names that end with "_LID" in the draft DFIRM specification (e.g., FLDWAY_LID) link to a domain table. The "_LID" field contains an integer that matches a value in the first field of the corresponding domain table. The second field of the domain table provides a more descriptive attribute value. In the Preliminary or Final DFIRM database, the "_LID" field is replaced by the second field from the domain table (i.e., FLOODWAY). The attribute value stored in the Preliminary or Final DFIRM database is the descriptive attribute value, rather than an integer. The domain tables are not included in the Preliminary or Final DFIRM database. The Mapping Partner creating draft digital data and using domain tables to create the S_Fld_Haz_Ar table, will enter "1000" in that table as the FLDWAY_LID value. In this instance, "1000" stands for "FLOODWAY." When the Preliminary or Final DFIRM database is created, the FLDWAY_LID field becomes FLOODWAY, and the record value of "1000" becomes "FLOODWAY".

When creating the Preliminary or Final DFIRM database, the assigned Mapping Partner shall treat the water name lookup table (L_Wtr_Nm) in the draft DFIRM digital data table structure option as a domain table. The surface water feature names stored in the lookup table must be transferred to related fields in other tables.

L.2 Preparation of Draft Digital Data

L.2.1 General

If the Mapping Partner that creates the draft study components also produces the Preliminary Flood Insurance Study (FIS) report and FIRM, that Mapping Partner does not need to produce separate digital FIS data for the draft study components. Instead, the Mapping Partner will typically be responsible for creating a Preliminary or Final DFIRM database as described in Volume 1, Subsection 1.4.6.6 of these Guidelines and in Section L.3.

The main issues that the assigned Mapping Partner shall consider in the preparation of the digital data are:

- Coordination;

- Standards;
- Horizontal and Vertical Control;
- Data Structure;
- Quality Control;
- Deliverable Format; and
- Metadata.

The portability of the draft digital data is the primary consideration during the Project Scoping phase of a project. This is important because a variety of commercially available mapping and/or survey software packages with varying formats exist. FEMA applications that will use the Mapping Partner's digitally prepared mapping and survey data must be considered when "collecting" the information. To ensure compatibility, the assigned Mapping Partner shall capture the mapping features into a defined schema. The assigned Mapping Partner shall arrange the draft digital data within the draft DFIRM data files in such a manner that features are separated into a GIS table structure or a CADD layer/level and attribute structure. This Appendix provides standard schema for a Mapping Partner to follow.

In addition, the digital data must be capable of being translated into a common spatial data exchange format. Normally, the specific data format and structure will be coordinated with the Project Team during the Project Scoping Meeting or immediately afterwards by technical staff.

A major aspect of GIS is horizontal and vertical position on the earth. Mapping data must be referenced to a standard coordinate system, employ a standard projection, and specify both the horizontal and the vertical datums used. These positional references are established prior to the field data collection and topographic mapping phase of the project. All planimetric and topographic features must be collected and referenced to this coordinate system and projection. See Appendix A of these Guidelines for a detailed discussion of aerial mapping and surveying specifications, which includes horizontal and vertical control for new mapping. Also see Appendix B of these Guidelines for a discussion of vertical datum selection and conversion.

Considerations for transfer of digital data also must include the file structure of the data, the transfer medium, the export/import device and the operating systems of the host and receiving systems (e.g., MS Windows, NT, UNIX).

L.2.2 Coordination

The assigned Mapping Partner must coordinate with the FEMA Lead and other Project Team members before beginning a draft digital submittal. The coordination may occur during the Project Scoping Meeting (see Volume 1, Subsection 1.3.2 of these Guidelines) or during a separate meeting immediately afterward. This meeting should serve to coordinate the digital capture of the restudy data and facilitate the production of digitally generated FIRMs in a timely fashion. Data

format is an important consideration to be discussed prior to data capture, as changing data format after the fact can be both time consuming and costly.

For most Flood Map Projects, the assigned Mapping Partner shall submit to FEMA a sample of the digital files being prepared when approximately 10 percent of the project has been completed. This will enable FEMA or another Mapping Partner selected by FEMA to review and comment on the digital data files, and will enable the submitting Mapping Partner to implement any modifications, if required, to the digital capture procedures at an early production stage.

A meeting between the Mapping Partner that produces the draft study components, FEMA, and the Mapping Partner that produces the Preliminary and Final DFIRM may be required at the interim submittal stage, for all parties to be familiar with any unique conditions in the data files.

Before beginning work to produce draft digital data, the assigned Mapping Partner shall coordinate with FEMA to determine if public domain software has been developed, and is available, for whatever hardware platform is chosen by the Mapping Partner for the digital work. Software may be available to assist in GIS table creation, data capture, data coding, layer/level assignment, quality control, and plotting.

L.2.2.1 Data Sources

As specified in Volume 1, Section 1.3 of these Guidelines, a Mapping Partner must perform initial research to avoid duplication of effort during a Flood Map Project. This is especially critical for digitally prepared study/restudy components because data collection is expensive. The assigned Mapping Partner shall identify and use existing digital data whenever possible, while still meeting required specifications and quality of work.

As part of the initial coordination effort, the Mapping Partner that produces the draft digital study/restudy components shall identify available digital data and obtain datasets and hardcopy plots as necessary for study/restudy areas. Potential sources of digital base map or floodplain boundary data may be State, county, or local government agencies responsible for GIS, planning agencies or real estate assessment agencies. Digital floodplain data also may be available from FEMA, if the area has been previously converted to digital format. Requirement for base maps are specified in Appendix K.

If existing data are available and used by the Mapping Partner that produces the draft digital study/restudy components, that Mapping Partner shall restructure the data to conform to one of the digitizing specification options listed below. If specific arrangements are made with the FEMA Lead—usually, either the FEMA Regional Project Officer or the Project Officer (PO) at FEMA Headquarters—to use another data schema, the assigned Mapping Partner shall provide complete documentation of the spatial data structure and attribute tables.

As part of data collection, coordination and submittal, the assigned Mapping Partner shall document the data sources, date of collection or digitizing, scale of digitizing, projections, coordinate systems, horizontal datum and vertical datum of all of the digital data used and submitted. For each data source used, the assigned Mapping Partner shall add a Source Citation entry to the DFIRM metadata file in the Lineage section under Data Quality. Within the metadata file, each data source is assigned a Source Citation Abbreviation as shown in Table L-4.

Table L-4. Source Citation Abbreviations

Source Citation Abbreviation	Use
BASE	For all base map sources (includes digital orthophotography, roads, railroads, airports, hydrography, U.S. Public Land Survey System (PLSS), political, military, park, forest and other lands)
FIRM	For features extracted from the existing FIRM
FHBM	For features extracted from the existing Flood Hazard Boundary Map (FHBM)
FBFM	For features extracted from the existing Flood Boundary and Floodway Map (FBFM)
LOMC	For information derived from a Letter of Map Change (LOMC)
FIS	For information taken from a previously published FIS report, including Floodway Table and Flood Profiles
STUDY	For information developed for the current Flood Map Project
TSDN	For any information taken from the Technical Support Data Notebook (TSDN) (used for existing backup information in FEMA's archives not published on previous FIRM)

Each source citation abbreviation for a distinct data source should be numbered (e.g., BASE1, BASE2, BASE3). All spatial tables in the standards below have a SOURCE_CIT field. This field should be populated with the Source Citation Abbreviation from the metadata file that applies to the related spatial feature.

L.2.3 Standards

Maps and spatial data used for flood hazard analyses, floodplain boundary delineations, and FIRM compilation must meet all requirements specified in these Guidelines. The assigned Mapping Partner shall obtain or create these materials and submit these materials to FEMA, and shall ensure that the accuracy of the data in the submitted files, at a minimum, meets or exceeds FEMA's base map and FIS mapping information standards. The requirements for the flood hazard analyses, floodplain boundary delineations, and the base map are detailed in Volume 1, Section 1.4, Appendix A, and Appendix K of these Guidelines, respectively.

L.2.4 Horizontal and Vertical Control

The preferred projection, coordinate system and horizontal datum for the DFIRM Database spatial data is the UTM projection and coordinate system and referenced to NAD 1983. The data may also be in a State Plane coordinate system and associated projection if there is a compelling reason (e.g., project base map is in State Plane coordinates). The assigned Mapping Partner shall obtain approval for variations from these two options from the FEMA Lead in advance. However, at a minimum, the assigned Mapping Partner shall create all digital data in a system that is capable of referencing the data to a geographic coordinate system and projection. See Appendix K of these Guidelines for information on raster base maps in other projections and coordinate systems.

In the event that the county or other jurisdiction being mapped lies in more than one projection and coordinate system zone, the assigned Mapping Partner shall ensure that all digital data submitted are projected in the zone that contains the largest portion of the jurisdiction in a single zone. The assigned Mapping Partner shall not use multiple State Plane or UTM zones within a single submittal. The assigned Mapping Partner may compile data in another zone, particularly if this facilitates higher positional accuracy of the data, reproject the data to the chosen zone for the jurisdiction being mapped, and merge the reprojected data with the rest of the data.

The assigned Mapping Partner shall compile all horizontal information on either the North American Datum of 1927 (NAD27) (Clarke 1866 ellipsoid) or North American Datum of 1983 (NAD83) (Geodetic Reference System 1980 -- GRS 80 ellipsoid or revisions thereof). However, it is critical that horizontal datums not be mixed within a Flood Map Project. See Appendix A of these Guidelines for details on horizontal datum requirements.

The assigned Mapping Partner shall reference all vertical information to either the National Geodetic Vertical Datum of 1929 (NGVD29) or the North American Vertical Datum of 1988 (NAVD88). However, the Mapping Partner must not mix vertical datums within a Flood Map Project. See Appendix B of these Guidelines for details.

L.2.5 Digital Data Structure

Digital files must be prepared using a pre-defined system or schema that has been consistently used throughout. The layer/level or attribute assigned to a spatial element must be consistent and the information accessible to all users. The data must be organized in one of the data structures described in this Appendix and provided in one of the acceptable data formats unless specific arrangements are made with the FEMA PO.

L.2.5.1 Tiling

FEMA requires that all digital data be in one single file or a series of thematic files that cover the entire geographic area being mapped instead of individual small tiles that cover limited geographic areas. The assigned Mapping Partner shall obtain approval for any variations to this requirement from the FEMA Lead.

L.2.5.2 Topology

The assigned Mapping Partner shall ensure that vector data files must meet the following data structure requirements:

- Digitized linework must be collected at a reasonably fine line weight.
- Only simple linestrings or simple linear elements may be used for all linework.
- Line features must be continuous (no dashes, dots, patterns, or hatching).
- CADD files (e.g., MicroStation DGN files or AutoCAD DWG files) must not contain curves, B-splines, arcs or nested cells.

- CADD files must not contain annotation generated from a database; the annotation must be placed as text. GIS files (e.g. ESRI coverages or ESRI Shape files) may contain annotation and/or database attributes.

- Vectors may not cross other vectors within the same theme and all intersecting vectors must end at intersections.

- Area spatial features for a given theme must cover the entire study area without overlaps, under laps or sliver polygons between adjacent polygons.

- Files must be free of discontinuities such as overlapping lines, gaps, "turn backs," dangling lines and duplicate elements.

- Spatial files must not contain any linear or area patterns.

- Gaps or overshoots between features that should close must be eliminated.

Logical consistency describes certain node-line-area relationships internal to the digital data. The Node-line-area relationship requirements that the assigned Mapping Partner must meet include the following:

- Areas will be represented by closed polygons, without overshoots or undershoots.

- Unattributed polygons are not permitted, including "sliver" polygons that result from poor digitizing methods.

- Unnecessary nodes and vertices must be avoided.

- Vertices must be placed conservatively when designing features so that only the minimal number of vertices or nodes is used to create the desired shape with appropriate smoothness (e.g., a straight line will be defined with two nodes only).

- Lines must begin and end at nodes.

- Lines must connect to each other at nodes.

- Lines must not extend through nodes.

L.2.5.3 Edgematching

The matching of features along the "edge" of a hardcopy map or tiles of digital data is critical in the creation of digital map products. Proper edgematching will ensure that a digital map product can be used as a seamless data layer in a GIS. As edges are digitized, features that cross the edge should snap together to form a seamless feature.

The assigned Mapping Partner shall ensure that all submitted digital data is tied into any existing digital data files so that a seamless transition is effected. The assigned Mapping Partner may produce new digital data to reflect new flood hazard information or to convert effective flood

hazard information to digital format depending on the scope of the Flood Map Project. Hardcopy deliverables must reflect both the new digital data and any existing digital data previously prepared by FEMA. If no existing digital floodplain data are available from FEMA, deliverables must reflect the new digital data only. The assigned Mapping Partner must ensure that proper edgematching is performed at each step of the data creation process. If the Mapping Partner digitizes separate hardcopy sheets to produce the draft DFIRM data, the Mapping Partner must check that all features that cross the boundaries between separate sheets are smooth and continuous at the sheet boundaries. Likewise, the Mapping Partner must check that all features crossing jurisdiction boundaries are smooth and continuous at the jurisdiction boundary and that all features at the boundary of the draft DFIRM digital data submitted matches the contiguous information on the existing published FIRMs.

- The following are edgematching problems that the assigned Mapping Partner must avoid:

- **Disconnects:** Disconnects occur when the linework for features does not connect, either by being too short or too long at the source maps' edge.

- **Jogs**: Jogs occur when a common feature on adjoining maps does not line up seamlessly.

- **Missing Features**: Missing features are those that appear on one source map, but not on the adjacent map. The features may be missing from one map because of a variety of reasons, such as (1) different dates of the two maps; (2) an error in one map; (3) a difference in interpretation by the cartographers of the two maps; (4) differing scales of the two source maps, or (5) adjacent data not available.

- **Different Representation of Features**: Different representation of features occurs when features are represented differently on the source maps. For example, a road is a double line on one, and a single line on the other.

L.2.5.4 Coincident Features

Coincident features are those that share the same location or boundary, such as a flood zone boundary and a floodwall. These coincident features must superimpose, vertex (shape point) for vertex, within the files. If not automated properly, it could appear that the flood zone ends before the wall, leaving a strip of land on the waterside of the floodwall that is not in the flood zone. A lack of alignment can cause problems with digital files.

For a new DFIRM, the assigned Mapping Partner shall create coincident features by digitizing the graphic features only once. The assigned Mapping Partner shall create additional copies of coincident features by copying part of the first feature to create the relevant portion of the second, when necessary. This will ensure that the lines match perfectly.

In particular, the following pairs of tables have both area features and line features: S_Fld_Haz_Ln/S_Fld_Haz_Ar, S_Pol_Ln/S_Pol_Ar, and S_PLSS_Ln/S_PLSS_Ar. For these feature datasets, two tables are defined because they have attributes that apply to the entire area and attributes that apply to portions of the boundaries of these areas. However, the spatial elements that make up these features must be identical. All elements in the S_Fld_Haz_Ln table

must match exactly with the boundaries of the elements in the S_Fld_Haz_Ar table. The same is true for the other two pairs of tables. For draft DFIRM digital data submitted in a spatial data format that supports both area and line attributes for the same spatial file, the assigned Mapping Partner shall submit a single spatial file with both sets of attributes.

L.2.5.5 Precise Features

The position of horizontal control features of the DFIRM products will be based on published standards. The assigned Mapping Partner shall not re-digitize these control features, but rather the assigned Mapping Partner shall use the exact coordinates in the published standards. Candidate sources of control points include:

- U.S. Geological Survey 7.5-minute series quadrangle map corner coordinates;
- Coordinate grid; and
- Bench mark coordinates from the National Geodetic Survey or local control network.

L.2.5.6 Data Compilation

Existing digital data may affect the choice of scale for data compilation. If base mapping is available at a scale greater than 1" = 400' (e.g. 1" = 200') the assigned Mapping Partner may choose to compile and digitize the revised data developed during the Flood Map Project at the base map scale.

FEMA's goal is to develop digital data that are as accurate as possible. In general, the most accurate data source must be relied upon to reference other features compiled onto the map. This may mean that, in some circumstances, floodplain boundary delineations made on very high-resolution topographic maps may appear slightly misplaced on a less accurate base map. However, if the base map meets FEMA standards, these differences should be very small. If application of this approach creates significant visual problems with the floodplain boundary delineations on the base map selected, the assigned Mapping Partner shall resolve the issue with the FEMA Lead.

Likewise, when high accuracy data are collected for a Flood Map Project, it is FEMA's goal to maintain the accuracy of those data. For example, cross-section line features must correspond as closely as possible to the actual field survey locations. Often, the assigned Mapping Partner must graphically extend or reshape that end of a cross section for satisfactory cartographic display. When this is necessary, the Mapping Partner shall perform it as a graphic operation for hardcopy map production. The Mapping Partner shall not modify the digital spatial data that depict the true locations of the surveyed cross sections.

L.2.5.7 Digitizing

All features must be digitized in their true positions as line strings or simple linear elements. Digitizing must be performed from stable base materials.

How well the registration control points line up to the map to be digitized is an important measurement when digitizing maps. The measurement of fit is sometimes called the Root Mean Square Error (RMSE). The RMSE value represents the amount of error between original and new coordinate locations calculated by the transformation process. The lower the RMSE, the better the fit. The RMSE must be no more than 0.003 inch.

L.2.5.8 Relationship of Base Map to Flood Hazard Data

Base map features are physical features like roads, railroads, rivers, lakes, levees, and bench marks, that map users may rely on to locate an area of interest on the FIRM. Flood hazard data are flood insurance risk zones, Base Flood Elevations (BFEs), cross-section locations, and hydraulic structures that depict the results of flood hazard analyses on the FIRM. Some physical features such as surface water features and hydraulic structures are used in the performance of the flood hazard analysis and may be grouped in either category.

The purpose of the base map is to present an accurate depiction of the relationship between the results of the flood hazard analyses and the physical features on the ground. Floodplain boundaries are typically delineated on a topographic map and may be subsequently transferred to the base map. The topographic and base map data may be derived from the same sources. The spatial accuracy of both the topographic and the digital base map is critical to maintaining the accuracy of the floodplain delineations.

The digital base map for a Flood Map Project is to be identified during the Project Scoping phase of the project. The assigned Mapping Partner shall use the digital base map in conjuction with the topographic data when preparing the floodplain boundary delinations. For a complete discussion of base maps, see Volume 1, Subsection 1.4.3.1 of these Guidelines.

Table L-5 presents the features for the base map.

Table L-5. Base Map Data Tables

Base Map Tables
L_Wtr_Nm
S_Base_Index
S_Gen_Struct
S_Label_Ld
S_Label_Pt
S_Perm_Bmk
S_PLSS_Ar
S_PLSS_Ln
S_Pol_Ar
S_Pol_Ln
S_Quad_Index
S_Trnsport_Ln
S_Wtr_Ar
S_Wtr_Ln

For base map files, layers/levels or attributes are provided below for each data structure option. The Mapping Partner should insure that all Draft DFIRM Data files conform to the specifications below. An exception to this is preexisting base map files for PLSS, transportation and water features, which may retain their normal structure. More detail is provided in the table descriptions below. The standard table formats included below should be used when new base map data creation is included in the Mapping Partner scope of work. If any data from the Mapping Partner are not in one of the structures below, the data must be separated by layers/levels or by attributes. If the base map data are not structured following one of the data schema listed below, detailed documentation of the data structure must be included.

The files produced by the Mapping Partner that creates draft digital study/restudy components shall typically cover only the area that is revised as a result of the Flood Map Project.

L.2.5.9 Computer Assisted Drafting and Design or Geographic Information System Preparation

A GIS database normally contains both spatial features and attribute records in the same file or in tables that can be easily related by the GIS system. A CADD system usually does not manage attribute records associated with each spatial feature as easily. As software evolves, there is less distinction between the two technologies. Users of these two systems still tend to apply these technologies in the traditional way. As a result, it is assumed that fundamentally different approaches will be used based on whether the Mapping Partner submits draft DFIRM data in CADD or GIS format. FEMA prefers to have DFIRM data submitted in GIS format. The CADD option is available for Mapping Partners who are unable to submit data in GIS format.

Mapping Partners that submit digital data in GIS format shall separate the spatial data into individual tables or files for each data theme created (e.g., roads are stored in a separate file from flood zones that are in a separate file from political boundaries). The Mapping Partner may store attribute data in the same GIS file as the associated spatial features, in a parallel table structure in an RDBMS, or in individual data files in a standard database or spreadsheet format. When the attribute data is stored in a separate file from the spatial data, both the spatial data and the attribute data must have the same primary key field.

Mapping Partners that submit data in CADD format shall store the spatial data in a single file with each data theme stored on a separate layer/level and identified by a color number within the file. See Subsection L.2.5.11 for detailed specifications. Each spatial feature in the CADD file must be attributed or tagged with a primary key that can be linked to the DFIRM attribute data for that feature. The Mapping Partner may store attribute data in the DFIRM table structure in an RDBMS or in individual data files in a standard database or spreadsheet format. Attribute data must be linked to the spatial features by the primary key for each table. Both the spatial data and the attribute data must have the same primary key field.

L.2.5.10 Table Structure

Each DFIRM database table has a primary key field defined. This field is normally the table name followed by "_ID". The Mapping Partner that creates the digital data must populate these

fields. Normally, the assigned Mapping Partner shall number the features in each table sequentially using this field; however, the assigned Mapping Partner may choose another method provided that the method is logical, documented, consistently implemented, and results in a unique ID value for each spatial feature.

Regardless of whether the draft DFIRM digital data is submitted in CADD or GIS format, the assigned Mapping Partner must submit all of the applicable DFIRM database attribute tables. Attribute data must be linked to the spatial features by the primary key for each table. Both the spatial data and the attribute data must have the same primary key field. The Mapping Partner may choose to follow either the table structure defined in Section L.4 for draft digital data, or the table structure in Section L.7 for Preliminary and Final DFIRM databases. Regardless of the table structure selected, the Mapping Partner shall ensure that the applicable fields use the appropriate values from the associated domain tables and that these values are treated consistently across all tables.

Which components of the DFIRM database that are required will depend on whether new flood analyses are part of the map update project as well as the judgement of the FEMA Regional Office. In general, the production of any digital map will result in a complete Standard DFIRM Database. However, most studies will also have some data in the Enhanced DFIRM Database. Even studies where existing effective flood hazard analyses are used to produce updated digital maps may capture easily accessible elements of the Enahanced DFIRM Database. In general, where new flood hazard analyses are performed, most of the core elements of the Enhanced Database described below will be populated. For each digital map update undertaken, the Mapping Partner should coordinate with the FEMA Regional Lead to determine how much of the Enhanced DFIRM Database should be completed.

In the detailed table documentation in Sections L.4 and L.7, each field name is followed by a letter code as follows:

- R – Required for all records.
- A – Required if applicable to the described spatial feature.

Plus, each field has a second code:

- S – A component of the Standard DFIRM Database
- E – A component of the Enhanced DFIRM Database

See Section L.4 for specific requirements for each table for draft digital data submittal.

For required fields, Null values are not permitted. In the event that the correct information cannot be obtained for a required field, the Project Officer may allow the mapping partner to substitute a value that indicates that the affected field was intentionally not populated. Any use of not populated values must be documented and explained in the metadata. The value to use for not populated data for each field type is as follows:

- Character – "NP"
- Numeric – -8888
- Date – 88880808
- True.False – "U"

For a field that is required when applicable, but does not apply, the value must be Null (i.e. the field must be left empty, not set to zero). The Mapping Partner shall use the value zero only when an attribute has the specific value of zero. Because of limitations in some of the GIS formats used by FEMA, a true Null value can not be used for some fields. The value to use for "Null" fields for each field type is as follows:

- Character – Null (or "", the empty string)
- Numeric – -9999
- Date – 99990909
- True.False – Null (or "", the empty string)

Text fields must follow the capitalization standards that apply to the display of that information on the FIRM.

Date fields in the DFIRM database are stored in the native date format for the data format in which table is distributed. Not all of the database formats used for the DFIRM database support date values in the same way. The time of day is not stored or is set to zero depending on the structure of the date object in a particular data format. Where possible the output format of the date is set to YYYYMMDD.

True/False fields in the DFIRM database are stored as text fields with a field size of one. Since different database programs store the authentic true/false fields in various ways, storing the true/false data as text helps eliminate inconsistencies between programs. For each true/false field in the DFIRM database, the user should enter "T" for true or "F" for false.

L.2.5.11 Spatial Files for Computer Assisted Drafting and Design Format

Mapping Partners that submit data in CADD format shall use the layer/level schema shown in Table L-6. No additional feature categories may be added to any layer/level. This ensures that data will not be miscoded in later processing steps or that time will not be spent separating features. To include feature categories that are not specified in the schema below (e.g., watersheds and sub-basins, land use classifications, building footprints), the Mapping Partner shall submit a second file containing these features and documentation of the layer/level schema.

The main purpose of this schema is to provide a logical separation of data themes by layer/level and color. The assigned Mapping Partner shall name each layer/level following the convention provided in Table L-6. The color numbers in the following schema are also important. The layer/level and color number are used to separate feature types. The actual color used is not important for the digital file. It is important that the correct color number is used. The correct colors, line weights, and other cartographic details for a particular feature on the finished FIRM are specified in Appendix K of these Guidelines. Depending on the software used to create the draft DFIRM digital data, the Mapping Partner that creates the Preliminary or Final DFIRM may be able to provide file templates and other tools to facilitate reproduction of the graphic specifications. Coordination should take place between the Mapping Partners and FEMA shortly after the Project Scoping Meeting. The layer/level and color requirements for CADD submittals of draft digital data are presented in Table L-6. See Appendix K for more detailed descriptions of these features and the Glossary for acronym definitions.

Table L-6. Layer/Level Schema Requirements

DESCRIPTION	LEVEL NUMBER	LEVEL NAME	COLOR
Flooding Elements			
Floodway Boundary	1	floodway	1
Colorado River Floodway	1	floodway	2
Area of Special Consideration	1	floodway	3
1% Flood Boundary	2	100-year	4
0.2% Flood Boundary	3	500-year	5
1%/0.2% Flood Boundary	4	100_500-year	6
1% Flood/Floodway Boundary	5	100_fldway	7
1%/0.2%/Floodway Boundary	6	100_500_fldway	8
Zone D Boundary	7	zoned	9
Zone Break	8	zonebreak	10
Limit of Floodway	9	limitfldway	11
Limit of Study	10	limitstudy	12
Limit of Detailed Study	11	lods	13
End of Spatial Extent	12	endspatial	14
BFE	13	bfe	15
Cross Section	14	xs_transect	16
Transect	14	xs_transect	17
Interpolated BFE	15	intbfe_intrxs	18
Intermediate Cross Section	15	intbfe_intrxs	19
Apparent Limit	16	applimit	20
Floodway Shape/Hatch	17	shapefldway	21
1% Flood Hazard Shapes	18	shape100	22
0.2% Flood Hazard Shapes	19	shape500	23
BFE Text	20	bfetxt	24
Cross Section Hexagon	21	xsectxt	25
Limit of Flooding Text	22	limittxt	26
Zone Text	23	zonetxt	27
Flowage Easement Line	24	flowage	28
State Encroachment Line	24	flowage	29
Hydro Elements			
Perennial River/Stream	25	hydro	30
Intermittent River/Stream	25	hydro	31
Shoreline/Coastline	25	hydro	32
Lake	25	hydro	33
Surface Water	25	hydro	34
Reservoir	25	hydro	35
Profile Baseline	25	hydro	36
Swamp	25	hydro	37
Channel	25	hydro	38
Channel Contains 1% Flood	25	hydro	39
Channel Contains 0.2% Flood	25	hydro	40
Ditch	25	hydro	41
Glacier	25	hydro	42

Hatchery	25	hydro	43
Race	25	hydro	44
Wash	25	hydro	45
Waterfall	25	hydro	46
Water Separation Line	25	hydro	47
Bog	25	hydro	48
Retention Pond	25	hydro	49
Tailings Pond	25	hydro	50
PBL	25	hydro	51
Water Feature Text	26	draintxt	52
Landform/Island Text	27	islandtxt	53
1000 Foot Marker & Text	28	rivermk	54
River Mile Marker & Text	28	rivermk	55
Structure Elements			
Weir	29	weir_dam	60
Dam	29	weir_dam	61
Levee	30	levee	62
Culvert	31	culvert	63
Culvert Contains 1% Flood	31	culvert	64
Culvert Contains 0.2% Flood	31	culvert	65
Headwalls/Wing walls	31	culvert	66
Bridges	32	bridge	67
Footbridge	32	bridge	68
Pier	33	other_struct	69
Dock	33	other_struct	70
Jetty	33	other_struct	71
Aqueduct	33	other_struct	72
Dike	33	other_struct	73
Fish Ladder	33	other_struct	74
Flume	33	other_struct	75
Gate	33	other_struct	76
Lock	33	other_struct	77
Penstock	33	other_struct	78
Seawall	33	other_struct	79
Structure Text	34	structxt	80
Cobra/OPA Elements			
Cobra Boundary	35	cobra	90
Otherwise Protected Areas	36	opa	91
Cobra Shapes	37	shapecobra	92
OPA Shapes	38	shapeopa	93
Cobra/OPA Notes	39	cobratxt	94
Political Elements			
Corporate Limits	40	corporate	100
Extraterritorial Boundary	40	corporate	101
Area Not Included	40	corporate	102
County Boundary	41	county	103
State Boundary	42	state_intl	104

International Boundary	42	state_intl	105
Political Boundary Text	43	polbdtxt	106
City/Borough/Township Name	44	polareatxt	107
Park Boundary	45	park	108
Forest Boundary	45	park	109
Reservation Boundary	45	park	110
Park/Forest/Reservation Text	46	parktxt	111
Urban Growth Boundary	47	other_juris	112
MUD Boundary	47	other_juris	113
LID Boundary	47	other_juris	114
Transportation Elements			
Primary Roads	48	majorrds	120
Secondary Roads	49	minorrds	121
Trail	50	other_rds	122
Undefined Roads	50	other_rds	123
Road Tunnel	50	other_rds	124
Ford	50	other_rds	125
Road Text	51	roadtxt	126
Route & Highway Symbols	51	roadtxt	127
Railroad	52	railroad	128
Abandoned Railroad	52	railroad	129
Undefined Railroad	52	railroad	130
Dismantled Railroad	52	railroad	131
Railroad Tunnel	52	railroad	132
Railroad Text	53	rrtxt	133
Airport/Landing Strip & Text	54	airport	134
Ferry	54	airport	135
Grid Elements			
FIRM Neatline	55	map_neatlines	140
Quad Neatline	55	map_neatlines	141
Quarter Section Lines	56	plss	142
Range Lines	56	plss	143
Township Lines	56	plss	144
Primary Grid & Labels	57	prigrid	145
Secondary Grid & Labels	58	secgrid	146
DOQ Neatline	63	nonplot	147
Misc Elements			
NGS Bench Marks	59	ngs	150
NGS Bench Mark Text	60	ngstxt	151
Gaging Station	61	gaging	152
Landmark	61	gaging	153
Misc Text & Notes	62	misctxt	154
LOMR Box	63	nonplot	155
Non-Plotted Level	63	nonplot	200+

L.2.6 Quality Control

Digital files must be structured according to one of the pre-established schemas. This allows easy exchange of data between FEMA and Mapping Partners. Files must be free of duplicated elements and complex linestrings. The data must be horizontally controlled and referenced to the appropriate horizontal and vertical datums. All digitizing must be done carefully and in conformance with FEMA accuracy standards. For these reasons, the assigned Mapping Partner shall perform a thorough quality control (QC) review prior to submitting data to FEMA. FEMA will review the data provided by the Mapping Partner using automated and interactive techniques.

The following items must be included in the QC review of a verification plot to ensure that all deliverables meet minimum quality standards:

- All required features have been included.
- The data are correctly referenced to a State Plane or UTM grid coordinates.
- The correct datum has been used and is clearly indicated.
- All digitized linework is within 0.005 inch of its compiled location if digitizing is performed from a hardcopy manuscript. Plotted linework does not show gaps between plotted lines and compiled lines when plots and compilation manuscripts are overlaid.
- Character of features has been maintained (e.g., straight lines are straight; curves are curved).
- No obvious discontinuities exist (e.g., gaps, overshoots).
- Required labels (text) have been placed.
- All plotted data agree with the flood hazard analyses (e.g., regulatory floodway widths match) and cross-section labeling agrees with the appropriate computer model.
- Deliverable plots meet the requirements specified in Subsection L.2.7 for deliverables.
- Feature attributes are correct.
- Pseudo-nodes or shape points have been kept to the minimum required to maintain the correct character of the features.

L.2.7 Deliverables

A complete draft DFIRM data submittal will include the following mapping items:

- Digital base map files and DFIRM database files;
- Digital Elevation Model (DEM) or Digital Terrain Model (DTM) if used;

- Work maps (plots);
- Map index; and
- Metadata file as an ASCII text file.

After completion of an internal QC review process, the Mapping Partner shall submit materials to FEMA in TSDN format. See Appendix M of these Guidelines for detailed requirements for the TSDN.

L.2.7.1 Hardcopy Deliverables

Each submittal must include hardcopy copies of the work maps. For details on the format and content for work maps, see Volume 1, Section 1.4 of these Guidelines.

L.2.7.2 Digital Deliverables

The digital data deliverables must clearly identify the data structure option that was used. To facilitate data processing, the assigned Mapping Partner shall submit Federal Geographic Data Committee (FGDC)-compliant metadata as specified in Subsection L.2.8. In addition, the Mapping Partner shall completely fill out the checklist presented in Section L.5 and include it with any digital data submitted to FEMA. If the Mapping Partner's system output capabilities do not fall within these categories, the Mapping Partner shall obtain approval for an exception to these requirements before submitting digital files to FEMA for review.

Raster Data

Digital orthophoto files may be submitted in Tagged Image File Format (.TIF), Georeferenced TIF (GeoTIF), Band Interleaved by Pixel (.BIP or .BIL), Multi-Resolution Seamless Image Database (MrSID), Portable Network Graphics (PNG), or Joint Photographic Experts Group (JPEG) format. Raster files must be accompanied by a file that provides coordinate information that will allow the images to be georeferenced (e.g., a tfw file).

Vector Data

Mapping Partners may submit vector data in the following file formats:

- ESRI export file – E00;
- ESRI shape file – SHP;
- MicroStation design file – DGN;
- MapInfo interchange format – MIF;
- MapInfo native table format – TAB;
- AutoCAD drawing file – DWG;
- Drawing exchange format – DXF;
- Digital Line Graph – DLG; or
- Spatial Data Transfer Standard – SDTS.

Transfer Media

Mapping Partners must submit files on one of the following electronic media:

- CD-ROM (preferred);
- Zip disk;
- 8mm tape;
- 3 ½" diskette;
- DVD;
- Electronic transfer to File Transfer Protocol (FTP) site; or
- Electronic transfer by E-mail (for files under 2 MB).

As technology changes or in special situations, other media may be acceptable if coordinated with FEMA and the Mapping Partner receiving the data.

If a file compression utility was used, provide the utility to uncompress the files.

File Naming

Wherever possible, the assigned Mapping Partner shall use the table names from the DFIRM database specifications as the file names for draft DFIRM data files with an extension appropriate to the file format.

The draft DFIRM digital data files should be stored in a directory named for the state FIPS and county FIPS or CID and the term "_DFIRM". Under each jurisdiction, there should be a separate directory for the standard DFIRM data files; a directory for raster base maps (orthophotos), if applicable; a directory for any enhanced DFIRM database information provided; a directory for raster images of the FIRM panels and their associated world files; a directory for the FIS report; and a directory for the metadata. Under the heading "DFIRM_DB", all the files for each data format are stored together in a subdirectory named for the data format. For example, Montgomery County, Maryland, if submitted in ESRI Shapefile format would be stored as:

\24031_DFIRM\DFIRM_DB\ArcShape\ - Directory contains all draft DFIRM data files in ESRI Shapefile format.

\24031_DFIRM \Ortho_photos\ - Directory contains all raster base map data if used.

\24031_DFIRM \Document\ - Directory containing metadata and a readme file.

\24031_DFIRM \Enhanced_DB\ArcShape\ - Directory contains any enhanced DFIRM data files in ESRI Shapefile format.

\24031_DFIRM \RFIRM\ - Directory contains any TIFF or PNG raster images of FIRM panels, the index and their associated world files.

\24031_DFIRM \FIS\ - Directory contains PDF of the FIS report.

Data Identification Requirements

Complete documentation of file names, sizes, and contents is required. All digital media submitted must be labeled with at least the following information:

- Mapping Partner name;
- Community name and state for which the FIS was prepared;
- The date the files were written to the media;
- Details that are necessary to read the media. (e.g., submittals on 8mm tape should include the tape writing format, density and command syntax used); and
- A brief description of contents.

The digital media must clearly identify the data structure used. If any variation from these specifications is used, the assigned Mapping Partner shall submit a comprehensive list of the level

or attribute structure of the affected data. This particularly applies to base map data, which may often be in a non-standard data structure. The Mapping Partner also shall provide thorough documentation for these files.

L.2.8 Metadata

To facilitate the use of these data and the transfer of data files between users, the assigned Mapping Partner shall prepare and submit a metadata file with all digital data submittals. Only one metadata file is required for each Flood Map Project, however, in this one file, the assigned Mapping Partner must distinguish between the different origins of the various datasets included. The Metadata file shall follow the *Content Standard for Digital Geospatial Metadata (version 2.0)*, FGDC-STD-001-1998. Details of this standard are available at www.fgdc.gov. A sample metadata file for draft digital data is presented in Section L.6.

The metadata file must include a description of the source material from which the data were derived and the methods of derivation, including all transformations involved in producing the digital files. The description shall include the dates of the source material and the dates of ancillary information used for update. The date assigned to a source must reflect the date that the information corresponds to the ground. If the assigned Mapping Partner does not know this date, then the Mapping Partner may use the date of publication and indicate as such. Each data source in the metadata file must be assigned a Source Citation Abbreviation as described in Subsection L.2.2.1.

The assigned Mapping Partner shall describe any database created by merging information obtained from distinct sources in sufficient detail to identify the actual source for each element in the file.

Because not all DFIRM database tables are included in every draft DFIRM digital data submittal, the Overview Description Section of the Entity and Attribute Information of the metadata file must include a list of all DFIRM database tables included in the submittal.

Wherever possible, the assigned Mapping Partner shall use the following metadata file naming convention. The file should be named with the combination of the two digit state FIPS code and Community or County Identification Number, followed by an "_" and the effective date of the study (using the YYYYMMDD format), followed by "_metadata" and the approriate file extension (i.e., <ST_FIPS><PCOMM>_<EFF_DATE>_metadata.txt). The Community or County Identification Number is the 3rd through the 6th digits of the panel number. For community based maps this corresponds to the FEMA Community Identification number. For countywide maps this is the county (or county equivalent) FIPS code with a "C". For studies that are Preliminary and not yet effective, the word "PRELIM" should be used instead of the effective date. For example, the name of a metadata file for an effective study would be similar to 99001C_19980915_metadata.txt while the same file for a preliminary study could be 99001C_PRELIM_metadata.txt.

An example of a metadata file for draft DFIRM digital data is presented in Section L.6 of this Appendix. Portions of the file that are double underlined typically vary with each Mapping

Partner's submittal. In addition, the Mapping Partner should modify or replace any other portions of the metadata file to fully document the data submitted.

L.3 Preparation of Preliminary and Final Digital Flood Insurance Rate Map Databases

L.3.1 General

FEMA's goal is to distribute consistent GIS versions of the flood hazard information for new DFIRMs. Therefore, Preliminary or Final DFIRM databases created by Mapping Partners must be consistent in file structure and in data format. The Mapping Partner that produces the draft DFIRM digital data must coordinate with the Mapping Partner that produces the Preliminary or Final DFIRM and the Preliminary or Final DFIRM database and ensure that the finished data meet applicable FEMA standards, include horizontal and vertical control, are documented properly, and conform with the standard data structure. The Mapping Partner that produces the Preliminary or Final DFIRM also must ensure that the Preliminary or Final DFIRM database meets FEMA specifications and that it is delivered to the FEMA Map Service Center in the proper formats.

L.3.2 Coordination

One of the responsibilities of the Mapping Partner that produces the Preliminary or Final DFIRM database is to ensure that the Preliminary or Final DFIRM database is consistent. The Mapping Partner that produces the Preliminary or Final DFIRM database must assist FEMA with coordination of the draft DFIRM digital data submittal. The coordination may occur as part of the Project Scoping Meeting or as a separate meeting immediately afterward. This meeting must serve to coordinate the digital capture of the data and to facilitate the production of a digitally generated FIRM in a timely fashion. Data format is an important consideration to be discussed before data capture, as changing the data format after the fact can be both time consuming and costly.

The Mapping Partner that produces the draft DFIRM digital data shall submit to FEMA a sample of the digital files being prepared when the project is 10-percent complete. The Mapping Partner that produces the Preliminary or Final DFIRM database will assist FEMA to review the data files for any recommended modifications to digital capture procedures to be implemented by the Mapping Partner that produces the draft DFIRM digital data.

L.3.2.1 Data Sources

As specified in Volume 1, Section 1.3 of these Guidelines, initial research must be performed to avoid duplication of effort. This is especially critical for digitally prepared FIS because data capture is expensive. Existing digital data should be identified and used whenever possible, while still meeting required specifications and quality of work.

It is recommended that as part of the initial coordination effort, the Mapping Partner that produces the draft digital study components identify available digital data and obtain data sets and hardcopy plots as necessary for restudy areas. If the Mapping Partner producing the Preliminary or Final

DFIRM finds that data required for Preliminary or Final DFIRM database are missing, additional data research may be required. If the Mapping Partner that produces the draft DFIRM digital data is unable to supply the missing data, potential sources of digital base map or floodplain boundary data include state, county, or local government agencies responsible for GIS and planning or real estate assessment agencies. Digital floodplain data also may be available from FEMA, if the mapping for the area has been converted to digital format.

If the Mapping Partner that produces the draft digital study components uses pre-existing data, the Mapping Partner shall restructure the data to conform to the spatial data and table structure requirements in Section L.7.

As part of data collection, coordination and submittal, the Mapping Partner that produces the draft DFIRM digital data must document the data sources, date of collection or digitizing, scale of digitizing, projections, coordinate systems, horizontal datum, and vertical datum of all digital data used and submitted. For each data source used, the Mapping Partner shall add a Source Citation entry to the DFIRM metadata file in the Lineage section under Data Quality. Within the metadata file, the Mapping Partner shall assign each data source a Source Citation Abbreviation. These abbreviations are presented above in Subsection L.2.2.1 in Table L-4.

The Mapping Partner that produces the draft DFIRM digital data shall number each source citation abbreviation for a distinct data source (e.g., BASE1, BASE2, BASE3). All spatial tables in the standards discussed in Subsection L.4 have a SOURCE_CIT field. The Mapping Partner that produces the draft DFIRM digital data shall populate the field with the Source Citation Abbreviation from the metadata file that applies to the related spatial feature.

L.3.3 Standards

The Mapping Partner shall ensure that the Preliminary or Final DFIRM database conforms with the standards listed in this Appendix and Volume 1 and Appendices A, B, K of these Guidelines, as applicable.

L.3.4 Horizontal and Vertical Control

The preferred projection, coordinate system and horizontal datum for the preliminary or final DFIRM Database spatial data is the UTM projection and coordinate system and referenced to NAD 1983. However, certain preliminary or final DFIRM Databases will be referenced to other projections and coordinate systems if the underlying base map data are orthophotos referenced to another projection and coordinate system. All digital data must be in a State Plane coordinate system and associated projection or the UTM projection and coordinate system. The Mapping Partner shall obtain approval from the FEMA Lead in advance for variations to these two options. See Appendix A of these Guidelines for a discussion of horizontal datum and Volume 1, Subsection 1.4.3.2 for a discussion of raster base maps in other projections and coordinate systems.

In the event that the county or other jurisdiction being mapped lies in more than one UTM or State Plane Coordinate System zone, the assigned Mapping Partner must project all digital data submitted to the zone that contains the largest portion of the county or jurisdiction in a single zone.

The assigned Mapping Partner shall not use multiple projection and coordinate system zones in the Preliminary or Final DFIRM database.

All vertical information must reference either NGVD29 or NAVD88. The assigned Mapping Partner must not mix vertical datums within a submittal. See Appendix B of these Guidelines for details.

L.3.5 Data Structure

All Preliminary or Final DFIRM data must consistently follow the data structure described in Subsections L.7.

L.3.5.1 Tiling

The assigned Mapping Partner shall submit all digital data in a series of thematic files that cover the entire geographic area being mapped and not in individual small tiles that cover limited geographic areas. Preliminary or Final DFIRM databases should normally cover an entire county (or county equivalent). In situations where countywide mapping is not practical, the DFIRM database must cover an entire community or a subset of panels for a community or county.

L.3.5.2 Topology

Vector data files must meet the following data structure requirements:

- Vectors may not cross other vectors within the same theme and all intersecting vectors must end at intersections.
- Area spatial features for a given theme must cover the entire study area without overlaps, underlaps or sliver polygons between adjacent polygons.
- Unnecessary nodes and vertices should be avoided. Vertices must be placed conservatively when designing freatures so that only the minimal number of vertices or nodes is used to create the desired shape with appropriate smoothness (e.g., a straight line will be defined with two nodes only).
- Spatial files must not contain any linear or area patterns.
- Gaps or overshoots between features that should close must be eliminated.

Logical consistency describes certain node-line-area relationships internal to the digital data. Node-line-area relationship requirements include the following:

- Areas must be represented by closed polygons, without overshoots or undershoots.
- Uncoded polygons are not permitted, including “sliver” polygons that result from poor digitizing methods.

- Unnecessary nodes and vertices must be avoided. Vertices must be placed conservatively when designing features so that only the minimal number of vertices or nodes is used to create the desired shape with appropriate smoothness (e.g. a straight line will be defined with two nodes only).

- Lines must begin and end at nodes.

- Lines must connect to each other at nodes.

- Lines must not extend through nodes.

L.3.5.3 Edgematching

Preliminary or Final DFIRM databases must meet the edgematching requirements described above in Subsection L.2.5.3.

L.3.5.4 Coincident Features

Preliminary or Final DFIRM databases must meet the coincident feature requirements described above in Subsection L.2.5.4.

L.3.5.5 Precise Features

Preliminary or Final DFIRM databases must meet the precise feature requirements described above in Subsection L.2.5.5.

L.3.5.6 Data Compilation

FEMA's goal is to develop digital data that are as accurate as possible. In general, the most accurate data source must be relied upon to reference other features compiled onto the map. This may mean that, in limited circumstances, floodplain boundary delineations made on very high-resolution topographic maps may appear slightly misplaced on a less accurate base map. However, if the base map meets FEMA standards, these differences should be very small. If this policy creates significant visual problems with the floodplain boundary delineations on the base map selected, the Mapping Partner shall resolve the issue with the FEMA Lead.

Likewise, when high-accuracy data are collected for a Flood Map Project, it is FEMA's goal to maintain the accuracy of those data. For example, cross-section line features must correspond as closely as possible to the actual field survey locations. Often, the Mapping Partner must graphically extend or reshape that end of a cross section for satisfactory cartographic display. When this is necessary, it must be performed as a graphic operation for hardcopy map production. The Mapping Partner will not modify the digital spatial data that depict the true locations of the surveyed cross sections.

L.3.5.7 Digitizing

Preliminary or Final DFIRM databases must meet the digitizing requirements described above in Subsection L.2.5.7.

L.3.5.8 Relationship of Base Map to Flood Hazard Data

Base map features are physical features like roads, railroads, rivers, lakes, levees, political boundaries, and bench marks, that map users may rely on to locate an area of interest on the FIRM. Flood hazard data are flood insurance risk zones, BFEs, cross-section locations, and hydraulic structures that depict the results of flood hazard analyses on FIRM. Some physical features such as surface water features and hydraulic structures are used while performing the flood hazard analyses and may be grouped in either category.

The purpose of the base map is to present an accurate depiction of the results of the flood hazard analyses in relation to the physical features on the ground. The floodplain boundaries are typically delineated on a topographic map and may be subsequently transferred to the base map. The topographic and base map data may be derived from the same sources. The spatial accuracy of both the topographic and digital base map is critical to maintaining the accuracy of the floodplain delineations.

Table L-7 presents the features of the base map.

Table L-7. Base Map Data Tables

Base Map Tables
L_Wtr_Nm
S_Gen_Struct
S_Label_Ld
S_Label_Pt
S_Perm_Bmk
S_PLSS_Ar
S_PLSS_Ln
S_Pol_Ar
S_Pol_Ln
S_Quad_Index
S_Trnsport_Ln
S_Wtr_Ar
S_Wtr_Ln

The assigned Mapping Partner must ensure that all DFIRM database files conform to the required specifications with the exception of the base map files for PLSS, transportation and water features. If pre-existing data are used by the Mapping Partner for S_PLSS_Ar, S_PLSS_Ln, S_Trnsport_Ln, S_Wtr_Ar or S_Wtr_Ln, it is not necessary to restructure the files to meet the schema listed. This is discussed in more detail in the description of each of the tables in Section L.7. The data,

however, must be structured logically. If the base map data are not structured following the standard data structure, the Mapping Partner must ensure that the tables that vary are documented in the Entity and Attribute section of the metadata file.

L.3.5.9 Computer Assisted Drafting and Design or Geographic Information System Preparation

Preliminary or Final DFIRM databases must be produced in the standard GIS formats listed below. If the Draft DFIRM data were submitted as CADD format data, it is the responsibility of the Mapping Partner that produces the Preliminary or Final DFIRM data to convert the data to GIS format.

L.3.5.10 Table Structure

Mapping Partners must follow the attribute table structure presented in Section L.7. The attribute data must be stored directly in the ESRI Shapefile, ESRI Export File, or MapInfo Interchange Format table along with the associated spatial data. The attribute data must not be in an independent data file or relational database format. Lookup tables must be stored in dbf format, info format, or MIF format.

L.3.5.11 Spatial Files

Mapping Partners must follow the table structure presented in Section L.7. All tables that begin with S_ are spatial files.

Which components of the DFIRM database that are required will depend on whether new flood analyses are part of the map update project as well as the judgement of the FEMA Regional Office. In general, the production of any digital map will result in a complete Standard DFIRM Database. However, most studies will also have some data in the Enhanced DFIRM Database. Even studies where existing effective flood hazard analyses are used to produce updated digital maps may capture easily accessible elements of the Enahanced DFIRM Database. In general, where new flood hazard analyses are performed, most of the core elements of the Enhanced Database described below will be populated. For each digital map update undertaken, the Mapping Partner should coordinate with the FEMA Regional Office to determine how much of the Enhanced DFIRM Database should be completed.

Each DFIRM database table has a primary key field defined. This field is normally the table name followed by "_ID". The Mapping Partner that creates the digital data must populate these fields. Normally features in each table will be numbered sequentially using this field, although the Mapping Partner may choose another method provided it is logical, documented, consistently implemented, and results in a unique ID value for each spatial feature.

In the table documentation in Section L.7, each field name is followed by a letter code as follows:

- R – Required for all records

- A – Required if applicable to spatial feature described

Plus, each field has a second code:

- S – A component of the Standard DFIRM Database
- E – A component of the Enhanced DFIRM Database

For required fields, Null values are not permitted. In the event that the correct information cannot be obtained for a required field, the Project Officer may allow the mapping partner to substitute a value that indicates that the affected field was intentionally not populated. Any use of not populated values must be documented and explained in the metadata. The value to use for not populated data for each field type is as follows:

- Character – "NP"
- Numeric – -8888
- Date – 88880808
- True.False – "U"

For a field that is required when applicable, but does not apply, the value must be Null (i.e. the field must be left empty, not set to zero). The Mapping Partner shall use the value zero only when an attribute has the specific value of zero. Because of limitations in some of the GIS formats used by FEMA, a true Null value can not be used for some fields. The value to use for "Null" fields for each field type is as follows:

- Character – Null (or "", the empty string)
- Numeric – -9999
- Date – 99990909
- True.False – Null (or "", the empty string)

Text fields must follow the capitalization standards that apply to the display of that information on the FIRM.

Date fields in the DFIRM database are stored in the native date format for the data format in which table is distributed. Not all of the database formats used for the DFIRM database support date values in the same way. The time of day is not stored or is set to zero depending on the structure of the date object in a particular data format. Where possible the output format of the date is set to YYYYMMDD.

True/False fields in the DFIRM database are stored as text fields with a field size of one. Since different database programs store the authentic true/false fields in various ways, storing the

true/false data as text helps eliminate inconsistencies between programs. For each true/false field in the DFIRM database, the user should enter "T" for true or "F" for false.

L.3.6 Quality Control

The digital files must be structured following the standard DFIRM database schema. This allows easy exchange of these data between FEMA, Mapping Partners, and other flood hazard data users. All duplicated elements must be removed. The data must be horizontally controlled and referenced to the appropriate horizontal and vertical datum. All digitizing must be done carefully and in conformance with FEMA's accuracy standards. The assigned Mapping Partner must perform a thorough QC review before submitting data to FEMA. FEMA will review the data provided by the Mapping Partner using automated and interactive techniques.

The Mapping Partner must provide hardcopies of the Preliminary or Final effective DFIRM along with the DFIRM database for quality control review.

L.3.7 Deliverables

A complete DFIRM database submittal will be comprised of the following items:

- Federal Emergency Management Agency Digital Mapping Information Checklist (refer to Section L.5 for detailed information);
- Digital base map files and DFIRM database files in ESRI Shapefile, ESRI Export File, and MapInfo Interchange Format;
- Metadata file as an ASCII text file; and
- PDF version of the FIS report with bookmarks for the section heading and profiles.

L.3.7.1 Hardcopy Deliverables

The Mapping Partner must provide a transmittal form with the DFIRM database. The transmittal form shall document the scope of the submittal, including the files submitted, jurisdictions covered, etc.

L.3.7.2 Digital Deliverables

The digital submittal from the Mapping Partner to FEMA must include the complete DFIRM database in ESRI Shapefile, ESRI Export File, and MapInfo Interchange Format. The submittal also must include the metadata file, a readme text file, a raster version of each FIRM panel, and a PDF version of the FIS report.

When a Mapping Partner produces the Preliminary DFIRM database, only ESRI Export File format and a metadata file is required for the initial QA/QC evaluation.

Transfer Media

The Mapping Partner must submit files to FEMA on one of the following electronic media:

- CD-ROM (preferred); or
- Electronic transfer to File Transfer Protocol (FTP) site.

As technology changes or in special situations, other media may be acceptable, but must be approved by the FEMA Lead.

File Naming

To name DFIRM Database files, the Mapping Partner must use the table names listed in Section L.7 as the file name with an extension appropriate to the file format.

The draft DFIRM digital data files should be stored in a directory named for the state FIPS and county FIPS or CID and the term "_DFIRM". Under each jurisdiction, there should be a separate directory for the standard DFIRM data files; a directory for raster base maps (orthophotos), if applicable; a directory for any enhanced DFIRM database information provided; a directory for raster images of the FIRM panels and their associated world files; a directory for the FIS report; and a directory for the metadata. Under the heading "DFIRM_DB", all the files for each data format are stored together in a subdirectory named for the data format. For example, Montgomery County, Maryland, if submitted in ESRI Shapefile format would be stored as:

\24031_DFIRM\DFIRM_DB\ArcExport\ - Directory contains all draft DFIRM data files in ESRI Export format.

\24031_DFIRM\DFIRM_DB\ArcShape\ - Directory contains all draft DFIRM data files in ESRI Shapefile format.

\24031_DFIRM\DFIRM_DB\MapInfo\ - Directory contains all draft DFIRM data files in MapInfo MIF format.

\24031_DFIRM \Ortho_photos\ - Directory contains all raster base map data if used.

\24031_DFIRM \Document\ - Directory containing metadata and a readme file.

\24031_DFIRM \Enhanced_DB\ArcExport\ - Directory contains any enhanced DFIRM data files in ESRI Export format.

\24031_DFIRM \Enhanced_DB\ArcShape\ - Directory contains any enhanced DFIRM data files in ESRI Shapefile format.

\24031_DFIRM \Enhanced_DB\MapInfo\ - Directory contains any enhanced DFIRM data files in MapInfo MIF format.

\24031_DFIRM \RFIRM\ - Directory contains any TIFF or PNG raster images of FIRM panels, the index and their associated world files.

\24031_DFIRM \FIS\ - Directory contains PDF of the FIS report.

Data Identification Requirements

Complete documentation of file names, sizes, and contents is required. The Mapping Partner shall label all digital media submitted to FEMA with at least the following information:

- Mapping Partner name;
- Community name and state affected by the Flood Map Project;
- Preliminary date or effective date of the DFIRM database; and
- Brief description of contents.

L.3.8 Metadata

To facilitate the use of these data and the transfer of data files between users, a metadata file shall accompany all digital data submittals. Only one metadata file is required for each Flood Map Project. However, in this file, the assigned Mapping Partner must distinguish between the different origins of the various datasets included. The metadata file shall follow the *Content Standard for Digital Geospatial Metadata (version 2.0)*, FGDC-STD-001-1998. Details of this standard are available at www.fgdc.gov. A sample metadata file for Preliminary and Final DFIRM databases is presented in Section L.8 of this Appendix.

This metadata file must include a description of the source material from which the data were derived and the methods of derivation, including all transformations involved in producing the final digital files. The description must include the dates of the source material and the dates of ancillary information used for update. The date assigned to a source must reflect the date that the information corresponds to the ground. If the Mapping Partner does not know this date, the Mapping Partner may use the date of publication and indicate as such. For each data source in the metadata file, the Mapping Partner shall assign a Source Citation Abbreviation as described under Data Sources in Subsection L.2.2.1.

The Mapping Partner shall describe any database created by merging information obtained from distinct sources in sufficient detail to identify the actual source for each element in the file.

Because not all DFIRM Database tables are included in every standard DFIRM database, the Overview Description Section of the Entity and Attribute Information should include a list of all DFIRM Database tables included in the submittal.

Wherever possible, the assigned Mapping Partner shall use the following metadata file naming convention. The file should be named with the combination of the two digit state FIPS code and Community or County Identification Number, followed by an "_" and the effective date of the study (using the YYYYMMDD format), followed by "_metadata" and the approriate file extension (i.e., <ST_FIPS><PCOMM>_<EFF_DATE>_metadata.txt). The Community or County Identification Number is the 3rd through the 6th digits of the panel number. For community

based maps this corresponds to the FEMA Community Identification number. For countywide maps this is the county (or county equivalent) FIPS code with a "C". For studies that are Preliminary and not yet effective, the word "PRELIM" should be used instead of the effective date. For example, the name of a metadata file for an effective study would be similar to 99001C_19980915_metadata.txt while the same file for a preliminary study could be 99001C_PRELIM_metadata.txt.

An example of a metadata file for a DFIRM database is presented in Section L.8. Portions of the file that are double underlined typically vary with each DFIRM Database. In addition, the Mapping Partner must take care to modify or replace other portions of the metadata file to fully document the DFIRM database.

L.4 Database Table Structure Requirements for Draft Digital Data

Table: S_Base_Index

This table is required if a raster base map was used as the base map for the Flood Insurance Rate Map (FIRM).

The S_Base_Index table contains information about the raster data used as a base map for the study area. A spatial file with locational information also corresponds with this data table.

The spatial elements representing raster base map tile index features are rectangular polygons. For standard U.S. Geological Survey Digital Orthophoto Quadrangles, polygons should match quarter-quad boundaries (excluding overedge). Otherwise, polygons should match the boundaries of the raster tiles used (excluding overedge if present).

This is a Standard DFIRM Database table.

The S_Base_Index table contains the following elements.

BASE_ID	R	S	Primary key for table lookup. Assigned by table creator.
FILENAME	R	S	Base Filename. This filename should be assigned by either the raster base map provider or the table creator. The filename should match the filename or specific product identifier assigned by the primary distributor of the raster base map used. This should be the complete filename including the file extension. This identifier must allow the user of the DFIRM database to unambiguously identify the raster base maps used on the FIRM to the primary distributor of the raster base map.
BASE_DATE	R	S	Base Date. This is the date that raster base map was acquired by the producer of the base map. For a vector base map that is rasterized for distribution, this data should be the acquisition date for the original vector base map.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Base_Index table.

Table: S_Base_Index

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BASE_ID	R	S	text	11				string	11		character	11	11		character	11	
FILENAME	R	S	text	50				string	50		character	50	50		character	50	
BASE_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_BFE

The Base Flood Elevation (BFE) table is required for any digital data where BFE lines will be shown on the corresponding Flood Insurance Rate Map (FIRM). Normally, if there are any riverine AE zones, BFE lines are required.

The S_BFE table contains information about the BFEs within a study area. A spatial file with locational information also corresponds with this data table. BFE lines indicate the rounded whole-foot water-surface elevation of the 1-percent-annual-chance flood.

The spatial elements representing BFE features are lines extending from Special Flood Hazard Area (SFHA) boundary to SFHA boundary. The BFE lines will have no visible gaps or overshoots between the SFHA boundary and the end of the BFE line at the publication scale of the DFIRM. However, the ends of the BFE lines are not necessarily snapped precisely to the SFHA boundary. Each BFE is represented by a single line. While BFE lines are depicted as wavy lines on the hardcopy FIRM, they should be primarily straight lines in the spatial data, although they may bend consistent with procedures described in Volume 1 of these Guidelines.

This is a Standard DFIRM Database table.

The S_BFE table contains the following elements:

BFE_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
ELEV	R	S	Base Flood Elevation. The rounded, whole foot elevation of the 1-percent-annual-chance flood. This is the value of the BFE that is printed next to the BFE line on the FIRM.
LEN_LID	R	S	Length Unit Lookup Identification. A code that provides a link to a valid unit of length measurement from the D_Length_Units table. This unit indicates the measurement system used for the BFEs. Normally this would be feet.
V_DATM_LID	R	S	Vertical Datum Lookup Identification. A code that provides a link to a valid vertical datum from the D_V_Datum table. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_BFE table.

Table: S_BFE

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BFE_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
ELEV	R	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_LID	R	S	text	11				string	11		character	11	11		character	11	
V_DATM_LID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_CBRS

This table is only required from Mapping Partners producing Preliminary and Final Digital Flood Insurance Rate Map (DFIRM) databases. This table only applies to coastal areas that have specially protected areas designated by Congress on John H. Chafee Coastal Barrier Resources System (CBRS) maps. Authoritative CBRS boundary locations are shown on these maps administered by the U.S. Fish and Wildlife Service. Normally these areas are already shown on existing Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for the area. CBRS areas have restrictions Federal funding (including flood insurance coverage) after specified dates for new or substantially improved structures. See Section 2.2 and Appendix K of these Guidelines for more detailed information about CBRS areas.

The S_CBRS table contains information about the CBRS areas within the study area, if applicable. A spatial file with locational information also corresponds with this data table.

The spatial elements representing CBRS features are closed polygons. Each contiguous CBRS area of the same CBRS_TYP and same CBRS_DATE should be a single polygon.

This is a Standard DFIRM Database table.

The S_CBRS table contains the following elements.

CBRS_ID	R	S	Primary key for table lookup. Assigned by table creator.
CBRS_LID	A	S	CBRS Lookup Identification. A code that provides a link to a valid CBRS type codes found in the D_CBRS_Typ table. The type code provides details of the types of prohibitions that apply to the area. Normally this would be CBRS area or an Otherwise Protected Area (OPA). This field is applicable if CBRS_TF is true. Otherwise this field is null.
CBRS_DATE	A	S	CBRS Date. Legislative or administrative date on which prohibitions for the CBRS area apply. This should be indicated on the FIRM with a note or with a fill pattern indicated on the legend. This field is applicable if CBRS_TF is true. Otherwise this field is null.
CBRS_TF	R	S	This field is True if the area is a CBRS or an OPA. Enter "T" for true or "F" for false.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_CBRS table.

Table: S_CBRS

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CBRS_ID	R	S	text	11				string	11		character	11	11		character	11	
CBRS_LID	A	S	text	11				string	11		character	11	11		character	11	
CBRS_DATE	A	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CBRS_TF	R	S	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Cst_Gage

This table is required when gage information is used to support the calibration of models or methods used in the analysis of coastal flood hazards and may be used in the determination of flood heights.

The S_Cst_Gage table contains information about coastal gages for the study area. The spatial location of these gages may be some distance from the areas for which coastal flood hazards were determined. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the coastal gages are points.

This is an Enhanced DFIRM Database table.

The S_Cst_Gage table contains the following elements.

GAGE_ID	R	E	Primary key for table lookup. Assigned by table creator.
CST_MDL_ID	A	E	Coastal Model Identification. This field is populated by a linking element to the L_Cst_Model table. The L_Cst_Model table contains detailed information about the coastal models that were used to determine the coastal flood hazard for the area of each individual gage. This ID field should contain a number that matches the CST_MDL_ID field for a record in the L_Cst_Model. Multiple gages may link to a single record in the L_Cst_Model table.
GAGE_NM	R	E	Gage name assigned by agency maintaining gage.
AGENCY	R	E	Name of agency maintaining gage.
REC_INTVL	A	E	Recording Interval. This field is populated only if the coastal gage is a fixed-interval gage.
TIME_LID	A	E	Recording Interval Time Unit Lookup Identification. Link to D_Time_Units to establish unit of measure of the recording interval. This field is populated only if the coastal gage is a fixed-interval gage.
START_PD	R	E	Gage Record Starting Date. Start of earliest period of record used in gage analysis.
END_PD	R	E	Gage Record Ending Date. End of latest period of record used in gage analysis.

GAGE_LID	R	E	Gage Type Lookup Identification. A code that provides a link to a valid entry from the D_Gage table. This value indicates the type of coastal gage.
WVDIR_TF	R	E	Does the gage record wave direction True or False? Enter "T" for true or "F" for false.
WDSPD_TF	R	E	Does the gage record wind speed True or False? Enter "T" for true or "F" for false.
WDDIR_TF	R	E	Does the gage record wind direction True or False? Enter "T" for true or "F" for false.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Cst_Gage table.

Table: S_Cst_Gage

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
GAGE_ID	R	E	text	11				string	11		character	11	11		character	11	
CST_MDL_ID	A	E	text	11				string	11		character	11	11		character	11	
GAGE_NM	R	E	text	150				string	150		character	150	150		character	150	
AGENCY	R	E	text	150				string	150		character	150	150		character	150	
REC_INTVL	A	E	text	11				string	11		character	11	11		character	11	
TIME_LID	A	E	text	11				string	11		character	11	11		character	11	
START_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
END_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
GAGE_LID	R	E	text	11				string	11		character	11	11		character	11	
WVDIR_TF	R	E	text	1				string	1		character	1	1		character	1	
WDSPD_TF	R	E	text	1				string	1		character	1	1		character	1	
WDDIR_TF	R	E	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Cst_Tsct_Ln

This table is required when the corresponding Flood Insurance Rate Map (FIRM) and/or Flood Insurance Study (FIS) will show coastal transect locations. Normally this is any area with a coastal study.

The S_Cst_Tsct_Ln table contains information about the Coastal Transect Lines within the study area, if applicable. The transect lines indicate the location that was used to provide representative topographic information for the coastal flood models used. A spatial file with locational information also corresponds with this data table.

The spatial elements representing coastal transects are lines generally extending from offshore all the way across the coastal floodplain. Transects can also extend seaward when wave runup modeling is used into determining coastal flood hazards. Each transect should be represented by a single line feature without the circles on each end shown on the hard copy map. The location and shape of the lines should depict as accurately as possible the position of the transect used.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced.

The S_Cst_Tsct_Ln table contains the following elements.

TRAN_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
TRAN_NO	R	S	Transect Number. Transect number as shown on FIRM or in FIS. Each transect is normally numbered sequentially.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Cst_Tsct_Ln table.
CST_MDL_ID	A	E	Coastal Model Identification. This field is populated by a linking element to the L_Cst_Model table. The L_Cst_Model table contains detailed information about the coastal models that were used to determine the coastal flood hazard for the area of each individual transect line. This ID field should contain a number that matches the CST_MDL_ID field for a record in the L_Cst_Model. Multiple transects may link to a single record in the L_Cst_Model table. This field is not required for digital conversion of existing FISs. Significant additional research may be required to identify the model that applies for each transect. However, for new coastal studies, this field is required.
SETUP_DPTH	A	E	Wave Set-up Depth. This is the depth of wave setup that is added to the 1% annual chance stillwater elevation.
SIG_HT	A	E	Significant Wave Height. This is the wave height associated with the 1% annual chance storm event. It is the average height of the

			highest 1/3 of all waves. It is used in WHAFIS 3.0 and RUNUP 2.0 models.
SIG_PD	A	E	Significant Wave Period. This is the wave period associated with the 1% annual chance storm event. It is the time it takes for a wave of the significant wave height to pass a point.
CON_HT	A	E	Controlling Wave Height. 1.6 times the significant wave height.
CON_PD	A	E	Controlling Wave Period. The time it takes for a wave of the controlling wave height to pass a point.
MEAN_HT	A	E	Mean Wave Height. Average height of all waves. This information is typically derived from wave gage data.
MEAN_PD	R	E	Mean Wave Period. Average period of all waves. This information is typically derived from wave gage data.
EROS_LID	A	E	Erosion Methodology Lookup Identification. A code that provides a link to a valid erosion methodology from the D_Eros_Method table.
TIME_LID	R	E	Units of Time Measurement Lookup Identification. A code that provides a link to valid time measurements from the D_Time_Units table. This field is populated if there is a value entered for the significant wave period, controlling wave period, or the mean wave period. The period values all should use the same unit of time measurement.
V_DATM_LID	R	E	Vertical Datum Lookup Identification. A code that provides a link to a valid datum from the D_V_Datum table. The vertical datum indicates the reference surface from which the elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies.
LEN_LID	R	E	Length Unit Lookup Identification. A code that provides a link to a valid unit of measurement from the D_Length_Units table. This unit indicates the measurement system used for the elevation, depth, height, and distance values. Normally this would be feet.
VZONE_LID	R	E	V Zone Extent Lookup Identification. A code that provides a link to a valid V Zone extent from the D_VZone table. This information provides a brief summary to users about the predominating methodology that was used to determine the landward extent of the V Zone in any mapped flood hazard area.

METH_LID	R	E	Source Method Lookup Identification. A code that provides a link to a valid source method from the D_Method table. This value describes the general methodology used in deriving the station and elevation point data along transects used in coastal flood hazards.
EFF_TF	R	E	Is the coastal transect part of the effective study True or False? Enter "T" for true or "F" for false.
SHOWN_FIRM	R	E	Transect Shown on FIRM. Is the transect shown on the FIRM True or False? Enter "T" for true or "F" for false.
SHR_LID	R	E	Shoreline Roughness Lookup Identification. A code that provides a link to a valid shoreline type from the D_Shr_Rough table. This value is the shoreline type classification that relates each transect with a shoreline type. This information can be used in conjunction with other coastal hazard analyses or applications and provides a useful set of data about relative shoreline roughness.
L_RANGE	R	E	Left Range of Coastal Transect. Looking landward, the range is the along-shore distance to the left of the transect line that the transect is intended to represent.
L_DIRECT	R	E	Direction of Left Range. Direction is entered as the bearing of the range away from the transect. The left range direction is measured in degrees and is the angle of an arc taken in a clockwise direction from north to the range's bearing. If the transect is oriented perpendicular to the shoreline, this value will be +/-90 degrees of the transect's direction in degrees from north.
R_RANGE	R	E	Right Range of Coastal Transect. Looking landward, the range is the along-shore distance to the right of the transect line that the transect is intended to represent
R_DIRECT	R	E	Direction of Right Range. Direction is entered as the bearing of the range away from the transect. The right range direction is measured in degrees and is the angle of an arc taken in a clockwise direction from north to the range's bearing. If the transect is oriented perpendicular to the shoreline, this value will be +/-90 degrees of the transect's in direction in degrees from north.
LOC_DESC	R	E	Location Description. This is a description of the location of the coastal transects. This description is used and/or can be found in the transect table in the FIS text.

XCOORD	R	E	X-Coordinate. The X-coordinate of the 0.0-foot elevation point along the transect. This point must fall on the transect and have the same horizontal datum of the study. The coordinates must be entered using the same coordinate system used for the DFIRM GIS data. If the S_Shore_Ln table is provided, the shoreline should cross the transect at this point.
YCOORD	R	E	Y-Coordinate. The Y-coordinate of the 0.0-foot elevation point along the transect. This point must fall on the transect and have the same horizontal datum of the study. The coordinates must be entered using the same coordinate system used for the DFIRM GIS data. If the S_Shore_Ln table is provided, the shoreline should cross the transect at this point.

.

Table: S_Cst_Tsct_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			Type	field size	dec	format	input mask	type	width	Dec	type	item width	output width	dec	type	width	dec
TRAN_LN_ID	R	S	Text	11				string	11		character	11	11		character	11	
TRAN_NO	R	S	Text	4				string	4		character	4	4		character	4	
SOURCE_CIT	R	S	Text	11				string	11		character	11	11		character	11	
CST_MDL_ID	A	E	Text	11				string	11		character	11	11		character	11	
SETUP_DPTH	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
SIG_HT	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
SIG_PD	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
CON_HT	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
CON_PD	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2

MEAN_HT	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
MEAN_PD	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
EROS_LID	A	E	Text	11				string	11		character	11	11		character	11	
TIME_LID	R	E	Text	11				string	11		character	11	11		character	11	
V_DATM_LID	R	E	Text	11				string	11		character	11	11		character	11	
LEN_LID	R	E	Text	11				string	11		character	11	11		character	11	
VZONE_LID	R	E	Text	11				string	11		character	11	11		character	11	
METH_LID	R	E	Text	11				string	11		character	11	11		character	11	
EFF_TF	R	E	Text	1				string	1		character	1	1		character	1	
SHOWN_FIRM	R	E	Text	1				string	1		character	1	1		character	1	
SHR_LID	R	E	Text	11				string	11		character	11	11		character	11	
L_RANGE	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
L_DIRECT	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
R_RANGE	R	E	number	8	2			number	13	2	numeric	8	13	2	decimal	15	2

			(double)														
R_DIRECT	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LOC_DESC	R	E	Text	254				string	254		character	254	254		character	254	
XCOORD	R	E	number (double)	8	2			string	13	2	numeric	8	13	2	decimal	15	2
YCOORD	R	E	number (double)	8	2			string	13	2	numeric	8	13	2	decimal	15	2

Table: S_FIRM_Pan

This table is required for all draft Digital Flood Insurance Rate Map (DFIRM) data.

The S_FIRM_Pan table contains information about the Flood Insurance Rate Map (FIRM) panel area. A spatial file with locational information also corresponds with this data table.

The spatial entities representing FIRM panels are polygons. The polygon for the FIRM panel corresponds to the panel neatlines. As a result, the panels are generally rectangular. In situations where a portion of a panel lies outside of the jurisdiction being mapped, the user must refer to the S_POL_AR table to determine the portion of the panel area where the DFIRM database shows the effective flood hazard data for the mapped jurisdiction.

This is a Standard DFIRM Database table.

The S_FIRM_Pan table contains the following elements.

FIRM_ID	R	S	Primary key for table lookup. Assigned by table creator.
ST_FIPS	R	S	State FIPS. This is the two-digit code that corresponds to the State Federal Information Processing Standard (FIPS) code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4. These two numbers correspond to the first two digits of the panel number.
PCOMM	R	S	Community or County Identification Number. This is the 3rd through the 6th digits of the panel number. For community based maps this corresponds to the Federal Emergency Management Agency (FEMA) Community Identification number. For countywide maps this is the county (or county equivalent) FIPS code with a "C".
PANEL	R	S	Panel Number. This is 7th through the 10th digits in the complete panel number. This is assigned by the scale of the map and the position within either the community or county. The panel number scheme is described in detail in Appendix K of these Guidelines.
SUFFIX	R	S	Map Suffix. This is the final digit in the complete panel number. This is a letter suffix at the end of the panel number.
FIRM_PAN	R	S	FIRM Panel Number. This is the complete FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL, and SUFFIX. This is the 11-digit FIRM panel number that is shown in the title block of the map.
PANEL_LID	R	S	Panel Lookup Identification. A code that provides a link to the D_Panel_Typ table; this field will indicate if the maps are printed

			or not printed, community based, county wide, or an unmapped community.
EFF_DATE	A	S	Effective Date. This is the effective date of the current map revision. This field is not populated until the FIRM effective date is established and the Final FIRM is ready for hardcopy production by FEMA. Then it is required.
SCALE_LID	R	S	Map Scale Lookup Identification. A code that provides a link to a value in the D_Scale table, it is the denominator of the scale of the FIRM.
PNP_REASON	A	S	Panel Not Printed Reason. If the FIRM panel is not printed, this is the reason. This could include 'All Zone X' or other reasons. See Appendix K for a listing of Panel Not Printed reasons that may be used. Only completed if the hardcopy panel is not printed by FEMA.
NW_LAT	R	S	Northwest Latitude. This is the latitude of the northwest corner of the FIRM panel neat line. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to U.S. Geological Survey (USGS) 7.5' quadrangle maps using North American Datum of 1983 (NAD83), or even subdivisions thereof. However this value should reflect the actual latitude if non-standard panel sizes are used.
NW_LONG	R	S	Northwest Longitude. This is the longitude of the northwest corner of the FIRM panel. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to USGS 7.5' quadrangle maps using NAD83, or even subdivisions thereof. However this value should reflect the actual longitude if non-standard panel sizes are used.
SE_LAT	R	S	Southeast Latitude. This is the latitude of the southeast corner of the FIRM panel. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to USGS 7.5' quadrangle maps using NAD83, or even subdivisions thereof. However, this value should reflect the actual latitude if non-standard panel sizes are used.
SE_LONG	R	S	Southeast Longitude. This is the longitude of the southeast corner of the FIRM panel. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to USGS 7.5' quadrangle maps using NAD83, or even subdivisions thereof. However this value should reflect the actual longitude if non-standard panel sizes are used.

SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_FIRM_Pan table.

Table: S_FIRM_Pan

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FIRM_ID	R	S	text	11				string	11		character	11	11		character	11	
ST_FIPS	R	S	text	2				string	2		character	2	2		character	2	
PCOMM	R	S	text	4				string	4		character	4	4		character	4	
PANEL	R	S	text	4				string	4		character	4	4		character	4	
SUFFIX	R	S	text	1				string	1		character	1	1		character	1	
FIRM_PAN	R	S	text	11				string	11		character	11	11		character	11	
PANEL_LID	R	S	text	11				string	11		character	11	11		character	11	
EFF_DATE	A	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SCALE_LID	R	S	text	11				string	11		character	11	11		character	11	
PNP_REASON	A	S	text	50				string	50		character	50	50		character	50	
NW_LAT	R	S	text	15				string	15		character	15	15		character	15	
NW_LONG	R	S	text	15				string	15		character	15	15		character	15	
SE_LAT	R	S	text	15				string	15		character	15	15		character	15	
SE_LONG	R	S	text	15				string	15		character	15	15		character	15	

SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Fld_Haz_Ar

This table is required for all draft Digital Flood Insurance Rate Map data.

The S_Fld_Haz_Ar table contains information about the flood hazards within the study area. A spatial file with locational information also corresponds with this data table. These zones are used by the federal Emergency Management Agency (FEMA) to designate the Special Flood Hazard Area (SFHA) and for insurance rating purposes. These data are the flood hazard areas that are or will be depicted on the Flood Insurance Rate Map (FIRM). A spatial file with locational information also corresponds with this data table.

The spatial elements representing the flood zones are polygons. The entire area of the jurisdiction(s) mapped by the FIRM should have a corresponding flood zone polygon. There is one polygon for each contiguous flood zone designated.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced.

The S_Fld_Haz_Ar table contains the following elements.

FLD_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
ZONE_LID	R	S	Flood Zone Lookup Identification. This is a code that provides a link to a valid entry from the D_Zone table. This is the flood zone label/abbreviation for the area.
FLDWAY_LID	A	S	Floodway Lookup Identification. This is a code that provides a link to a valid entry from the D_Floodway table. Floodway areas are designated by FEMA and adopted by communities to provide an area that will remain free of development to moderate increases in flood heights due to encroachment on the floodplain. If the corresponding area is not designated as a floodway, this field is null.
SFHA_TF	R	S	Special Flood Hazard Area. If the area is within SFHA this field would be True. This field will be true for any area that is coded for any A or V zone flood areas. It should be false for any X or D zone flood areas. Enter “T” for true or “F” for false.
STATIC_BFE	A	S	Static Base Flood Elevation. For areas of constant Base Flood Elevation (BFE), the BFE value is shown beneath the zone label rather than on a BFE line. In this situation the same BFE applies to the entire polygon. This is normally occurs in lakes or coastal zones. This field is only populated where a static BFE is shown on the FIRM.

V_DATM_LID	A	S	Vertical Datum Lookup Identification. A code that provides a link to a valid vertical datum from the D_V_Datum table. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies. This field is only populated if the STATIC_BFE is populated.
DEPTH	A	S	Depth Value for Zone AO Areas. This is shown beneath the zone label on the FIRM. This field is only populated if a depth is shown on the FIRM.
LEN_LID	A	S	Length Unit Lookup Identification. A code that provides a link to a valid unit of length from the D_Length_Units table. This unit indicates the measurement system used for the BFEs and/or depths. Normally this would be feet. This field is only populated if the DEPTH or STATIC_BFE field is populated.
VELOCITY	A	S	Velocity Measurement. This is shown beneath the zone label on the FIRM for alluvial fan areas (certain Zone AO areas). This value represents the velocity of the flood flow in this area. This field is only populated when a velocity is shown on the FIRM.
VEL_LID	A	S	Velocity Unit Lookup Identification. A code that provides a link to a valid unit of velocity from the D_Vel_Units table. This unit indicates the measurement system for the velocity of the flood hazard area. The value is shown in the legend where alluvial fans are present. This field is only populated if the VELOCITY field is populated.
AR_REVERT	A	S	If the area is Zone AR, this field would hold the zone that the area would revert to if the AR zone were removed. This field is only populated if the corresponding area is Zone AR. Acceptable values for this field are listed in the D_Zone table.
BFE_REVERT	A	S	If Zone is Zone AR, this field would hold the static base flood elevation for the reverted zone. This field is populated when Zone equals AR and the reverted zone has a static BFE.
DEP_REVERT	A	S	If Zone is Zone AR, this field would hold that flood depth for the reverted zone. This field is populated when Zone equals AR and the reverted zone has a depth assigned.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Fld_Haz_Ar table. Normally, the flood hazard area polygon will be divided to distinguish areas modified by the most recent revision from areas based on the effective FIRM prior to the most recent revision. Revisions and sources prior to the most recent revision will not be

			tracked for individual polygons in the flood hazard areas table in the standard database.
HYDRO_ID	A	E	Hydrologic Model Identification. A code that provides a link to the hydrologic model table, L_Hydro_Model. The L_Hydro_Model table provides information on the methods used to determine the flood hazard for areas of shallow flooding and ponding. This ID field must contain a number that matches the HYDRO_ID field for a record in the L_Hydro_Model table. This attribute is only required for flood hazard areas with AO and AH zone designations or ponding associated with AE zones.
CST_MDL_ID	A	E	Coastal Model Identification. This field is populated by a linking element to the L_Cst_Model table. The L_Cst_Model table contains detailed information about the coastal models that were used to determine the coastal flood hazard for this area. This ID field must contain a number that matches the CST_MDL_ID field for a record in the L_Cst_Model table that documents coastal model information. This attribute is only required in areas for which flood hazard determinations do not consider wave hazards. The static BFE values in these areas are based on surge modeling and/or tidal analyses. When wave hazards are considered modeling information is linked to the transects used to complete the wave analysis.

Table: S_Fld_Haz_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FLD_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
ZONE_LID	R	S	text	11				string	11		character	11	11		character	11	
FLDWAY_LID	A	S	text	11				string	11		character	11	11		character	11	
SFHA_TF	R	S	text	1				string	1		character	1	1		character	1	
STATIC_BFE	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
V_DATM_LID	A	S	text	11				string	11		character	11	11		character	11	
DEPTH	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_LID	A	S	text	11				string	11		character	11	11		character	11	
VELOCITY	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
VEL_LID	A	S	text	11				string	11		character	11	11		character	11	
AR_REVERT	A	S	text	6				string	6		character	6	6		character	6	

BFE_REVERT	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
DEP_REVERT	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	
HYDRO_ID	A	E	text	11				string	11		character	11	11		character	11	
CST_MDL_ID	A	E	text	11				string	11		character	11	11		character	11	

Table: S_Fld_Haz_Ln

This table is required for all draft Digital Flood Insurance Rate Map data.

The S_Fld_Haz_Ln table contains information about the flood hazard line features for the study area. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the boundaries of the flood hazard areas depicted on the Flood Insurance Rate Map (FIRM) are lines.

This is a Standard DFIRM Database table.

The S_Fld_Haz_Ln table contains the following elements.

FLD_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
LN_LID	R	S	Line Lookup Identification. A code that provides a link to a valid entry from the D_Ln_Typ table. These line types describe the flood boundary and may be used to indicate how the feature should be depicted on the hardcopy FIRM.

Table: S_Fld_Haz_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FLD_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
LN_LID	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Gen_Struct

This table is required whenever hydraulic structures are shown in the flood profile. It is also required if levees are shown on the FIRM, channels containing the flooding are shown on the FIRM, or any other structure that impacts the area's flood risk is shown on the FIRM.

The S_Gen_Struct table contains information about the hydraulic structures within the study area. It should include all structures shown in the flood profiles. In addition, levees, sea walls, channels that contain flooding, and other significant flood control structures shown on the Flood Insurance Rate Map (FIRM) should be included. A spatial file with locational information also corresponds with this data table.

Spatial elements representing general structures are represented by lines. The lines should represent the primary characteristic of the structure. For example, bridges should be represented by the transportation centerline carried by the bridge. Dams should be represented by a line corresponding to the top of the dam. Levees should be represented by a line corresponding to the top of levee. A line corresponding to the centerline of the main barrel should represent a culvert.

This is a Standard DFIRM Database table.

The S_Gen_Struct table contains the following elements.

STRUCT_ID	R	S	Primary key for table lookup. Assigned by table creator.
STRUCT_LID	R	S	Structure Type Lookup Identification. A code that provides a link to a valid entry from the D_Struct_Typ table. This table contains entries for most major types of structures that would be found in hydraulic analyses.
STRUCT_NM	A	S	Structure Name. This is the name of the feature and the name that will be shown on the hardcopy FIRM. This record is left blank if the structure is not named on FIRM and/or the name is unknown.
WTR_NM_LID	R	S	Surface Water Name Lookup Identification. A code that provides a link to the name of the surface water feature. The surface water feature name is taken from the table L_Wtr_Nm. This is a lookup table that is populated by the creator of the database.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Gen_Struct table.

Table: S_Gen_Struct

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STRUCT_ID	R	S	text	11				string	11		character	11	11		character	11	
STRUCT_LID	R	S	text	11				string	11		character	11	11		character	11	
STRUCT_NM	A	S	text	50				string	50		character	50	50		character	50	
WTR_NM_LID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Label_Ld

This table is required for Digital Flood Insurance Rate Map (DFIRM) data if any label leader lines are shown on the hardcopy FIRM.

The S_Label_Ld table contains information about leader lines that would connect labels to feature locations on base maps. The purpose of this table, along with the S_Label_Pt table is so that the DFIRM database can contain the names of roads and other physical features in or near the Special Flood Hazard Areas regardless of the type or structure of the base map used. A spatial file with locational information also corresponds with this data table.

The spatial entities representing label leaders will be lines.

This is a Standard DFIRM Database table.

The S_Label_Ld table contains the following elements.

LEADER_ID	R	S	Primary key for table lookup. Assigned by table creator.
LABEL_LID	R	S	Label Type Lookup Identification. A code that provides a link to valid entries from the D_Label_Typ table. This type is a description of the planimetric features to which the labels and leaders are associated. For vector based maps, the labels and leaders will be associated with vector features in S_Trnsport_Ln, S_Wtr_Ar and S_Wtr_Ln. For maps with an ortho-photo base, the labels and leaders will be associated with DOQ water and transportation features. For maps that use both vector features and ortho-photos, all values may apply.

Table: S_Label_Ld

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LEADER_ID	R	S	text	11				string	11		character	11	11		character	11	
LABEL_LID	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Label_Pt

This table is required for all draft Digital Flood Insurance Rate Map (DFIRM) data.

The S_Label_Pt table contains information for text insertion point locations that would link labels to base map features. The purpose of this table, along with the S_Label_Ld table is so that the DFIRM database can contain the names of roads and other physical features in or near the Special Flood Hazard Areas (SFHAs) regardless of the type or structure of the base map used. A spatial file with locational information also corresponds with this data table.

The spatial entities representing labels are points. The point corresponds to the lower left corner of the label.

This is a Standard DFIRM Database table.

The S_Label_Pt table contains the following elements.

LABEL_ID	R	S	Primary key for table lookup. Assigned by table creator.
LABEL	R	S	Label for map feature.
LABEL_LID	R	S	Label Type Lookup Identification. A code that provides a link to valid entries from the D_Label_Typ table. This type is a description of the planimetric features to which the labels and leaders are associated. For vector based maps, the labels and leaders will be associated with vector features in S_Trnsport_Ln, S_Wtr_Ar and S_Wtr_Ln. For maps with an ortho-photo base, the labels and leaders will be associated with DOQ water and transportation features. For maps that use both vector features and ortho-photos, all values may apply.
DEGREES	R	S	The degrees of rotation required for the placement of a feature label onto a hard copy Flood Insurance Rate Map panel. The rotation angle of the text measured in degrees. The angle is zero for unrotated horizontal text and increases in a counterclockwise direction to 359. Text rotated clockwise has a negative value between 0 and –359.

Table: S_Label_Pt

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LABEL_ID	R	S	text	11				string	11		character	11	11		character	11	
LABEL	R	S	text	254				string	254		character	254	254		character	254	
LABEL_LID	R	S	text	11				string	11		character	11	11		character	11	
DEGREES	R	S	integer	2	0			number	4	0	binary	4	10	0	decimal	4	0

Table: S_LOMR

This table is required when a Mapping Partner incorporates the results of effective Letters of Map Revision (LOMRs) into the draft Digital Flood Insurance Rate Map (DFIRM) data submitted to the Federal Emergency Management Agency (FEMA).

The S_LOMR table contains information about LOMR areas that are incorporated into the Flood Insurance Rate Map (FIRM). This table is planned as a mechanism for DFIRM producers to communicate areas of the DFIRM data that were updated to reflect the results of LOMRs. It is included in the draft DFIRM data submittal. It is not planned for distribution by FEMA once a complete map revision has incorporated these LOMRs into the effective FIRM panel. Therefore it is not included in the Preliminary or Final DFIRM data. A spatial file with locational information also corresponds with this data table.

The spatial entities representing LOMRs are polygons. The spatial information contains the bounding polygon for each LOMR area.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced.

The S_LOMR table contains the following elements.

LOMR_ID	R	S	Primary key for table lookup. Assigned by table creator.
EFF_DATE	R	S	Effective Date. Effective Date of the LOMR.
CASE_NO	R	S	Case Number. This is the case number of the LOMR that is assigned by FEMA. The case number is used to track the LOMR's supporting documentation.
SCALE_LID	R	S	Map Scale. A code that provides a link to a value in the D_Scale table. The linked value will contain the denominator of the effective scale of the LOMR.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_LOMR table.
STATUS	R	E	Status of the LOMR. Valid entries for this field include the following: 'effective' 'incorporated' 'superseded'

Table: S_LOMR

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LOMR_ID	R	S	text	11				string	11		character	11	11		character	11	
EFF_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CASE_NO	R	S	text	13				string	13		character	13	13		character	13	
SCALE_LID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	
STATUS	R	E	text	12				string	12		character	12	12		character	12	

Table: S_Nodes

This table is required for all studies with new or revised hydrologic data. A spatial file with locational information also corresponds with this data table.

The S_Nodes table contains data only on the location of points used to define the topology of the hydrologic network. Nodes can be subbasin pourpoints, confluences, diversions, hydraulic structures, etc. Nodes are connected to each other via links, which are defined in S_Profil_Basln (see below).

The spatial elements representing the nodes are points.

This is an Enhanced DFIRM Database table.

The S_Nodes table contains the following elements.

NODE_ID	R	E	Primary key for this table. Assigned by table creator.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Nodes.

Table: S_Nodes

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
NODE_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Ovrbnkln

This table is required for a detailed study that uses overbank flow lengths as input data.

The S_Ovrbnkln table contains information about overbank flow line features for the study area.

The features are those lines along which overbank flow distances between two cross sections are measured. Between any two adjacent cross sections, there must be two overbank flow lines: one for the right overbank line and one for the left overbank line. The two lines may be one continuous line or may be broken at the cross section. However, if the line is broken, the line must be continuous between the cross sections; the endpoints of an overbank line must lie on a cross section. A spatial file with locational information also corresponds with this data table.

Since models will eventually overlap, these features should represent the lines associated with the model for the base flood from which the effective FIRM was derived.

Locations are based on standard engineering practice and should match locations used in the analysis.

The spatial elements representing the boundaries of the flood hazards depicted on the FIRM are lines.

This is an Enhanced DFIRM Database table.

The S_Ovrbnkln table contains the following elements.

OVRBNK_ID	R	E	Primary key for table lookup. Assigned by table creator.
WTR_NM_LID	R	E	Surface Water Name Lookup Identification. A code that provides a link to the name of the surface water feature. The surface water feature name is taken from the L_Wtr_Nm table. This is a lookup table that is populated by the creator of the database.
OBNK_SIDE	R	E	Overbank Side. Indicates which side the overbank line represents. Enter "L" for left or "R" for right.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Ovrbnkln.

Table: S_Ovrbnkln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
OVRBNK_ID	R	E	text	11				string	11		character	11	11		character	11	
WTR_NM_LID	R	E	text	11				string	11		character	11	11		character	11	
OBNK_SIDE	R	E	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Perm_Bmk

This table is required unless there are no National Geodetic Survey (NGS) or other bench marks that meet the minimum standard in the jurisdiction covered by the Flood Insurance Rate Map (FIRM).

The S_Perm_Bmk table contains information about Permanent Bench Marks that are associated with the study area. The bench marks shown in this file must meet the requirements specified in Subsection 1.4.1.4.1 of these Guidelines. A spatial file with locational information also corresponds with this data table.

The spatial entities representing bench marks are points. Generally, these points should be placed based on the coordinates in the NGS database. However, the horizontal coordinates maintained by the NGS for vertical bench marks are often not very precise because the users rely on the location descriptions to locate the bench marks. If the source of the horizontal coordinates used by the NGS is not precise, the data creator may adjust the position based on more accurate data.

This is a Standard DFIRM Database table.

The S_Perm_Bmk table contains the following elements.

BM_ID	R	S	Primary key for table lookup. Assigned by table creator.
PID	R	S	Permanent Identifier. This should be the NGS assigned or community assigned permanent identifier. It must be unique for each bench mark.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Perm_Bmk table.

Table: S_Perm_Bmk

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BM_ID	R	S	text	11				string	11		character	11	11		character	11	
PID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_PFD_Ln

This table is required when a primary frontal dune (PFD) is present along portions or all of the coastline within the modeled coastal floodplain. PFDs are not required to be continuous along the length of the studied shoreline. It is applicable when PFD_TF = "T" in the L_Cst_Model table.

The S_PFD_Ln table contains information about the primary frontal dune features for the coastal study area. Primary frontal dunes are not shown on the FIRM but are used in the coastal floodplain analysis. They are lines that represent the back side of the first natural ridge inland from the coastal shoreline and where the gradient changes from steep to gentle. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the primary frontal dunes are lines.

This is an Enhanced DFIRM Database table.

The S_PFD_Ln table contains the following elements.

PFD_ID	R	E	Primary key for table lookup. Assigned by table creator.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_PFD_Ln table.

Table: S_PFD_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PFD_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_PLSS_Ar

This table is required when U. S. Public Land Survey System (PLSS) areas are shown on the Flood Insurance Rate Map and the data used for the map can be distributed by FEMA at no cost.

The S_PLSS_Ar table contains information about the PLSS areas that are associated within the study area. These include the attributes for the range, township, and section areas. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the PLSS areas are polygons. Generally there is one polygon per section. The PLSS areas should cover the entire jurisdiction where sections are defined.

In general, the Public Land Survey System table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate PLSS data to which the flood hazard information is referenced. Users must be able to identify section, township and range information on the printed maps. If these objectives are met, then almost any file structure is acceptable. PLSS features may be represented as either polygons or lines. With some data structures, it may not be practical to assign attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the PLSS system is a public system not maintained by FEMA. This information is provided for reference on the paper maps..

This is a Standard DFIRM Database table.

The S_PLSS_Ar table contains the following elements.

PLSS_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
RANGE	A	S	Range Number. This is the range number assigned to the PLSS area shown. This attribute would also include the designation of E (east) or W (west) as part of the data. For example, 21W would be an acceptable value. This field is applicable whenever the SECT_NO does not equal zero.
TWP	A	S	Township. This is the township number assigned to the PLSS area shown. This attribute would also include the designation of N (north) or S (south) as part of the data. For example, 14S would be an acceptable value. This field is applicable whenever the SECT_NO does not equal zero.
SECT_NO	R	S	Section. This is the section number assigned to the PLSS area shown. Where no section number is defined, such as open water, the section number should be zero.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_PLSS_Ar table. This

field is required when source citation information is not provided by the S_PLSS_Ln table.

Table: S_PLSS_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PLSS_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
RANGE	A	S	text	8				string	8		character	8	8		character	8	
TWP	A	S	text	8				string	8		character	8	8		character	8	
SECT_NO	R	S	text	4				string	4		character	4	4		character	4	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_PLSS_Ln

This table is required when U.S. Public Land Survey System (PLSS) areas are shown on the Flood Insurance Rate Map (FIRM) and the data used for the map can be distributed by FEMA at no cost.

The S_PLSS_Ln table contains information about the boundary lines for the PLSS that is associated with the study area, if applicable. This would include the attributes for the adjacent range and township areas. A spatial file with locational information also corresponds with this data table.

In general, the Public Land Survey System table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate PLSS data to which the flood hazard information is referenced. Users must be able to identify section, township and range information on the printed maps. If these objectives are met, then almost any file structure is acceptable. PLSS features may be represented as either polygons or lines. With some data structures, it may not be practical to assign attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the PLSS system is a public system not maintained by FEMA. This information is provided for reference on the paper maps..

The spatial entities representing PLSS boundaries are lines.

This is a Standard DFIRM Database table.

The S_PLSS_Ln table contains the following elements.

PLSS_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
LN_LID	R	S	Line Lookup Identification. A code that provides a link to a valid entry from the D_Ln_Typ table. These line types describe the PLSS boundaries and may be used to indicate how the feature should be depicted on the hardcopy FIRM.
E_RANGE	A	S	East Range Number. This is the range number assigned to the PLSS area shown to the east of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of E (east) or W (west) as part of the data. For example, 21W would be an acceptable value. Only populated for lines that divide one range from another.
W_RANGE	A	S	West Range Number. This is the range number assigned to the PLSS area shown to the west of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of E (east) or W (west) as part of the data. For

			example, 21W would be an acceptable value. Only populated for lines that divide one range from another.
N_TWP	A	S	North Township. This is the township number assigned to the PLSS area shown to the north of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of N (north) or S (south) as part of the data. For example, 14S would be an acceptable value. Only populated for lines that divide one township from another.
S_TWP	A	S	South Township. This is the township number assigned to the PLSS area shown to the south of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of N (north) or S (south) as part of the data. For example, 14S would be an acceptable value. Only populated for lines that divide one township from another.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_PLSS_Ln table. This field is required when source citation information is not provided by the S_PLSS_Ar table.

Table: S_PLSS_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PLSS_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
LN_LID	R	S	text	11				string	11		character	11	11		character	11	
E_RANGE	A	S	text	8				string	8		character	8	8		character	8	
W_RANGE	A	S	text	8				string	8		character	8	8		character	8	
N_TWP	A	S	text	8				string	8		character	8	8		character	8	
S_TWP	A	S	text	8				string	8		character	8	8		character	8	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Pol_Ar

This table is required for all draft Digital Flood Insurance Rate Map data.

The S_Pol_Ar table contains information about the Political Areas within the study area. This includes the attributes for the political areas and other areas such as forests, parks, military lands, and Tribal lands. For the National Flood Insurance Program (NFIP), it is important to know the jurisdiction that has land use authority over an area. Political jurisdictions individually agree to participate in the NFIP and availability of insurance, floodplain regulations, and insurance rates may vary by political jurisdiction. The political jurisdiction assigned to each area corresponds to the jurisdiction responsible for NFIP and floodplain management for that area. A spatial file with locational information also corresponds with this data table.

The spatial entities representing political areas are polygons.

This is a Standard DFIRM Database table.

The S_Pol_Ar table contains the following elements.

POL_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
POL_NAME1	R	S	Political Area Name 1. This is the primary name of the area shown. For areas that have more than one name, this would be the primary name with subsequent names shown in fields below. This would correspond to the official name of this jurisdiction used by the Federal Emergency Management Agency (FEMA) within the NFIP. For unincorporated areas of a county, this should be the county name (e.g., Montgomery County).
POL_NAME2	A	S	Political Area Name 2. This is the secondary name of the area shown. Populated if there is a common name for an area other than the official jurisdiction name.
CO_FIPS	R	S	County FIPS Code. This is the three-digit county Federal Information Processing Standard (FIPS) code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4.
ST_FIPS	R	S	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. These two numbers correspond to the first two digits of the panel number.
COMM_NO	R	S	Community Number. This is the four-digit number assigned by FEMA to each community for tracking purposes under the NFIP. On newer Flood Insurance Rate Maps (FIRMs) the state FIPS and the community number appear below the community name where

			it is shown in the body of the map. For single jurisdiction FIRMs, this is the 3rd through the 6th digits of the panel number. This number can be obtained from the community status book that can be viewed at www.fema.gov/msc. Areas under Federal jurisdiction such as National Parks, National Forests, military bases, etc. do not have community numbers assigned by FEMA. These areas should have a value of FED in the COMM_NO field. Areas under state jurisdiction such as state parks and wildlife reservations should have a value of ST in the COMM_NO field. For any other jurisdictions where local community does not have the authority to administer the NFIP and FEMA does not assign a community number, the COMM_NO field should contain OTHR.
CID	R	S	Community Identification Number. This is the six-digit community identification number assigned by FEMA. It is created by combining the state FIPS code with the COMM_NO. 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 (FED, ST, or OTHR).
ANI_TF	R	S	Area Not Included. This field contains information about the geographical area to determine if it is included in the FIRM or not. Areas Not Included fall within the extent of the map, but no flood risk information is shown on the FIRM. This is either because the area is mapped on another FEMA map or because the area is not mapped at all by FEMA. Enter "T" for true or "F" for false.
COM_NFO_ID	A	S	Community Information Identification. This attribute links to the table L_Comm_Info that contains information about the specific community. This table should contain a number that matches a corresponding number in the COM_NFO_ID field of the L_Comm_Info table. This field is populated for any jurisdiction that has a CID number issued by FEMA.

Table: S_Pol_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
POL_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
POL_NAME1	R	S	text	50				string	50		character	50	50		character	50	
POL_NAME2	R	S	text	50				string	50		character	50	50		character	50	
CO_FIPS	R	S	text	3				string	3		character	3	3		character	3	
ST_FIPS	R	S	text	2				string	2		character	2	2		character	2	
COMM_NO	R	S	text	4				string	4		character	4	4		character	4	
CID	R	S	text	6				string	6		character	6	6		character	6	
ANI_TF	R	S	text	1				string	1		character	1	1		character	1	
COM_NFO_ID	A	S	text	11				string	11		character	11	11		character	11	

Table: S_Pol_Ln

This table is required for all draft Digital Flood Insurance Rate Map data.

The S_Pol_Ln table contains information about the boundaries of Political Areas within the study area. This would include the attributes for the political areas and other areas such as forests, parks, military lands, and Native American lands. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the boundaries of the political jurisdictions depicted on the Flood Insurance Rate Map (FIRM) are lines.

This is a Standard DFIRM Database table.

The S_Pol_Ln table contains the following elements.

POL_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
LN_LID	R	S	Line Lookup Identification. A code that provides a link to a valid entry from the D_Ln_Typ table. These line types describe the jurisdictional boundary and can be used to indicate how the feature should be depicted on the hardcopy FIRM.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Pol_Ln table.

Table: S_Pol_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
POL_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
LN_LID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Precip_Gage

This table is required when rain gages are used in developing the hydrologic analysis. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the precipitation gages are points.

This is an Enhanced DFIRM Database table.

The S_Precip_Gage table contains the following elements.

PRECIP_ID	R	E	Primary key for this table. Assigned by table creator.
GAGE_ID	R	E	Rain Gage Identification Number. The ID for the rain gage. Assigned by agency maintaining gage.
AGENCY	R	E	Agency. Name of agency maintaining gage.
CASE_NO	R	E	FEMA Case Number. The case number for the rain gage links to the L_Case_Info table.
GAGE_LID	R	E	Rain Gage Type Lookup Identification. A code that provides a link to a valid entry from the D_Gage table. This attribute establishes gage type. Values include tipping, instantaneous, and fixed interval.
REC_INTVL	A	E	Recording Interval. This field is populated only if the rain gage is a fixed-interval gage.
TIME_LID	A	E	Recording Interval Time Unit Lookup Identification. A code that provides a link to a valid entry from the D_Time_Units table. This attribute establishes the unit of measure of the recording interval. This field is populated only if the rain gage is a fixed-interval gage.
START_PD	R	E	Start Period. This value is the start of the earliest period of record used in the gage analysis.
END_PD	R	E	End Date. This value is the end of the latest period of record used in the gage analysis.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Precip_Gage.

Table: S_Precip_Gage

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PRECIP_ID	R	E	text	11				string	11		character	11	11		character	11	
GAGE_ID	R	E	text	25				string	25		character	25	25		character	25	
AGENCY	R	E	text	150				string	150		character	150	150		character	150	
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
GAGE_LID	R	E	text	11				string	11		character	11	11		character	11	
REC_INTVL	A	E	text	11				string	11		character	11	11		character	11	
TIME_LID	A	E	text	11				string	11		character	11	11		character	11	
START_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
END_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Profil_Basln

This table is required for a detailed study when hydrologic and hydraulic models have been developed for reaches of streams. The results of the models are shown on the FIRM. The profile baseline and/or stream centerline may or may not be shown on the FIRM.

The S_Profil_Basln table contains information about profile baseline and stream centerline features for the study area. A spatial file with locational information also corresponds with this data table. The spatial elements representing the profile baseline and stream centerline are lines.

This is an Enhanced DFIRM Database table.

The S_Profil_Basln table contains the following elements.

BASELN_ID	R	E	Primary key for table lookup. Assigned by table creator.
WTR_NM_LID	R	E	Surface Water Feature Name Lookup Identification. A code that provides a link to the name of the water feature associated with the cross section. The water feature name is taken from the table L_Wtr_Nm. This is a lookup table that is populated by the creator of the database.
WATER_LID	R	E	Surface Water Feature Lookup Identification. A code that provides a link to valid entries from the D_Water_Typ table. The type value describes the kind of watercourse represented. Valid entries include items such as profile baseline, hydrologic link, and stream centerline.
UP_NODE	A	E	Upstream Node. This is the node ID at the upstream end of the reach. This ID field must contain a number that matches the NODE_ID field in the S_Nodes table, which documents points used to define the topology of the hydrologic network. This field is only populated when WATER_LID's value equals "PROFILE BASELINE" or "PROFILE BASELINE AND STREAM CENTERLINE".
DN_NODE	A	E	Downstream Node. This is the node ID at the downstream end of the reach. This ID field must contain a number that matches the NODE_ID field for a record in the S_Nodes table, which documents points used to define the topology of the hydrologic network. This field is only populated when WATER_LID's value equals "PROFILE BASELINE" or "PROFILE BASELINE AND STREAM CENTERLINE".
ROUTE_METH	A	E	Hydrologic Routing Method. This is the hydrologic routing method used for the reach. This field is only populated if hydrologic routing is used for the reach.

SHOWN_FIRM	R	E	Profile Baseline Shown on FIRM. This field is true only if the centerline is shown on the FIRM. Enter "T" for true or "F" for false.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Profil_Basln.

Table: S_Profil_Basln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BASELN_ID	R	E	text	11				string	11		character	11	11		character	11	
WTR_NM_LID	R	E	text	11				string	11		character	11	11		character	11	
WATER_LID	R	E	text	11				string	11		character	11	11		character	11	
UP_NODE	A	E	text	11				string	11		character	11	11		character	11	
DN_NODE	A	E	text	11				string	11		character	11	11		character	11	
ROUTE_METH	A	E	text	254				string	254		character	254	254		character	254	
SHOWN_FIRM	R	E	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Quad_Index

This table is required for all draft Digital Flood Insurance Rate Map data.

The S_Quad_Index table contains information about the US Geological Survey (USGS) 7.5-Minute Series Topographic Quadrangle maps that cover the study area. While USGS 7.5-minute quadrangles do not meet the Federal Emergency Management Agency (FEMA) digital base map standards, they are often useful as a supplementary reference source. The quadrangle information is provided as a convenience to users who may want to cross-reference this map series. A spatial file with locational information also corresponds with this data table.

The spatial entities representing the USGS quadrangles are polygons. Each polygon corresponds to the neatline of a USGS map.

This is a Standard DFIRM Database table.

The S_Quad_Index table contains the following elements.

QUAD_ID	R	S	Primary key for table lookup. Assigned by table creator.
QUAD_NO	R	S	Quad Number. This is the eight-digit USGS alphanumeric quadrangle identifier. The list of values for each state is published by USGS in the State Indexes to Topographic and Other Map Coverage. This item is composed of three components: the latitude, rounded down to the nearest whole degree, of the 7.5-minute quadrangle map sheet; the longitude, rounded down to the nearest whole degree, of the 7.5-minute quadrangle map sheet; and the alphanumeric map sheet identifier used by USGS (i.e., A1 through H8).
QUAD_NM	R	S	Quad Name. This is the name of the quad that is assigned by USGS.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Quad_Index table.

Table: S_Quad_Index

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
QUAD_ID	R	S	text	11				string	11		character	11	11		character	11	
QUAD_NO	R	S	text	8				string	8		character	8	8		character	8	
QUAD_NM	R	S	text	50				string	50		character	50	50		character	50	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Riv_Mrk

This table is required if the Flood Insurance Rate Map (FIRM) shows river distance marks.

The S_Riv_Mrk table contains information about the River Marks shown on the hardcopy FIRM if applicable. A spatial file with locational information also corresponds with this data table.

The spatial entities representing the river marks are points. The points are generally located along side of the river at regular intervals.

This is a Standard DFIRM Database table.

The S_Riv_Mrk table contains the following elements.

RIV_MRK_ID	R	S	Primary key for table lookup. Assigned by table creator.
START_ID	R	S	Start Identification. A code that provides a link to a point in the L_Stn_Start table at which the river mark distances start.
RIV_MRK_NO	R	S	River Mark Number. This attribute usually represents the distance from a known point (identified by START_ID), such as the confluence with another river, to the current river mark. This is the value shown next to the river mark on the FIRM.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Riv_Mrk table.

Table: S_Riv_Mrk

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
RIV_MRK_ID	R	S	text	11				string	11		character	11	11		character	11	
START_ID	R	S	text	11				string	11		character	11	11		character	11	
RIV_MRK_NO	R	S	text	6				string	6		character	6	6		character	6	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Shore_Ln

This table is required for coastal modeling studies.

The S_Shore_Ln table contains information about the shoreline used in the coastal flood hazard model. Typically, the S_Shore_Ln represents to 0.0-foot elevation contour. The S_Shore_Ln shoreline may not be shown on the FIRM but must be archived for informational purposes. The mapped shoreline is stored in the S_Wtr_Ln table of the standard DFIRM database. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the shorelines are lines.

This is an Enhanced DFIRM Database table.

The S_Shore_Ln table contains the following elements.

SHR_LN_ID	R	E	Primary key for table lookup. Assigned by table creator.
SHRTYP_LID	R	E	Shoreline Type Lookup Identification. A code that provides a link to a valid shoreline type from the D_Shr_Typ table. This value describes the criteria used in determining the shoreline in coastal flood hazard models.
V_DATM_LID	R	E	Vertical Datum Lookup Identification. A code that provides a link to a valid vertical datum from the D_V_Datum table. The vertical datum indicates the reference surface from which the 0.0-foot contour is measured. Normally this would be North American Vertical Datum of 1988 for new studies.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Shore_Ln table.

Table: S_Shore_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SHR_LN_ID	R	E	text	11				string	11		character	11	11		character	11	
SHRTYP_LID	R	E	text	11				string	11		character	11	11		character	11	
V_DATM_LID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Stn_Start

This table is required when the geographic location of station start points exist.

The S_Stn_Start contains information about station points. These points indicate the reference point that was used as the origin for distance measurements along streams and rivers. This table links to descriptive information in the L_Stn_Start table. A spatial file with locational information also corresponds with this data table.

The spatial entity representing station starting locations are points. The point should be located on the stream centerline at the place where the measurements begin. This point may be outside the jurisdiction mapped in some cases. The location of the stationing start for a group of cross sections is normally referenced as a note on the floodway data table and on the flood profiles. Generally, all the cross sections for a particular reach are reference to the same starting point.

This is an Enhanced DFIRM Database table.

The S_Stn_Start table contains the following elements.

STRT_PT_ID	R	E	Primary key for this table. Assigned by table creator.
START_ID	R	E	Start Identification. This is a link to the station start lookup table. The station start describes the origin for the measurements in the STREAM_STN field. This field must contain a number that links to a unique value in the START_ID field in the L_Stn_Start table.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Stn_Start.

Table: S_Stn_Start

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STRT_PT_ID	R	E	text	11				string	11		character	11	11		character	11	
START_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Subbasins

This table is required for all studies with new or revised hydrologic data.

The S_Subbasins table contains data specific to each subbasin in the hydrologic analysis, including the subbasin's relationship to the hydrologic network. The subbasin may be the subbasin specific to a detailed hydrologic model. It may also correspond to the drainage area used in a regression analysis, or to the drainage area for a stream gage. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the subbasins are polygons. In some cases the extent of these polygons may overlap, for example, cumulative subbasin areas for a regression analysis.

This is an Enhanced DFIRM Database table.

The S_Subbasins table contains the following elements.

SUBBAS_ID	R	E	Primary key for this table. Assigned by table creator.
SUBBAS_NM	R	E	Name of subbasin.
NODE_ID	R	E	Node Identification. A code that provides a link to a valid entry from the S_Nodes table. ID for the load/outflow point (pourpoint) for the subbasin.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Subbasins.

Table: S_Subbasins

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	
SUBBAS_NM	R	E	text	254				string	254		character	254	254		character	254	
NODE_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Trnsport_Ln

This table or an equivalent that is fully documented is required for all Digital Flood Insurance Rate Map databases that use a vector rather than raster base map data.

The S_Trnsport_Ln table contains information about the linear base map transportation features such as roads, railroads, and airports. A spatial file with locational information also corresponds with this data table.

The spatial entities representing linear transportation features are normally lines. However, if the available transportation data depict roads as polygons, this is acceptable also. In general, the transportation table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate base map data to which the flood hazard information is referenced. Users must be able to identify the names of roads, railroads and other major features in or near the Special Flood Hazard Areas (SFHAs). If these objectives are met, then almost any file structure is acceptable. Road centerlines or edge of pavement files are both acceptable, provided that they meet the FEMA base map standard. With some data structures, it may not be practical to assign feature names or other attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the S_Label_Pt and S_Label_Ld tables will identify the names of all of the important features in or near the SFHA.

This is a Standard DFIRM Database table.

The S_Trnsport_Ln table contains the following elements.

TRANS_ID	R	S	Primary key for table lookup. Assigned by table creator.
TRANS_LID	R	S	Transportation Lookup Identification. A code that provides a link to valid entries from the D_Trans_Typ table. These line types indicate how the feature should be depicted on the hardcopy Flood Insurance Rate Map.
RD_S_LID	R	S	Road Status Lookup Identification. A code that provides a link to valid entries in the D_Rd_Stat table.
PREFIX	A	S	Prefix of the Feature Name. Not all features will have an entry in this attribute. Valid entries might include N for a transportation feature named N Main Street.
FEAT_NM1	R	S	Feature Name 1. This is the primary name of the feature. For areas that have more than one name, this would be the primary name with subsequent names shown in fields below. Route numbers and "Intercoastal Waterway" would also be included in this item.

NM_LID	R	S	Name Type Lookup Identification. A code that provides a link to valid entries in the D_Nm_Typ table.
SUFFIX	A	S	Suffix of the Feature Name. Not all features will have an entry in this attribute. Valid entries might include NW for a transportation feature named Main Street NW.
FEAT_NM2	A	S	Feature Name 2. This is the secondary name of the feature.
FEAT_NM3	A	S	Feature Name 3. This is the tertiary name of the feature.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Trnsport_Ln table.

Table: S_Trnsport_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
TRANS_ID	R	S	text	11				string	11		character	11	11		character	11	
TRANS_LID	R	S	text	11				string	11		character	11	11		character	11	
RD_S_LID	R	S	text	11				string	11		character	11	11		character	11	
PREFIX	A	S	text	50				string	50		character	50	50		character	50	
FEAT_NM1	R	S	text	100				string	100		character	100	100		character	100	
NM_LID	R	S	text	11				string	11		character	11	11		character	11	
SUFFIX	A	S	text	50				string	50		character	50	50		character	50	
FEAT_NM2	A	S	text	100				string	100		character	100	100		character	100	
FEAT_NM3	A	S	text	100				string	100		character	100	100		character	100	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Water_Gage

This table is required when non-rain gages are used in developing the hydrologic analysis. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the water gages are points.

This is an Enhanced DFIRM Database table.

The S_Water_Gage table contains the following elements.

GAG_WTR_ID	R	E	Primary key for this table. Assigned by table creator.
GAGE_ID	R	E	Gage Identification. Assigned by the agency maintaining the gage.
AGENCY	R	E	Agency. Name of the agency maintaining the gage.
GAGE_LID	R	E	Gage Type Lookup Identification. A code that provides a link to a valid entry from the D_Gage table. This attribute establishes the gage type. Values include flow, stage, wind direction, wind speed, wave, and tide.
REC_INTVL	R	E	Recording Interval. Recording interval for the gage.
TIME_LID	R	E	Recording Interval Time Unit Lookup Identification. A code that provides a link to a valid entry from the D_Time_Units table. This attribute establishes the unit of measure of the recording interval.
CASE_NO	R	E	FEMA Case Number. The case number for the water gage links to the L_Case_Info table.
START_PD	R	E	Start Period. This value is the start of the earliest period of record used in the gage analysis.
END_PD	R	E	End Period. This value is the end of the latest period of record used in the gage analysis.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Water_Gage.

Table: S_Water_Gage

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
GAG_WTR_ID	R	E	text	11				string	11		character	11	11		character	11	
GAGE_ID	R	E	text	25				string	25		character	25	25		character	25	
AGENCY	R	E	text	150				string	150		character	150	150		character	150	
GAGE_LID	R	E	text	11				string	11		character	11	11		character	11	
REC_INTVL	R	E	text	11				string	11		character	11	11		character	11	
TIME_LID	R	E	text	11				string	11		character	11	11		character	11	
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
START_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
END_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date	11		date	8	10		date	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Wtr_Ar

This table is required for any Digital Flood Insurance Rate Map (DFIRM) database where vector surface water features are shown on the Flood Insurance Rate Map and some of these features are represented as polygons in the spatial data. Vector streams should always be shown with a vector base map. They may also be shown on raster base maps.

The S_Wtr_Ar table contains information about surface water area features. A spatial file with locational information also corresponds with this data table.

The spatial elements representing surface water area features are polygons. Normally lakes, ponds and streams wide enough to show both channel banks will be represented as polygons. However, the main purpose of the S_Wtr_Ar table and the S_Wtr_Ln table are to provide a cartographic depiction of the surface water features for visual interpretation of the mapping data. As a result, the method for structuring surface water features as lines or polygons is very flexible. Surface water features may appear in either the S_Wtr_Ar table or the S_Wtr_Ln table or both. However, features that appear in both must match exactly. The hydrologic structure of the stream network will be represented by tables in the Enhanced DFIRM Database.

In general, the surface water table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate surface water feature data to which the flood hazard information is referenced. Users must be able to identify the names of flooding sources and other important surface water features. If these objectives are met, then almost any file structure is acceptable. Streams, rivers and lakes may be represented as either polygons or lines. With some data structures, it may not be practical to assign feature names or other attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the S_Label_Pt and S_Label_Ld tables will identify the names of flooding sources and other important surface water features.

This is a Standard DFIRM Database table.

The S_Wtr_Ar table contains the following elements.

WTR_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
WATER_LID	R	S	Surface Water Feature Lookup Identification. A code that provides a link to valid entries from the D_Water_Typ table. This type value describes the classification of the surface water feature. Valid entries include items such as lake, retention pond, and reservoir.
WTR_NM_LID	R	S	Surface Water Name Lookup Identification. A code that provides a link to the name of the surface water feature. The surface water feature name is taken from the table L_Wtr_Nm. This is a lookup table that is populated by the creator of the database.

SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Wtr_Ar table.

Table: S_Wtr_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
WTR_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
WATER_LID	R	S	text	11				string	11		character	11	11		character	11	
WTR_NM_LID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Wtr_Ln

This table is required for any Digital Flood Insurance Rate Map (DFIRM) database where vector surface water features are shown on the Flood Insurance Rate Map and some of these features are represented as lines in the spatial data. Vector streams should always be shown with a vector base map. They may also be shown on raster base maps.

The S_Wtr_Ln table contains information about surface water linear features. A spatial file with locational information also corresponds with this data table.

The spatial elements representing surface water line features are lines. Normally stream centerlines will be represented as line features. However, the main purpose of the S_Wtr_Ar table and the S_Wtr_Ln table are to provide a cartographic depiction of the surface water features for visual interpretation of the mapping data. As a result, the method for structuring surface water features as lines or polygons is very flexible. Lake shorelines and stream channel banks used to show lakes and wide rivers are usually represented as polygons. However, they may be represented as lines based on the structure of the data received and the Mapping Partner's discretion. Surface water features may appear in either the S_Wtr_Ar table or the S_Wtr_Ln table or both. However, features that appear in both must match exactly. The hydrologic structure of the stream network will be represented by tables in the Enhanced DFIRM Database.

In general, the surface water table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate surface water feature data to which the flood hazard information is referenced. Users must be able to identify the names flooding sources and other important surface water features. If these objectives are met, then most any file structure is acceptable. Streams, rivers and lakes may be represented as polygons or lines. With some data structures, it may not be practical to assign feature names or other attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the S_Label_Pt and S_Label_Ld tables will identify the names of flooding sources and other important surface water features.

This is a Standard DFIRM Database table.

The S_Wtr_Ln table contains the following elements.

WTR_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
WATER_LID	R	S	Surface Water Feature Lookup Identification. A code that provides a link to valid entries from the D_Water_Typ table. The type value describes the kind of watercourse represented. Valid entries include items such as stream/river, channel, and shoreline/coastline.
CHAN_LID	R	S	Channel Lookup Identification. A code that provides a link to valid entries from the D_Chan_Rep table. This channel type value indicates whether a linear water feature is represented as a stream

			centerline or represented as channel bank locations. Valid entries include single or double.
WTR_NM_LID	R	S	Water Name Lookup Identification. A code that provides a link to the name of the water feature. The water feature name is taken from the table L_Wtr_Nm. This is a lookup table that is populated by the creator of the database.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Wtr_Ln table.

Table: S_Wtr_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
WTR_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
WATER_LID	R	S	text	11				string	11		character	11	11		character	11	
CHAN_LID	R	S	text	11				string	11		character	11	11		character	11	
WTR_NM_LID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_XS

This table is required for any Digital Flood Insurance Rate Map database where cross sections are shown on the Flood Insurance Rate Map (FIRM). Normally any FIRM that has associated flood profiles has cross sections.

The S_XS table contains information about cross section lines. A spatial file with locational information also corresponds with this data table. These lines represent the locations of channel surveys performed for input into the hydraulic model used to calculate flood elevations. These locations are also shown on the Flood Profiles in the Flood Insurance Study (FIS) report and can be used to cross reference the Flood Profiles to the planimetric depiction of the flood hazards. All cross sections for which a spatial location is available should be included in this table.

The spatial elements representing cross sections are lines generally extending from outside the floodplain, across the entire floodplain and out the other side. Each cross section should be represented by a single line feature without the hexagons shown on each end on the hardcopy map. The location and shape of the lines should depict as accurately as possible the position of the cross section used.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced. The Enhanced DFIRM Database must contain all modeled cross sections, whether they are printed on the FIRM or not.

The S_XS table contains the following elements.

XS_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
XS_LTR	A	S	Cross-Section Letter. The letter or number that is assigned to the cross section on the hardcopy FIRM and in the FIS report. This attribute is blank if the cross section is not shown on the FIRM. For a digital conversion, only cross sections that are shown on the FIRM will be available.
START_ID	R	S	Start Identification. This is a link to the station start lookup table. The station start describes the origin for the measurements in the STREAM_STN field. This field should contain a number that links to a unique value in the START_ID field in the L_Stn_Start table.
STREAM_STN	R	S	Stream Station. This is the measurement along the stream to the cross-section location. Normally this information is available in the Floodway Data table in the FIS report. When no Floodway Data table is published, this value can be read from the horizontal scale of the flood profile. The units are clarified in the description in the START_DESC field in the L_Stn_Start table.

XS_LN_TYP	R	S	Cross-Section Line Type. This attribute should contain 'LETTERED' for cross sections that are shown on the hardcopy FIRM. If the cross section will not be shown on the hardcopy FIRM, this attribute should contain 'NOT LETTERED' to indicate that the cross section is part of the backup data for the study, but is not shown on the FIRM.
WTR_NM_LID	R	S	Surface Water Feature Name Lookup Identification. A code that provides a link to the name of the water feature associated with the cross section. The water feature name is taken from the table L_Wtr_Nm. This is a lookup table that is populated by the creator of the database.
WSEL_REG	R	S	Regulatory Water-Surface Elevation for the 1-Percent-Annual-Chance Flood Event. This is the precise water surface elevation of the base flood calculated at this cross section. This elevation exactly matches the elevation of the base flood in the Flood Profiles and the Floodway Data table. This number is determined during the engineering analysis for the study. This value should match the regulatory column in the Floodway Data table in the FIS report or the elevation from the corresponding flood profile if no Floodway Data table is published.
LEN_LID	R	S	Length Unit Lookup Identification. A code that provides a link to valid unit of length from the D_Length_Units table. The unit specifies the system of measurement for the water surface elevation. For the Enhanced Database, this attribute also specifies the length unit for stream bed elevation and top width. Normally this would be feet.
V_DATM_LID	R	S	Vertical Datum Lookup Identification. A code that provides a link to a valid vertical datum from the D_V_Datum table. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_XS table. Table:
BED_ELEV	R	E	Streambed Elevation. The elevation of the streambed at this cross section as shown on the Flood Profile in the FIS.
TOP_WIDTH	R	E	Top Width. Width of the floodway at this cross section as shown in the Floodway Data table in the FIS.
XS_AREA	R	E	Cross Section Area. Area of the cross section underwater for the width of the floodway as shown in the Floodway Data table in the FIS.

AREA_LID	R	E	Area Unit Lookup Identification. A code that provides a link to a valid areal unit from the D_Area_Units table. This unit specifies the areal unit for the area of the cross section underwater for the width of the floodway.
VELOCITY	R	E	Mean Velocity. The mean velocity of the floodway at this cross section as shown in the Floodway Data table in the FIS.
VEL_LID	R	E	Velocity Lookup Identification. A code that provides a link to a valid velocity unit from the D_Vel_Units table. This unit specifies the unit of measurement for the velocity of the floodway.

Table: S_XS

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
XS_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
XS_LTR	A	S	text	12				string	12		character	12	12		character	12	
START_ID	R	S	text	11				string	11		character	11	11		character	11	
STREAM_STN	R	S	text	12				string	12		character	12	12		character	12	
XS_LN_TYP	R	S	text	20				string	20		character	20	20		character	20	
WTR_NM_LID	R	S	text	11				string	11		character	11	11		character	11	
WSEL_REG	R	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_LID	R	S	text	11				string	11		character	11	11		character	11	
V_DATM_LID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	
BED_ELEV	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
TOP_WIDTH	R	E	number	8	2			number	13	2	numeric	8	13	2	decimal	15	2

			(double)														
XS_AREA	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
AREA_LID	R	E	text	11				string	11		character	11	11		character	11	
VELOCITY	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
VEL_LID	R	E	text	11				string	11		character	11	11		character	11	

Table: Study_Info

This table is required for all draft Digital Flood Insurance Rate Map data.

The Study_Info table contains details about the study such as the study name, datum, projection, etc. There is normally only one record in this table for each Flood Insurance Rate Map (FIRM).

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. The item STUDY_ZIP is Enhanced.

The Study_Info table contains the following elements.

STD_NFO_ID	R	S	Primary key for table lookup. Assigned by table creator.
STUDY_PRE	A	S	Study Prefix. This is the prefix of the study 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.
STUDY_NM	R	S	Study Name. This attribute contains the main portion of the study 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	R	S	State Name. This attribute contains the state name for the study and is shown in the title block of the hardcopy FIRM.
CNTY_NM	R	S	County Name. This is the county (or county equivalent) name that the study 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.
JURIS_TYP	A	S	Political Jurisdiction Type. This attribute contains entries such as 'Unincorporated Areas' or 'All Jurisdictions' or 'and Incorporated Areas'. This field is applicable when the type of map is 'Unincorporated Areas' or 'All Jurisdictions' or 'and Incorporated Areas'. For a single jurisdiction map, this field is NULL. If there are data in this attribute, it is also shown in the title block section of the hardcopy FIRM.
LG_PAN_NO	R	S	Largest Panel Number. This is the highest panel number shown on the FIRM Index for the area mapped. This number is shown in the title block section of the hardcopy FIRM.

OPP_TF	R	S	Only Panel Printed. This field is True only if the study has only one printed panel. Enter "T" for true or "F" for false.
H_DATUM	R	S	Horizontal Datum. Valid entries for this attribute include North American Datum of 1927 or North American Datum of 1983 (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.
V_DATM_LID	R	S	Vertical datum Lookup Identification. A code that provides a link to valid vertical datum from the D_V_Datum table. 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 North American Vertical Datum of 1988 for new studies.
PROJECTION	R	S	Map Projection used for hardcopy FIRM publication. The preferred projection is Universal Transverse Mercator (UTM). If a State Plane coordinate system and associated projection is used, this field should include the name of the projection, the state and the zone (e.g., Lambert Conformal Conic, Virginia North Zone).
PROJ_ZONE	A	S	Projection Zone. When using many map projections and coordinate systems, there is a zone associated with the area. 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 Federal Information Processing Standard zone or FIPSZONE.
CW_TF	R	S	Countywide, true/false. This attribute is true if the hardcopy FIRM includes all incorporated areas and any unincorporated areas of the county. Enter "T" for true or "F" for false.
CBRS_PHONE	A	S	Coastal Barrier Resources System (CBRS) Phone number. This is the phone number for the contact person/office for the CBRS legislative area. Applies if the FIRM contains CBRS areas. Enter the phone number as a ten-digit numeric string with hyphens in the following format, 000-000-0000.
CBRS_REG	A	S	CBRS Coordinator's region. This attribute contains the Fish and Wildlife Service (FWS) region within which the FIRM is located. Applies if the FIRM contains CBRS areas.
RTROFT_TF	R	S	Retrofit, True/False. The Retrofit attribute should be True if older study data is used with updated stream location data. If flood features were adjusted to fit new stream locations due to better base

			map information this attribute would be true. Enter “T” for true or “F” for false.
META_NM	R	S	Metadata File Name. This attribute stores the name of the metadata file. The file should be named <ST_FIPS><PCOMM>_<EFF_DATE>_metadata.txt; where ST_FIPS is the two digit state FIPS code; PCOMM is the four digit community or county identifcation number; and EFF_DATE is the effective date of the study. If the study is not yet effective, the effective date, <EFF_DATE>, should be replaced with the word “PRELIM”.
STUDY_ZIP	A	E	Name of the Study Zipfile. This attribute stores the path/filename of the zipped file that contains the FIS report or auxiliary data that is relevant to the entire study.

Table: Study_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STD_NFO_ID	R	S	text	11				string	11		character	11	11		character	11	
STUDY_PRE	A	S	text	20				string	20		character	20	20		character	20	
STUDY_NM	R	S	text	50				string	50		character	50	50		character	50	
STATE_NM	R	S	text	50				string	50		character	50	50		character	50	
CNTY_NM	R	S	text	50				string	50		character	50	50		character	50	
JURIS_TYP	A	S	text	50				string	50		character	50	50		character	50	
LG_PAN_NO	R	S	text	4				string	4		character	4	4		character	4	
OPP_TF	R	S	text	1				string	1		character	1	1		character	1	
H_DATUM	R	S	text	10				string	10		character	10	10		character	10	
V_DATM_LID	R	S	text	11				string	11		character	11	11		character	11	
PROJECTION	R	S	text	50				string	50		character	50	50		character	50	
PROJ_ZONE	A	S	text	4				string	4		character	4	4		character	4	
CW_TF	R	S	text	1				string	1		character	1	1		character	1	
CBRS_PHONE	A	S	text	15		000-000-0000	000\-000\-0000	string	15		character	15	15		character	15	

CBRS_REG	A	S	text	1				string	1		character	1	1		character	1	
RTROFT_TF	R	S	text	1				string	1		character	1	1		character	1	
META_NM	R	S	text	50				string	50		character	50	50		character	50	
STUDY_ZIP	A	E	text	254				string	254		character	254	254		character	254	

Table: L_Aux_Data

This table is required when the data developer wishes to document additional data sources used in developing the study. The table may be used to document other data sets such as topography, soils, land use, coastal roughness, etc.

This is an Enhanced DFIRM Database table.

The L_Aux_Data table contains the following elements.

DATA_ID	R	E	Primary key for this table. Assigned by table creator.
CASE_NO	R	E	FEMA Case Number. The case number for the auxiliary data links to the L_Case_Info table.
DATA_DATE	R	E	Date the data was prepared (e.g., date of file originally supplied by Mapping Partner).
DATA_TYPE	R	E	Description of data set.
ORG_NAME	A	E	Organization which generated/supplied the data.
CONTACT	A	E	Name of contact person.
TITLE	A	E	Title of contact person.
PHONE	A	E	Phone number of contact person/organization. Enter the phone number as a ten-digit numeric string with hyphens in the following format, 000-000-0000.
ADDRESS1	A	E	Line 1 of mailing address of contact person/organization.
ADDRESS2	A	E	Line 2 of mailing address of contact person/organization.
ADDRESS3	A	E	Line 3 of mailing address of contact person/organization.
CITY	A	E	City of contact person/organization.
STATE	A	E	State/Territory/Commonwealth of contact person/organization.
ZIP	A	E	Postal ZIP code of contact person/organization.
FILE_NM	R	E	Name of accompanying data file.
META_NM	R	E	Name of metadata file that describes the accompanying dataset.

Table: L_Aux_Data

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
DATA_ID	R	E	text	11				string	11		character	11	11		character	11	
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
DATA_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
DATA_TYPE	R	E	text	254				string	254		character	254	254		character	254	
ORG_NAME	A	E	text	100				string	100		character	100	100		character	100	
CONTACT	A	E	text	50				string	50		character	50	50		character	50	
TITLE	A	E	text	25				string	25		character	25	25		character	25	
PHONE	A	E	text	15		000-000-0000	000\-000\-0000	string	15		character	15	15		character	15	
ADDRESS1	A	E	text	50				string	50		character	50	50		character	50	
ADDRESS2	A	E	text	50				string	50		character	50	50		character	50	
ADDRESS3	A	E	text	50				string	50		character	50	50		character	50	
CITY	A	E	text	50				string	50		character	50	50		character	50	
STATE	A	E	text	50				string	50		character	50	50		character	50	
ZIP	A	E	text	10				string	10		character	10	10		character	10	

FILE_NM	R	E	text	254				string	25		character	25	25		character	25	
META_NM	R	E	text	50				string	50		character	50	50		character	50	

Table: L_Case_Info

This table is required for all studies with new or revised hydrologic data.

The L_Case_Info table is a lookup table that contains data specific to the study, including FEMA Case information and general hydrologic and/or hydraulic backup information. The fields are populated by the Mapping Partner who creates the database. If a Case Number is not available at the time the table is populated, the Mapping Partner shall use a temporary unique identification number.

This is an Enhanced DFIRM Database table.

The L_Case_Info table contains the following elements.

CASE_NO	R	E	Primary key for this table. FEMA Case Number for study. Used to link to archived electronic and hardcopy data, and to link to various hydrologic and hydraulic data tables.
CASE_DESC	R	E	General description of the study, for example, the study location and method(s) used.
CASE_ZIP	R	E	Name of the Case Zipfile. This attribute stores the file name/path of the zipped file that contains engineering support data associated with the Case.
STD_NFO_ID	R	E	Study Information Identification. A code that provides a link to a valid entry from the Study_Info table.
EFF_DATE	R	E	Effective date of the Case.

Table: L_Case_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
CASE_DESC	R	E	text	254				string	254		character	254	254		character	254	
CASE_ZIP	R	E	text	254				string	254		character	254	254		character	254	
STD_NFO_ID	R	E	text	11				string	11		character	11	11		character	11	
EFF_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		

Table: L_Comm_Info

This table is required for all draft Digital Flood Insurance Rate Map data.

The L_Comm_Info table is a lookup table that contains community map repository details and map history information that is shown on the Flood Insurance Rate Map (FIRM) legend or index. This table will include any community that has a CID; even if it is considered non-floodprone or non-participationg. Communities that do not have a CID issued by FEMA, or are not included within the area of the data submittal, will not appear in this table. The "not populated" values, that are described in sections L.2.5.10 and L.3.5.11, may be used to fill in some of the required fields when necessary. There is normally one record in this table for each community mapped on the FIRM.

This is a Standard DFIRM Database table.

The L_Comm_Info table contains the following elements.

COM_NFO_ID	R	S	Primary key for table lookup that links to the S_Pol_Ar table. Values in this field should match the values COM_NFO_ID field of the S_Pol_Ar table.
REPOS_ADR1	R	S	First line of the mailing or street address for the map repository. The map repository is the office the community has designated as responsible for maintaining copies of all the flood hazard information the Federal Emergency Management Agency (FEMA) publishes for the community. The public may view copies of the current effective information at the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read 'Division of Community and Economic Development'.
REPOS_ADR2	A	S	Second line of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read '226 W. Fourth Street'. This field is applicable if the map repository address requires more than one line.
REPOS_ADR3	A	S	Third line of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read 'Suite 200'. This field is applicable if address requires additional space.
REPOS_CITY	R	S	City portion of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read 'Springfield'.

REPOS_ST	R	S	State portion of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. The full name of the state should be provided. For example, this line might read 'ILLINOIS'.
REPOS_ZIP	R	S	ZIP Code portion of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read '62269'.
IN_ID_DAT	R	S	Initial identification date for the community as shown on the FIRM legend, index, or Flood Insurance Study (FIS) report. This information can also be obtained from FEMA. See Appendix K of these Guidelines for more detailed information about map dates.
IN_NFIP_DT	R	S	Initial date of the first National Flood Insurance Program map published by FEMA for this community. This can be obtained from the FIRM legend, index, or FIS report. This information can also be obtained from FEMA. See Appendix K of these Guidelines for more detailed information about map dates.
IN_FRM_DAT	R	S	Initial date FIRM was created. This can be obtained from the FIRM legend, index, or FIS report. This information can also be obtained from FEMA. See Appendix K of these Guidelines for more detailed information about map dates.
RECENT_DAT	A	S	Most recent panel date. This can be obtained from the FIRM Index or the FEMA Community Status book at www.fema.gov/msc. This field is only populated for final DFIRM Databases. See Appendix K of these Guidelines for more detailed information about map dates.

Table: L_Comm_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
COM_NFO_ID	R	S	text	11				string	11		character	11	11		character	11	
REPOS_ADR1	R	S	text	50				string	50		character	50	50		character	50	
REPOS_ADR2	A	S	text	50				string	50		character	50	50		character	50	
REPOS_ADR3	A	S	text	50				string	50		character	50	50		character	50	
REPOS_CITY	R	S	text	50				string	50		character	50	50		character	50	
REPOS_ST	R	S	text	50				string	50		character	50	50		character	50	
REPOS_ZIP	R	S	text	9				string	9		character	9	9		character	9	
IN_ID_DAT	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
IN_NFIP_DT	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
IN_FRM_DAT	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
RECENT_DAT	A	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		

Table: L_Cst_Model

This table is completed if coastal engineering analysis was performed. It is required for new coastal studies It is not required for digital conversions of effective flood hazard information because considerable additional effort may be required to research the applicable models.

The L_Cst_Model table is a lookup table that contains information about the coastal models that were used during the engineering analysis.

This is an Enhanced DFIRM Database table.

The L_Cst_Model table contains the following elements.

CST_MDL_ID	R	E	Primary key for table lookup that links to the S_Cst_Tsct_Ln table. Value in this field should match the values in the CST_MDL_ID field of the S_Cst_Tsct_Ln table.
WTR_NM_LID	R	E	Surface Water Feature Name Lookup Identification. This is the name of the water feature that the model is associated with. The water feature name is taken from the table L_Wtr_Nm. This is a lookup table that is populated by the Mapping Partner that creates the database.
CASE_NO	R	E	Case Number Identification. This field is populated by a linking element to the L_Case_Info table. The L_Case_Info table contains information about the FEMA case number and includes archived electronic data that are relevant to the case.
SURGE_LID	R	E	Hurricane Surge Model Lookup Identification. This is the name or abbreviation of the Federal Emergency Management Agency (FEMA) approved hurricane surge model that is associated with the coastal engineering analysis. The surge model information is taken from the D_Surge_Mdl table.
SURGE_DATE	R	E	Hurricane Surge Model Run Date. This is the date the model was run.
SURGE_ZIP	R	E	Filename/path of zip file containing surge model input, surge model output, README.TXT, and any other supporting reports and documentation.
SURGE_EFF	R	E	Surge Effective Date. Effective date of the surge model.
WAVEHT_LID	A	E	Wave Height Model Lookup Identification. This is the name or abbreviation of the FEMA approved wave height model that was used for the coastal engineering analysis. The wave height model information is taken from the D_Wave_Mdl table.

WAVEHT_DT	A	E	Wave Height Model Run Date. This is the date the model was run.
RUNUP_LID	A	E	Runup Model Lookup Identification. This is the name or abbreviation of the FEMA approved wave runup model that was used for the coastal engineering analysis. The runup model information is taken from the D_Runup_Mdl table.
RUNUP_DATE	A	E	Runup Model Run Date. This is the date the wave runup model was run.
SETUP_METH	A	E	Wave Setup Methodology. This information should detail the methodology used for determining the wave setup magnitude.
SETUP_DATE	A	E	Wave Setup Methodology Date. This is the date the setup methodology was run.
PFD_TF	R	E	Have primary frontal dune criteria been applied in the coastal modeling? Enter "T" for true or "F" for false
EROS_TF	A	E	Has erosion treatment been applied in the coastal modeling? Enter “T” for true or “F” for false.
WAVE_EFF	A	E	Wave Effective Date. Effective date of the wave height and wave runup models.
WAVE_ZIP	A	E	File name/path of zip file containing wave height input, wave height output, wave runup input, wave runup output, README.TXT, and any other supporting reports and documentation.

Table: L_Cst_Model

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CST_MDL_ID	R	E	text	11				string	11		character	11	11		character	11	
WTR_NM_LID	R	E	text	11				string	11		character	11	11		character	11	
CASE_NO	R	E	text	50				string	50		character	50	50		character	50	
SURGE_LID	R	E	text	11				string	11		character	11	11		character	11	
SURGE_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SURGE_ZIP	R	E	text	254				string	254		character	254	254		character	254	
SURGE_EFF	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
WAVEHT_LID	A	E	text	11				string	11		character	11	11		character	11	
WAVEHT_DT	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
RUNUP_LID	A	E	text	11				string	11		character	11	11		character	11	
RUNUP_DATE	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SETUP_METH	A	E	text	100				string	100		character	100	100		character	100	
SETUP_DATE	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
PFD_TF	R	E	text	1				string	1		character	1	1		character	1	

EROS_TF	A	E	text	1				string	1		character	1	1		character	1	
WAVE_EFF	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
WAVE_ZIP	A	E	text	254				string	254		character	254	254		character	254	

Table: L_Hydra_Model

This table is only completed if detailed hydraulic engineering methods were used. It is required for new studies.

The L_Hydra_Model table is a lookup table that contains detailed information about the hydraulic models used in the engineering analysis for the area.

There should be one record for each distinct model run.

This is an Enhanced DFIRM Database table.

The L_Hydra_Model table contains the following elements.

HYDRA_ID	R	S	Hydraulic Model Identification. The primary key for table lookup that links to the L_XS_Ratings table. The value in this field should match the values in the HYDRA_ID field of the L_XS_Ratings table.
HYDRA_LID	R	S	Hydraulic Model Type Lookup Identification. Foreign key for table lookup that links to the D_Hydra table.
HYDRA_DATE	R	S	Hydraulic Model Run Date. This is the date that the hydraulic model was run.
CASE_NO	R	S	FEMA Case Number. This is the FEMA case number for the study. This ID may be used to link to the L_Case_Info table.
HYDRA_ZIP	R	E	Name of the Hydraulic Model Zipfile. This attribute stores the file name/pathway of the zipped file that contains the hydraulic model input and output data and any other auxiliary hydraulic data information.

Table: L_Hydra_Model

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
HYDRA_ID	R	E	text	11				string	11		character	11	11		character	11	
HYDRA_LID	R	E	text	11				string	11		character	11	11		character	11	
HYDRA_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
HYDRA_ZIP	R	E	text	254				string	254		character	254	254		character	254	

Table: L_Hydro_Model

This table is required for all studies with new or revised hydrologic data.

The L_Hydro_Model table contains data specific to a particular hydrologic model used in the study.

This is an Enhanced DFIRM Database table.

The L_ Hydro_Model table contains the following elements.

HYDRO_ID	R	E	Hydrologic Model Identification. The primary key for table lookup that links to the L_Node_Disch table.
HYDRO_LID	R	E	Hydrologic Model Lookup Identification. A code that provides a link to a valid entry from the D_Hydro table.
HYDRO_DATE	R	E	Hydrologic Model Run Date. This is the date that the hydrologic model was run.
CASE_NO	R	E	FEMA Case Number. The case number for the hydrologic model links to the L_Case_Info table.
HYDRO_ZIP	R	E	Name of the Hydrologic Model Zipfile. The file name/pathway of the zipped file containing input & output files for hydrologic analysis and supporting data analyses.

Table: L_Hydro_Model

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
HYDRO_ID	R	E	text	11				string	11		character	11	11		character	11	
HYDRO_LID	R	E	text	11				string	11		character	11	11		character	11	
HYDRO_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
HYDRO_ZIP	R	E	text	254				string	254		character	254	254		character	254	

Table: L_Media

This table is required when digital photographs, sketches, or other media are used to describe spatial objects in the study.

The L_Media table is a lookup table that links archived media to the spatial object represented in the photograph, sketch, or other media.

This is an Enhanced DFIRM Database table.

The L_Media table contains the following elements.

MEDIA_ID	R	E	Primary key for table lookup. Assigned by table creator.
MEDIA_PATH	R	E	The file name/relative path/location of the photograph, sketch, or other media.
OBJ_TABLE	R	E	Object Table. The DFIRM Database table that corresponds to the spatial object that the photograph, sketch, or other media describes.
OBJ_ID	R	E	Object Identification. The DFIRM Database primary key that corresponds to the spatial object that the photograph, sketch, or other media describes. Can be used as Foreign Key to object.
MEDIA_TYPE	R	E	Media Type. This is the type of media used to describe the object (e.g., Photo, Sketch, Video, etc.)
MEDIA_DATE	R	E	Media Date. This is the date on which the photograph, sketch, or other media was created.
DSCRIPTION	R	E	Description of the Object. This is a brief description of the object. It should include relevant directional information (e.g., Downstream face of Third Street bridge, Left bank of Big Creek, Along transect 21 facing offshore).
AZIMUTH	A	E	Azimuth of a line that represents the line of sight from where the photographer was standing to the object. 0 – 360 degrees.

Table: L_Media

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
MEDIA_ID	R	E	text	11				string	11		character	11	11		character	11	
MEDIA_PATH	R	E	text	254				string	254		character	254	254		character	254	
OBJ_TABLE	R	E	text	20				string	20		character	20	20		character	20	
OBJ_ID	R	E	text	11				string	11		character	11	11		character	11	
MEDIA_TYPE	R	E	text	100				string	100		character	100	100		character	100	
MEDIA_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
DSCRIPTION	R	E	text	254				string	254		character	254	254		character	254	
AZIMUTH	A	E	text	100				string	100		character	100	100		character	100	

Table: L_MT1_LOMC

The L_MT1_LOMC table is a lookup table that contains information about Letters of Map Change (LOMCs) for the area. LOMCs typically include property descriptions. Frequently, LOMCs are issued to show that specific locations are outside the Special Flood Hazard Areas (SFHAs). Generally, the amount of detail that can be shown on the map does not allow these areas to be shown explicitly on the Flood Insurance Rate Map (FIRM). Instead, this information is communicated in the form of a LOMC. For data published by the Federal Emergency Management Agency (FEMA), this table would only include letters of map amendment and letters of map revision based on fill that have been revalidated following the map revision. Revalidated LOMCs indicate that the information presented in the LOMC continues to be true regardless of the depiction of the area on the FIRM.

For LOMCs that appear on more than one map panel, multiple records will exist with the same case number, but different panel numbers.

This is a Standard DFIRM Database table.

The L_MT1_LOMC table contains the following elements.

LOMC_ID	R	S	Primary key for table lookup. Assigned by table creator.
CASE_NO	R	S	Case Number. This is the case number assigned by FEMA to the LOMC. This should be filled in for reference back to the complete LOMC materials. The case number should be entered without hyphens or other separators.
EFF_DATE	R	S	Effective Date of the LOMC.
FIRM_PAN	R	S	FIRM panel number that the LOMC is on. This field provides a link to the S_FIRM_Pan table. MT1 LOMCs can be matched to a specific FIRM panel by matching this field to the FIRM_PAN field of the S_FIRM_Pan table.
LOMC_STAT	R	S	Status of the LOMC. Valid entries for this field include the following: 'superseded' 'revalidated' 'incorporated' 'redetermined' Only revalidated LOMCs are still in effect after a panel has been revised. All others should be superseded, redetermined or incorporated into the new FIRM.

Table: L_MT1_LOMC

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LOMC_ID	R	S	text	11				string	11		character	11	11		character	11	
CASE_NO	R	S	text	13				string	13		character	13	13		character	13	
EFF_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
FIRM_PAN	R	S	text	11				string	11		character	11	11		character	11	
LOMC_STAT	R	S	text	20				string	20		character	20	20		character	20	

Table: L_Node_Disch

This table is required when hydrologic routing (flow combining) is used in the hydrologic analysis. For nodes whose subbasins are headwaters, this table will contain the same flow information as the subbasin's outflow table.

L_Node_Disch is a lookup table that contains information regarding hydrologic routing.

A node may have none, one, or many links connected to it.

If an existing node is to be moved, it must be renamed.

This is an Enhanced DFIRM Database table.

The L_Node_Disch table contains the following elements.

FLOW_ID	R	E	Primary key for this table. Assigned by table creator.
NODE_ID	R	E	Node Identification. A code that links to the S_Nodes table.
NODE_LID	R	E	Node Type Lookup Identification. A code that provides a link to the D_Nodes table. This field establishes the node type. Values include junction (default), reservoir, structure, and diversion. A junction node may have none, one, or many links connected to it.
HYDRO_ID	R	E	Hydrologic Model Identification. Link to the L_Hydro_Model table, which stores information about the hydrologic methods used in the study.
FREQ_LID	R	E	Frequency Interval Lookup Identification. A code that provides a link to the D_Frequency table. This attribute stores the return period for the associated discharge.
DISCHARGE	R	E	Discharge. Subbasin discharge/outflow for the above return period.
DISCH_LID	R	E	Discharge Unit Lookup Identification. A code that provides a link to a valid entry from the D_Discharge_Units table.

Table: L_Node_Disch

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FLOW_ID	R	E	text	11				string	11		character	11	11		character	11	
NODE_ID	R	E	text	11				string	11		character	11	11		character	11	
NODE_LID	R	E	text	11				string	11		character	11	11		character	11	
HYDRO_ID	R	E	text	11				string	11		character	11	11		character	11	
FREQ_LID	R	E	text	11				string	11		character	11	11		character	11	
DISCHARGE	R	E	text	11				string	11		character	11	11		character	11	
DISCH_LID	R	E	text	11				string	11		character	11	11		character	11	

Table: L_Pan_Revis

This table does not apply for an initial Flood Insurance Rate Map (FIRM) or for a FIRM that has a completely new paneling scheme, such as a first time countywide FIRM. Otherwise, this table is required for all draft Digital Flood Insurance Rate Map data.

The L_Pan_Revis table is a lookup table that contains information about historic revisions to each FIRM panel.

For each FIRM panel that is being revised, there should be at least one record. There may also be multiple records for multiple revision dates for a particular FIRM panel and there may be multiple records for a single revision date if there are multiple revision notes for that date. Each FIRM panel may have a unique set of revision dates and revision codes. There should be one record for each FIRM_PAN, REVIS_DATE, REVIS_NOTE combination.

This is a Standard DFIRM Database table.

The L_Pan_Revis table contains the following elements.

REVIS_ID	R	S	Primary key for table lookup. Assigned by table creator.
FIRM_PAN	R	S	FIRM Panel Number. This field links to the S_FIRM_Pan table. This should match a value in the FIRM_PAN field of the S_FIRM_Pan table. This is the complete FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL, and SUFFIX, which are found in S_FIRM_Pan table. The FIRM panel number is the 11-digit FIRM panel number that is shown in the title block of the map.
REVIS_DATE	R	S	Revision Date. Effective date of revision to the FIRM panel. FIRM revision dates can be found in the FIRM legend or the Flood Insurance Study (FIS) report.
REVIS_NOTE	R	S	Revision Note. Note describing the reason for the revision to the panel. This is shown under the effective date in the FIRM legend or in the FIS report. A list of standard revision notes appears in Appendix K of these Guidelines.

Table: L_Pan_Revis

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			Type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
REVIS_ID	R	S	text	11				string	11		character	11	11		character	11	
FIRM_PAN	R	S	text	11				string	11		character	11	11		character	11	
REVIS_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
REVIS_NOTE	R	S	text	254				string	254		character	254	254		character	254	

Table: L_Pol_FHBM

This table does not apply if all communities on the FIRM never had revisions to their Flood Hazard Boundary Maps (FHBMs). Otherwise, this table is required for all Digital Flood Insurance Rate Map databases.

The L_Pol_FHBM table is a lookup table that contains a list of communities and FHBM revisions.

Each community may have different revision dates. Each revision date may have multiple revision notes.

The L_Pol_FHBM table contains the following elements.

FHBM_ID	R	S	Primary key for table lookup. Assigned by table creator.
CID	R	S	Community Identification Number, which links to the S_Pol_Ar table. The value in this field should match a value in the CID field of the S_Pol_Ar table. This is the six-digit community identification number assigned by FEMA. It is created by including the state Federal Information Processing Standard or FIPS code with the COMM_NO. Only communities which have had a revision to their FHBM will appear in this table.
FHBM_DATE	R	S	FHBM revision date.
FHBM_NOTE	R	S	FHBM revision note that describes the reason for the revision. FHBM revision notes are shown in the Flood Insurance Rate Map legend or in the Flood Insurance Study report. A list of standard revision notes is included in Appendix K of these Guidelines.

Table: L_Pol_FHBM

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FHBM_ID	R	S	text	11				string	11		character	11	11		character	11	
CID	R	S	text	6				string	6		character	6	6		character	6	
FHBM_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
FHBM_NOTE	R	S	text	254				string	254		character	254	254		character	254	

Table: L_Regression

This table is required when regression equations are used in hydrologic analysis.

L_Regression is a lookup table that stores information regarding the regression equations utilized in the hydrologic modeling.

This is an Enhanced DFIRM Database table.

The L_Regression table contains the following elements.

REGR_ID	R	E	Primary key for this table. Assigned by table creator.
SUBBAS_ID	R	E	Subbasin Identification. A code that provides a link to a valid entry from the S_Subbasins table.
REGR_EQN	R	E	Regression Equation. Regression equation used in the analysis. Non-Roman symbols (e.g., Greek) should be spelled out (e.g., Phi).
REGR_RPT	R	E	Regression Report. This field stores the name of the report in which the regression equation was published.

Table: L_Regression

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			Type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
REGR_ID	R	E	text	11				string	11		character	11	11		character	11	
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	
REGR_EQN	R	E	text	254				string	254		character	254	254		character	254	
REGR_RPT	R	E	text	254				string	254		character	254	254		character	254	

Table: L_Stn_Start

This table is required for any Digital Flood Insurance Rate Map database that has an S_XS or S_Riv_Mrk table. Because of production limitations, it may be omitted at the direction of the FEMA Project Officer.

The L_Stn_Start table contains information about station starting locations. These locations indicate the reference point that was used as the origin for distance measurements along streams and rivers. This table is referenced by both the S_XS table, which contains stream station information for cross section, and by the S_Riv_Mrk table, which contains river distance marker points. The location of the stationing start for a group of cross sections is normally referenced as a note on the Floodway Data table and on the Flood Profiles. Generally, all of the cross sections for a particular reach are referenced to the same starting point. If multiple reaches are measured from the same point, they may share the same record in L_Stn_Start.

This is a Standard DFIRM Database table.

The L_Stn_Start table contains the following elements.

START_ID	R	S	Primary key for table lookup. Assigned by table creator. This field is the link that is used to reference cross section in the S_XS table or river marks in the S_Riv_Mrk table to the appropriate stationing starting point.
START_DESC	R	S	Start Description. The description of the location of the station starting point. This should include the measurement units. For example, "Distances are measured in feet upstream from the confluence with the Main Channel of the Big River."

Table: L_Stn_Start

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
START_ID	R	S	text	11				string	11		character	11	11		character	11	
START_DESC	R	S	text	254				string	254		character	254	254		character	254	

Table: L_Storm_Curve

This table is required when precipitation data are used in the hydrologic analysis.

The L_Storm_Curve table accommodates descriptions of Depth-Duration-Frequency (DDF) and Intensity-Duration-Frequency (IDF) relationships, as well as durations of e.g. design storms and precipitation patterns of historical storms.

This is an Enhanced DFIRM Database table.

The L_Storm_Curve table contains the following elements.

CURVE_ID	R	E	Primary key for this table. Assigned by table creator.
STORM_ID	R	E	Storm Identification. A code that provides a link to a valid entry from the L_Storm_Info table.
DURATION	R	E	Duration. Duration of precipitation event. The duration is that of a design or historical storm, or of a point on a DDF or IDF curve.
TIME_LID	R	E	Duration Unit Lookup Identification. A code that provides a link to a valid entry from the D_Time_Units table. This attribute establishes the unit of measure of the corresponding duration entry.
DEPTH	A	E	Precipitation Depth. This field is populated only if entering data for a DDF curve.
LEN_LID	A	E	Precipitation Depth Unit Lookup Identification. A code that provides a link to a valid entry from the D_Length_Units table. This attribute establishes the unit of measure for precipitation depth. This field is populated only if a precipitation depth is entered.
INTENSITY	A	E	Rainfall Intensity. This field is populated only if entering data for an IDF curve.
VEL_LID	A	E	Rainfall Intensity Unit Lookup Identification. A code that provides a link to a valid entry from the D_Velocity_Units table. This attribute establishes the unit of measure for precipitation intensity. This field is populated only if a precipitation intensity is entered.
FREQ_LID	A	E	Frequency Interval Lookup Identification. A code that provides a link to a valid entry from the D_Frequency table. This attribute stores the return period of the associated discharge.

Table: L_Storm_Curve

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			Type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CURVE_ID	R	E	text	11				string	11		character	11	11		character	11	
STORM_ID	R	E	text	11				string	11		character	11	11		character	11	
DURATION	R	E	text	11				string	11		character	11	11		character	11	
TIME_LID	R	E	text	11				string	11		character	11	11		character	11	
DEPTH	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_LID	A	E	text	11				string	11		character	11	11		character	11	
INTENSITY	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
VEL_LID	A	E	text	11				string	11		character	11	11		character	11	
FREQ_LID	A	E	text	11				string	11		character	11	11		character	11	

Table: L_Storm_Info

This table is required when precipitation distributions are used in the hydrologic analysis.

The L_Storm_Info table is a lookup table that contains basic descriptions of precipitation patterns.

This is an Enhanced DFIRM Database table.

The L_Storm_Info table contains the following elements.

STORM_ID	R	E	Primary key for this table. Assigned by table creator.
STORM_LID	R	E	Storm Type Lookup Identification. A code that provides a link to a valid entry from the D_Storms table. This attribute establishes the storm type.
STORM_DESC	A	E	Storm Description. Brief text description/note for the storm.
SUBBAS_ID	R	E	Subbasin Identification. A code that provides a link to a valid entry from the S_Subbasins table.

Table: L_Storm_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STORM_ID	R	E	text	11				string	11		character	11	11		character	11	
STORM_LID	R	E	text	11				string	11		character	11	11		character	11	
STORM_DESC	A	E	text	254				string	254		character	254	254		character	254	
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	

Table: L_Subbas_Disch

This table is required for all studies with new or revised non-coastal hydrologic data.

The L_Subbas_Disch table is a lookup table that contains outflow data for each subbasin and recurrence interval in the hydrologic analysis. The subbasin outflow data is specific to that subbasin and must not be a cumulative system flow. (System flows, if required, are assigned in L_Node_Disch.).

This is an Enhanced DFIRM Database table.

The L_ Subbas_Disch table contains the following elements.

DISCH_ID	R	E	Primary key for this table. Assigned by table creator.
SUBBAS_ID	R	E	Subbasin Identification. A code that provides a link to a valid entry from the S_Subbasins table.
FREQ_LID	R	E	Frequency Interval Lookup Identification. A code that provides a link to a valid entry from the D_Frequency table. This attribute stores the return period for the associated discharge.
DISCHARGE	R	E	Discharge. Subbasin discharge/outflow for the above return period.
DISCH_LID	R	E	Discharge Unit Lookup Identification. A code that provides a link to a valid entry from the D_Discharge_Units table.

Table: L_Subbas_Disch

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
DISCH_ID	R	E	text	11				string	11		character	11	11		character	11	
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	
FREQ_LID	R	E	text	11				string	11		character	11	11		character	11	
DISCHARGE	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
DISCH_LID	R	E	text	11				string	11		character	11	11		character	11	

Table: L_Wtr_Nm

The L_Wtr_Nm table is a lookup table that contains the name of the surface water feature shown on the Flood Insurance Rate Map (FIRM) and referenced throughout the database. This table is required if the draft Digital Flood Insurance Rate Map table structure is used.

This is a Standard DFIRM Database table.

The L_Wtr_Nm table contains the following elements.

WTR_NM_LID	R	S	Surface Water Feature Name Lookup Identification. The primary key that links to the S_Gen_Struct table, S_Wtr_Ar table, S_Wtr_Ln table, and S_XS table. This value should match the value in the WTR_NM_LID field for related records in these tables.
WTR_NM	R	S	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM.

Table: L_Wtr_Nm

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
WTR_NM_LID	R	S	text	11				string	11		character	11	11		character	11	
WTR_NM	R	S	text	100				string	100		character	100	100		character	100	

Table: L_XS_Ratings

This table is required for a detailed study.

The L_XS_Ratings table is a lookup table that contains information about the cross sections. This table should contain a record for each frequency / scenario associated with a cross section. For instance, if a cross section has data for the 25-, 100- and 500-year recurrence intervals, the L_XS_Ratings table should have three associated records. Therefore, each cross section should be associated with at least one record in L_XS_Ratings. The L_XS_Ratings table should possess at least one record at all times: the data for the 100-year regulatory model.

This is an Enhanced DFIRM Database table.

The L_XS_Ratings table contains the following elements.

XS_RATG_ID	R	E	Primary key for table lookup. Assigned systematically by the creator.
XS_LN_ID	R	E	Foreign key for table lookup that links to the S_XS table. Value in this field should match the values in the XS_LN_ID field of the S_XS table.
XS_NO	R	E	Cross Section Number. This attribute is used for all cross sections that are created during the engineering analysis. This must be populated with the number associated with the cross section used by the Mapping Partner in their modeling of the stream.
REACH_NM	A	E	Reach Name. This attribute stores that name of the reach in the model that the cross section intersects. XS_NO and REACH_NM may be used in conjunction as a unique identifier to identify the correct cross section in the model zipfile. This field is not populated if the correct cross section may be identified in the model without merging XS_NO and REACH_NM.
FREQ_LID	R	E	Frequency Interval Lookup Identification. A code that provides a link to the D_Frequency table. This field identifies the hydraulic analysis that applies to this record. Hydraulic analysis can be a recurrence interval (e.g., 1 percent or 0.2 percent flood hazard) or a scenario, for example without levee or with floodway. This ID is taken from the D_Frequency table. D_Frequency is a lookup table that is populated by the Mapping Partner that creates the database.
FREQ_WSEL	R	E	Water Surface Elevation. This is the water surface elevation associated with the frequency or scenario identified in FREQ_LID.
LEN_LID	R	E	Length Unit Lookup Identification. A code that provides a link to a valid unit of length from the D_Length_Units table. This unit

			indicates the measurement system used for the water surface elevation, stream bed elevation, and top width.
V_DATM_LID	R	E	Vertical Datum Lookup Identification. A code that provides a link to a valid vertical datum from the D_V_Datum table. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies.
FREQ_Q	A	E	Discharge Value. This is the discharge value associated with the frequency or scenario identified in FREQ_LID. This field is required when the frequency or scenario identified is based on a discharge value. For example, it is not required for stage gage analysis on rivers near the coast.
DISCH_LID	A	E	Discharge Unit Lookup Identification. A code that provides a link to a valid discharge unit in the D_Discharge_Units table. This unit specifies the unit of measurement for the discharge. This field is populated only if a discharge value is entered.
HYDRA_ID	R	E	Hydraulic Model Identification. A code that provides a link to the hydraulic model table, L_Hydra_Model. The L_Hydra_Model table will identify the hydraulic model used to calculate the flood hazard at this cross section line. This ID field must contain a number that matches the HYDRA_ID field for a record in the L_Hydra_Model table. The L_Hydra_Model table documents model information for this cross section. Multiple cross sections may link to a single record in the L_Hydra_Model table.
HYDRO_ID	R	E	Hydrologic Model Identification. A code that provides a link to the hydrologic model table, L_Hydro_Model. The L_Hydro Model table will identify the hydrologic model used to calculate the flood hazard at this cross section line. This ID field for a record in the L_Hydro_Model table. The L_Hydro_Model table documents model information for this cross section. Multiple cross sections may link to a single record in the L_Hydro_Model table.
EFF_MODELS	R	E	Effective Hydraulic and Hydrologic Model. This field is true only if the elevation and discharge are the result of the effective hydraulic and hydrologic models at this cross section. Enter “T” for true or “F” for false.

Table: L_XS_Ratings

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
XS_RATG_ID	R	E	text	11				string	11		character	11	11		character	11	
XS_LN_ID	R	E	text	11				string	11		character	11	11		character	11	
XS_NO	R	E	text	12				string	12		character	12	12		character	12	
REACH_NM	A	E	text	254				string	254		character	254	254		character	254	
FREQ_LID	R	E	text	11				string	11		character	11	11		character	11	
FREQ_WSEL	R	E	number (double)	8	2			number	8	2	numeric	8	13	2	decimal	15	2
LEN_LID	R	E	text	11				string	11		character	11	11		character	11	
V_DATM_LID	R	E	text	11				string	11		character	11	11		character	11	
FREQ_Q	A	E	number (double)	8	2			number	8	2	numeric	8	13	2	decimal	15	2
DISCH_LID	A	E	text	11				string	11		character	11	11		character	11	
HYDRA_ID	R	E	text	11				string	11		character	11	11		character	11	
HYDRO_ID	R	E	text	11				string	11		character	11	11		character	11	

EFF_MODELS	R	E	text	1				string	1		character	1	1		character	1	

Table: D_Area_Units

The D_Area_Units table lists valid units for area measurement.

This is an Enhanced DFIRM Database table.

The D_Area_Units table contains the following elements.

AREA_LID	Primary key for lookup table that links to various proposed enhanced tables.
AREA_UNIT	Unit of Area Measurement. Varies depending on the variable that it is quantifying.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Area_Units

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
AREA_LID	E	text	11				string	11		character	11	11		character	11	
AREA_UNIT	E	text	20				string	20		character	20	20		character	20	

Table: D_CBRS_Typ

The D_CBRS_Typ table lists valid types of Coastal Barrier Resources System (CBRS) areas.

This is a Standard DFIRM Database table.

The D_CBRS_Typ table contains the following elements.

CBRS_LID	Primary key for table lookup that links to the S_CBRS table.
CBRS_TYP	CBRS Type. The type code provides details of the types of prohibitions that apply to the area.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_CBRS_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CBRS_LID	S	text	11				string	11		character	11	11		character	11	
CBRS_TYP	S	text	35				string	35		character	35	35		character	35	

Table: D_Chan_Rep

The D_Chan_Rep table lists valid channel representations.

This is a Standard DFIRM Database table.

The D_Chan_Rep table contains the following elements.

CHAN_LID	Primary key for table lookup that links to the S_Wtr_Ln table.
CHAN_REP	Channel Representation. Single means linear water features represented by a centerline. Double means linear water features represented by shorelines or channel banks.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Chan_Rep

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CHAN_LID	S	text	11				string	11		character	11	11		character	11	
CHAN_REP	S	text	20				string	20		character	20	20		character	20	

Table: D_Discharge_Units

The D_Discharge_Units table lists valid units for discharge measurement.

This is an Enhanced DFIRM Database table.

The D_Discharge_Units table contains the following elements.

DISCH_LID	Primary key for lookup table that links to various proposed enhanced tables.
DISCH_UNIT	Unit of Discharge Measurement. Varies depending on the variable that it is quantifying.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Discharge_Units

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
DISCH_LID	E	text	11				string	11		character	11	11		character	11	
DISCH_UNIT	E	text	20				string	20		character	20	20		character	20	

Table: D_Eros_Method

The D_Eros_Method table lists the valid options for identifying the type of erosion methodology applied in areas where the dune feature along a ground profile is eroded to its storm profiles before coastal flood hazards are modeled. The options of removal and retreat are consistent with accepted FEMA methodologies and are related to the volume of sand lost/moved due to storm-induced erosion. If erosion methodology was not applied to the modeling, the valid entry in the table is NOT APPLIED.

This is an Enhanced DFIRM Database table.

The D_Eros_Method table contains the following elements.

EROS_LID Primary key for table lookup that links to the L_Cst_Model table.

EROS_METH Erosion Methodology.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Eros_Method

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
EROS_LID	E	text	11				string	11		character	11	11		character	11	
EROS_METH	E	text	15				string	15		character	15	15		character	15	

Table: D_Floodway

The D_Floodway table lists valid floodway representations.

This is a Standard DFIRM Database table.

The D_Floodway table contains the following elements.

FLDWAY_LID	Primary key for table lookup that links to the S_Fld_Haz_Ar table.
FLOODWAY	Floodway Type. Floodway areas are designated by the Federal Emergency Management Agency to provide an area that must be kept free of encroachment so that the 1-percent-annual-chance flood event can be carried without substantial increase in flood heights. Normal floodway areas are 'floodway'. Special cases will have a note on the hardcopy Flood Insurance Rate Map.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Floodway

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FLDWAY_LID	S	text	11				string	11		character	11	11		character	11	
FLOODWAY	S	text	30				string	30		character	30	30		character	30	

Table: D_Frequency

The D_Frequency table lists valid frequency interval types. This table is not intended to restrict the recurrence intervals or scenarios for which the creator may provide data. Rather, this table is intended to demonstrate how the frequency interval values and scenarios should be handled.

This is an Enhanced DFIRM Database table.

The D_Frequency table contains the following elements.

FREQ_LID	Primary key for table lookup that links to the L_XS_Ratings, L_Subbas_Disch, L_Storm_Info, and L_Node_Flow tables.
FREQUENCY	Frequency. This type code provides the recurrence interval or scenario of the associated cross section, subbasin, node, or storm.

Cross sections that are associated with levees possess frequency values in FREQUENCY that indicate the behavior of the levee during the flood event. All levee related entries possess the word "LEVEE" in the value. In addition, the behavior of the levee is denoted with values for failure. For instance, a cross section that has a levee that does not fail during the 1 percent annual chance flood hazard event would possess "1 PCT LEVEE" as its frequency value. That same cross section could also possess a frequency value, such as "1 PCT LEVEE, RIGHT FAILED", that indicates that the levee on the right side has failed.

For the 1 percent flood annual chance flood hazard, the cross section's water surface elevation and discharge may be associated with a floodway or without a floodway. If the cross section is associated with a floodway, the water surface elevation value and discharge value for the 1 percent flood hazard event should be entered in XS_WSEL and XS_Q in the L_XS_Ratings table, respectively. To indicate that the frequency is associated with floodway values, "1 PCT WITH FLOODWY" should be used as the frequency value in D_Frequency. The water surface elevation value and discharge value for the 1 percent flood event without a floodway for the same cross section should be entered in XS_WSEL and XS_Q in the L_XS_Ratings table, respectively. To indicate that the frequency is associated with the without floodway values, "1 PCT WITHOUT FLOODWAY" should be used as the frequency value in D_Frequency.

Example entries are shown in the table below. Additional entries may be added as needed to accommodate the scenarios modeled.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Frequency

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FREQ_LID	E	text	11				string	11		character	11	11		character	11	
FREQUENCY	E	text	100				string	100		character	100	100		character	100	

Table: D_Gage

The D_Gage table lists valid gage types.

This is an Enhanced DFIRM Database table.

The D_Gage table contains the following elements.

GAGE_LID	Primary key for table lookup that links to the S_Precip_Gage, S_Water_Gage, and S_Cst_Gage tables.
GAGE_TYPE	Gage Type. The type of data the gage records.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Gage

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
GAGE_LID	E	text	11				string	11		character	11	11		character	11	
GAGE_TYPE	E	text	40				string	40		character	40	40		character	40	

Table: D_Hydra

The D_Hydra table lists valid hydraulic models.

This is an Enhanced DFIRM Database table.

The D_Hydra table contains the following elements.

HYDRA_LID	Primary key for table lookup that links to the L_Riv_Model table.
HYDRA_MDL	Hydraulic Model. This is the name or abbreviation of the hydraulic model that was used for the engineering analysis. As the Federal Emergency Management Agency approves the use of new engineering models for use in developing Flood Insurance Rate Maps, this list can be expanded.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Hydra

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
HYDRA_LID	E	text	11				string	11		character	11	11		character	11	
HYDRA_MDL	E	text	40				string	40		character	40	40		character	40	

Table: D_Hydro

The D_Hydro table lists valid hydrologic models.

This is an Enhanced DFIRM Database table.

The D_Hydro table contains the following elements.

HYDRO_LID	Primary key for table lookup that links to the L_Riv_Model table.
HYDRO_MDL	Hydrologic Model. This is the name or abbreviation of the hydrologic model that was used for the engineering analysis. As the Federal Emergency Management Agency approves the use of new engineering models for use in developing Flood Insurance Rate Maps, this list can be expanded.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Hydro

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
HYDRO_LID	E	text	11				string	11		character	11	11		character	11	
HYDRO_MDL	E	text	40				string	40		character	40	40		character	40	

Table: D_Label_Typ

The D_Label_Typ table lists valid features to which the labels and leaders apply.

This is a Standard DFIRM Database table.

The D_Label_Typ table contains the following elements.

LABEL_LID — Primary key for table lookup that links to the S_Label_Pt and the S_Label_Ld table.

LABEL_TYPE — Label type. This is a description of the planimetric features to which the labels and leaders are associated. For vector based maps, the labels and leaders will be associated with vector features in S_Trnsport_Ln, S_Wtr_Ar and S_Wtr_Ln. For maps with an ortho-photo base, the labels and leaders will be associated with DOQ water and transportation features. For maps that use both vector features and ortho-photos, all values may apply.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Label_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LABEL_LID	S	text	11				string	11		character	11	11		character	11	
LABEL_TYPE	S	text	20				string	20		character	20	20		character	20	

Table: D_Length_Units

The D_Length_Units table lists valid units of measurement for length, elevation, height, or distance used throughout the database.

This is a Standard and Enhanced DFIRM Database table.

The D_Length_Units table contains the following elements.

LEN_LID	Primary key for table lookup that links to the S_BFE table, the S_Cst_Tsct_Ln table, the S_Fld_Haz_Ar table, the S_XS table, the L_Storm_Curve table and the L_XS_Ratings table.
LEN_UNIT	Unit of Length Measurement. Varies depending on the variable that it is quantifying.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Length_Units

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LEN_LID	S & E	text	11				string	11		character	11	11		character	11	
LEN_UNIT	S & E	text	20				string	20		character	20	20		character	20	

Table: D_Ln_Typ

The D_Ln_Typ table lists valid line types used to determine symbology and drawing order on the hardcopy Flood Insurance Rate Map.

This is a Standard DFIRM Database table.

The D_Ln_Typ table contains the following elements.

LN_LID	Primary key for table lookup that links to the S_Fld_Haz_Ln table, the S_PLSS_Ln table, and the S_Pol_Ln table. Values 1000 thru 1999 are reserved for political lines, values 2000 thru 2999 are reserved for flood hazard lines, and values 3000 thru 3999 are reserved for U.S. Public Lands Survey System (PLSS) lines.
LN_TYP	Line Type. This is the boundary line type such as a floodplain boundary line, political boundary line, or PLSS boundary line. NOTE: The symbol '%' is a reserved symbol in most software packages so the word 'percent' was abbreviated to 'PCT'.

Some lines may have multiple values. For the S_Pol_Ln table, the following precedence should apply: INTERNATIONAL, STATE, COUNTY, CORPORATE, EXTRATERRITORIAL JURISDICTION, URBAN GROWTH BOUNDARY, MUNICIPAL URBAN DRAINAGE DISTRICT, LEVEE IMPROVEMENT DISTRICT, AREA NOT INCLUDED, RESERVATION, FOREST, and PARK.

For the S_Fld_Haz_Ln table, the following precedence should apply: LIMIT OF DETAILED STUDY, LIMIT OF STUDY, LIMIT OF FLOODWAY, FLOODWAY, 1 PCT ANNUAL-CHANCE FLOOD HAZARD, ZONE BREAK, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD, FLOWAGE EASEMENT BOUNDARY, and STATE ENCHROACHMENT LINE.

The FEMA flood maps divide areas with 1 percent annual chance of flooding into more specific types of flood zones based on the characteristics of potential flooding in each area. Additionally, they divide areas of the same flood zone based on differences in base flood elevation, depth, or velocity. The 1 PERCENT ANNUAL CHANCE FLOOD HAZARD line type should also be used for the external boundaries of the 1 percent annual chance flood hazard areas. The ZONE BREAK line type should be used between different 1 percent annual chance flood hazard areas (e.g., between A and AE or AE and VE zones) and between areas of the same flood zone but different elevation, depth, or velocity.

For the S_PLSS_Ln table, the following precedence should apply: TOWNSHIP, RANGE, SECTION, QUARTER SECTION, and MEANDER.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Ln_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LN_LID	S	text	11				string	11		character	11	11		character	11	
LN_TYP	S	text	45				string	45		character	45	45		character	45	

Table: D_Method

The D_Method table lists the valid options for describing the general methodology used in deriving the station and elevation point data along transects used in modeling coastal flood hazards.

This is an Enhanced DFIRM Database table.

The D_Method table contains the following elements.

METH_LID Primary key for table lookup that links to the S_Cst_Tsct_Ln table.

METHOD Survey method used to locate transect points.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Method

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
METH_LID	E	text	11				string	11		character	11	11		character	11	
METHOD	E	text	20				string	20		character	20	20		character	20	

Table: D_Nm_Typ

The D_Nm_Typ table lists valid transportation feature name types.

This is a Standard DFIRM Database table.

The D_Nm_Typ table contains the following elements.

NM_LID Primary key for table lookup that links to the S_Trnsport_Ln table.

NM_TYP Name Type. The transportation feature name type.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Nm_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
NM_LID	S	text	11				string	11		character	11	11		character	11	
NM_TYP	S	text	20				string	20		character	20	20		character	20	

Table: D_Nodes

The D_Nodes table lists valid node types.

This is an Enhanced DFIRM Database table.

The D_Nodes table contains the following elements.

NODE_LID	Primary key for table lookup that links to the S_Nodes table.
NODE_TYPE	The type of hydrologic network point that the node represents. The default node type is a junction.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Nodes

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
NODE_LID	E	text	11				string	11		character	11	11		character	11	
NODE_TYPE	E	text	10				string	10		character	10	10		character	10	

Table: D_Panel_Typ

The D_Panel_Typ table lists valid Flood Insurance Rate Map (FIRM) panel types.

This is a Standard DFIRM Database table.

The D_Panel_Typ table contains the following elements.

PANEL_LID	Primary key for table lookup that links to the S_FIRM_Pan table.
PANEL_TYP	Panel Type. The type of FIRM panel that identifies whether the panel is printed or not printed and whether it is community based or countywide mapping.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Panel_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PANEL_LID	S	text	11				string	11		character	11	11		character	11	
PANEL_TYP	S	text	35				string	35		character	35	35		character	35	

Table: D_Rd_Stat

The D_Rd_Stat table lists valid road status values.

This is a Standard DFIRM Database table.

The D_Rd_Stat table contains the following elements.

RD_S_LID Primary key for table lookup that links to the S_Trnsport_Ln table.

RD_STAT Road Status.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Rd_Stat

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
RD_S_LID	S	text	11				string	11		character	11	11		character	11	
RD_STAT	S	text	20				string	20		character	20	20		character	20	

Table: D_Runup_Mdl

The D_Runup_Mdl table lists valid wave runup models that can be used for the engineering analysis.

This is an Enhanced DFIRM Database table.

The D_Runup_Mdl table contains the following elements.

RUNUP_LID	Primary key for table lookup that links to the L_Cst_Model table.
RUNUP_MDL	Runup Model. This is the name or abbreviation of the wave runup model that was used for the engineering analysis. As the Federal Emergency Management Agency approves the use of new engineering models for use in developing FIRMs, this list can be expanded.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Runup_Mdl

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
RUNUP_LID	E	text	11				string	11		character	11	11		character	11	
RUNUP_MDL	E	text	30				string	30		character	30	30		character	30	

Table: D_Scale

The D_Scale table lists valid Flood Insurance Rate Map (FIRM) scales, ratios.

This is a Standard DFIRM Database table.

The D_Scale table contains the following elements.

SCALE_LID	Primary key for table lookup that links to the S_FIRM_Pan table and the S_LOMR table.
SCALE	Map Scale. This is the denominator of the FIRM scale or effective Letter of Map Revision scale as a ratio. For example, 24000 is the denominator for a 1" = 2000' map.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Scale

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SCALE_LID	S	text	11				string	11		character	11	11		character	11	
SCALE	S	text	5				string	5		character	5	5		character	5	

Table: D_Shr_Rough

The D_Shr_Rough table provides the valid shoreline type.

This is an Enhanced DFIRM Database table.

The D_Shr_Rough table contains the following elements.

SHR_LID — Primary key for table lookup that links to the S_Cst_Tsct_Ln table.

SHR_ROUGH — Shoreline Roughness Type. The following lists the shoreline roughness type and a description of the shoreline types that are included in the classification:

- Very Low: barrier beaches, sand beaches, salt marshes, mud flats, deltas, mangroves, coral reefs
- Low: cobble beaches, estuaries, lagoons
- Moderate: low cliffs, glacial drift, alluvial plains
- High: medium cliffs, indented coasts
- Very High: rocky, cliffed coasts, fiords

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Shr_Rough

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SHR_LID	E	text	11				string	11		character	11	11		character	11	
SHR_ROUGH	E	text	10				string	20		character	20	20		character	20	

Table: D_Shr_Typ

The D_Shr_Typ table lists valid criteria used in determining shorelines used in the coastal flood hazards model.

This is an Enhanced DFIRM Database table.

The D_Shr_Typ table contains the following elements.

SHRTYP_LID Primary key for table lookup that links to the S_Shore_Ln table.

SHRLN_TYP Criteria used in determining shoreline.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Shr_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SHRTYP_LID	E	text	11				string	11		character	11	11		character	11	
SHRLN_TYP	E	text	30				string	30		character	30	30		character	30	

Table: D_Storms

The D_Storms table lists valid types of storms.

This is an Enhanced DFIRM Database table.

The D_Storms table contains the following elements.

STORM_LID	Primary key for table lookup that links to the L_Storm_Info table.
STORM_TYPE	Storm Type. The type of precipitation distribution defined by the data records.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Storms

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STORM_LID	E	text	11				string	11		character	11	11		character	11	
STORM_TYPE	E	text	20				string	20		character	20	20		character	20	

Table: D_Struct_Typ

The D_Struct_Typ table lists valid structure types associated with general hydraulic.

This is a Standard DFIRM Database table.

The D_Struct_Typ table contains the following elements.

STRUCT_LID Primary key for table lookup that links to the S_Gen_Struct table.

STRUCT_TYP Structure Type. These are hydraulic structures within the study area.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Struct_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STRUCT_LID	S	text	11				string	11		character	11	11		character	11	
STRUCT_TYP	S	text	36				string	36		character	36	36		character	36	

Table: D_Surge_Mdl

The D_Surge_Mdl table lists valid hurricane surge models that can be used during the engineering analysis.

This is an Enhanced DFIRM Database table.

The D_Surge_Mdl table contains the following elements.

SURGE_LID	Primary key for table lookup that links to the L_Cst_Model table.
SURGE_MDL	Hurricane Surge Model. This is the name or abbreviation of the hurricane surge model that was used for the engineering analysis. As the Federal Emergency Management Agency approves the use of new engineering models for use in developing FIRMs; this list can be expanded.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Surge_Mdl

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SURGE_LID	E	text	11				string	11		character	11	11		character	11	
SURGE_MDL	E	text	40				string	40		character	40	40		character	40	

Table: D_Time_Units

The D_Time_Units table lists valid units for time measurement.

This is an Enhanced DFIRM Database table.

The D_Time_Units table contains the following elements.

TIME_LID	Primary key for lookup table that links to various proposed enhanced tables.
TIME_UNIT	Unit of Time Measurement. Varies depending on the variable that it is quantifying.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Time_Units

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
TIME_LID	E	text	11				string	11		character	11	11		character	11	
TIME_UNIT	E	text	20				string	20		character	20	20		character	20	

Table: D_Trans_Typ

The D_Trans_Typ table lists valid transportation feature types for base map features.

This is a Standard DFIRM Database table.

The D_Trans_Typ table contains the following elements.

TRANS_LID	Primary key for table lookup that links to the S_Trnsport_Ln table. Values 1000 thru 1999 are reserved for road types, values 2000 thru 2999 are reserved for railroads, values 3000 thru 3999 are reserved for airports, and values 4000 thru 4999 are reserved for water transportation.
TRANS_TYP	Transportation Feature Type.

The value UNDEFINED ROAD should only be used when it cannot be determined if the road feature is a primary or secondary road. The value UNDEFINED RAILROAD should only be used when it cannot be determined if the railroad feature is an active, abandoned, or dismantled railroad.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Trans_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
TRANS_LID	S	text	11				string	11		character	11	11		character	11	
TRANS_TYP	S	text	50				string	50		character	50	50		character	50	

Table: D_V_Datum

The D_V_Datum table lists valid vertical datums.

This is a Standard and Enhanced DFIRM Database table.

The D_V_Datum table contains the following elements.

V_DATM_LID	Primary key for table lookup that links to the S_BFE table, the S_Fld_Haz_Ar table, and the Study_Info table.
V_DATUM	Vertical Datum. North American Vertical Datum of 1988 (NAVD88) is preferred. However, older studies may have been prepared using the National Geodetic Vertical Datum of 1929 (NGVD29).

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_V_Datum

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
V_DATM_LID	S & E	text	11				string	11		character	11	11		character	11	
V_DATUM	S & E	text	6				string	6		character	6	6		character	6	

Table: D_Velocity_Units

The D_Velocity_Units table lists valid units for velocity measurement.

This is a Standard and Enhanced DFIRM Database table.

The D_Velocity_Units table contains the following elements.

VEL_LID	Primary key for table lookup that links to the S_Fld_Haz_Ar table, the S_XS table, and the L_Storm_Curve table.
VEL_UNIT	Unit of Velocity Measurement. Varies depending on the variable that it is quantifying.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Velocity_Units

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
VEL_LID	S & E	text	11				string	11		character	11	11		character	11	
VEL_UNIT	S & E	text	20				string	20		character	20	20		character	20	

Table: D_Volume_Units

The D_Volume_Units table lists valid units for volume measurement.

This is an Enhanced DFIRM Database table.

The D_Volume_Units table contains the following elements.

VOL_LID	Primary key for lookup table that links to various proposed enhanced tables.
VOL_UNIT	Unit of Volume Measurement. Varies depending on the variable that it is quantifying.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Volume_Units

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
VOL_LID	E	text	11				string	11		character	11	11		character	11	
VOL_UNIT	E	text	20				string	20		character	20	20		character	20	

Table: D_VZone

The D_VZone table lists the valid options for classifying the landward extent of the V Zone along a coastal transect. This information provides a brief summary to users about the predominating methodology that was used to determine the landward extent of the V Zone shown in the mapped flood hazard areas.

This is an Enhanced DFIRM Database table.

The D_VZone table contains the following elements.

VZONE_LID	Primary key for table lookup that links to the S_Cst_Ln table.
VZONE_EXT	V Zone Extent. This is the predominating methodology that was used to determine the landward extent of the V Zone shown in the mapped flood hazard areas.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_VZone

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
VZONE_LID	E	text	11				string	11		character	11	11		character	11	
VZONE_EXT	E	text	40				string	40		character	40	40		character	40	

Table: D_Water_Typ

The D_Water_Typ table lists valid water feature types.

This is a modified Standard DFIRM Database domain table that includes Standard DFIRM Database domain values and Enhanced DFIRM Database domain values.

The D_Water_Typ table contains the following elements.

WATER_LID	Primary key for table lookup that links to the S_Profil_Basln table, S_Wtr_Ar table, and the S_Wtr_Ln table.
WATER_TYP	Surface Water Feature Type.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Water_Typ

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
WATER_LID	S & E	text	11				string	11		character	11	11		character	11	
WATER_TYP	S & E	text	40				string	40		character	40	40		character	40	

Table: D_Wave_Mdl

The D_Wave_Mdl table lists valid wave height models used during the coastal engineering analysis.

This is an Enhanced DFIRM Database table.

The D_Wave_Mdl table contains the following elements.

WAVEHT_LID	Primary key for table lookup that links to the L_Cst_Model table.
WAVEHT_MDL	Wave Height Model. This is the name or abbreviation of the wave height model that was used for the coastal engineering analysis. As the Federal Emergency Management Agency approves the use of new engineering models for use in developing FIRMs; this list can be expanded.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Wave_Mdl

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
WAVEHT_LID	E	text	11				string	11		character	11	11		character	11	
WAVEHT_MDL	E	text	25				string	25		character	25	25		character	25	

Table: D_Zone

The D_Zone table lists valid Flood Insurance Rate Map (FIRM) flood zones.

This is a Standard DFIRM Database table.

The D_Zone table contains the following elements.

ZONE_LID	Primary key for table lookup that links to the S_Fld_Haz_Ar table.
FLD_ZONE	Flood Zone. This is the flood insurance risk zone designation. These zones are used by the Federal Emergency Management Agency (FEMA) to designate Special Flood Hazard Areas (SFHAs) and for insurance rating purposes. Some older FEMA FIRMs were prepared in the Standard format that uses Zones B, C and numbered A and V zones. Newer FIRMs use the Map Initiatives format where the B corresponds to 0.2 PCT ANNUAL CHANCE FLOOD HAZARD; C corresponds to Zone X; numbered A zones (e.g., A1, A2, A3) correspond to Zone AE; and numbered V zones (e.g., V1, V2, V3) correspond to Zone VE. All Digital Flood Insurance Rate Maps (DFIRMs) should use the Map Initiatives zone designations. See Volume 1, Subsection 1.4.6.1.5 of these Guidelines for details on the flood insurance risk zones. (NOTE: The symbol '%' is a reserved symbol in most software packages so the word 'percent' was abbreviated as 'PCT'.)

Where the 1-percent-annual-chance flood or the 0.2-percent-annual-chance flood is contained in a culvert or channel, a corresponding feature appears in the S_Fld_Haz_Ar table only if an SFHA or 0.2-percent-annual-chance flood zone is shown on the FIRM in this area. In general, these culverts and channels are to be represented in the general structure table regardless of how the flood insurance risk zones are depicted. So, if these structures are shown on the FIRM as a dashed line passing through a Zone X, no corresponding flood insurance risk zone is shown in S_Fld_Haz_Ar table in the DFIRM database. If a narrow SFHA or 0.2-percent-annual-chance flood zone is shown on the FIRM, then a narrow polygon must be included in the DFIRM database. If the width of this flood insurance risk zone is accurately known and represented in the spatial data, the normal flood insurance risk zone is applied. If the width of the flood insurance risk zone is not accurately known and represented because of scale limitations, then the zone is designated as 1-percent-annual-chance flood contained in channel or 0.2-percent-annual-chance flood contained in channel as appropriate.

Table structure is shown below. Valid entries are shown in Section L.9.

Table: D_Zone

Field	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
		type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
ZONE_LID	S	text	11				string	11		character	11	11		character	11	
FLD_ZONE	S	text	55				string	55		character	55	55		character	55	

L.5 Federal Emergency Management Agency Digital Mapping Information Checklist

Federal Emergency Management Agency Digital Mapping Information Checklist

The following checklist is intended to solicit basic information about the format of digital mapping data submitted to the Federal Emergency Management Agency (FEMA) for preparation of a Digital Flood Insurance Rate Map (DFIRM). Please note that metadata compliant with the Federal Geographic Data Committee's *Content Standard for Digital Geospatial Metadata* should be submitted also. This metadata must include the following information and further details about the data submitted.

Point of Contact:

Name and/or Title _____

Community/Agency _____

Department _____

Address _____

_____

Telephone _____

Fax _____

Email _____

Data Type:

Pertinent information includes the following:

Format:

- ☐ ESRI Coverage
- ☐ ESRI Shapefile
- ☐ MapInfo
- ☐ Intergraph
- ☐ AutoCAD
- ☐ Digital Line Graph
- ☐ Other _____

- ☐ Digital Orthophoto
  - ☐ Black & white
  - ☐ Color
  - ☐ TIF
  - ☐ JPEG
  - ☐ SID
  - ☐ PNG
  - ☐ Raw

- ☐ Scanned
  - ☐ Georeferenced? _____
  - ☐ Dots per inch _____
  - ☐ Black & white
  - ☐ Grey scale
  - ☐ Color

Source Information:

How and when were the data compiled? By whom? At what scale? Pertinent information includes the following:

- ☐ Photogrammetrically compiled
- ☐ Digitized from a hardcopy source
  - ☐ Parcel maps/Plat maps
  - ☐ USGS quadrangles
  - ☐ Orthophotos
  - ☐ Aerial photos
  - ☐ Other community map _____
  - ☐ Generated using coordinate geometry (COGO)
  - ☐ Scanned

Date of photography or source material _____

Scale of data creation _____

Agency or firm that produced the data _____

Date of creation (if incomplete, provide estimated completion date) _____

Projection, Datums, Accuracy:

What coordinate system and projection were used? What horizontal and vertical datums were used? What is the stated accuracy of the data?

Coordinate system/projection:

- ☐ State Plane
- ☐ UTM
- ☐ Geographic (latitude and longitude)
- ☐ Other _____

Units:

- ☐ Feet
- ☐ Meters
- ☐ Decimal degrees
- ☐ Degrees, minutes, seconds
- ☐ Other _____

Horizontal datum:

- ☐ NAD27, Clarke 1866 spheroid
- ☐ NAD83, GRS80 spheroid

Vertical datum:

- ☐ NGVD29
- ☐ NAVD88
- ☐ Other _____

Accuracy _____

Data Contents:

What features are contained in the data set(s)? Are feature names included? If so, are they available as attributes and/or graphic text (annotation)? Please provide file structure details in the form of metadata, a data dictionary, or a layer list in addition to this form

- ☐ Roads
  - ☐ Centerlines
  - ☐ Edge of pavement
- ☐ Road names
  Scale(s) at which they were intended to be used _____
- ☐ Railroads
  - ☐ Railroad names
- ☐ Airports
  - ☐ Airport names
- ☐ Streams, lakes, other water bodies
  - ☐ Feature names
- ☐ Range & township/section lines and numbers

- ☐ Political boundaries
  - ☐ Area names
- ☐ Flood control structures (dams, weirs, jetties, culverts, etc.)
- ☐ Floodplain boundaries and/or other FIRM features
- ☐ Contours
  Contour interval _____
- ☐ DEM/DTM/TIN
- ☐ Building outlines
- ☐ Parcels

Transfer Media:

What options are there for transferring the data to other users? What are the platform options?

Media:

- ☐ CD-ROM
- ☐ 8mm tape
- ☐ 4mm tape
- ☐ Zip disk
- ☐ Diskettes
- ☐ DVD
- ☐ Email
- ☐ Other _____

Platforms:

- ☐ UNIX
- ☐ PC
- ☐ NT

L.6 Metadata Example for Draft Digital Data

DFIRM DATABASE, FLOOD COUNTY, USA

Identification_Information:
Citation:
Citation_Information:
Originator: FEMA Mapping Partner
Publication_Date: 20000505
Title: DIGITAL FLOOD INSURANCE RATE MAP DATABASE, FLOOD COUNTY, USA
Geospatial_Data_Presentation_Form: Vector and Raster Digital Data
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency
Other_Citation_Details: Metadata_File_Name: 99009C_19980915_metadata.htm
Online_Linkage: http://*www.fema.gov/msc*
Description:
Abstract: The Digital Flood Insurance Rate Map (DFIRM) Database depicts flood risk information and supporting data used to develop the risk data. The primary risk classifications used are the 1-percent-annual-chance flood event, the 0.2-percent-annual-chance flood event, and areas of minimal flood risk. The DFIRM Database is derived from Flood Insurance Studies (FISs), previously published Flood Insurance Rate Maps (FIRMs), flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data where available. The FISs and FIRMs are published by the Federal Emergency Management Agency (FEMA). The file is georeferenced to earth's surface using the UTM projection and coordinate system. The specifications for the horizontal control of DFIRM data files are consistent with those required for mapping at a scale of 1:12,000.
Purpose: The FIRM is the basis for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP). Insurance applications include enforcement of the mandatory purchase requirement of the Flood Disaster Protection Act, which "... requires the purchase of flood insurance by property owners who are being assisted by Federal programs or by Federally supervised, regulated or insured agencies or institutions in the acquisition or improvement of land facilities located or to be located in identified areas having special flood hazards" (Section 2 (b) (4) of the Flood Disaster Protection Act of 1973). In addition to the identification of Special Flood Hazard Areas (SFHAs), the risk zones shown on the FIRMs are the basis for the establishment of premium rates for flood coverage offered through the NFIP.

The DFIRM Database presents the flood risk information depicted on the FIRM in a digital format suitable for use in electronic mapping applications. The DFIRM Database is a subset of the Digital FIS database that serves to archive the information collected during the FIS.
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19980701
Currentness_Reference: FIRM and FIS Effective date
Status:
Progress: Complete
Maintenance_and_Update_Frequency: Irregular
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -84.125
East_Bounding_Coordinate: -84.25
North_Bounding_Coordinate: 30.5
South_Bounding_Coordinate: 30.625
Keywords:
Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: FEMA Flood Hazard Zone
Theme_Keyword: DFIRM Database
Theme_Keyword: DFIRM
Theme_Keyword: Special Flood Hazard Area
Theme_Keyword: Digital Flood Insurance Rate Map
Theme_Keyword: CBRS
Theme_Keyword: Coastal Barrier Resources System
Theme_Keyword: Riverine Flooding
Theme_Keyword: Coastal Flooding
Theme_Keyword: NFIP
Theme_Keyword: Base Flood Elevation
Theme_Keyword: SFHA
Theme_Keyword: Flood Insurance Rate Map
Theme_Keyword: FIRM
Theme_Keyword: Floodway
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: FLOOD COUNTY
Place_Keyword: USA
Access_Constraints: None
Use_Constraints: The hardcopy FIRM and DFIRM maps and the accompanying FISs are the official designation of SFHAs and Base Flood Elevations (BFEs) for the NFIP. For the purposes of the NFIP, changes to the flood risk information published by FEMA may only be performed by FEMA and through the mechanisms established in the NFIP regulations (44 CFR Parts 59-78).

These digital data are produced in conjunction with the hardcopy FIRMs and generally match the hardcopy map exactly. However the hardcopy flood maps and flood profiles are the authoritative documents for the NFIP.

Acknowledgement of FEMA would be appreciated in products derived from these data.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Mapping Partner Contact Name
Contact_Position: Mapping Partner Position
Contact_Address:
Address_Type: mailing address
Address: Mapping Partner Address
City: Mapping Partner City
State_or_Province: Mapping Partner State
Postal_Code: Mapping Partner Zip
Country: Mapping Partner Country
Contact_Voice_Telephone: Mapping Partner Phone Number
Contact_Electronic_Mail_Address: Mapping Partner Email
Native_Data_Set_Environment: Description of Mapping Partner's digital mapping environment
Cross_Reference:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 19980701
Title: Flood Insurance Rate Map, FLOOD COUNTY, USA
Geospatial_Data_Presentation_Form: map
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency
Cross_Reference:

Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 19980701
Title: Flood Insurance Study, FLOOD COUNTY, USA
Geospatial_Data_Presentation_Form: document
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency
Cross_Reference:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 19980701
Title: Raster DFIRM, FLOOD COUNTY, USA
Geospatial_Data_Presentation_Form: raster digital data
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: The DFIRM Database consists of countywide vector files and associated attributes produced in conjunction with the hardcopy FEMA FIRMs. The published effective FIRM and DFIRM are issued as the official designation of the SFHAs. As such, they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Attribute accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system.

Independent quality control testing of FEMA's DFIRM database was also performed.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the FIS report that accompanies this DFIRM database. Users should be aware that BFEs shown in the S_BFE table represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be used in conjunction with the FIRM for purposes of construction and/or floodplain management. The 1-percent-annual-chance water-surface elevations shown in the S_XS table match the regulatory elevations shown in the FIS report.

Logical_Consistency_Report: When FEMA revises an FIS, adjacent studies are checked to ensure agreement between flood elevations at the boundaries of the studies. Likewise, flood elevations at the confluence of streams studied independently are checked to ensure agreement at the confluence. The FIRM and the FIS are developed together and care is taken to ensure that the elevations and other features shown on the flood profiles in the FIS agree with the information shown on the FIRM. However, the elevations as shown on the FIRM are rounded whole-foot elevations. They must be shown so that a profile recreated from the elevations on the FIRM will match the FIS profiles within one half of one foot.

Completeness_Report: The data contained in the DFIRM Database files reflect the content of the source materials. Features may have been eliminated or generalized on the source graphic, due to scale and legibility constraints. With new mapping, FEMA plans to maintain full detail in the spatial data it produces. However, older information is often transferred from existing maps where some generalization has taken place.

Flood risk data are developed for communities participating in the NFIP for use in insurance rating and for floodplain management. Flood hazard areas are determined using statistical analyses of records of river flow, storm tides, and rainfall, information obtained through consultation with the communities, floodplain topographic surveys, and hydrological and hydraulic analysis. Both detailed and approximate analyses are employed. Generally, detailed analyses are used to generate flood risk data only for developed or developing areas of communities. For areas where little or no development is expected to occur, FEMA uses approximate analyses to generate flood risk data. Typically, only drainage areas that are greater than one square mile are studied.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report: The DFIRM Database consists of countywide vector files and associated attributes produced in conjunction with the hard copy FEMA FIRMs. The published effective FIRM and DFIRM maps are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Horizontal accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system.

Independent quality control testing of FEMA's DFIRM database was also performed.

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report: The DFIRM Database consists of countywide vector files and associated attributes produced in conjunction with the hard copy FEMA FIRMs. The published effective FIRM and DFIRM maps are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Vertical accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system.

Independent quality control testing of FEMA's DFIRM database was also performed.

Lineage

Source_Information:

Source_Citation:

Citation_Information:

Originator: Federal Emergency Management Agency

Publication_Date: 1987

Title: Flood Insurance Study, FLOOD COUNTY USA (Unincorporated areas).

Geospatial_Data_Presentation_Form: map

Publication_Information:

Publication_Place: Washington, DC

Publisher: Federal Emergency Management Agency

Other_Citation_Details: The hydrologic and hydraulic analyses for the FIS dated April 17, 1987, were prepared by the U.S. Army Corps of Engineers (USACE), Springfield District, for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-84-E-1506. That work was completed in December 1985. Denominator_of_Source_Scale: 2400-12000

Source_Scale_Denominator: 12,000
Type_of_Source_Media: paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19870601
Source_Currentness_Reference: Effective Date
Source_Citation_Abbreviation: FIS1
Source_Contribution: Spatial and attribute information, floodplain widths, BFEs, floodplain location.
Source_Information:
Source_Citation:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 1987
Title: Flood Insurance Study, FLOODVILLE, Town of
Geospatial_Data_Presentation_Form: map
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency
Other_Citation_Details: The hydrologic and hydraulic analyses for the FIS report dated April 17, 1987, were prepared by the USACE, Springfield District, for the FEMA, under Inter-Agency Agreement No. EMW-84-E-1506, Project Order No. 1, Amendment No. 4. That work was completed in December 1985. Denominator_of_Source_Scale: 2400-12000
Source_Scale_Denominator: 12, 000
Type_of_Source_Media: paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19870601
Source_Currentness_Reference: Effective Date
Source_Citation_Abbreviation: FIS2
Source_Contribution: Spatial and attribute information, floodplain widths, BFEs, floodplain location.
Source_Information:
Source_Citation:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 1998
Title: Flood Insurance Study Report, FLOOD COUNTY, USA and Incorporated areas.
Geospatial_Data_Presentation_Form: map
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency
Other_Citation_Details: For this countywide FIS, the hydrologic and hydraulic analyses were prepared by USACE for FEMA, under Inter-Agency Agreement No. EMW-94-C-0019. This work was completed in October 1995. Denominator_of_Source_Scale: 2400-12000
Source_Scale_Denominator: 12000
Type_of_Source_Media: paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19980701
Source_Currentness_Reference: Effective Date

Source_Citation_Abbreviation: FIS3
Source_Contribution: Spatial and attribute information, floodplain widths, BFEs, floodplain location.
Source_Information:
Source_Citation:
Citation_Information:
Originator: Town of Floodville Stormwater Management Department, 126 Royal Oaks Drive, Suite 201, Floodville, USA 99150
Publication_Date: 1995
Title: Base map for Floodville, USA
Geospatial_Data_Presentation_Form: vector digital data
Publication_Information:
Publication_Place: Floodville, USA
Publisher: Town of Floodville Stormwater Management
Other_Citation_Details: These files were photogrammetrically compiled at scales of 1"=200' (urban areas) and 1"=400' (rural areas) from aerial photographs.
Source_Scale_Denominator: 4, 800
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19950301
Source_Currentness_Reference: ground conditions
Source_Citation_Abbreviation: BASE1
Source_Contribution: Location of roads, railroads, bridges, streams and other physical features shown.
Source_Information:
Source_Citation:
Citation_Information:
Originator: Flood County Geographic Information Systems Department, 1110 South Road, Suite 205, Floodville, USA 99150
Publication_Date: 1995
Title: Base map for Flood County, USA
Geospatial_Data_Presentation_Form: vector digital data
Publication_Information:
Publication_Place: Floodville, USA
Publisher: Flood County Geographic Information Systems Department
Other_Citation_Details: These files were photogrammetrically compiled at scales of 1"=200' (urban areas) and 1"=400' (rural areas) from aerial photographs.
Source_Scale_Denominator: 4,800
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19950301
Source_Currentness_Reference: ground conditions
Source_Citation_Abbreviation: BASE2
Source_Contribution: Location of roads, railroads, bridges, streams and other physical features shown.
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey
Publication_Date: 1998
Title: Digital Orthophoto Quadrangle
Geospatial_Data_Presentation_Form: remote-sensing image

Publication_Information:
Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Other_Citation_Details: The digital orthophoto quadrangle (DOQ) is a 1-meter ground resolution, quarter-quadrangle (3.75-minutes of latitude by 3.75-minutes of longitude) image cast on the Universal Transverse Mercator Projection (UTM) on the North American Datum of 1983 (NAD83). The imagery is based on panchromatic black and white (or color infra-red) NAPP or NAPP-like photography.
Source_Scale_Denominator: 12,000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19970301
Source_Currentness_Reference: ground conditions
Source_Citation_Abbreviation: BASE3
Source_Contribution: Location of roads, railroads, bridges, streams and other physical features shown.
Process_Step:
Process_Description: The DFIRM Database is compiled in conjunction with the hard copy FIRM and the Final printed FIS report. The specifics of the hydrologic and hydraulic analyses performed are detailed in the FIS report. The results of these studies are submitted in digital format to FEMA. These data and unrevised data from effective FIRMs are compiled onto the base map used for DFIRM publication and checked for accuracy and compliance with FEMA standards.
Source_Used_Citation_Abbreviation: FIS1-FIS3, BASE1-BASE3
Process_Date: 1996
Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector and raster
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: String
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Raster_Object_Information:
Raster_Object_Type: Pixel
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 16
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.9996
Longitude_of_Central_Meridian: -87.0
Latitude_of_Projection_Origin: 0.0
False_Easting: 500000
False_Northing: 0.0
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: Coordinate Pair
Coordinate_Representation:
Abscissa_Resolution: 0.061
Ordinate_Resolution: 0.061

Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Datum_Name: National Geodetic Vertical Datum of 1929
Altitude_Resolution: 0.03
Altitude_Distance_Units: feet
Altitude_Encoding_Method: Attribute Values

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview: The DFIRM Database is made up of several data themes containing both spatial and attribute information. These data together represent the current flood risk for the subject area as identified by FEMA. The attribute tables include SFHA locations, flood zone designations, BFEs, political entities, cross-section locations, FIRM panel information, and other data related to the NFIP.
Entity_and_Attribute_Detail_Citation: Appendix L of FEMA's Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of each attribute code and a reference to other relevant information.

The following tables are included in this data set:
S_BFE
S_Fld_Haz_Ar
S_Fld_Haz_Ln
S_Gen_Struct
S_LOMR
L_Stn_Start
S_Wtr_Ar
S_Wtr_Ln
S_XS
L_Wtr_Nm
S_Base_Index
S_Perm_Bmk
S_PLSS_AR
S_PLSS_LN
S_Pol_Ar
S_Pol_Ln
S_Quad_Index
S_Label_Ld
S_Trnsport_Ln
S_Label_Pt

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Mapping Partner Contact
Contact_Address:
Address_Type: mailing address
Address: Mapping Partner Address
City: Mapping Partner City
State_or_Province: Mapping Partner State
Postal_Code: Mapping Partner Zip Code
Country: Mapping Partner Country

Contact_Voice_Telephone: Mapping Partner Phone Number
Contact_Electronic_Mail_Address: Mapping Partner Email Address
Contact_Instructions: Details for Mapping Partner distribution of data
Distribution_Liability: Mapping Partner Liability Disclaimer
Standard_Order_Process:
Non-digital_Form: Information about hardcopy versions available
Digital_Form:
Digital_Transfer_Information:
Format_Name: Mapping Partner Data Format
Format_Version_Number: 1
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO 9660
Fees: Contact Distributor
Metadata_Reference_Information:
Metadata_Date: 19980509
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Mapping Partner Contact
Contact_Position: Mapping Partner Position
Contact_Address:
Address_Type: mailing address
Address: Mapping Partner Address
City: Mapping Partner City
State_or_Province: Mapping Partner State
Postal_Code: Mapping Partner Zip Code
Country: Mapping Partner Country
Contact_Voice_Telephone: Mapping Partner Phone
Contact_Electronic_Mail_Address: Mapping Partner Email Address
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

L.7 Database Table Structure Requirements for Preliminary and Final Digital Flood Insurance Rate Map Databases

Table: S_Base_Index

This table is required if a raster base map was used as the base map for the Flood Insurance Rate Map (FIRM).

The S_Base_Index table contains information about the raster data used as a base map for the study area. A spatial file with locational information also corresponds with this data table.

The spatial elements representing raster base map tile index features are rectangular polygons. For standard U.S. Geological Survey Digital Ortho Quadrangles, polygons must match quarter-quad boundaries (excluding overedge). Otherwise, polygons must match the boundaries of the raster tiles used (excluding overedge if present).

This is a Standard DFIRM Database table.

The S_Base_Index table contains the following elements.

BASE_ID	R	S	Primary key for table lookup. Assigned by table creator.
FILENAME	R	S	Base Filename. This filename must be assigned by the raster base map provider or the table creator. The filename should match the filename or specific product identifier assigned by the primary distributor of the raster base map used. This must be the complete filename including the file extension. This identifier must allow the user of the DFIRM database to unambiguously identify the raster base maps used on the FIRM to the primary distributor of the raster base map.
BASE_DATE	R	S	Base Date. This is the date that raster base map was acquired by the producer of the base map. For a vector base map that is rasterized for distribution, this data should be the acquisition date for the original vector base map.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Base_Index table.

Table: S_Base_Index

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BASE_ID	R	S	text	11				string	11		character	11	11		character	11	
FILENAME	R	S	text	50				string	50		character	50	50		character	50	
BASE_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_BFE

The Base Flood Elevation (BFE) table is required for any digital data where BFE lines will be shown on the corresponding Flood Insurance Rate Map (FIRM). Normally if there are any riverine AE zones, BFE lines are required.

The S_BFE table contains information about the BFEs within a study area. A spatial file with locational information also corresponds with this data table. BFE lines indicate the rounded whole-foot water surface elevation of the 1-percent-annual-chance flood.

The spatial elements representing BFE features are lines extending from Special Flood Hazard Area (SFHA) boundary to SFHA boundary. The BFE lines will have no visible gaps or overshoots between the SFHA boundary and the end of the BFE line at the publication scale of the DFIRM. However, the ends of the BFE lines are not necessarily snapped precisely to the SFHA boundary. Each BFE is represented by a single line. While BFE lines are depicted as wavy lines on the hardcopy FIRM, they should be primarily straight lines in the spatial data, although they may bend consistent with procedures described in Volume 1 of these Guidelines.

This is a Standard DFIRM Database table.

The S_BFE table contains the following elements.

BFE_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
ELEV	R	S	BFE. The rounded, whole-foot elevation of the 1-percent-annual-chance flood. This is the value of the BFE that is printed next to the BFE line on the FIRM.
LEN_UNIT	R	S	BFE Units. This unit indicates the measurement system used for the BFEs. Normally this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	S	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_BFE table.

Table: S_BFE

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BFE_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
ELEV	R	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_UNIT	R	S	text	20				string	20		character	20	20		character	20	
V_DATUM	R	S	text	6				string	6		character	6	6		character	6	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_CBRS

This table only applies to coastal areas that have specially protected areas designated by Congress on John H. Chafee Coastal Barrier Resources System (CBRS) maps. Authoritative CBRS boundary locations are shown on these maps administered by the U.S. Fish and Wildlife Service. Normally these areas are already shown on existing Federal Emergency Management Agency (FEMA) maps for the area. CBRS areas have restrictions on Federal funding (including flood insurance coverage) after specified dates for new or substantially improved structures. See Section 2.2 and Appendix K of these Guidelines for more detailed information about CBRS areas.

The S_CBRS table contains information about the CBRS areas within the study area, if applicable. A spatial file with locational information also corresponds with this data table.

The spatial elements representing CBRS features are closed polygons. Each contiguous CBRS area of the same CBRS_TYP and same CBRS_DATE must be a single polygon.

This is a Standard DFIRM Database table.

The S_CBRS table contains the following elements.

CBRS_ID	R	S	Primary key for table lookup. Assigned by table creator.
CBRS_TYP	A	S	CBRS Type. The type code provides details of the types of prohibitions that apply to the area. Normally this would be a CBRS area or Otherwise Protected Area (OPA). Acceptable values for this field are listed in the D_CBRS_Type table. This field is applicable if CBRS_TF is true. Otherwise this field is null.
CBRS_DATE	A	S	CBRS Date. Legislative or administrative date on which prohibitions for the CBRS area apply. This must be indicated on the Flood Insurance Rate Map with a note or with a fill pattern indicated on the legend. This field is applicable if CBRS_TF is true. Otherwise this field is null.
CBRS_TF	R	S	This field is True if the area is a CBRS or an OPA. Enter "T" for true or "F" for false.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_CBRS table.

Table: S_CBRS

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CBRS_ID	R	S	text	11				string	11		character	11	11		character	11	
CBRS_TYP	A	S	text	35				string	35		character	35	35		character	35	
CBRS_DATE	A	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CBRS_TF	R	S	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Cst_Gage

This table is required when gage information is used to support the calibration of models or methods used in the analysis of coastal flood hazards and may be used in the determination of flood heights.

The S_Cst_Gage table contains information about coastal gages for the study area. The spatial location of these gages may be some distance from the areas for which coastal flood hazards were determined. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the coastal gages are points.

This is an Enhanced DFIRM Database table.

The S_Cst_Gage table contains the following elements.

GAGE_ID	R	E	Primary key for table lookup. Assigned by table creator.
CST_MDL_ID	A	E	Coastal Model Identification. This field is populated by a linking element to the L_Cst_Model table. The L_Cst_Model table contains detailed information about the coastal models that were used to determine the coastal flood hazard for the area of each individual gage. This ID field should contain a number that matches the CST_MDL_ID field for a record in the L_Cst_Model. Multiple gages may link to a single record in the L_Cst_Model table.
GAGE_NM	R	E	Gage name assigned by agency maintaining gage.
AGENCY	R	E	Name of agency maintaining gage.
REC_INTVL	A	E	Recording Interval. This field is populated only if the coastal gage is a fixed-interval gage.
TIME_UNIT	A	E	Recording Interval Time Unit. This field is populated only if the coastal gage is a fixed-interval gage.
START_PD	R	E	Gage Record Starting Date. Start of earliest period of record used in gage analysis.
END_PD	R	E	Gage Record Ending Date. End of latest period of record used in gage analysis.
GAGE_TYPE	R	E	Gage Type. This value indicates the type of coastal gage.

WVDIR_TF	R	E	Does the gage record wave direction True or False? Enter "T" for true or "F" for false.
WDSPD_TF	R	E	Does the gage record wind speed True or False? Enter "T" for true or "F" for false.
WDDIR_TF	R	E	Does the gage record wind direction True or False? Enter "T" for true or "F" for false.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Cst_Gage table.

Table: S_Cst_Gage

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
GAGE_ID	R	E	text	11				string	11		character	11	11		character	11	
CST_MDL_ID	A	E	text	11				string	11		character	11	11		character	11	
GAGE_NM	R	E	text	150				string	150		character	150	150		character	150	
AGENCY	R	E	text	150				string	150		character	150	150		character	150	
REC_INTVL	A	E	text	11				string	11		character	11	11		character	11	
TIME_UNIT	A	E	text	20				string	11		character	11	11		character	11	
START_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
END_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
GAGE_TYPE	R	E	text	40				string	40		character	40	40		character	40	
WVDIR_TF	R	E	text	1				string	1		character	1	1		character	1	
WDSPD_TF	R	E	text	1				string	1		character	1	1		character	1	
WDDIR_TF	R	E	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Cst_Tsct_Ln

This table is required when the corresponding Flood Insurance Rate Map (FIRM) and/or Flood Insurance Study (FIS) will show coastal transect locations. Normally this is any area with a coastal study.

The S_Cst_Tsct_Ln table contains information about the Coastal Transect Lines within the study area, if applicable. The transect lines indicate the location that was used to provide representative topographic information for the coastal flood models used. A spatial file with locational information also corresponds with this data table.

The spatial elements representing coastal transects are lines generally extending from offshore all the way across the coastal floodplain. Transects can also extend seaward when wave runup modeling is used into determining coastal flood hazards. Each transect should be represented by a single line feature without the circles on each end shown on the hard copy map. The location and shape of the lines should depict as accurately as possible the position of the transect used.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced.

The S_Cst_Tsct_Ln table contains the following elements.

TRAN_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
TRAN_NO	R	S	Transect Number. Transect number as shown on FIRM or in FIS. Each transect is normally numbered sequentially.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Cst_Tsct_Ln table.
CST_MDL_ID	A	E	Coastal Model Identification. This field is populated by a linking element to the L_Cst_Model table. The L_Cst_Model table contains detailed information about the coastal models that were used to determine the coastal flood hazard for the area of each individual transect line. This ID field should contain a number that matches the CST_MDL_ID field for a record in the L_Cst_Model. Multiple transects may link to a single record in the L_Cst_Model table. This field is not required for digital conversion of existing FISs. Significant additional research may be required to identify the model that applies for each transect. However, for new coastal studies, this field is required.
SETUP_DPTH	A	E	Wave Set-up Depth. This is the depth of wave setup that is added to the 1% annual chance stillwater elevation.
SIG_HT	A	E	Significant Wave Height. This is the wave height associated with the 1% annual chance storm event. It is the average height of the

			highest 1/3 of all waves. It is used in WHAFIS 3.0 and RUNUP 2.0 models.
SIG_PD	A	E	Significant Wave Period. This is the wave period associated with the 1% annual chance storm event. It is the time it takes for a wave of the significant wave height to pass a point.
CON_HT	A	E	Controlling Wave Height. 1.6 times the significant wave height.
CON_PD	A	E	Controlling Wave Period. The time it takes for a wave of the controlling wave height to pass a point.
MEAN_HT	A	E	Mean Wave Height. Average height of all waves. This information is typically derived from wave gage data.
MEAN_PD	R	E	Mean Wave Period. Average period of all waves. This information is typically derived from wave gage data.
EROS_METH	A	E	Erosion Methodology. Describes the erosion methodology.
TIME_UNIT	R	E	Units of Time Measurement. This field is populated if there is a value entered for the significant wave period, controlling wave period, or the mean wave period. The period values all should use the same unit of time measurement. Acceptable values for this field are listed in the D_Time_Units table.
V_DATUM	R	E	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 North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
LEN_UNIT	R	E	Length Units. This unit indicates the measurement system used for height. Normally this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
VZONE_EXT	R	E	V Zone Extent. This information provides a brief summary to users about the predominating methodology that was used to determine the landward extent of the V Zone in any mapped flood hazard area. Acceptable values for this field are listed in the D_VZone table.
METHOD	R	E	Source Method. This value describes the general methodology used in deriving the station and elevation point data along transects used in coastal flood hazards. Acceptable values for this field are listed in the D_Method table.
EFF_TF	R	E	Is the coastal transect part of the effective study True or False? Enter "T" for true or "F" for false.

SHOWN_FIRM	R	E	Transect Shown on FIRM. Is the transect shown on the FIRM True or False? Enter "T" for true or "F" for false.
SHR_ROUGH	R	E	Shoreline Roughness. This value is the shoreline type classification that relates each transect with a shoreline type. This information can be used in conjunction with other coastal hazard analyses or applications and provides a useful set of data about relative shoreline roughness. Acceptable values for this field are listed in the D_Shr_Rough table.
L_RANGE	R	E	Left Range of Coastal Transect. Looking landward, the range is the along-shore distance to the left of the transect line that the transect is intended to represent.
L_DIRECT	R	E	Direction of Left Range. Direction is entered as the bearing of the range away from the transect. The left range direction is measured in degrees and is the angle of an arc taken in a clockwise direction from north to the range's bearing. If the transect is oriented perpendicular to the shoreline, this value will be +/-90 degrees of the transect's direction in degrees from north.
R_RANGE	R	E	Right Range of Coastal Transect. Looking landward, the range is the along-shore distance to the right of the transect line that the transect is intended to represent
R_DIRECT	R	E	Direction of Right Range. Direction is entered as the bearing of the range away from the transect. The right range direction is measured in degrees and is the angle of an arc taken in a clockwise direction from north to the range's bearing. If the transect is oriented perpendicular to the shoreline, this value will be +/-90 degrees of the transect's in direction in degrees from north.
LOC_DESC	R	E	Location Description. This is a description of the location of the coastal transects. This description is used and/or can be found in the transect table in the FIS text.
XCOORD	R	E	X-Coordinate. The X-coordinate of the 0.0-foot elevation point along the transect. This point must fall on the transect and have the same horizontal datum of the study. The coordinates must be entered using the same coordinate system used for the DFIRM GIS data. If the S_Shore_Ln table is provided, the shoreline should cross the transect at this point.

YCOORD	R	E	Y-Coordinate. The Y-coordinate of the 0.0-foot elevation point along the transect. This point must fall on the transect and have the same horizontal datum of the study. The coordinates must be entered using the same coordinate system used for the DFIRM GIS data. If the S_Shore_Ln table is provided, the shoreline should cross the transect at this point.

.

Table: S_Cst_Tsct_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			Type	field size	dec	format	input mask	type	width	Dec	type	item width	output width	dec	type	width	dec
TRAN_LN_ID	R	S	Text	11				string	11		character	11	11		character	11	
TRAN_NO	R	S	Text	4				string	4		character	4	4		character	4	
SOURCE_CIT	R	S	Text	11				string	11		character	11	11		character	11	
CST_MDL_ID	A	E	Text	11				string	11		character	11	11		character	11	
SETUP_DPTH	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
SIG_HT	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
SIG_PD	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
CON_HT	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
CON_PD	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2

MEAN_HT	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
MEAN_PD	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
EROS_METH	A	E	Text	15				string	15		character	15	15		character	15	
TIME_UNIT	R	E	Text	20				string	20		character	20	20		character	20	
V_DATUM	R	E	Text	6				string	6		character	6	6		character	6	
LEN_UNIT	R	E	Text	20				string	20		character	20	20		character	20	
VZONE_EXT	R	E	Text	40				string	40		character	40	40		character	40	
METHOD	R	E	Text	20				string	20		character	20	20		character	20	
EFF_TF	R	E	Text	1				string	1		character	1	1		character	1	
SHOWN_FIRM	R	E	Text	1				string	1		character	1	1		character	1	
SHR_ROUGH	R	E	Text	10				string	10		character	10	10		character	10	
L_RANGE	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
L_DIRECT	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
R_RANGE	R	E	number	8	2			number	13	2	numeric	8	13	2	decimal	15	2

			(double)														
R_DIRECT	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LOC_DESC	R	E	Text	254				string	254		character	254	254		character	254	
XCOORD	R	E	number (double)	8	2			string	13	2	numeric	8	13	2	decimal	15	2
YCOORD	R	E	number (double)	8	2			string	13	2	numeric	8	13	2	decimal	15	2

Table: S_FIRM_Pan

This table is required for all preliminary or final DFIRM databases.

The S_FIRM_Pan table contains information about the Flood Insurance Rate Map (FIRM) panel area. A spatial file with locational information also corresponds with this data table.

The spatial entities representing FIRM panels are polygons. The polygon for the FIRM panel corresponds to the panel neatlines. As a result, the panels are generally rectangular. In situations where a portion of a panel lies outside of the jurisdiction being mapped, the user must refer to the S_POL_AR table to determine the portion of the panel area where the DFIRM database shows the effective flood hazard data for the mapped jurisdiction.

This is a Standard DFIRM Database table.

The S_FIRM_Pan table contains the following elements.

FIRM_ID	R	S	Primary key for table lookup. Assigned by table creator.
ST_FIPS	R	S	State FIPS. This is the two-digit code that corresponds to the state Federal Information Processing Standard (FIPS) code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4. These two numbers correspond to the first two digits of the panel number.
PCOMM	R	S	Community or County Identification Number. This is the 3rd through the 6th digits of the panel number. For community based maps this corresponds to the Federal Emergency Management Agency (FEMA) Community Identification number. For countywide maps this is the county (or county equivalent) FIPS code with a "C".
PANEL	R	S	Panel Number. This is 7th through the 10th digits in the complete panel number. This is assigned by the scale of the map and the position within the community or county. The panel number scheme is described in detail in Appendix K of these Guidelines.
SUFFIX	R	S	Map Suffix. This is the final digit in the complete panel number. This is a letter suffix at the end of the panel number.
FIRM_PAN	R	S	FIRM Panel Number. This is the complete FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL, and SUFFIX. This is the 11-digit FIRM panel number that is shown in the title block of the map.
PANEL_TYP	R	S	Panel Type. The type of FIRM panel that identifies whether the panel is printed or not printed and whether it is community based or

			countywide mapping. Acceptable values for this field are listed in the D_Panel_Typ table.
EFF_DATE	A	S	Effective Date. This is the effective date of the current map revision. This field is not populated until the FIRM effective date is established and the Final FIRM is ready for hardcopy production by FEMA. Then it is required.
SCALE	R	S	Map Scale. This is the denominator of the FIRM scale as a ratio. For example, 24000 is the denominator for a 1" = 2000' map. Acceptable values for this field are listed in the D_Scale table.
PNP_REASON	A	S	Panel Not Printed Reason. This is the explanation of the reason for the FIRM panels that are not printed. See Appendix K of these Guidelines for a listing of Panel Not Printed reasons that may be used. Only completed if the hardcopy panel is not printed by FEMA.
NW_LAT	R	S	Northwest Latitude. This is the latitude of the northwest corner of the FIRM panel neatline. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to U.S. Geological Survey (USGS) 7.5' quadrangle maps using North American Datum of 1983 (NAD83), or even subdivisions thereof. However this value must reflect the actual latitude if non-standard panel sizes are used.
NW_LONG	R	S	Northwest Longitude. This is the longitude of the northwest corner of the FIRM panel. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to USGS 7.5' quadrangle maps using NAD83, or even subdivisions thereof. However this value must reflect the actual longitude if non-standard panel sizes are used.
SE_LAT	R	S	Southeast Latitude. This is the latitude of the southeast corner of the FIRM panel. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to USGS 7.5' quadrangle maps using NAD83, or even subdivisions thereof. However this value must reflect the actual latitude if non-standard panel sizes are used.
SE_LONG	R	S	Southeast Longitude. This is the longitude of the southeast corner of the FIRM panel. This value is in degrees, minutes, seconds (DDD MM SS.SSS). Normally this corresponds to USGS 7.5' quadrangle maps using NAD83, or even subdivisions thereof. However this value must reflect the actual longitude if non-standard panel sizes are used.

SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_FIRM_Pan table.

Table: S_FIRM_Pan

Field	R/A	R/A	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FIRM_ID	R	S	text	11				string	11		character	11	11		character	11	
ST_FIPS	R	S	text	2				string	2		character	2	2		character	2	
PCOMM	R	S	text	4				string	4		character	4	4		character	4	
PANEL	R	S	text	4				string	4		character	4	4		character	4	
SUFFIX	R	S	text	1				string	1		character	1	1		character	1	
FIRM_PAN	R	S	text	11				string	11		character	11	11		character	11	
PANEL_TYP	R	S	text	35				string	35		character	35	35		character	35	
EFF_DATE	A	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SCALE	R	S	text	5				string	5		character	5	5		character	5	
PNP_REASON	A	S	text	50				string	50		character	50	50		character	50	
NW_LAT	R	S	text	15				string	15		character	15	15		character	15	
NW_LONG	R	S	text	15				string	15		character	15	15		character	15	
SE_LAT	R	S	text	15				string	15		character	15	15		character	15	
SE_LONG	R	S	text	15				string	15		character	15	15		character	15	

SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Fld_Haz_Ar

This table is required for all draft Digital Flood Insurance Rate Map data.

The S_Fld_Haz_Ar table contains information about the flood hazards within the study area. A spatial file with locational information also corresponds with this data table. These zones are used by the federal Emergency Management Agency (FEMA) to designate the Special Flood Hazard Area (SFHA) and for insurance rating purposes. These data are the flood hazard areas that are or will be depicted on the Flood Insurance Rate Map (FIRM). A spatial file with locational information also corresponds with this data table.

The spatial elements representing the flood zones are polygons. The entire area of the jurisdiction(s) mapped by the FIRM should have a corresponding flood zone polygon. There is one polygon for each contiguous flood zone designated.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced.

The S_Fld_Haz_Ar table contains the following elements.

FLD_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
FLD_ZONE	R	S	Flood Zone. This is a flood zone designation. These zones are used by FEMA to designate the SFHAs and for insurance rating purposes. NOTE: The symbol '%' is a reserved symbol in most software packages so the word 'percent' was abbreviated to 'PCT'. Acceptable values for this field are listed in the D_Zone table.
FLOODWAY	A	S	Floodway Type. Floodway areas are designated by FEMA and adopted by communities to provide an area that will remain free of development to moderate increases in flood heights due to encroachment on the floodplain. Normal floodway areas are 'floodway'. Special cases will have a note on the hardcopy FIRM. If the corresponding area is not designated as a floodway, this field is null. Acceptable values for this field are listed in the D_Floodway table.
SFHA_TF	R	S	Special Flood Hazard Area. If the area is within SFHA this field would be True. This field will be true for any area that is coded for any A or V zone flood areas. It should be false for any X or D zone flood areas. Enter "T" for true or "F" for false.
STATIC_BFE	A	S	Static Base Flood Elevation. For areas of constant Base Flood Elevation (BFE), the BFE value is shown beneath the zone label rather than on a BFE line. In this situation the same BFE applies to the entire polygon. This is normally occurs in lakes or coastal

			zones. This field is only populated where a static BFE is shown on the FIRM.
V_DATUM	A	S	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies. This field is only populated if the STATIC_BFE field is populated. Acceptable values for this field are listed in the D_V_Datum table.
DEPTH	A	S	Depth Value for Zone AO Areas. This is shown beneath the zone label on the FIRM. This field is only populated if a depth is shown on the FIRM.
LEN_UNIT	A	S	Length Units. This unit indicates the measurement system used for the BFEs and/or depths. Normally this would be feet. This field is only populated if the STATIC_BFE or DEPTH field is populated. Acceptable values for this field are listed in the D_Length_Units table.
VELOCITY	A	S	Velocity Measurement. This is shown beneath the zone label on the FIRM for alluvial fan areas (certain Zone AO areas). This value represents the velocity of the flood flow in this area. This field is only populated when a velocity is shown on the FIRM.
VEL_UNIT	A	S	Unit of Measurement for the Velocity Attribute. This is shown in the legend where alluvial fans are present. This field is only populated if the VELOCITY field is populated. Acceptable values for this field are listed in the D_Velocity_Units table.
AR_REVERT	A	S	If the area is Zone AR, this field would hold the zone that the area would revert to if the AR zone were removed. This field is only populated if the corresponding area is Zone AR. Acceptable values for this field are listed in the D_Zone table.
BFE_REVERT	A	S	If Zone is Zone AR, this field would hold the static base flood elevation for the reverted zone. This field is populated when Zone equals AR and the reverted zone has a static BFE.
DEP_REVERT	A	S	If Zone is Zone AR, this field would hold that flood depth for the reverted zone. This field is populated when Zone equals AR and the reverted zone has a depth assigned.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Fld_Haz_Ar table. Normally, the flood hazard area polygon will be divided to distinguish areas modified by the most recent revision from areas based on the effective FIRM prior to the most recent revision. Revisions and sources prior to the most recent revision will not be

			tracked for individual polygons in the flood hazard areas table in the standard database.
HYDRO_ID	A	E	Hydrologic Model Identification. A code that provides a link to the hydrologic model table, L_Hydro_Model. The L_Hydro_Model table provides information on the methods used to determine the flood hazard for areas of shallow flooding and ponding. This ID field must contain a number that matches the HYDRO_ID field for a record in the L_Hydro_Model table. This attribute is only required for flood hazard areas with AO and AH zone designations or ponding associated with AE zones.
CST_MDL_ID	A	E	Coastal Model Identification. This field is populated by a linking element to the L_Cst_Model table. The L_Cst_Model table contains detailed information about the coastal models that were used to determine the coastal flood hazard for this area. This ID field must contain a number that matches the CST_MDL_ID field for a record in the L_Cst_Model table that documents coastal model information. This attribute is only required in areas for which flood hazard determinations do not consider wave hazards. The static BFE values in these areas are based on surge modeling and/or tidal analyses. When wave hazards are considered modeling information is linked to the transects used to complete the wave analysis.

Table: S_Fld_Haz_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FLD_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
FLD_ZONE	R	S	text	55				string	55		character	55	55		character	55	
FLOODWAY	A	S	text	30				string	30		character	30	30		character	30	
SFHA_TF	R	S	text	1				string	1		character	1	1		character	1	
STATIC_BFE	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
V_DATUM	A	S	text	6				string	6		character	6	6		character	6	
DEPTH	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_UNIT	A	S	text	20				string	20		character	20	20		character	20	
VELOCITY	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
VEL_UNIT	A	S	text	20				string	20		character	20	20		character	20	
AR_REVERT	A	S	text	6				string	6		character	6	6		character	6	

BFE_REVERT	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
DEP_REVERT	A	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	
HYDRO_ID	A	E	text	11				string	11		character	11	11		character	11	
CST_MDL_ID	A	E	text	11				string	11		character	11	11		character	11	

Table: S_Fld_Haz_Ln

This table is required for all preliminary or final DFIRM databases.

The S_Fld_Haz_Ln table contains information about the flood hazard line features for the study area. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the boundaries of the flood hazard areas depicted on the Flood Insurance Rate Map (FIRM) are lines.

This is a Standard DFIRM Database table.

The S_Fld_Haz_Ln table contains the following elements.

FLD_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
LN_TYP	R	S	Line Type. These line types describe the flood boundary and may be used to indicate how the feature must be depicted on the hardcopy FIRM. Acceptable values for this field are listed in the D_Ln_Typ table.

Table: S_Fld_Haz_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FLD_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
LN_TYP	R	S	text	45				string	45		character	45	45		character	45	

Table: S_Gen_Struct

This table is required whenever hydraulic structures are shown in the flood profile. It is also required if levees are shown on the FIRM, channels containing the flooding are shown on the FIRM, or any other structure that impacts the area's flood risk is shown on the FIRM.

The S_Gen_Struct table contains information about the hydraulic structures within the study area. It must include all structures shown in the flood profiles. In addition, levees, sea walls, channels that contain flooding, and other significant flood control structures shown on the Flood Insurance Rate Map (FIRM) must be included. A spatial file with locational information also corresponds with this data table.

Spatial elements representing general structures are represented by lines. The lines must represent the primary characteristic of the structure. For example, bridges must be represented by the transportation centerline carried by the bridge. Dams must be represented by a line corresponding to the top of the dam. Levees must be represented by a line corresponding to the top of levee. A line corresponding to the centerline of the main barrel must represent a culvert.

This is a Standard DFIRM Database table.

The S_Gen_Struct table contains the following elements.

STRUCT_ID	R	S	Primary key for table lookup. Assigned by table creator.
STRUCT_TYP	R	S	Structure Type. Hydraulic structures within the study area. Acceptable values for this field are listed in the D_Struct_Typ table.
STRUCT_NM	A	S	Structure Name. This is the name of the feature and the name that will be shown on the hardcopy FIRM. This record is left blank if the structure is not named on FIRM and/or the name is unknown.
WTR_NM	R	S	Surface Water Feature Name. This is the formal name of the surface water feature associated with the structure, as it will appear on the hardcopy FIRM.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Gen_Struct table.

Table: S_Gen_Struct

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STRUCT_ID	R	S	text	11				string	11		character	11	11		character	11	
STRUCT_TYP	R	S	text	36				string	36		character	36	36		character	36	
STRUCT_NM	A	S	text	50				string	50		character	50	50		character	50	
WTR_NM	R	S	text	100				string	100		character	100	100		character	100	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Label_Ld

This table is required for Digital Flood Insurance Rate Map (DFIRM) data if any label leader lines are shown on the hardcopy FIRM.

The S_Label_Ld table contains information about leader lines that would connect labels to feature locations on base maps. The purpose of this table, along with the S_Label_Pt table is so that the Digital Flood Insurance Rate Map (DFIRM) database can contain the names of roads and other physical features in or near the Special Flood Hazard Areas regardless of the type or structure of the base map used. A spatial file with locational information also corresponds with this data table.

The spatial entities representing label leaders will be lines.

This is a Standard DFIRM Database table.

The S_Label_Ld table contains the following elements.

LEADER_ID	R	S	Primary key for table lookup. Assigned by table creator.
LABEL_TYPE	R	S	Label type. This is a description of the planimetric features to which the labels and leaders are associated. For vector based maps, the labels and leaders will be associated with vector features in S_Trnsport_Ln, S_Wtr_Ar and S_Wtr_Ln. For maps with an ortho-photo base, the labels and leaders will be associated with DOQ water and transportation features. For maps that use both vector features and ortho-photos, all values may apply. Acceptable values for this field are listed in the D_Label_Typ table.

Table: S_Label_Ld

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LEADER_ID	R	S	text	11				string	11		character	11	11		character	11	
LABEL_TYPE	R	S	text	20				string	20		character	20	20		character	20	

Table: S_Label_Pt

This table is required for all preliminary or final DFIRM databases.

The S_Label_Pt table contains information for point locations that would link labels to base map features. The purpose of this table, along with the S_Label_Ld table is so that the Digital Flood Insurance Rate Map (DFIRM) database can contain the names of roads and other physical features in or near the Special Flood Hazard Areas (SFHAs) regardless of the type or structure of the base map used. A spatial file with locational information also corresponds with this data table.

The spatial entities representing labels are points. The point corresponds to the lower left corner of the label.

This is a Standard DFIRM Database table.

The S_Label_Pt table contains the following elements.

LABEL_ID	R	S	Primary key for table lookup. Assigned by table creator.
LABEL	R	S	Label for map feature.
LABEL_TYPE	R	S	Label type. This is a description of the planimetric features to which the labels and leaders are associated. For vector based maps, the labels and leaders will be associated with vector features in S_Trnsport_Ln, S_Wtr_Ar and S_Wtr_Ln. For maps with an ortho-photo base, the labels and leaders will be associated with DOQ water and transportation features. For maps that use both vector features and ortho-photos, all values may apply. Acceptable values for this field are listed in the D_Label_Typ table.
DEGREES	R	S	The degrees of rotation required for the placement of a feature label onto a Flood Insurance Rate Map panel. The rotation angle of the text measured in degrees. The angle is zero for unrotated horizontal text and increases in a counterclockwise direction to 359. Text rotated clockwise has a negative value between 0 and –359.

Table: S_Label_Pt

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LABEL_ID	R	S	text	11				string	11		character	11	11		character	11	
LABEL	R	S	text	254				string	254		character	254	254		character	254	
LABEL_TYPE	R	S	text	20				string	20		character	20	20		character	20	
DEGREES	R	S	integer	2	0			number	4	0	binary	4	10	0	decimal	4	0

Table: S_LOMR

This table is required when a Mapping Partner incorporates the results of effective Letters of Map Revision (LOMRs) into the draft Digital Flood Insurance Rate Map (DFIRM) data submitted to the Federal Emergency Management Agency (FEMA).

The S_LOMR table contains information about LOMR areas that are incorporated into the Flood Insurance Rate Map (FIRM). This table is planned as a mechanism for DFIRM producers to communicate areas of the DFIRM data that were updated to reflect the results of LOMRs. It is included in the draft DFIRM data submittal. It is not planned for distribution by FEMA once a complete map revision has incorporated these LOMRs into the effective FIRM panel. Therefore it is not included in the Preliminary or Final DFIRM data. A spatial file with locational information also corresponds with this data table.

The spatial entities representing LOMRs are polygons. The spatial information contains the bounding polygon for each LOMR area.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced.

The S_LOMR table contains the following elements.

LOMR_ID	R	S	Primary key for table lookup. Assigned by table creator.
EFF_DATE	R	S	Effective Date. Effective date of the LOMR.
CASE_NO	R	S	Case Number. This is the case number of the LOMR that is assigned by FEMA. The case number is used to track the LOMR's supporting documentation.
SCALE	R	S	Map Scale. This is the denominator of the effective LOMR scale as a ratio. For example, 24000 is the denominator for a 1" = 2000' map. Acceptable values for this field are listed in the D_Scale table.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_LOMR table.
STATUS	R	E	Status of the LOMR. Valid entries for this field include the following: 'effective' 'incorporated' 'superseded'

Table: S_LOMR

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LOMR_ID	R	S	text	11				string	11		character	11	11		character	11	
EFF_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CASE_NO	R	S	text	13				string	13		character	13	13		character	13	
SCALE	R	S	text	5				string	5		character	5	5		character	5	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	
STATUS	R	E	text	12				string	12		character	12	12		character	12	

Table: S_Nodes

This table is required for all studies with new or revised hydrologic data. A spatial file with locational information also corresponds with this data table.

The S_Nodes table contains data only on the location of points used to define the topology of the hydrologic network. Nodes can be subbasin pourpoints, confluences, diversions, hydraulic structures, etc. Nodes are connected to each other via links, which are defined in S_Profil_Basln (see below).

The spatial elements representing the nodes are points.

This is an Enhanced DFIRM Database table.

The S_Nodes table contains the following elements.

NODE_ID	R	E	Primary key for this table. Assigned by table creator.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Nodes.

Table: S_Nodes

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
NODE_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Ovrbnkln

This table is required for a detailed study that uses overbank flow lengths as input data.

The S_Ovrbnkln table contains information about overbank flow line features for the study area.

The features are those lines along which overbank flow distances between two cross sections are measured. Between any two adjacent cross sections, there must be two overbank flow lines: one for the right overbank line and one for the left overbank line. The two lines may be one continuous line or may be broken at the cross section. However, if the line is broken, the line must be continuous between the cross sections; the endpoints of an overbank line must lie on a cross section. A spatial file with locational information also corresponds with this data table.

Since models will eventually overlap, these features should represent the lines associated with the model for the base flood from which the effective FIRM was derived.

Locations are based on standard engineering practice and should match locations used in the analysis.

The spatial elements representing the boundaries of the flood hazards depicted on the FIRM are lines.

This is an Enhanced DFIRM Database table.

The S_Ovrbnkln table contains the following elements.

OVRBNK_ID	R	E	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	E	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM.
OBNK_SIDE	R	E	Overbank Side. Indicates which side the overbank line represents. Enter “L” for left or “R” for right.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Ovrbnkln.

Table: S_Ovrbnkln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
OVRBNK_ID	R	E	text	11				string	11		character	11	11		character	11	
WTR_NM	R	E	text	100				string	100		character	100	100		character	100	
OBNK_SIDE	R	E	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Perm_Bmk

This table is required unless there are no National Geodetic Survey (NGS) or other bench marks that meet the minimum standard in the jurisdiction covered by the Flood Insurance Rate Map (FIRM).

The S_Perm_Bmk table contains information about Permanent Bench Marks that are associated with the study area. The bench marks shown in this file must meet the requirements specified in Subsection 1.4.1.4.1. A spatial file with locational information also corresponds with this data table.

The spatial entities representing bench marks are points. Generally, the assigned Mapping must place these points based on the coordinates in the NGS database. However, the horizontal coordinates maintained by the NGS for vertical bench marks is often not very precise because the users usually rely on the location descriptions to locate the bench marks. If the source of the horizontal coordinates used by the NGS is not precise, the Mapping Partner may adjust the position based on better available data.

This is a Standard DFIRM Database table.

The S_Perm_Bmk table contains the following elements.

BM_ID	R	S	Primary key for table lookup. Assigned by table creator.
PID	R	S	Permanent Identifier. This must be the NGS assigned or community assigned permanent identifier. It must be unique for each bench mark.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Perm_Bmk table.

Table: S_Perm_Bmk

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BM_ID	R	S	text	11				string	11		character	11	11		character	11	
PID	R	S	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_PFD_Ln

This table is required when a primary frontal dune (PFD) is present along portions or all of the coastline within the modeled coastal floodplain. PFDs are not required to be continuous along the length of the studied shoreline. It is applicable when PFD_TF = "T" in the L_Cst_Model table.

The S_PFD_Ln table contains information about the primary frontal dune features for the coastal study area. Primary frontal dunes are not shown on the FIRM but are used in the coastal floodplain analysis. They are lines that represent the back side of the first natural ridge inland from the coastal shoreline and where the gradient changes from steep to gentle. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the primary frontal dunes are lines.

This is an Enhanced DFIRM Database table.

The S_PFD_Ln table contains the following elements.

PFD_ID	R	E	Primary key for table lookup. Assigned by table creator.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_PFD_Ln table.

Table: S_PFD_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PFD_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_PLSS_Ar

This table is required when U.S. Public Land Survey System (PLSS) areas are shown on the Flood Insurance Rate Map and the data used for the map can be distributed by FEMA at no cost.

The S_PLSS_Ar table contains information about PLSS areas that are associated with the study area, if applicable. This would include the attributes for the range, township, and section areas. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the PLSS areas are polygons. Generally there is one polygon per section. The PLSS areas must cover the entire jurisdiction where sections are defined.

In general, the Public Land Survey System table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate PLSS data to which the flood hazard information is referenced. Users must be able to identify section, township and range information on the printed maps. If these objectives are met, then almost any file structure is acceptable. PLSS features may be represented as either polygons or lines. With some data structures, it may not be practical to assign attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the PLSS system is a public system not maintained by FEMA. This information is provided for reference on the paper maps..

This is a Standard DFIRM Database table.

The S_PLSS_Ar table contains the following elements.

PLSS_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
RANGE	A	S	Range Number. This is the range number assigned to the PLSS area shown. This attribute would also include the designation of E (east) or W (west) as part of the data. For example, 21W would be an acceptable value. This field is applicable whenever the SECT_NO does not equal zero.
TWP	A	S	Township. This is the township number assigned to the PLSS area shown. This attribute would also include the designation of N (north) or S (south) as part of the data. For example, 14S would be an acceptable value. This field is applicable whenever the SECT_NO does not equal zero.
SECT_NO	R	S	Section. This is the section number assigned to the PLSS area shown.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_PLSS_Ar table. This

field is required when source citation information is not provided by the S_PLSS_Ln table.

Table: S_PLSS_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PLSS_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
RANGE	A	S	text	8				string	8		character	8	8		character	8	
TWP	A	S	text	8				string	8		character	8	8		character	8	
SECT_NO	R	S	text	4				string	4		character	4	4		character	4	
SOURCE_CIT	R	R	text	11				string	11		character	11	11		character	11	

Table: S_PLSS_Ln

This table is required when U.S. Public Land Survey System (PLSS) areas are shown on the FIRM and the data used for the map can be distributed by FEMA at no cost.

The S_PLSS_Ln table contains information about the boundary lines for the PLSS that is associated with the study area, if applicable. This would include the attributes for the adjacent range and township areas.

In general, the Public Land Survey System table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate PLSS data to which the flood hazard information is referenced. Users must be able to identify section, township and range information on the printed maps. If these objectives are met, then almost any file structure is acceptable. PLSS features may be represented as either polygons or lines. With some data structures, it may not be practical to assign attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the PLSS system is a public system not maintained by FEMA. This information is provided for reference on the paper maps..

A spatial file with locational information corresponds with this data table.

The spatial entities representing PLSS boundaries are lines.

This is a Standard DFIRM Database table.

The S_PLSS_Ln table contains the following elements.

PLSS_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
LN_TYP	R	S	Line Type. This describes the PLSS boundary and may be used to indicate how the feature must be depicted on the hardcopy Flood Insurance Rate Map (FIRM). Acceptable values for this field are listed in the D_Ln_Typ table.
E_RANGE	A	S	East Range Number. This is the range number assigned to the PLSS area shown to the east of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of E (east) or W (west) as part of the data. For example, 21W would be an acceptable value. Only populated for lines that divide one range from another.
W_RANGE	A	S	West Range Number. This is the range number assigned to the PLSS area shown to the west of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of E (east) or W (west) as part of the data. For

			example, 21W would be an acceptable value. Only populated for lines that divide one range from another.
N_TWP	A	S	North Township. This is the township number assigned to the PLSS area shown to the north of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of N (north) or S (south) as part of the data. For example, 14S would be an acceptable value. Only populated for lines that divide one township from another.
S_TWP	A	S	South Township. This is the township number assigned to the PLSS area shown to the south of the line feature. This number is shown on the hardcopy FIRM. This attribute would also include the designation of N (north) or S (south) as part of the data. For example, 14S would be an acceptable value. Only populated for lines that divide one township from another.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_PLSS_Ln table. This field is required when source citation information is not provided by the S_PLSS_Ar table.

Table: S_PLSS_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PLSS_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
LN_TYP	R	S	text	45				string	45		character	45	45		character	45	
E_RANGE	A	S	text	8				string	8		character	8	8		character	8	
W_RANGE	A	S	text	8				string	8		character	8	8		character	8	
N_TWP	A	S	text	8				string	8		character	8	8		character	8	
S_TWP	A	S	text	8				string	8		character	8	8		character	8	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Pol_Ar

This table is required for all preliminary or final DFIRM databases.

The S_Pol_Ar table contains information about the Political Areas within the study area. This includes the attributes for the political areas and other areas such as forests, parks, military lands, and Tribal lands. For the National Flood Insurance Program (NFIP), it is important to know the jurisdiction that has land use authority over an area. Political jurisdictions individually agree to participate in the NFIP and availability of insurance, floodplain regulations, and insurance rates may vary by political jurisdiction. The political jurisdiction assigned to each area corresponds to the jurisdiction responsible for NFIP and floodplain management for that area. A spatial file with locational information also corresponds with this data table.

The spatial entities representing political areas are polygons.

This is a Standard DFIRM Database table.

The S_Pol_Ar table contains the following elements.

POL_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
POL_NAME1	R	S	Political Area Name 1. This is the primary name of the area shown. For areas that have more than one name, this would be the primary name with subsequent names shown in fields below. This would correspond to the official name of this jurisdiction used by the Federal Emergency Management Agency (FEMA) within the NFIP. For unincorporated areas of a county, this must be the county name (e.g., Montgomery County).
POL_NAME2	A	S	Political Area Name 2. This is the secondary name of the area shown. Populated if there is a common name for an area other than the official jurisdiction name.
CO_FIPS	R	S	County Federal Information Processing Standard (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	R	S	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. These two numbers correspond to the first two digits of the panel number.
COMM_NO	R	S	Community Number. This is the four-digit number assigned by FEMA to each community for tracking purposes under the NFIP. On newer Flood Insurance Rate Maps (FIRMs) the state FIPS and the community number appear below the community name where it

			is shown in the body of the map. For single jurisdiction FIRMs, this is the 3rd through the 6th digits of the panel number. This number can be obtained from the community status book that can be viewed at www.fema.gov/msc. Areas under Federal jurisdiction such as National Parks, National Forests, military bases, etc. do not have community numbers assigned by FEMA. These areas should have a value of FED in the COMM_NO field. Areas under state jurisdiction such as state parks and wildlife reservations should have a value of ST in the COMM_NO field. For any other jurisdictions where local community does not have the authority to administer the NFIP and FEMA does not assign a community number, the COMM_NO field should contain OTHR.
CID	R	S	Community Identification Number. This is the six-digit community number assigned by FEMA. It is created by combining the state FIPS code with the COMM_NO. 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 (FED, ST, or OTHR).
ANI_TF	R	S	Area Not Included. This field contains information about the geographical area to determine if it is included in the FIRM or not. Areas Not Included fall within the extent of the FIRM, but no flood risk information is shown on this map. This is either because the area is mapped on another FEMA map or because the area is not mapped at all by FEMA. Enter "T" for true or "F" for false.
COM_NFO_ID	A	S	Community Information Identification. This attribute links to the table L_Comm_Info that contains information about the specific community. This table must contain a number that matches a corresponding number in the COM_NFO_ID field of the L_Comm_Info. This field is populated for any jurisdiction that has a CID number issued by FEMA.

Table: S_Pol_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
POL_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
POL_NAME1	R	S	text	50				string	50		character	50	50		character	50	
POL_NAME2	A	S	text	50				string	50		character	50	50		character	50	
CO_FIPS	R	S	text	3				string	3		character	3	3		character	3	
ST_FIPS	R	S	text	2				string	2		character	2	2		character	2	
COMM_NO	R	S	text	4				string	4		character	4	4		character	4	
CID	R	S	text	6				string	6		character	6	6		character	6	
ANI_TF	R	S	text	1				string	1		character	1	1		character	1	
COM_NFO_ID	A	S	text	11				string	11		character	11	11		character	11	

Table: S_Pol_Ln

This table is required for all preliminary or final DFIRM databases.

The S_Pol_Ln table contains information about the boundaries of Political Areas within the study area. This would include the attributes for the political areas and other areas such as forests, parks, military lands, and Native American lands. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the boundaries of the political jurisdictions depicted on the Flood Insurance Rate Map (FIRM) are lines.

This is a Standard DFIRM Database table.

The S_Pol_Ln table contains the following elements.

POL_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
LN_TYP	R	S	Line Type. This describes the jurisdictional boundary and can be used to indicate how the feature must be depicted on the hardcopy FIRM. Acceptable values for this field are listed in the D_Ln_Typ table.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Pol_Ln table.

Table: S_Pol_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
POL_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
LN_TYP	R	S	text	45				string	45		character	45	45		character	45	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Precip_Gage

This table is required when rain gages are used in developing the hydrologic analysis. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the precipitation gages are points.

This is an Enhanced DFIRM Database table.

The S_Precip_Gage table contains the following elements.

PRECIP_ID	R	E	Primary key for this table. Assigned by table creator.
GAGE_ID	R	E	Rain Gage Identification Number. The ID for the rain gage. Assigned by agency maintaining gage.
AGENCY	R	E	Agency. Name of agency maintaining gage.
CASE_NO	R	E	FEMA Case Number. The case number for the rain gage links to the L_Case_Info table.
GAGE_TYPE	R	E	Rain Gage Type. This attribute establishes gage type. Values include tipping, instantaneous, and fixed interval. Acceptable values for this field are listed in the D_Gage table.
REC_INTVL	A	E	Recording Interval. This field is populated only if the rain gage is a fixed-interval gage.
TIME_UNIT	A	E	Recording Interval Time Unit. This attribute establishes the unit of measure of the recording interval. This field is populated only if the rain gage is a fixed-interval gage. Acceptable values for this field are listed in the D_Time_Units table.
START_PD	R	E	Start Period. This value is the start of the earliest period of record used in the gage analysis.
END_PD	R	E	End Date. This value is the end of the latest period of record used in the gage analysis.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Precip_Gage.

Table: S_Precip_Gage

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
PRECIP_ID	R	E	text	11				string	11		character	11	11		character	11	
GAGE_ID	R	E	text	25				string	25		character	25	25		character	25	
AGENCY	R	E	text	150				string	150		character	150	150		character	150	
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
GAGE_TYPE	R	E	text	40				string	40		character	40	40		character	40	
REC_INTVL	A	E	text	11				string	11		character	11	11		character	11	
TIME_UNIT	A	E	text	20				string	20		character	20	20		character	20	
START_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
END_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Profil_Basln

This table is required for a detailed study when hydrologic and hydraulic models have been developed for reaches of streams. The results of the models are shown on the FIRM. The profile baseline and/or stream centerline may or may not be shown on the FIRM.

The S_Profil_Basln table contains information about profile baseline and stream centerline features for the study area. A spatial file with locational information also corresponds with this data table. The spatial elements representing the profile baseline and stream centerline are lines.

This is an Enhanced DFIRM Database table.

The S_Profil_Basln table contains the following elements.

BASELN_ID	R	E	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	E	Surface Water Feature Name. This is the formal name of the surface water feature as it will appear on the hardcopy FIRM.
WATER_TYP	R	E	Surface Water Feature Type. The type value describes the kind of watercourse represented. Valid entries include items such as stream/river, channel, and shoreline/coastline. Acceptable values for this field are listed in the D_Water_Typ table.
UP_NODE	A	E	Upstream Node. This is the node ID at the upstream end of the reach. This ID field must contain a number that matches the NODE_ID field in the S_Nodes table, which documents points used to define the topology of the hydrologic network. This field is only populated when WATER_TYP's value equals "PROFILE BASELINE" or "PROFILE BASELINE AND STREAM CENTERLINE".
DN_NODE	A	E	Downstream Node. This is the node ID at the downstream end of the reach. This ID field must contain a number that matches the NODE_ID field for a record in the S_Nodes table, which documents points used to define the topology of the hydrologic network. This field is only populated when WATER_TYP's value equals "PROFILE BASELINE" or "PROFILE BASELINE AND STREAM CENTERLINE".
ROUTE_METH	A	E	Hydrologic Routing Method. This is the hydrologic routing method used for the reach. This field is only populated if hydrologic routing is used for the reach.
SHOWN_FIRM	R	E	Profile Baseline Shown on FIRM. This field is true only if the centerline is shown on the FIRM. Enter "T" for true or "F" for false.

SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Profil_Basln.

Table: S_Profil_BasIn

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
BASELN_ID	R	E	text	11				string	11		character	11	11		character	11	
WTR_NM	R	E	text	100				string	100		character	100	100		character	100	
WATER_TYP	R	E	text	40				string	40		character	40	40		character	40	
UP_NODE	A	E	text	11				string	11		character	11	11		character	11	
DN_NODE	A	E	text	11				string	11		character	11	11		character	11	
ROUTE_METH	A	E	text	254				string	254		character	254	254		character	254	
SHOWN_FIRM	R	E	text	1				string	1		character	1	1		character	1	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Quad_Index

This table is required for all preliminary or final DFIRM databases.

The S_Quad_Index table contains information about the US Geological Survey (USGS) 7.5-Minute Series Topographic Quadrangle maps that cover the study area. While USGS quadrangles do not meet the Federal Emergency Management (FEMA) digital base map standards, they are often useful as a supplementary reference source. The quadrangle information is provided as a convenience to users who may want to cross-reference this map series. A spatial file with locational information also corresponds with this data table.

The spatial entities representing the USGS quadrangles are polygons. Each polygon corresponds to the neatline of a USGS map.

This is a Standard DFIRM Database table.

The S_Quad_Index table contains the following elements.

QUAD_ID	R	S	Primary key for table lookup. Assigned by table creator.
QUAD_NO	R	S	Quad Number. This is the eight-digit USGS alphanumeric quadrangle identifier. The list of values for each state is published by USGS in the State Indexes to Topographic and Other Map Coverage. This item is composed of three components: the latitude, rounded down to the nearest whole degree, of the 7.5-minute quadrangle map sheet; the longitude, rounded down to the nearest whole degree, of the 7.5-minute quadrangle map sheet; and the alphanumeric map sheet identifier used by USGS (i.e., A1 through H8).
QUAD_NM	R	S	Quad Name. This is the name of the quadrangle that is assigned by USGS.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Quad_Index table.

Table: S_Quad_Index

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
QUAD_ID	R	S	text	11				string	11		character	11	11		character	11	
QUAD_NO	R	S	text	8				string	8		character	8	8		character	8	
QUAD_NM	R	S	text	50				string	50		character	50	50		character	50	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Riv_Mrk

This table is required if the Flood Insurance Rate Map (FIRM) shows river distance marks.

The S_Riv_Mrk table contains information about the River Marks shown on the hardcopy FIRM if applicable. A spatial file with locational information also corresponds with this data table.

The spatial entities representing the river marks are points. The points are generally located along side of the river at regular intervals.

This is a Standard DFIRM Database table.

The S_Riv_Mrk table contains the following elements.

RIV_MRK_ID	R	S	Primary key for table lookup. Assigned by table creator.
START_ID	R	S	Start Identification. A code that provides a link to a point in the L_Stn_Start table at which the river mark distances start.
RIV_MRK_NO	R	S	River Mark Number. This attribute usually represents the distance from a known point (identified by START_ID), such as the confluence with another river, to the current river mark. This is the value shown next to the river mark on the FIRM.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Riv_Mrk table.

Table: S_Riv_Mrk

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
RIV_MRK_ID	R	S	text	11				string	11		character	11	11		character	11	
START_ID	R	S	text	11				string	11		character	11	11		character	11	
RIV_MRK_NO	R	S	text	6				string	6		character	6	6		character	6	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Shore_Ln

This table is required for coastal modeling studies.

The S_Shore_Ln table contains information about the shoreline used in the coastal flood hazard model. Typically, the S_Shore_Ln represents to 0.0-foot elevation contour. The S_Shore_Ln shoreline may not be shown on the FIRM but must be archived for informational purposes. The mapped shoreline is stored in the S_Wtr_Ln table of the standard DFIRM database. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the shorelines are lines.

This is an Enhanced DFIRM Database table.

The S_Shore_Ln table contains the following elements.

SHR_LN_ID	R	E	Primary key for table lookup. Assigned by table creator.
SHRLN_TYP	R	E	Shoreline Type. This value describes the criteria used in determining the shoreline in coastal flood hazard models. Acceptable values for this table are listed in the D_Shr_Typ table.
V_DATUM	R	E	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 North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Shore_Ln table.

Table: S_Shore_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SHR_LN_ID	R	E	text	11				string	11		character	11	11		character	11	
SHRLN_TYP	R	E	text	30				string	30		character	30	30		character	30	
V_DATUM	R	E	text	6				string	6		character	6	6		character	6	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Stn_Start

This table is required when the geographic location of station start points exist.

The S_Stn_Start contains information about station points. These points indicate the reference point that was used as the origin for distance measurements along streams and rivers. This table links to descriptive information in the L_Stn_Start table. A spatial file with locational information also corresponds with this data table.

The spatial entity representing station starting locations are points. The point should be located on the stream centerline at the place where the measurements begin. This point may be outside the jurisdiction mapped in some cases. The location of the stationing start for a group of cross sections is normally referenced as a note on the floodway data table and on the flood profiles. Generally, all the cross sections for a particular reach are reference to the same starting point.

This is an Enhanced DFIRM Database table.

The S_Stn_Start table contains the following elements.

STRT_PT_ID	R	E	Primary key for this table. Assigned by table creator.
START_ID	R	E	Start Identification. This is a link to the station start lookup table. The station start describes the origin for the measurements in the STREAM_STN field. This field must contain a number that links to a unique value in the START_ID field in the L_Stn_Start table.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Stn_Start.

Table: S_Stn_Start

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STRT_PT_ID	R	E	text	11				string	11		character	11	11		character	11	
START_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Subbasins

This table is required for all studies with new or revised hydrologic data.

The S_Subbasins table contains data specific to each subbasin in the hydrologic analysis, including the subbasin's relationship to the hydrologic network. The subbasin may be the subbasin specific to a detailed hydrologic model. It may also correspond to the drainage area used in a regression analysis, or to the drainage area for a stream gage. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the subbasins are polygons. In some cases the extent of these polygons may overlap, for example, cumulative subbasin areas for a regression analysis.

This is an Enhanced DFIRM Database table.

The S_Subbasins table contains the following elements.

SUBBAS_ID	R	E	Primary key for this table. Assigned by table creator.
SUBBAS_NM	R	E	Name of subbasin.
NODE_ID	R	E	Node Identification. A code that provides a link to a valid entry from the S_Nodes table. ID for the load/outflow point (pourpoint) for the subbasin.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Subbasins.

Table: S_Subbasins

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	
SUBBAS_NM	R	E	text	254				string	254		character	254	254		character	254	
NODE_ID	R	E	text	11				string	11		character	11	11		character	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Trnsport_Ln

This table or an equivalent that is fully documented is required for all Digital Flood Insurance Rate Map databases that use a vector rather than raster base map data.

The S_Trnsport_Ln table contains information about the linear base map transportation features such as roads, railroads, and airports. A spatial file with locational information also corresponds with this data table.

The spatial entities representing linear transportation features are normally lines. However, if the available transportation data depict roads as polygons, polygon representation is acceptable. In general, the transportation table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Agency's (FEMA's) objective is to have spatially accurate base map data to which the flood hazard information is referenced. Users must be able to identify the names of roads, railroads and other major features in or near the special flood hazard area. If these objectives are met, then almost any file structure is acceptable. Road centerlines or edge of pavement files are both acceptable, provided that they meet the FEMA base map standard. With some data structures, it may not be practical to assign feature names or other attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the S_Label_Pt and S_Label_Ld tables will identify the names of all of the important features in or near the SFHA.

This is a Standard DFIRM Database table.

The S_Trnsport_Ln table contains the following elements.

TRANS_ID	R	S	Primary key for table lookup. Assigned by table creator.
TRANS_TYP	R	S	Transportation Feature Type. These line types indicate how the feature must be depicted on the hardcopy Flood Insurance Rate Map. Acceptable values for this field are listed in the D_Trans_Typ table.
RD_STAT	R	S	Road Status. Acceptable values for this field are listed in the D_Rd_Stat table.
PREFIX	A	S	Prefix of the Feature Name. Not all features will have an entry in this attribute. Valid entries might include N for a transportation feature named N Main Street.
FEAT_NM1	R	S	Feature Name 1. This is the primary name of the feature. For areas that have more than one name, this would be the primary name with subsequent names shown in fields below. Route numbers and "Intercoastal Waterway" would also be included in this item.

NM_TYP	R	S	Name Type. Transportation feature name type. Valid entries include items such as road, street, or avenue. Acceptable values for this field are listed in the D_Nm_Typ table.
SUFFIX	A	S	Suffix of the Feature Name. Not all features will have an entry in this attribute. Valid entries might include NW for a transportation feature named Main Street NW.
FEAT_NM2	A	S	Feature Name 2. This is the secondary name of the feature.
FEAT_NM3	A	S	Feature Name 3. This is the tertiary name of the feature.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Trnsport_Ln table.

Table: S_Trnsport_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
TRANS_ID	R	S	text	11				string	11		character	11	11		character	11	
TRANS_TYP	R	S	text	50				string	50		character	50	50		character	50	
RD_STAT	R	S	text	20				string	20		character	20	20		character	20	
PREFIX	A	S	text	50				string	50		character	50	50		character	50	
FEAT_NM1	R	S	text	100				string	100		character	100	100		character	100	
NM_TYP	R	S	text	20				string	20		character	20	20		character	20	
SUFFIX	A	S	text	50				string	50		character	50	50		character	50	
FEAT_NM2	A	S	text	100				string	100		character	100	100		character	100	
FEAT_NM3	A	S	text	100				string	100		character	100	100		character	100	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Water_Gage

This table is required when non-rain gages are used in developing the hydrologic analysis. A spatial file with locational information also corresponds with this data table.

The spatial elements representing the water gages are points.

This is an Enhanced DFIRM Database table.

The S_Water_Gage table contains the following elements.

GAG_WTR_ID	R	E	Primary key for this table. Assigned by table creator.
GAGE_ID	R	E	Gage Identification. Assigned by the agency maintaining the gage.
AGENCY	R	E	Agency. Name of the agency maintaining the gage.
GAGE_TYPE	R	E	Gage Type. This attribute establishes the gage type. Values include flow, stage, wind direction, wind speed, wave, and tide. Acceptables values for this table are listed in the D_Gage table.
REC_INTVL	R	E	Recording Interval. Recording interval for the gage.
TIME_UNIT	R	E	Recording Interval Time Unit. This attribute establishes the unit of measure of the recording interval. Acceptable values for this table are listed in the D_Time_Units table.
CASE_NO	R	E	FEMA Case Number. The case number for the water gage links to the L_Case_Info table.
START_PD	R	E	Start Period. This value is the start of the earliest period of record used in the gage analysis.
END_PD	R	E	End Period. This value is the end of the latest period of record used in the gage analysis.
SOURCE_CIT	R	E	Source Citation. Abbreviation used in the metadata file when describing the source information for S_Water_Gage.

Table: S_Water_Gage

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
GAG_WTR_ID	R	E	text	11				string	11		character	11	11		character	11	
GAGE_ID	R	E	text	25				string	25		character	25	25		character	25	
AGENCY	R	E	text	150				string	150		character	150	150		character	150	
GAGE_TYPE	R	E	text	40				string	40		character	40	40		character	40	
REC_INTVL	R	E	text	11				string	11		character	11	11		character	11	
TIME_UNIT	R	E	text	20				string	20		character	20	20		character	20	
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
START_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
END_PD	R	E	date/time	8		yyyymmdd	00/00/0000	date	11		date	8	10		date	11	
SOURCE_CIT	R	E	text	11				string	11		character	11	11		character	11	

Table: S_Wtr_Ar

This table is required for any Digital Flood Insurance Rate Map (DFIRM) database where vector surface water features are shown on the Flood Insurance Rate Map (FIRM) and some of these features are represented as polygons in the spatial data. Vector streams must always be shown with a vector base map. They may also be shown on raster base maps.

The S_Wtr_Ar table contains information about surface water area features. A spatial file with locational information also corresponds with this data table.

The spatial elements representing surface water area features are polygons. Normally lakes, ponds and streams wide enough to show both channel banks will be represented as polygons. However, the main purpose of the S_Wtr_Ar table and the S_Wtr_Ln table are to provide a cartographic depiction of the surface water features for visual interpretation of the mapping data. As a result, the method for structuring surface water features as lines or polygons is very flexible. Surface water features may appear in either the S_Wtr_Ar table or the S_Wtr_Ln table or both. However, features that appear in both must match exactly. The hydrologic structure of the stream network will be represented by tables in the Enhanced DFIRM Database.

In general, the surface water table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate surface water feature data to which the flood hazard information is referenced. Users must be able to identify the names of flooding sources and other important surface water features. If these objectives are met, then almost any file structure is acceptable. Streams, rivers and lakes may be represented as either polygons or lines. With some data structures, it may not be practical to assign feature names or other attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the S_Label_Pt and S_Label_Ld tables will identify the names of flooding sources and other important surface water features.

This is a Standard DFIRM Database table.

The S_Wtr_Ar table contains the following elements.

WTR_AR_ID	R	S	Primary key for table lookup. Assigned by table creator.
WATER_TYP	R	S	Surface Water Feature Type. This type value describes the classification of the surface water feature. Valid entries include items such as lake, retention pond, and reservoir. Acceptable values for this field are listed in the D_Water_Typ table.
WTR_NM	R	S	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Wtr_Ar table.

Table: S_Wtr_Ar

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
WTR_AR_ID	R	S	text	11				string	11		character	11	11		character	11	
WATER_TYP	R	S	text	40				string	40		character	40	40		character	40	
WTR_NM	R	S	text	100				string	100		character	100	100		character	100	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_Wtr_Ln

This table is required for any Digital Flood Insurance Rate Map (DFIRM) database where vector surface water features are shown on the Flood Insurance Rate Map (FIRM) and some of these features are represented as lines in the spatial data. Vector streams must always be shown with a vector base map. They may also be shown on raster base maps.

The S_Wtr_Ln table contains information about surface water linear features. A spatial file with locational information also corresponds with this data table.

The spatial elements representing surface water line features are lines. Normally stream centerlines will be represented as line features. However, the main purpose of the S_Wtr_Ar table and the S_Wtr_Ln table is to provide a cartographic depiction of the surface water features for visual interpretation of the mapping data. As a result, the method for structuring surface water features as lines or polygons is very flexible. Lake shorelines and stream channel banks used to show lakes and wide rivers are usually represented as polygons. However, they may be represented as lines based on the structure of the data received and the Mapping Partner's discretion. Surface water features may appear in either the S_Wtr_Ar table or the S_Wtr_Ln table or both. However, features that appear in both must match exactly. The hydrologic structure of the stream network will be represented by tables in the Enhanced DFIRM Database.

In general, the surface water table structure is fairly flexible depending on the format of the data available for the map. The Federal Emergency Management Agency's (FEMA's) objective is to have spatially accurate surface water feature data to which the flood hazard information is referenced. Users must be able to identify the names flooding sources and other important surface water features. If these objectives are met, then most any file structure is acceptable. Streams, rivers and lakes may be represented as polygons or lines. With some data structures, it may not be practical to assign feature names or other attributes to each spatial entity. While these attributes are desirable, FEMA recognizes that they may not always be easily available. This is acceptable because the S_Label_Pt and S_Label_Ld tables will identify the names of flooding sources and other important surface water features.

This is a Standard DFIRM Database table.

The S_Wtr_Ln table contains the following elements.

WTR_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
WATER_TYP	R	S	Surface Water Feature Type. The type value describes the kind of watercourse represented. Valid entries include items such as stream/river, channel, and shoreline/coastline. Acceptable values for this field are listed in the D_Water_Typ table.
CHAN_REP	R	S	Channel Representation. Single means linear water features represented by a centerline. Double means linear water features represented by shorelines or channel banks. Acceptable values for this field are listed in the D_Chn_Rep table.

WTR_NM	R	S	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_Wtr_Ln table.

Table: S_Wtr_Ln

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
WTR_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
WATER_TYP	R	S	text	40				string	40		character	40	40		character	40	
CHAN_REP	R	S	text	20				string	20		character	20	20		character	20	
WTR_NM	R	S	text	100				string	100		character	100	100		character	100	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	

Table: S_XS

This table is required for any Digital Flood Insurance Rate Map database where cross sections are shown on the Flood Insurance Rate Map (FIRM). Normally any FIRM that has associated flood profiles has cross sections.

The S_XS table contains information about cross section lines. A spatial file with locational information also corresponds with this data table. These lines represent the locations of channel surveys performed for input into the hydraulic model used to calculate flood elevations. These locations are also shown on the Flood Profiles in the Flood Insurance Study (FIS) report and can be used to cross reference the Flood Profiles to the planimetric depiction of the flood hazard. All cross sections for which a spatial location is available should be included in this table.

The spatial elements representing cross sections are lines generally extending from outside the floodplain, across the entire floodplain and out the other side. Each cross section should be represented by a single line feature without the hexagons shown on each end on the hardcopy map. The location and shape of the lines should depict as accurately as possible the position of the cross section used.

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. All items after SOURCE_CIT are Enhanced. The Enhanced DFIRM Database must contain all modeled cross sections, whether they are printed on the FIRM or not.

The S_XS table contains the following elements.

XS_LN_ID	R	S	Primary key for table lookup. Assigned by table creator.
XS_LTR	A	S	Cross-Section Letter. The letter or number that is assigned to the cross section on the hardcopy FIRM and in the FIS report. This attribute is blank if the cross section is not shown on the FIRM. For a digital conversion, only cross sections that are shown on the FIRM will be available.
START_ID	R	S	Start Identification. This is a link to the station start lookup table. The station start describes the origin for the measurements in the STREAM_STN field. This field should contain a number that links to a unique value in the START_ID field in the L_Stn_Start table.
STREAM_STN	R	S	Stream Station. This is the measurement along the stream to the cross-section location. Normally this information is available in the Floodway Data table in the FIS report. When no Floodway Data table is published, this value can be read from the horizontal scale of the flood profile. The units are clarified in the description in the START_DESC field in the L_Stn_Start table.

XS_LN_TYP	R	S	Cross-Section Line Type. This attribute should contain 'LETTERED' for cross sections that are shown on the hardcopy FIRM. If the cross section will not be shown on the hardcopy FIRM, this attribute should contain 'NOT LETTERED' to indicate that the cross section is part of the backup data for the study, but is not shown on the FIRM.
WTR_NM	R	S	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM.
WSEL_REG	R	S	Regulatory Water-Surface Elevation for the 1-Percent-Annual-Chance Flood Event. This is the precise water surface elevation of the base flood calculated at this cross section. This elevation exactly matches the elevation of the base flood in the Flood Profiles and the Floodway Data table. This number is determined during the engineering analysis for the study. This value should match the regulatory column in the Floodway Data table in the FIS report or the elevation from the corresponding flood profile if no Floodway Data table is published.
LEN_UNIT	R	S	Water Surface Elevation Units. This unit indicates the measurement system used for the water surface elevation. Normally this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	S	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
SOURCE_CIT	R	S	Source Citation. Abbreviation used in the metadata file when describing the source information for the S_XS table. Table:
BED_ELEV	R	E	Streambed Elevation. The elevation of the streambed at this cross section as shown on the Flood Profile in the FIS.
TOP_WIDTH	R	E	Top Width. Width of the floodway at this cross section as shown in the Floodway Data table in the FIS.
XS_AREA	R	E	Cross Section Area. Area of the cross section underwater for the width of the floodway as shown in the Floodway Data table in the FIS.
AREA_UNIT	R	E	Area Unit. This unit specifies the areal unit for the area of the cross section underwater for the width of the floodway. Acceptable values for this field are listed in the D_Area_Units table.

VELOCITY	R	E	Mean Velocity. The mean velocity of the floodway at this cross section as shown in the Floodway Data table in the FIS.
VEL_UNIT	R	E	Velocity Measurement. This unit specifies the unit of measurement for the velocity of the floodway. Acceptable values for this field are listed in the D_Velocity_Units table.

Table: S_XS

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
XS_LN_ID	R	S	text	11				string	11		character	11	11		character	11	
XS_LTR	A	S	text	12				string	12		character	12	12		character	12	
START_ID	R	S	text	11				string	11		character	11	11		character	11	
STREAM_STN	R	S	text	12				string	12		character	12	12		character	12	
XS_LN_TYP	R	S	text	20				string	20		character	20	20		character	20	
WTR_NM	R	S	text	100				string	100		character	100	100		character	100	
WSEL_REG	R	S	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_UNIT	R	S	text	20				string	20		character	20	20		character	20	
V_DATUM	R	S	text	6				string	6		character	6	6		character	6	
SOURCE_CIT	R	S	text	11				string	11		character	11	11		character	11	
BED_ELEV	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
TOP_WIDTH	R	E	number	8	2			number	13	2	numeric	8	13	2	decimal	15	2

			(double)														
XS_AREA	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
AREA_UNIT	R	E	text	20				string	20		character	20	20		character	20	
VELOCITY	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
VEL_UNIT	R	E	text	20				string	20		character	20	20		character	20	

Table: Study_Info

This table is required for all draft Digital Flood Insurance Rate Map data.

The Study_Info table contains details about the study such as the study name, datum, projection, etc. There is normally only one record in this table for each Flood Insurance Rate Map (FIRM).

This is a modified Standard DFIRM Database table that includes Standard DFIRM Database items and Enhanced Database items. The item STUDY_ZIP is Enhanced.

The Study_Info table contains the following elements.

STD_NFO_ID	R	S	Primary key for table lookup. Assigned by table creator.
STUDY_PRE	A	S	Study Prefix. This is the prefix of the study 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.
STUDY_NM	R	S	Study Name. This attribute contains the main portion of the study 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	R	S	State Name. This attribute contains the state name for the study and is shown in the title block of the hardcopy FIRM.
CNTY_NM	R	S	County Name. This is the county (or county equivalent) name that the study 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.
JURIS_TYP	A	S	Political Jurisdiction Type. This attribute contains entries such as 'Unincorporated Areas' or 'All Jurisdictions' or 'and Incorporated Areas'. This field is applicable when the type of map is 'Unincorporated Areas' or 'All Jurisdictions' or 'and Incorporated Areas'. For a single jurisdiction map, this field is NULL. If there are data in this attribute, it is also shown in the title block section of the hardcopy FIRM.
LG_PAN_NO	R	S	Largest Panel Number. This is the highest panel number shown on the FIRM Index for the area mapped. This number is shown in the title block section of the hardcopy FIRM.

OPP_TF	R	S	Only Panel Printed. This field is True only if the study has only one printed panel. Enter "T" for true or "F" for false.
H_DATUM	R	S	Horizontal Datum. Valid entries for this attribute include North American Datum of 1927 or North American Datum of 1983 (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.
V_DATUM	R	S	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 North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
PROJECTION	R	S	Map Projection used for hardcopy FIRM publication. The preferred projection is Universal Transverse Mercator (UTM). If a State Plane coordinate system and associated projection is used, this field should include the name of the projection, the state and the zone (e.g., Lambert Conformal Conic, Virginia North Zone).
PROJ_ZONE	A	S	Projection Zone. When using many map projections and coordinate systems, there is a zone associated with the area. 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 Federal Information Processing Standard zone or FIPSZONE.
CW_TF	R	S	Countywide, true/false. This attribute is true if the hardcopy FIRM includes all incorporated areas and any unincorporated areas of the county. Enter "T" for true or "F" for false.
CBRS_PHONE	A	S	Coastal Barrier Resources System (CBRS) Phone number. This is the phone number for the contact person/office for the CBRS legislative area. Applies if the FIRM contains CBRS areas. Enter the phone number as a ten-digit numeric string with hyphens in the following format, 000-000-0000.
CBRS_REG	A	S	CBRS Coordinator's region. This attribute contains the Fish and Wildlife Service (FWS) region within which the FIRM is located. Applies if the FIRM contains CBRS areas.
RTROFT_TF	R	S	Retrofit, True/False. The Retrofit attribute should be True if older study data is used with updated stream location data. If flood features were adjusted to fit new stream locations due to better base

			map information this attribute would be true. Enter “T” for true or “F” for false.
META_NM	R	S	Metadata File Name. This attribute stores the name of the metadata file. The file should be named <ST_FIPS><PCOMM>_<EFF_DATE>_metadata.txt; where ST_FIPS is the two digit state FIPS code; PCOMM is the four digit community or county identifcation number; and EFF_DATE is the effective date of the study. If the study is not yet effective, the effective date, <EFF_DATE>, should be replaced with the word “PRELIM”.
STUDY_ZIP	A	E	Name of the Study Zipfile. This attribute stores the path/filename of the zipped file that contains the FIS report or auxiliary data that is relevant to the entire study.

Table: Study_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STD_NFO_ID	R	S	text	11				string	11		character	11	11		character	11	
STUDY_PRE	A	S	text	20				string	20		character	20	20		character	20	
STUDY_NM	R	S	text	50				string	50		character	50	50		character	50	
STATE_NM	R	S	text	50				string	50		character	50	50		character	50	
CNTY_NM	R	S	text	50				string	50		character	50	50		character	50	
JURIS_TYP	A	S	text	50				string	50		character	50	50		character	50	
LG_PAN_NO	R	S	text	4				string	4		character	4	4		character	4	
OPP_TF	R	S	text	1				string	1		character	1	1		character	1	
H_DATUM	R	S	text	10				string	10		character	10	10		character	10	
V_DATUM	R	S	text	6				string	6		character	6	6		character	6	
PROJECTION	R	S	text	50				string	50		character	50	50		character	50	
PROJ_ZONE	A	S	text	4				string	4		character	4	4		character	4	
CW_TF	R	S	text	1				string	1		character	1	1		character	1	
CBRS_PHONE	A	S	text	15		000-000-0000	000\-000\-0000	string	15		character	15	15		character	15	

CBRS_REG	A	S	text	1				string	1		character	1	1		character	1	
RTROFT_TF	R	S	text	1				string	1		character	1	1		character	1	
META_NM	R	S	text	50				string	50		character	50	50		character	50	
STUDY_ZIP	A	E	text	254				string	254		character	254	254		character	254	

Table: L_Aux_Data

This table is required when the data developer wishes to document additional data sources used in developing the study. The table may be used to document other data sets such as topography, soils, land use, coastal roughness, etc.

This is an Enhanced DFIRM Database table.

The L_Aux_Data table contains the following elements.

DATA_ID	R	E	Primary key for this table. Assigned by table creator.
CASE_NO	R	E	FEMA Case Number. The case number for the auxiliary data links to the L_Case_Info table.
DATA_DATE	R	E	Date the data was prepared (e.g., date of file originally supplied by Mapping Partner).
DATA_TYPE	R	E	Description of data set.
ORG_NAME	A	E	Organization which generated/supplied the data.
CONTACT	A	E	Name of contact person.
TITLE	A	E	Title of contact person.
PHONE	A	E	Phone number of contact person/organization. Enter the phone number as a ten-digit numeric string with hyphens in the following format, 000-000-0000.
ADDRESS1	A	E	Line 1 of mailing address of contact person/organization.
ADDRESS2	A	E	Line 2 of mailing address of contact person/organization.
ADDRESS3	A	E	Line 3 of mailing address of contact person/organization.
CITY	A	E	City of contact person/organization.
STATE	A	E	State/Territory/Commonwealth of contact person/organization.
ZIP	A	E	Postal ZIP code of contact person/organization.
FILE_NM	R	E	Name of accompanying data file.
META_NM	R	E	Name of metadata file that describes the accompanying dataset.

Table: L_Aux_Data

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
DATA_ID	R	E	text	11				string	11		character	11	11		character	11	
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
DATA_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
DATA_TYPE	R	E	text	254				string	254		character	254	254		character	254	
ORG_NAME	A	E	text	100				string	100		character	100	100		character	100	
CONTACT	A	E	text	50				string	50		character	50	50		character	50	
TITLE	A	E	text	25				string	25		character	25	25		character	25	
PHONE	A	E	text	15		000-000-0000	000\-000\-0000	string	15		character	15	15		character	15	
ADDRESS1	A	E	text	50				string	50		character	50	50		character	50	
ADDRESS2	A	E	text	50				string	50		character	50	50		character	50	
ADDRESS3	A	E	text	50				string	50		character	50	50		character	50	
CITY	A	E	text	50				string	50		character	50	50		character	50	
STATE	A	E	text	50				string	50		character	50	50		character	50	
ZIP	A	E	text	10				string	10		character	10	10		character	10	

FILE_NM	R	E	text	254				string	25		character	25	25		character	25	
META_NM	R	E	text	50				string	50		character	50	50		character	50	

Table: L_Case_Info

This table is required for all studies with new or revised hydrologic data.

The L_Case_Info table is a lookup table that contains data specific to the study, including FEMA Case information and general hydrologic and/or hydraulic backup information. The fields are populated by the Mapping Partner who creates the database. If a Case Number is not available at the time the table is populated, the Mapping Partner shall use a temporary unique identification number.

This is an Enhanced DFIRM Database table.

The L_Case_Info table contains the following elements.

CASE_NO	R	E	Primary key for this table. FEMA Case Number for study. Used to link to archived electronic and hardcopy data, and to link to various hydrologic and hydraulic data tables.
CASE_DESC	R	E	General description of the study, for example, the study location and method(s) used.
CASE_ZIP	R	E	Name of the Case Zipfile. This attribute stores the file name/pathway of the zipped file that contains engineering support data associated with the Case.
STD_NFO_ID	R	E	Study Information Identification. A code that provides a link to a valid entry from the Study_Info table.
EFF_DATE	R	E	Effective date of the Case.

Table: L_Case_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
CASE_DESC	R	E	text	254				string	254		character	254	254		character	254	
CASE_ZIP	R	E	text	254				string	254		character	254	254		character	254	
STD_NFO_ID	R	E	text	11				string	11		character	11	11		character	11	
EFF_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		

Table: L_Comm_Info

This table is required for all preliminary or final DFIRM databases.

The L_Comm_Info table is a lookup table that contains community map repository details and map history information that is shown on the Flood Insurance Rate Map (FIRM) legend or index. This table will include any community that has a CID; even if it is considered non-floodprone or non-participationg. Communities that do not have a CID issued by FEMA, or are not included within the area of the data submittal, will not appear in this table. The "not populated" values, that are described in sections L.2.5.10 and L.3.5.11, may be used to fill in some of the required fields when necessary. There is normally one record in this table for each community mapped on the FIRM.

This is a Standard DFIRM Database table.

The L_Comm_Info table contains the following elements.

COM_NFO_ID	R	S	Primary key for table lookup that links to the S_Pol_Ar table. Value in this field must match the values COM_NFO_ID field of the S_Pol_Ar table.
REPOS_ADR1	R	S	First line of the mailing or street address for the map repository. The map repository is the office the community has designated as responsible for maintaining copies of all the flood hazard information the Federal Emergency Management Agency (FEMA) publishes for the community. The public may view copies of the current effective information at the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read 'Division of Community and Economic Development'.
REPOS_ADR2	A	S	Second line of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read '226 W. Fourth Street'. This field is applicable if the map repository address requires more than one line.
REPOS_ADR3	A	S	Third line of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read 'Suite 200'. This field is applicable if address requires additional space.
REPOS_CITY	R	S	City portion of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read 'Springfield'.

REPOS_ST	R	S	State portion of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. The full name of the state should be provided. For example, this line might read 'ILLINOIS'.
REPOS_ZIP	R	S	ZIP Code portion of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read '62269'.
IN_ID_DAT	R	S	Initial identification date for the community as shown on the FIRM legend, index, or Flood Insurance Study (FIS) report. This information can also be obtained from FEMA. See Appendix K of these Guidelines for more detailed information about map dates.
IN_NFIP_DT	R	S	Initial date of the first National Flood Insurance Program map published by FEMA for this community. This can be obtained from the FIRM legend, index, or FIS report. This information can also be obtained from FEMA. See Appendix K of these Guidelines for more detailed information about map dates.
IN_FRM_DAT	R	S	Initial date FIRM was created. This can be obtained from the FIRM legend, index, or FIS report. This information can also be obtained from FEMA. See Appendix K of these Guidelines for more detailed information about map dates.
RECENT_DAT	A	S	Most recent panel date. This can be obtained from the FIRM Index or the FEMA Community Status book at www.fema.gov/msc. This field is only populated for final DFIRM Databases. See Appendix K of these Guidelines for more detailed information about map dates.

Table: L_Comm_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
COM_NFO_ID	R	S	text	11				string	11		character	11	11		character	11	
REPOS_ADR1	R	S	text	50				string	50		character	50	50		character	50	
REPOS_ADR2	A	S	text	50				string	50		character	50	50		character	50	
REPOS_ADR3	A	S	text	50				string	50		character	50	50		character	50	
REPOS_CITY	R	S	text	50				string	50		character	50	50		character	50	
REPOS_ST	R	S	text	50				string	50		character	50	50		character	50	
REPOS_ZIP	R	S	text	9				string	9		character	9	9		character	9	
IN_ID_DAT	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
IN_NFIP_DT	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
IN_FRM_DAT	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
RECENT_DAT	A	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		

Table: L_Cst_Model

This table is completed if coastal engineering analysis was performed. It is required for new coastal studies It is not required for digital conversions of effective flood hazard information because considerable additional effort may be required to research the applicable models.

The L_Cst_Model table is a lookup table that contains information about the coastal models that were used during the engineering analysis.

This is an Enhanced DFIRM Database table.

The L_Cst_Model table contains the following elements.

CST_MDL_ID	R	E	Primary key for table lookup that links to the S_Cst_Tsct_Ln table. Value in this field should match the values in the CST_MDL_ID field of the S_Cst_Tsct_Ln table.
WTR_NM	R	E	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM.
CASE_NO	R	E	Case Number Identification. This field is populated by a linking element to the L_Case_Info table. The L_Case_Info table contains information about the FEMA case number and includes archived electronic data that are relevant to the case.
SURGE_MDL	R	E	Hurricane Surge Model. This is the name or abbreviation of the Federal Emergency Management Agency (FEMA) approved hurricane surge model that is associated with the coastal engineering analysis. Acceptable values for this field are listed in the D_Surge_Mdl table.
SURGE_DATE	R	E	Hurricane Surge Model Run Date. This is the date the model was run.
SURGE_ZIP	R	E	Filename/path of zip file containing surge model input, surge model output, README.TXT, and any other supporting reports and documentation.
SURGE_EFF	R	E	Surge Effective Date. Effective date of the surge model.
WAVEHT_MDL	A	E	Wave Height Model. This is the name or abbreviation of the FEMA approved wave height model that was used for the coastal engineering analysis. Acceptable values for this field are listed in the the D_Wave_Mdl table.
WAVEHT_DT	A	E	Wave Height Model Run Date. This is the date the model was run.

RUNUP_MDL	A	E	Runup Model. This is the name or abbreviation of the FEMA approved wave runup model that was used for the coastal engineering analysis. Acceptable values for this field are listed in the D_Runup_Mdl table.
RUNUP_DATE	A	E	Runup Model Run Date. This is the date the wave runup model was run.
SETUP_METH	A	E	Wave Setup Methodology. This information should detail the methodology used for determining the wave setup magnitude.
SETUP_DATE	A	E	Wave Setup Methodology Date. This is the date the setup methodology was run.
PFD_TF	R	E	Have primary frontal dune criteria been applied in the coastal modeling? Enter "T" for true or "F" for false
EROS_TF	A	E	Has erosion treatment been applied in the coastal modeling? Enter “T” for true or “F” for false.
WAVE_EFF	A	E	Wave Effective Date. Effective date of the wave height and wave runup models.
WAVE_ZIP	A	E	File name/path of zip file containing wave height input, wave height output, wave runup input, wave runup output, README.TXT, and any other supporting reports and documentation.

Table: L_Cst_Model

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CST_MDL_ID	R	E	text	11				string	11		character	11	11		character	11	
WTR_NM	R	E	text	100				string	100		character	100	100		character	100	
CASE_NO	R	E	text	50				string	50		character	50	50		character	50	
SURGE_MDL	R	E	text	40				string	40		character	40	40		character	40	
SURGE_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SURGE_ZIP	R	E	text	254				string	254		character	254	254		character	254	
SURGE_EFF	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
WAVEHT_MDL	A	E	text	25				string	25		character	25	25		character	25	
WAVEHT_DT	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
RUNUP_MDL	A	E	text	30				string	30		character	30	30		character	30	
RUNUP_DATE	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
SETUP_METH	A	E	text	100				string	100		character	100	100		character	100	
SETUP_DATE	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
PFD_TF	R	E	text	1				string	1		character	1	1		character	1	

EROS_TF	A	E	text	1				string	1		character	1	1		character	1	
WAVE_EFF	A	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
WAVE_ZIP	A	E	text	254				string	254		character	254	254		character	254	

Table: L_Hydra_Model

This table is only completed if detailed hydraulic engineering methods were used. It is required for new studies.

The L_Hydra_Model table is a lookup table that contains detailed information about the hydraulic models used in the engineering analysis for the area.

There should be one record for each distinct model run.

This is an Enhanced DFIRM Database table.

The L_Hydra_Model table contains the following elements.

HYDRA_ID	R	S	Hydraulic Model Identification. The primary key for table lookup that links to the L_XS_Ratings table. The value in this field should match the values in the HYDRA_ID field of the L_XS_Ratings table.
HYDRA_MDL	R	S	Hydraulic Model. This is the name or abbreviation of the hydraulic model that was used for the engineering analysis. Acceptable values for this field are listed in the D_Hydra table.
HYDRA_DATE	R	S	Hydraulic Model Run Date. This is the date that the hydraulic model was run.
CASE_NO	R	S	FEMA Case Number. This is the FEMA case number for the study. This ID may be used to link to the L_Case_Info table.
HYDRA_ZIP	R	E	Name of the Hydraulic Model Zipfile. This attribute stores the file name/pathway of the zipped file that contains the hydraulic model input and output data and any other auxiliary hydraulic data information.

Table: L_Hydra_Model

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
HYDRA_ID	R	E	text	11				string	11		character	11	11		character	11	
HYDRA_MDL	R	E	text	40				string	40		character	40	40		character	40	
HYDRA_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
HYDRA_ZIP	R	E	text	254				string	254		character	254	254		character	254	

Table: L_Hydro_Model

This table is required for all studies with new or revised hydrologic data.

The L_Hydro_Model table contains data specific to a particular hydrologic model used in the study.

This is an Enhanced DFIRM Database table.

The L_ Hydro_Model table contains the following elements.

HYDRO_ID	R	E	Hydrologic Model Identification. The primary key for table lookup that links to the L_Node_Disch table.
HYDRO_MDL	R	E	Hydrologic Model. This is the name or abbreviation of the hydrologic model that was used for the engineering analysis. Acceptable values for this field are listed in the D_Hydro table.
HYDRO_DATE	R	E	Hydrologic Model Run Date. This is the date that the hydrologic model was run.
CASE_NO	R	E	FEMA Case Number. The case number for the hydrologic model links to the L_Case_Info table.
HYDRO_ZIP	R	E	Name of the Hydrologic Model Zipfile. The file name/pathway of the zipped file containing input & output files for hydrologic analysis and supporting data analyses.

Table: L_Hydro_Model

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
HYDRO_ID	R	E	text	11				string	11		character	11	11		character	11	
HYDRO_MDL	R	E	text	40				string	40		character	40	40		character	40	
HYDRO_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
CASE_NO	R	E	text	12				string	12		character	12	12		character	12	
HYDRO_ZIP	R	E	text	254				string	254		character	254	254		character	254	

Table: L_Media

This table is required when digital photographs, sketches, or other media are used to describe spatial objects in the study.

The L_Media table is a lookup table that links archived media to the spatial object represented in the photograph, sketch, or other media.

This is an Enhanced DFIRM Database table.

The L_Media table contains the following elements.

MEDIA_ID	R	E	Primary key for table lookup. Assigned by table creator.
MEDIA_PATH	R	E	The file name/relative path/location of the photograph, sketch, or other media.
OBJ_TABLE	R	E	Object Table. The DFIRM Database table that corresponds to the spatial object that the photograph, sketch, or other media describes.
OBJ_ID	R	E	Object Identification. The DFIRM Database primary key that corresponds to the spatial object that the photograph, sketch, or other media describes. Can be used as Foreign Key to object.
MEDIA_TYPE	R	E	Media Type. This is the type of media used to describe the object (e.g., Photo, Sketch, Video, etc.)
MEDIA_DATE	R	E	Media Date. This is the date on which the photograph, sketch, or other media was created.
DSCRIPTION	R	E	Description of the Object. This is a brief description of the object. It should include relevant directional information (e.g., Downstream face of Third Street bridge, Left bank of Big Creek, Along transect 21 facing offshore).
AZIMUTH	A	E	Azimuth of a line that represents the line of sight from where the photographer was standing to the object. 0 – 360 degrees.

Table: L_Media

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
MEDIA_ID	R	E	text	11				string	11		character	11	11		character	11	
MEDIA_PATH	R	E	text	254				string	254		character	254	254		character	254	
OBJ_TABLE	R	E	text	20				string	20		character	20	20		character	20	
OBJ_ID	R	E	text	11				string	11		character	11	11		character	11	
MEDIA_TYPE	R	E	text	100				string	100		character	100	100		character	100	
MEDIA_DATE	R	E	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
DSCRIPTION	R	E	text	254				string	254		character	254	254		character	254	
AZIMUTH	A	E	text	100				string	100		character	100	100		character	100	

Table: L_MT1_LOMC

The L_MT1_LOMC table is a lookup table that contains information about Letters of Map Change (LOMC) for the area. LOMCs typically include property descriptions. Frequently, LOMCs are issued to show that specific locations are outside the Special Flood Hazard Areas. Generally, the amount of detail that can be shown on the map does not allow these areas to be shown explicitly on the Flood Insurance Rate Map (FIRM). Instead, this information is communicated in the form of a LOMC. For data published by the Federal Emergency Management Agency (FEMA), this table would only include letters of map amendment and letters of map revision based on fill that have been revalidated following the map revision. Revalidated LOMCs indicate that the information presented in the LOMC continues to be true regardless of the depiction of this area on the FIRM.

For LOMCs that appear on more than one map panel, multiple records will exist with the same case number, but different panel numbers.

This is a Standard DFIRM Database table.

The L_MT1_LOMC table contains the following elements.

LOMC_ID	R	S	Primary key for table lookup. Assigned by table creator.
CASE_NO	R	S	Case Number. This is the case number assigned by FEMA to the LOMC. This must be filled in for reference back to the complete LOMC materials. The case number must be entered without hyphens or other separators.
EFF_DATE	R	S	Effective Date of the LOMC.
FIRM_PAN	R	S	FIRM panel number that the LOMC is on. This field provides a link to the S_FIRM_Pan table. MT1 LOMCs can be matched to a specific FIRM panel by matching this field to the FIRM_PAN field of the S_FIRM_Pan table.
LOMC_STAT	R	S	Status of the LOMC. Valid entries for this field include the following: 'superseded' 'revalidated' 'incorporated' 'redetermined' Only revalidated LOMCs are still in effect after a panel has been revised. All others must be superseded, redetermined or

incorporated into the new FIRM. Therefore, a final DFIRM Database will only include revalidated LOMCs.

Table: L_MT1_LOMC

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
LOMC_ID	R	S	text	11				string	11		character	11	11		character	11	
CASE_NO	R	S	text	13				string	13		character	13	13		character	13	
EFF_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
FIRM_PAN	R	S	text	11				string	11		character	11	11		character	11	
LOMC_STAT	R	S	text	20				string	20		character	20	20		character	20	

Table: L_Node_Disch

This table is required when hydrologic routing (flow combining) is used in the hydrologic analysis. For nodes whose subbasins are headwaters, this table will contain the same flow information as the subbasin's outflow table.

L_Node_Disch is a lookup table that contains information regarding hydrologic routing.

A node may have none, one, or many links connected to it.

If an existing node is to be moved, it must be renamed.

This is an Enhanced DFIRM Database table.

The L_Node_Disch table contains the following elements.

FLOW_ID	R	E	Primary key for this table. Assigned by table creator.
NODE_ID	R	E	Node Identification. A code that links to the S_Nodes table.
NODE_TYPE	R	E	Node Type. Values include junction (default), reservoir, structure, and diversion. A junction node may have none, one, or many links connected to it. Acceptable values for this field are listed in the D_Nodes table.
HYDRO_ID	R	E	Hydrologic Model Identification. Link to the L_Hydro_Model table, which stores information about the hydrologic methods used in the study.
FREQUENCY	R	E	Frequency Interval. This attribute stores the return period for the associated discharge. Acceptable values for this field are listed in the D_Frequency table.
DISCHARGE	R	E	Discharge. Subbasin discharge/outflow for the above return period.
DISCH_UNIT	R	E	Discharge Unit. This attribute stores the unit for the discharge. Acceptable values for this field are listed in the D_Discharge_Units table.

Table: L_Node_Disch

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FLOW_ID	R	E	text	11				string	11		character	11	11		character	11	
NODE_ID	R	E	text	11				string	11		character	11	11		character	11	
NODE_TYPE	R	E	text	10				string	10		character	10	10		character	10	
HYDRO_ID	R	E	text	11				string	11		character	11	11		character	11	
FREQUENCY	R	E	text	100				string	100		character	100	100		character	100	
DISCHARGE	R	E	text	11				string	11		character	11	11		character	11	
DISCH_UNIT	R	E	text	20				string	20		character	20	20		character	20	

Table: L_Pan_Revis

This table will not apply for an initial Flood Insurance Rate Map (FIRM) or for a FIRM that has a completely new paneling scheme such as a first time countywide FIRM. Otherwise, this table is required for all Preliminary or Final Digital Flood Insurance Rate Map databases.

The L_Pan_Revis table is a lookup table that contains information about historic revisions to each FIRM panel.

For each FIRM panel that is being revised, there must be at least one record. There may also be multiple records for multiple revision dates for a particular panel and there may be multiple records for a single revision date if there are multiple revision notes for that date. Each FIRM panel may have a unique set of revision dates and revision codes. There must be one record for each FIRM_PAN, REVIS_DATE, REVIS_NOTE combination.

This is a Standard DFIRM Database table.

The L_Pan_Revis table contains the following elements.

REVIS_ID	R	S	Primary key for table lookup. Assigned by table creator.
FIRM_PAN	R	S	FIRM Panel Number. This field links to the S_FIRM_Pan table. This must match a value in the FIRM_PAN field of the S_FIRM_Pan table. This is the complete FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL, and SUFFIX, which are found in S_FIRM_Pan table. The FIRM panel number is the 11-digit FIRM panel number that is shown in the title block of the map.
REVIS_DATE	R	S	Revision Date. Effective date of revision to the FIRM panel. FIRM revision dates can be found in the FIRM legend or the Flood Insurance Study (FIS) report.
REVIS_NOTE	R	S	Revision Note. Note describing the reason for the revision to the panel. This is shown under the effective date in the FIRM legend or in the FIS report. A list of standard revision notes appears in Appendix K of these Guidelines.

Table: L_Pan_Revis

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
REVIS_ID	R	S	text	11				string	11		character	11	11		character	11	
FIRM_PAN	R	S	text	11				string	11		character	11	11		character	11	
REVIS_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
REVIS_NOTE	R	S	text	254				string	254		character	254	254		character	254	

Table: L_Pol_FHBM

This table will not apply if all communities on the Flood Insurance Rate Map (FIRM) never had revisions to their Flood Hazard Boundary Maps (FHBMs). Otherwise, this table is required for all Digital Flood Insurance Rate Map databases.

The L_Pol_FHBM table is a lookup table that contains a list of communities and FHBM revisions.

Each community may have different revision dates. Each revision date may have multiple revision notes.

This is a Standard DFIRM Database table.

The L_Pol_FHBM table contains the following elements.

FHBM_ID	R	S	Primary key for table lookup. Assigned by table creator.
CID	R	S	Community Identification Number, which links to the S_Pol_Ar table. The value in this field must match a value in the CID field of the S_Pol_Ar table. This is the six-digit community identification number assigned by the Federal Emergency Management Agency (FEMA). It is created by combining the state Federal Information Processing Standard code with the COMM_NO. Only communities which have had a revision to their FHBM will appear in this table.
FHBM_DATE	R	S	FHBM revision date.
FHBM_NOTE	R	S	FHBM revision note that describes the reason for the revision. FHBM revision notes are shown in the FIRM legend or Flood Insurance Study report. A list of standard revision notes appears in Appendix K of these Guidelines.

Table: L_Pol_FHBM

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
FHBM_ID	R	S	text	11				string	11		character	11	11		character	11	
CID	R	S	text	6				string	6		character	6	6		character	6	
FHBM_DATE	R	S	date/time	8		yyyymmdd	00/00/0000	date			date	8	10		date		
FHBM_NOTE	R	S	text	254				string	254		character	254	254		character	254	

Table: L_Regression

This table is required when regression equations are used in hydrologic analysis.

L_Regression is a lookup table that stores information regarding the regression equations utilized in the hydrologic modeling.

This is an Enhanced DFIRM Database table.

The L_Regression table contains the following elements.

REGR_ID	R	E	Primary key for this table. Assigned by table creator.
SUBBAS_ID	R	E	Subbasin Identification. A code that provides a link to a valid entry from the S_Subbasins table.
REGR_EQN	R	E	Regression Equation. Regression equation used in the analysis. Non-Roman symbols (e.g., Greek) should be spelled out (e.g., Phi).
REGR_RPT	R	E	Regression Report. This field stores the name of the report in which the regression equation was published.

Table: L_Regression

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			Type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
REGR_ID	R	E	text	11				string	11		character	11	11		character	11	
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	
REGR_EQN	R	E	text	254				string	254		character	254	254		character	254	
REGR_RPT	R	E	text	254				string	254		character	254	254		character	254	

Table: L_Stn_Start

This table is required for any Digital Flood Insurance Rate Map database that has an S_XS or S_Riv_Mrk table. Because of production limitations, it may be omitted at the direction of the FEMA Project Officer.

The L_Stn_Start table contains information about station starting locations. These locations indicate the reference point that was used as the origin for distance measurements along streams and rivers. This table is referenced by both the S_XS table, which contains stream station information for cross section, and by the S_Riv_Mrk table, which contains river distance marker points. The location of the stationing start for a group of cross sections is normally referenced as a note on the Floodway Data table and on the Flood Profiles. Generally, all of the cross sections for a particular reach are referenced to the same starting point. If multiple reaches are measured from the same point, they may share the same record in L_Stn_Start.

This is a Standard DFIRM Database table.

The L_Stn_Start table contains the following elements.

START_ID	R	S	Primary key for table lookup. Assigned by table creator. This field is the link that is used to reference cross section in the S_XS table or river marks in the S_Riv_Mrk table to the appropriate stationing starting point.
START_DESC	R	S	Start Description. The description of the location of the station starting point. This should include the measurement units. For example, "Distances are measured in feet upstream from the confluence with the Main Channel of the Big River."

Table: L_Stn_Start

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
START_ID	R	S	text	11				string	11		character	11	11		character	11	
START_DESC	R	S	text	254				string	254		character	254	254		character	254	

Table: L_Storm_Curve

This table is required when precipitation data are used in the hydrologic analysis.

The L_Storm_Curve table accommodates descriptions of Depth-Duration-Frequency (DDF) and Intensity-Duration-Frequency (IDF) relationships, as well as durations of e.g. design storms and precipitation patterns of historical storms.

This is an Enhanced DFIRM Database table.

The L_Storm_Curve table contains the following elements.

CURVE_ID	R	E	Primary key for this table. Assigned by table creator.
STORM_ID	R	E	Storm Identification. A code that provides a link to a valid entry from the L_Storm_Info table.
DURATION	R	E	Duration. Duration of precipitation event. The duration is that of a design or historical storm, or of a point on a DDF or IDF curve.
TIME_UNIT	R	E	Duration Unit. This attribute establishes the unit of measure of the corresponding duration entry. Acceptable values for this field are listed in the D_Time_Units table.
DEPTH	A	E	Precipitation Depth. This field is populated only if entering data for a DDF curve.
LEN_UNIT	A	E	Precipitation Depth Unit. This attribute establishes the unit of measure for precipitation depth. This field is populated only if a precipitation depth is entered. Acceptable values for this field are listed in the D_Length_Units table.
INTENSITY	A	E	Rainfall Intensity. This field is populated only if entering data for an IDF curve.
VEL_UNIT	A	E	Rainfall Intensity Unit. This attribute establishes the unit of measure for precipitation intensity. This field is populated only if a precipitation intensity is entered. Acceptable values for this field are listed in the D_Velocity_Units table.
FREQUENCY	A	E	Frequency Interval. This attribute stores the return period of the associated discharge. Acceptable values for this field are listed in the D_Frequency table.

Table: L_Storm_Curve

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			Type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
CURVE_ID	R	E	text	11				string	11		character	11	11		character	11	
STORM_ID	R	E	text	11				string	11		character	11	11		character	11	
DURATION	R	E	text	11				string	11		character	11	11		character	11	
TIME_UNIT	R	E	text	20				string	20		character	20	20		character	20	
DEPTH	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
LEN_UNIT	A	E	text	20				string	20		character	20	20		character	20	
INTENSITY	A	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
VEL_UNIT	A	E	text	20				string	20		character	20	20		character	20	
FREQUENCY	A	E	text	100				string	100		character	100	100		character	100	

Table: L_Storm_Info

This table is required when precipitation distributions are used in the hydrologic analysis.

The L_Storm_Info table is a lookup table that contains basic descriptions of precipitation patterns.

This is an Enhanced DFIRM Database table.

The L_Storm_Info table contains the following elements.

STORM_ID	R	E	Primary key for this table. Assigned by table creator.
STORM_TYPE	R	E	Storm Type. This attribute establishes the storm type. Acceptable values for this field are listed in the D_Storms table.
STORM_DESC	A	E	Storm Description. Brief text description/note for the storm.
SUBBAS_ID	R	E	Subbasin Identification. A code that provides a link to a valid entry from the S_Subbasins table.

Table: L_Storm_Info

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
STORM_ID	R	E	text	11				string	11		character	11	11		character	11	
STORM_TYPE	R	E	text	20				string	20		character	20	20		character	20	
STORM_DESC	A	E	text	254				string	254		character	254	254		character	254	
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	

Table: L_Subbas_Disch

This table is required for all studies with new or revised non-coastal hydrologic data.

The L_Subbas_Disch table is a lookup table that contains outflow data for each subbasin and recurrence interval in the hydrologic analysis. The subbasin outflow data is specific to that subbasin and must not be a cumulative system flow. (System flows, if required, are assigned in L_Node_Disch.)

This is an Enhanced DFIRM Database table.

The L_ Subbas_Disch table contains the following elements.

DISCH_ID	R	E	Primary key for this table. Assigned by table creator.
SUBBAS_ID	R	E	Subbasin Identification. A code that provides a link to a valid entry from the S_Subbasins table.
FREQUENCY	R	E	Frequency Interval. This attribute stores the return period for the associated discharge. Acceptable values for this field are listed in the D_Frequency table.
DISCHARGE	R	E	Discharge. Subbasin discharge/outflow for the above return period.
DISCH_UNIT	R	E	Discharge Unit. This attribute stores the discharge unit value. Acceptable values for this field are listed in the D_Discharge_Units table.

Table: L_Subbas_Disch

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
DISCH_ID	R	E	text	11				string	11		character	11	11		character	11	
SUBBAS_ID	R	E	text	11				string	11		character	11	11		character	11	
FREQUENCY	R	E	text	100				string	100		character	100	100		character	100	
DISCHARGE	R	E	number (double)	8	2			number	13	2	numeric	8	13	2	decimal	15	2
DISCH_UNIT	R	E	text	20				string	20		character	20	20		character	20	

Table: L_XS_Ratings

This table is required for a detailed study.

The L_XS_Ratings table is a lookup table that contains information about the cross sections. This table should contain a record for each frequency / scenario associated with a cross section. For instance, if a cross section has data for the 25-, 100- and 500-year recurrence intervals, the L_XS_Ratings table should have three associated records. Therefore, each cross section should be associated with at least one record in L_XS_Ratings. The L_XS_Ratings table should possess at least one record at all times: the data for the 100-year regulatory model.

This is an Enhanced DFIRM Database table.

The L_XS_Ratings table contains the following elements.

XS_RATG_ID	R	E	Primary key for table lookup. Assigned systematically by the creator.
XS_LN_ID	R	E	Foreign key for table lookup that links to the S_XS table. Value in this field should match the values in the XS_LN_ID field of the S_XS table.
XS_NO	R	E	Cross Section Number. This attribute is used for all cross sections that are created during the engineering analysis. This must be populated with the number associated with the cross section used by the Mapping Partner in their modeling of the stream.
REACH_NM	A	E	Reach Name. This attribute stores that name of the reach in the model that the cross section intersects. XS_NO and REACH_NM may be used in conjunction as a unique identifier to identify the correct cross section in the model zipfile. This field is not populated if the correct cross section may be identified in the model without merging XS_NO and REACH_NM.
FREQUENCY	R	E	Frequency Interval. This field identifies the hydraulic analysis that applies to this record. Hydraulic analysis can be a recurrence interval (e.g., 1 percent or 0.2 percent flood hazard) or a scenario, for example without levee or with floodway. Acceptable values for this field are listed in the D_Frequency table. D_Frequency is an existing domain table that may be added to by the Mapping Partner that creates the database.
FREQ_WSEL	R	E	Water Surface Elevation. This is the water surface elevation associated with the frequency or scenario identified in FREQUENCY.

LEN_UNIT	R	E	Length Unit. This unit indicates the measurement system used for the water surface elevation, stream bed elevation, and top width. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	E	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
FREQ_Q	A	E	Discharge Value. This is the discharge value associated with the frequency or scenario identified in FREQUENCY. This field is required when the frequency or scenario identified is based on a discharge value. For example, it is not required for stage gage analysis on rivers near the coast.
DISCH_UNIT	A	E	Discharge Unit. This unit specifies the unit of measurement for the discharge. This field is populated only if a discharge value is entered. Acceptable values for this field are listed in the D_Discharge_Units table.
HYDRA_ID	R	E	Hydraulic Model Identification. A code that provides a link to the hydraulic model table, L_Hydra_Model. The L_Hydra_Model table will identify the hydraulic model used to calculate the flood hazard at this cross section line. This ID field must contain a number that matches the HYDRA_ID field for a record in the L_Hydra_Model table. The L_Hydra_Model table documents model information for this cross section. Multiple cross sections may link to a single record in the L_Hydra_Model table.
HYDRO_ID	R	E	Hydrologic Model Identification. A code that provides a link to the hydrologic model table, L_Hydro_Model. The L_Hydro Model table will identify the hydrologic model used to calculate the flood hazard at this cross section line. This ID field for a record in the L_Hydro_Model table. The L_Hydro_Model table documents model information for this cross section. Multiple cross sections may link to a single record in the L_Hydro_Model table.
EFF_MODELS	R	E	Effective Hydraulic and Hydrologic Model. This field is true only if the elevation and discharge are the result of the effective hydraulic and hydrologic models at this cross section. Enter “T” for true or “F” for false.

Table: L_XS_Ratings

Field	R/A	S/E	MS Access					ESRI Shapefile			ESRI Coverage				MapInfo		
			type	field size	dec	format	input mask	type	width	dec	type	item width	output width	dec	type	width	dec
XS_RATG_ID	R	E	text	11				string	11		character	11	11		character	11	
XS_LN_ID	R	E	text	11				string	11		character	11	11		character	11	
XS_NO	R	E	text	12				string	12		character	12	12		character	12	
REACH_NM	A	E	text	254				string	100		character	100	100		character	100	
FREQUENCY	R	E	text	100				string	254		character	254	254		character	254	
FREQ_WSEL	R	E	number (double)	8	2			number	8	2	numeric	8	13	2	decimal	15	2
LEN_UNIT	R	E	text	20				string	20		character	20	20		character	20	
V_DATUM	R	E	text	6				string	6		character	6	6		character	6	
FREQ_Q	A	E	number (double)	8	2			number	8	2	numeric	8	13	2	decimal	15	2
DISCH_UNIT	A	E	text	20				string	20		character	20	20		character	20	
HYDRA_ID	R	E	text	11				string	11		character	11	11		character	11	
HYDRO_ID	R	E	text	11				string	11		character	11	11		character	11	

EFF_MODELS	R	E	text	1				string	1		character	1	1		character	1	

L.8 Metadata Example for Preliminary and Final Digital Flood Insurance Rate Map Databases

DFIRM DATABASE, FLOOD COUNTY, USA

Identification_Information:
Citation:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 20000505
Title: DIGITAL FLOOD INSURANCE RATE MAP DATABASE, FLOOD COUNTY, USA
Geospatial_Data_Presentation_Form: Vector and Raster Digital Data
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency
Other_Citation_Details: Metadata_File_Name: 99009C_19980915_metadata.htm
Online_Linkage: http://www.fema.gov/msc
Description:
Abstract: The Digital Flood Insurance Rate Map (DFIRM) Database depicts flood risk information and supporting data used to develop the risk data. The primary risk classifications used are the 1-percent-annual-chance flood event, the 0.2-percent-annual-chance flood event, and areas of minimal flood risk. The DFIRM Database is derived from Flood Insurance Studies (FISs), previously published Flood Insurance Rate Maps (FIRMs), flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available. The FISs and FIRMs are published by the Federal Emergency Management Agency (FEMA). The file is georeferenced to earth's surface using the UTM projection and coordinate system. The specifications for the horizontal control of DFIRM data files are consistent with those required for mapping at a scale of 1:12,000.
Purpose: The FIRM is the basis for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP). Insurance applications include enforcement of the mandatory purchase requirement of the Flood Disaster Protection Act, which "... requires the purchase of flood insurance by property owners who are being assisted by Federal programs or by Federally supervised, regulated or insured agencies or institutions in the acquisition or improvement of land facilities located or to be located in identified areas having special flood hazards," Section 2 (b) (4) of the Flood Disaster Protection Act of 1973. In addition to the identification of Special Flood Hazard Areas (SFHAs), the risk zones shown on the FIRMs are the basis for the establishment of premium rates for flood coverage offered through the NFIP.

The DFIRM Database presents the flood risk information depicted on the FIRM in a digital format suitable for use in electronic mapping applications. The DFIRM database is a subset of the Digital FIS database that serves to archive the information collected during the FIS.
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19980701
Currentness_Reference: FIRM and FIS effective date
Status:
Progress: Complete
Maintenance_and_Update_Frequency: Irregular
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -84.125
East_Bounding_Coordinate: -84.25
North_Bounding_Coordinate: 30.5
South_Bounding_Coordinate: 30.625

Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: FEMA Flood Hazard Zone
Theme_Keyword: DFIRM Database
Theme_Keyword: DFIRM
Theme_Keyword: Special Flood Hazard Area
Theme_Keyword: Digital Flood Insurance Rate Map
Theme_Keyword: CBRS
Theme_Keyword: Coastal Barrier Resources System
Theme_Keyword: Riverine Flooding
Theme_Keyword: Coastal Flooding
Theme_Keyword: NFIP
Theme_Keyword: Base Flood Elevation
Theme_Keyword: SFHA
Theme_Keyword: Flood Insurance Rate Map
Theme_Keyword: FIRM
Theme_Keyword: Floodway
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: FLOOD COUNTY
Place_Keyword: USA
Access_Constraints: None
Use_Constraints: The hardcopy FIRM and DFIRM and the accompanying FISs are the official designation of SFHAs and Base Flood Elevations (BFEs) for the NFIP. For the purposes of the NFIP, changes to the flood risk information published by FEMA may only be performed by FEMA and through the mechanisms established in the NFIP regulations (44 CFR Parts 59-78).

These digital data are produced in conjunction with the hardcopy FIRMs and generally match the hardcopy map exactly. However the hardcopy flood maps and flood profiles are the authoritative documents for the NFIP.

Acknowledgement of FEMA would be appreciated in products derived from these data.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Federal Emergency Management Agency
Contact_Position: Federal Insurance and Mitigation Administration
Contact_Address:
Address_Type: mailing address
Address: 500 C Street, S.W.
City: Washington
State_or_Province: District of Columbia
Postal_Code: 20472
Country: USA
Contact_Voice_Telephone: 1-800-358-9616
Contact_Electronic_Mail_Address: www.fema.gov/msc
Native_Data_Set_Environment: Original data development environment varies. Finishing of the data is done using ESRI's ARC/INFO software.
Cross_Reference:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 19980701
Title: Flood Insurance Rate Map, FLOOD COUNTY, USA
Geospatial_Data_Presentation_Form: map
Publication_Information:

Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency

Cross_Reference:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: 19980701
Title: Flood Insurance Study, FLOOD COUNTY, USA
Geospatial_Data_Presentation_Form: document
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency

Cross_Reference:
Citation_Information:
Originator: Federal Emergency Management Agency
Publication_Date: *19980701*
Title: *Raster DFIRM, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: raster digital data
Publication_Information:
Publication_Place: Washington, DC
Publisher: Federal Emergency Management Agency

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: The DFIRM Database consists of countywide vector files and associated attributes produced in conjunction with the hard copy FEMAFIRM. The published effective FIRM and DFIRM maps are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Attribute accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system.

Independent quality control testing of FEMA's DFIRM database was also performed.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the FIS report that accompanies this DFIRM database. Users should be aware that BFEs shown in the S_BFE table represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report must be used in conjunction with the FIRM for purposes of construction and/or floodplain management. The 1-percent-annual-chance water-surface elevations shown in the S_XS table match the regulatory elevations shown in the FIS report.

Logical_Consistency_Report: When FEMA revises an FIS, adjacent studies are checked to ensure agreement between flood elevations at the boundaries. Likewise flood elevations at the confluence of streams studied independently are checked to ensure agreement at the confluence. The FIRM and the FIS are developed together and care is taken to ensure that the elevations and other features shown on the flood profiles in the FIS agree with the information shown on the FIRM. However, the elevations as shown on the FIRM are rounded whole-foot elevations. They must be shown so that a profile recreated from the elevations on the FIRM will match the FIS profiles within one half of one foot.

Completeness_Report: Data contained in the DFIRM Database files reflect the content of the source materials. Features may have been eliminated or generalized on the source graphic, due to scale and legibility constraints. With new mapping, FEMA plans to maintain full detail in the spatial data it

produces. However, older information is often transferred from existing maps where some generalization has taken place.

Flood risk data are developed for communities participating in the NFIP for use in insurance rating and for floodplain management. Flood hazard areas are determined using statistical analyses of records of river flow, storm tides, and rainfall; information obtained through consultation with the communities; floodplain topographic surveys; and hydrological and hydraulic analysis. Both detailed and approximate analyses are employed. Generally, detailed analyses are used to generate flood risk data only for developed or developing areas of communities. For areas where little or no development is expected to occur, FEMA uses approximate analyses to generate flood risk data. Typically, only drainage areas that are greater than one square mile are studied.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report: The DFIRM Database consists of countywide vector files and associated attributes produced in conjunction with the hardcopy FEMA FIRM. The published effective FIRM and DFIRM are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Horizontal accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system.

Independent quality control testing of FEMA's DFIRM database was also performed.

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report: The DFIRM Database consists of countywide vector files and associated attributes produced in conjunction with the hardcopy FEMA FIRM. The published effective FIRM and DFIRM maps are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Vertical accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system.

Independent quality control testing of FEMA's DFIRM database was also performed.

Lineage

Source_Information:

Source_Citation:

Citation_Information:

Originator: Federal Emergency Management Agency

Publication_Date: 1987

Title: Flood Insurance Study, FLOOD COUNTY USA (Unincorporated areas).

Geospatial_Data_Presentation_Form: map

Publication_Information:

Publication_Place: Washington, DC

Publisher: Federal Emergency Management Agency

Other_Citation_Details: The hydrologic and hydraulic analyses for the FIS dated April 17, 1987, were prepared by the U.S. Army Corps of Engineers (USACE), Springfield District, for the Federal Emergency Management Agency (FEMA), under Inter-

Agency Agreement No. EMW-84-E-1506. That work was completed in December 1985. Denominator_of_Source_Scale: 2400-12000.

Source_Scale_Denominator: 12,000

Type_of_Source_Media: paper

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 19870601

Source_Currentness_Reference: Effective Date

Source_Citation_Abbreviation: FIS1

Source_Contribution: Spatial and attribute information, floodplain widths, BFEs, floodplain location.

Source_Information:

Source_Citation:

Citation_Information:

Originator: Federal Emergency Management Agency

Publication_Date: 1987

Title: Flood Insurance Study, FLOODVILLE, Town of

Geospatial_Data_Presentation_Form: map

Publication_Information:

Publication_Place: Washington, DC

Publisher: Federal Emergency Management Agency

Other_Citation_Details: The hydrologic and hydraulic analyses for the FIS report dated April 17, 1987, were prepared by the USACE, Springfield District, for the FEMA, under Inter-Agency Agreement No. EMW-84-E-1506, Project Order No. 1, Amendment No. 4. That work was completed in December 1985. Denominator_of_Source_Scale: 2400-12000.

Source_Scale_Denominator: 12,000

Type_of_Source_Media: paper

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 19870601

Source_Currentness_Reference: Effective Date

Source_Citation_Abbreviation: FIS2

Source_Contribution: Spatial and attribute information, floodplain widths, BFEs, floodplain location.

Source_Information:

Source_Citation:

Citation_Information:

Originator: Federal Emergency Management Agency

Publication_Date: 1998

Title: Flood Insurance Study Report, FLOOD COUNTY, USA and Incorporated areas.

Geospatial_Data_Presentation_Form: map

Publication_Information:

Publication_Place: Washington, DC

Publisher: Federal Emergency Management Agency

Other_Citation_Details: For this countywide FIS, the hydrologic and hydraulic analyses were prepared by USACE for FEMA, under Inter-Agency Agreement No. EMW-94-C-0019. This work was completed in October 1995. Denominator_of_Source_Scale: 2400-12000.

Source_Scale_Denominator: 12000

Type_of_Source_Media: paper

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 19980701

Source_Currentness_Reference: Effective Date

Source_Citation_Abbreviation: FIS3

Source_Contribution: Spatial and attribute information, floodplain widths, BFEs, floodplain location.

Source_Information:

Source_Citation:

Citation_Information:

Originator: Town of Floodville Stormwater Management Department, 126 Royal Oaks Drive, Suite 201, Floodville, USA 99150

Publication_Date: 1995

Title: Base map for Floodville, USA

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Floodville, USA

Publisher: Town of Floodville Stormwater Management

Other_Citation_Details: These files were photogrammetrically compiled at scales of 1"=200' (urban areas) and 1"=400' (rural areas) from aerial photographs.

Source_Scale_Denominator: 4,800

Type_of_Source_Media: CD-ROM

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 19950301

Source_Currentness_Reference: ground conditions

Source_Citation_Abbreviation: BASE1

Source_Contribution: Location of roads, railroads, bridges, streams and other physical features shown.

Source_Information:

Source_Citation:

Citation_Information:

Originator: Flood County Geographic Information Systems Department, 1110 South Road, Suite 205, Floodville, USA 99150

Publication_Date: 1995

Title: Base map for Flood County, USA

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Floodville, USA

Publisher: Flood County Geographic Information Systems Department

Other_Citation_Details: These files were photogrammetrically compiled at scales of 1"=200' (urban areas) and 1"=400' (rural areas) from aerial photographs.

Source_Scale_Denominator: 4,800

Type_of_Source_Media: CD-ROM

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 19950301

Source_Currentness_Reference: ground conditions

Source_Citation_Abbreviation: BASE2

Source_Contribution: Location of roads, railroads, bridges, streams and other physical features shown:

Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Geological Survey

Publication_Date: 1998

Title: Digital Orthophoto Quadrangle
Geospatial_Data_Presentation_Form: remote-sensing image
Publication_Information:
Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Other_Citation_Details: The digital orthophoto quadrangle (DOQ) is a 1-meter ground resolution, quarter-quadrangle (3.75-minutes of latitude by 3.75-minutes of longitude) image cast on the Universal Transverse Mercator Projection (UTM) on the North American Datum of 1983 (NAD83). The imagery is based on panchromatic black and white (or color infra-red) NAPP or NAPP-like photography.
Source_Scale_Denominator: 12,000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19970301
Source_Currentness_Reference: ground conditions
Source_Citation_Abbreviation: BASE3
Source_Contribution: Location of roads, railroads, bridges, streams and other physical features shown:
Process_Step:
Process_Description: The DFIRM Database is compiled in conjunction with the hardcopy FIRM and the final FIS report. The specifics of the hydrologic and hydraulic analyses performed are detailed in the FIS report. The results of these studies are submitted in digital format to FEMA. These data and unrevised data from effective FIRMs are compiled onto the base map used for DFIRM publication and checked for accuracy and compliance with FEMA standards.
Source_Used_Citation_Abbreviation: FIS1-FIS3, BASE1-BASE3
Process_Date: 1996
Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector and raster
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: String
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Raster_Object_Information:
Raster_Object_Type: Pixel
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 16
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.9996
Longitude_of_Central_Meridian: -87.0
Latitude_of_Projection_Origin: 0.0
False_Easting: 500000
False_Northing: 0.0
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: Coordinate Pair
Coordinate_Representation:
Abscissa_Resolution: 0.061

Ordinate_Resolution: 0.061
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Datum_Name: North American Vertical Datum of 1988
Altitude_Resolution: 0.03
Altitude_Distance_Units: feet
Altitude_Encoding_Method: Attribute Values
Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview: The DFIRM Database is made up of several data themes containing both spatial and attribute information. These data together represent the current flood risk for the subject area as identified by FEMA. The attribute tables include SFHA locations, flood zone designations, BFEs, political entities, cross-section locations, FIRM panel information, and other data related to the NFIP.
Entity_and_Attribute_Detail_Citation: Appendix L of FEMA's Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of each attribute code and a reference to other relevant information.

The following tables are included in this data set:
S_BFE
S_Fld_Haz_Ar
S_Fld_Haz_Ln
S_Gen_Struct
S_LOMR
L_Stn_Start
S_Wtr_Ar
S_Wtr_Ln
S_XS
L_Wtr_Nm
S_Base_Index
S_Perm_Bmk
S_PLSS_AR
S_PLSS_LN
S_Pol_Ar
S_Pol_Ln
S_Quad_Index
S_Label_Ld
S_Trnsport_Ln
S_Label_Pt
Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: FEMA, Map Service Center
Contact_Address:
Address_Type: mailing address
Address: P.O. Box 1038
City: Jessup
State_or_Province: Maryland
Postal_Code: 20794-1038

Country: USA
Contact_Voice_Telephone: 1-800-358-9616
Contact_Electronic_Mail_Address: www.fema.gov/msc
Contact_Instructions: Data requests must include the full name of the community or county and the FIRM panel number(s) or the 7.5- minute series quadrangle sheet area(s) covered by the request.
Distribution_Liability: No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty. FEMA will warrant the delivery of this product in a computer-readable format, and will offer appropriate adjustment of credit when the product is determined unreadable by correctly adjusted computer input peripherals, or when the physical medium is delivered in damaged condition. Requests for adjustment of credit must be made within 90 days from the date of this shipment from the ordering site.
Standard_Order_Process:
Non-digital_Form: Printed DFIRMs that match this data set are available from FEMA at the Map Service Center, cited above.
Digital_Form:
Digital_Transfer_Information:
Format_Name: ESRI Shapefile
Format_Version_Number: 1
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO 9660
Digital_Form:
Digital_Transfer_Information:
Format_Name: MapInfo Interchange file (MIF)
Format_Version_Number: 1
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO 9660
Digital_Form:
Digital_Transfer_Information:
Format_Name: ARCE
Format_Version_Number: 1
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO 9660
Fees: Contact Distributor
Metadata_Reference_Information:
Metadata_Date: 19980509
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Federal Emergency Management Agency
Contact_Position: Federal Insurance and Mitigation Administration
Contact_Address:
Address_Type: mailing address
Address: 500 C Street, S.W.
City: Washington
State_or_Province: District of Columbia
Postal_Code: 20472
Country: USA
Contact_Voice_Telephone: 1-800-358-9616
Contact_Electronic_Mail_Address: www.fema.gov/msc

Metadata_Standard_Name : FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

L.9 Domain Tables

This section contains a list of domain tables for the DFIRM Database. For Preliminary or Final DFIRM Databases, these tables list acceptable values for fields which are referenced to a domain table. For draft DFIRM data that follow the structure defined in Section L.4, these tables provide the contents for the domain tables included in that option.

Note that if pre-existing data are used by the Mapping Partner for S_PLSS_Ar, S_PLSS_Ln, S_Trnsport_Ln, S_Wtr_Ar or S_Wtr_Ln, it is not necessary to limit field values to only the domains defined here for those tables.

Table: D_Area_Units

AREA_LID	AREA_UNITS
1000	ACRES
1010	HECTARES
1020	SQUARE FEET
1030	SQUARE METERS
1040	SQUARE YARDS

Table: D_CBRS_Typ

CBRS_LID	CBRS_TYP
1000	COASTAL BARRIER RESOURCES SYSTEM
1010	OTHERWISE PROTECTED AREA

Table: D_Chan_Rep

CHAN_LID	CHAN_REP
1000	SINGLE
1010	DOUBLE

Table: D_Discharge_Units

DISCH_LID	DISCH_UNIT
1000	CFS
1010	CMS
1020	GPD
1030	GPM

Table: D_Eros_Method

EROS_LID	EROS_METH
1010	NOT APPLIED
1020	REMOVAL
1030	RETREAT

Table: D_Floodway

FLDWAY_LID	FLOODWAY
1000	FLOODWAY
1010	COLORADO RIVER
1020	FLOODWAY CONTAINED IN CHANNEL
1030	FLOWAGE EASEMENT BOUNDARY
1040	STATE ENCROACHMENT
1050	AREA OF SPECIAL CONSIDERATION

Table: D_Frequency

FREQ_LID	FREQUENCY
1001	0.2 PCT
1002	1 PCT
1003	2 PCT
1004	4 PCT
1005	10 PCT
1006	1 PCT LEVEE
1007	1 PCT LEVEE, RIGHT FAILED
1008	1 PCT LEVEE, LEFT FAILED
1009	1 PCT LEVEE, LEFT AND RIGHT FAILED
1010	1 PCT WITH FLOODWAY
1011	1 PCT WITHOUT FLOODWAY

Table: D_Gage

GAGE_LID	GAGE_TYPE
1000	FLOW
1010	FLOW / STAGE
1020	STAGE
1100	FIXED INTERVAL
1110	INSTANTANEOUS
1120	TIPPING
1200	WAVE HEIGHT
1210	WIND DIRECTION
1220	WIND SPEED
1230	WIND SPEED & DIRECTION
1240	TIDE

Table: D_Hydra

HYDRA_LID	HYDRA_MDL
1000	ADVANCED ICPR 2.20 (OCTOBER 2000)
1001	DHM 21 (AUGUST 1987)
1002	FEQ 8.92 (1997)
1003	FEQUTL 4.68 (1997)
1004	FESWMS 2DH 1.1 (JUNE 1995)
1005	FLDWAV (NOVEMBER 1998)
1006	FLDWY (MAY 1989)
1007	FLO-2D V.2000.11 (DECEMBER 2000)
1008	GAGE ANALYSIS
1009	HCSWMM 4.31B (AUGUST 2000)
1010	HEC-2 4.6.2 (MAY 1991)
1011	HEC-RAS 2.2 (SEPTEMBER 1998)
1012	HEC-RAS 3.0.1
1013	HY8 4.1
1014	HY8 6.0
1015	MIKE 11 HD (JUNE 1999)
1016	PSUPRO
1017	QUICK-2 1.0
1018	QUICK-2 2.0
1019	SFD
1020	SHEET 2D 9 (JULY 2000)
1021	SWMM 4.30 (MAY 1994)

HYDRA_LID	HYDRA_MDL
1022	SWMM 4.31 (JANUARY 1997)
1023	TABS-RMA2 V.4.3 (OCTOBER 1996)
1024	TABS-RMA4 V.4.5 (JULY 2000)
1025	UNET 4.0 (APRIL 2001)
1026	WSPGW 12.96 (OCTOBER 2000)
1027	WSPRO (JUNE 1988)

Table: D_Hydro

HYDRO_LID	HYDRO_MDL
2000	AHYMO 97 (AUGUST 1997)
2001	CUHPF/PC (MAY 1996)
2002	DBRM 3.0 (1993)
2003	DR3M (OCTOBER 1993)
2004	FAN
2005	HEC-FFA 3.1
2006	HEC-1 4.0.1
2007	HEC-1 4.1
2008	HEC-HMS 1.1
2009	HEC-HMS 2.0
2010	HEC-HMS 2.0.3
2011	HEC-HMS 2.1.1
2012	HEC-HMS 2.1.2
2013	HEC-HMS 2.1.3
2014	HEC-IFH 1.03
2015	HEC-IFH 1.04
2016	HEC-IFH 2.0
2017	HEC-IFH 2.01
2018	HSPF 10.10
2019	HSPF 10.11
2020	HSPF 11.0
2021	HYMO

HYDRO_LID	HYDRO_MDL
2022	MIKE 11 RR (JUNE 1999)
2023	MIKE 11 UHM (JUNE 1999)
2024	PEAKFQ 2.4 (APRIL 1998)
2025	PEAKFQ 2.5
2026	PEAKFQ 3.0
2027	PEAKFQ 4.0
2028	RATIONAL METHOD
2029	REGRESSION EQUATIONS
2030	SNYDER METHOD
2031	SWMM (RUNOFF) 4.30 (MAY 1994)
2032	SWMM (RUNOFF) 4.31 (JANUARY 1997)
2033	TR-20 (FEBRUARY 1992)
2034	TR-55 (JUNE 1986)

Table: D_Label_Typ

LABEL_LID	LABEL_TYPE
1000	DOQ-TRANSPORTATION
1010	DOQ-WATER
1020	S_TRNSPORT_LN
1030	S_WTR_AR
1040	S_WTR_LN

Table: D_Length_Units

LEN_LID	LEN_UNIT
1000	CENTIMETERS
1010	FEET
1020	INCHES
1030	KILOMETERS
1040	METERS
1050	MILES
1060	MILLIMETERS

Table: D_Ln_Typ

Some lines may have multiple values. For the S_Pol_Ln table, the following precedence should apply: INTERNATIONAL, STATE, COUNTY, CORPORATE, EXTRATERRITORIAL JURISDICTION, URBAN GROWTH BOUNDARY, MUNICIPAL URBAN DRAINAGE DISTRICT, LEVEE IMPROVEMENT DISTRICT, AREA NOT INCLUDED, RESERVATION, FOREST, and PARK.

For the S_Fld_Haz_Ln table, the following precedence should apply: LIMIT OF DETAILED STUDY, LIMIT OF STUDY, LIMIT OF FLOODWAY, FLOODWAY, 1 PCT ANNUAL-CHANCE FLOOD HAZARD, ZONE BREAK, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD, FLOWAGE EASEMENT BOUNDARY, and STATE ENCHROACHMENT LINE.

For the S_PLSS_Ln table, the following precedence should apply: TOWNSHIP, RANGE, SECTION, QUARTER SECTION, and MEANDER.

LN_LID	LN_TYP
1010	AREA NOT INCLUDED
1020	CORPORATE
1021	EXTRATERRITORIAL JURISDICTION
1022	LEVEE IMPROVEMENT DISTRICT
1023	MUNICIPAL UTILITY DISTRICT
1024	UTILITY DISTRICT
1025	MISCELLANEOUS JURISDICTIONAL LAND
1026	MISCELLANEOUS PUBLIC LAND BOUNDARY
1030	COUNTY
1040	FOREST
1041	PARK
1042	RESERVATION
1050	INTERNATIONAL
1060	STATE
1070	URBAN GROWTH BOUNDARY

LN_LID	LN_TYP
1080	MUNICIPAL URBAN DRAINAGE DISTRICT
2000	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
2001	1 PCT ANNUAL CHANCE FLOOD HAZARD
2002	ZONE D
2030	APPARENT LIMIT
2031	LIMIT OF DETAILED STUDY
2032	LIMIT OF FLOODWAY
2033	LIMIT OF STUDY
2040	FLOODWAY
2050	FLOWAGE EASEMENT BOUNDARY
2051	STATE ENCROACHMENT LINE
2052	ZONE BREAK
3000	QUARTER SECTION
3010	RANGE
3020	TOWNSHIP
3030	SECTION
3040	MEANDER
4000	SOURCE BOUNDARY
9000	END OF SPATIAL EXTENT

Table: D_Method

METH_LID	METHOD
1010	CUT FROM TOPO
1020	DIGITIZED FROM FIRM
1030	FIELD SURVEY

Table: D_Nm_Typ

NM_LID	NM_TYP
1000	ALLEY
1001	ARCADE
1002	AVENIDA
1003	AVENUE
1004	BOULEVARD
1005	BYPASS
1006	CALLE
1007	CAUSEWAY
1008	CENTER
1009	CIRCLE
1010	COUNTY HIGHWAY
1011	COURT
1012	COVE
1013	CRESCENT
1014	CROSSING
1015	DRIVE
1016	ESTE
1017	EXPRESSO
1018	EXPRESSWAY
1019	FREEWAY
1020	HIGHWAY
1021	INTERSTATE HIGHWAY

NM_LID	NM_TYP
1022	LANE
1023	LOOP
1024	MOTORWAY
1025	NORTE
1026	OESTE
1027	PARKWAY
1028	PASEO
1029	PASS
1030	PATH
1031	PIKE
1032	PLACE
1033	PLAZA
1034	ROAD
1035	ROW
1036	RUE
1037	SQUARE
1038	STATE HIGHWAY
1039	STREET
1040	SUR
1041	TERRACE
1042	THROUGHWAY
1043	TRAFFICWAY
1044	TRAIL

NM_LID	NM_TYP
1045	TURNPIKE
1046	WAY

Table: D_Nodes

NODE_LID	NODE_TYPE
1000	DIVERSION
1010	JUNCTION
1020	RESERVOIR
1030	STRUCTURE

Table: D_Panel_Typ

PANEL_LID	PANEL_TYP
1000	COUNTYWIDE, PANEL PRINTED
1010	COUNTYWIDE, NOT PRINTED
1020	COMMUNITY BASED, PANEL PRINTED
1030	COMMUNITY BASED, NOT PRINTED
1040	UNMAPPED COMMUNITY

Table: D_Rd_Stat

RD_S_LID	RD_STAT
1000	PAVED
1010	PROPOSED
1020	UNDER CONSTRUCTION
1030	UNIMPROVED

Table: D_Runup_Mdl

RUNUP_LID	RUNUP_MDL
1010	ACES 1.07 (1992)
1020	CHAMP (1.0) (2001)
1030	EROSION (1998)
1040	GLWRM (1992)
1050	RUNUP 2.0 (1990)

Table: D_Scale

SCALE_LID	SCALE
1000	6000
1010	12000
1020	24000

Table: D_Shr_Rough

SHR_LID	SHR_ROUGH
1001	VERY LOW
1002	LOW
1003	MODERATE
1004	HIGH
1005	VERY HIGH

Table: D_Shr_Typ

SHRTYP_LID	SHRLN_TYP
1001	ZERO FOOT CONTOUR FIELD SURVEY
1002	ZERO FOOT CONTOUR LIDAR/SHOALS

Table: D_Storms

STORM_LID	STORM_TYPE
1000	CHICAGO
1010	DDF
1020	HUFF
1030	IDF
1040	SANTA BARBARA
1050	SCS TYPE I
1060	SCS TYPE II
1070	SCS TYPE IIA
1080	SCS TYPE III
1090	TRIANGULAR
1100	UNIFORM

Table: D_Struct_Typ

STRUCT_LID	STRUCT_TYP
1000	AQUEDUCT
1001	BRIDGE
1002	CANAL
1003	CHANNEL
1004	CHANNEL CONTAINS 0.2 PCT FLOOD EVENT
1005	CHANNEL CONTAINS 1 PCT FLOOD EVENT
1006	CONTROL STRUCTURE
1007	CULVERT
1008	CULVERT CONTAINS 0.2 PCT FLOOD EVENT
1009	CULVERT CONTAINS 1 PCT FLOOD EVENT
1010	DAM
1011	DIKE
1012	DOCK
1013	DROP STRUCTURE
1014	ENERGY DISSIPATER
1015	FISH LADDER
1016	FLOODWAY CONTAINED IN CHANNEL
1017	FLUME
1018	FOOTBRIDGE
1019	GATE
1020	JETTY
1021	LEVEE

STRUCT_LID	STRUCT_TYP
1022	LOCK
1023	PENSTOCK
1024	PIER
1025	PUMP STATION
1026	SEAWALL
1027	SIDE WEIR STRUCTURE
1028	STORM SEWER
1029	UTILITY CROSSING
1030	WEIR
1031	WING WALL
1032	STRUCTURE CONTAINS 1 PCT FLOOD EVENT

Table: D_Surge_Mdl

SURGE_LID	SURGE_MDL
1010	DYNLET
1020	FEMA SURGE (1988)
1030	FLOW2D (1975)
1040	MIKE 21 HD/NHD
1050	NEW ENGLAND TIDE PROFILE
1060	NORTHEASTER MODEL (1978)
1070	ODISTIM (1975)
1080	TABS RMA2 V.4.3 (OCTOBER 1996)
1090	USACE GREAT LAKES TIDE PROFILE (1998)

Table: D_Time_Units

TIME_LID	TIME_UNIT
1000	DAYS
1010	HOURS
1020	MINUTES
1030	MONTHS
1040	SECONDS
1050	WEEKS
1060	YEARS

Table: D_Trans_Typ

TRANS_LID	TRANS_TYP
1000	UNDEFINED ROAD
1001	PRIMARY ROAD
1002	SECONDARY ROAD
1003	TRAIL
1010	ROAD TUNNEL
1020	FORD
2000	UNDEFINED RAILROAD
2001	ACTIVE RAILROAD
2002	ABANDONED RAILROAD
2003	DISMANTLED RAILROAD
2010	RAILROAD TUNNEL
3000	AIRPORT
4000	FERRY

Table: D_V_Datum

V_DATM_LID	V_DATUM
1000	MSL
1010	NAVD88
1020	NGVD29

Table: D_Velocity_Units

VEL_LID	VEL_UNIT
1000	CENTIMETERS / DAY
1010	CENTIMETERS / HOUR
1020	FEET / SECOND
1030	INCHES / DAY
1040	INCHES / HOUR
1050	METERS / SECOND
1060	MICROMETERS / SECOND
1070	MILLIMETERS / DAY
1080	MILLIMETERS / HOUR

Table: D_Volume_Units

VOL_LID	VOL_UNIT
1000	ACRE-FEET
1010	CUBIC FEET
1020	CUBIC METERS
1030	CUBIC YARDS
1040	GALLONS
1050	LITERS
1060	MILLION GALLONS

Table: D_VZone

VZONE_LID	VZONE_EXT
1010	30 FOOT SPLASH ZONE BEHIND STRUCTURE
1020	PFD
1030	RUNUP EXTENT
1040	WHAFIS

Table: D_Water_Typ

WATER_LID	WATER_TYP
1000	AREA OF COMPLEX CHANNELS
1001	ARTIFICIAL PATH
1002	BAY / INLET
1003	BAYOU
1004	BOG
1005	BYPASS / DIVERSION
1006	CANAL / DITCH
1007	CHANNEL
1008	CONCRETE / EARTHEN CHANNEL
1009	CONCRETE / EARTHEN DITCH
1010	CONCRETE CHANNEL
1011	CONCRETE DITCH
1012	CONNECTOR
1013	CREEK
1014	CREVASSE FIELD
1015	DETENTION POND
1016	EARTHEN CHANNEL
1017	EARTHEN DITCH
1018	ESTUARY
1019	FISH LADDER
1020	FLUME
1021	GULCH

WATER_LID	WATER_TYP
1022	HATCHERY
1023	ICE MASS / GLACIER
1024	INTERMITTENT RIVER / STREAM
1025	LAKE / POND
1026	LOCK CHAMBER
1027	MUD POT
1028	NONEARTHEN SHORE
1029	OVERFLOW
1030	PERENNIAL RIVER / STREAM
1031	PLAYA
1032	PROFILE BASELINE
1033	RACE
1034	RESERVOIR
1035	RETENTION POND
1036	SAND PIT
1037	SEA / OCEAN
1038	SHORELINE / COASTLINE
1039	SPILLWAY
1040	STREAM / RIVER
1041	SUBMERGED STREAM
1042	SWAMP / MARSH
1043	TAILINGS POND
1044	UNDERPASS

WATER_LID	WATER_TYP
1045	WASH
1046	WASTE WATER LAGOON / POND
1047	WATER SEPARATION LINE
1048	WATERFALL
1049	WATERWAY
1050	WETLANDS
1051	NAVIGABLE WATERWAY
1052	SOUND
1053	ISLAND
1054	CHANNEL CONTAINS 1 PCT FLOOD EVENT
1055	HYDROLOGIC LINK
1056	PROFILE BASELINE AND STREAM CENTERLINE
1057	STREAM CENTERLINE

Table: D_Wave_Mdl

WAVEHT_LID	WAVEHT_MDL
1010	CHAMP 1.0 (2001)
1020	MIKE 21 (OSW)
1030	MIKE 21 (NSW)
1040	RCPWAVE (1986)
1050	WHAFIS 3.0 (1988)
1060	WHAFIS 3.0 GL (1993)

Table: D_Zone

Where the 1-percent-annual-chance flood or the 0.2-percent-annual-chance flood is contained in a culvert or channel, a corresponding feature appears in the S_Fld_Haz_Ar table only if an SFHA or 0.2-percent-annual-chance flood zone is shown on the FIRM in this area. In general, these culverts and channels are to be represented in the general structure table regardless of how the flood insurance risk zones are depicted. So, if these structures are shown on the FIRM as a dashed line passing through a Zone X, no corresponding flood insurance risk zone is shown in S_Fld_Haz_Ar table in the DFIRM database. If a narrow SFHA or 0.2-percent-annual-chance flood zone is shown on the FIRM, then a narrow polygon must be included in the DFIRM database. If the width of this flood insurance risk zone is accurately known and represented in the spatial data, the normal flood insurance risk zone is applied. If the width of the flood insurance risk zone is not accurately known and represented because of scale limitations, then the zone is designated as 1-percent-annual-chance flood contained in channel or 0.2-percent-annual-chance flood contained in channel as appropriate.

ZONE_LID	FLD_ZONE
1000	A
1001	AE
1002	AH
1003	AO
1004	AR
1005	1 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL
1006	1 PCT FUTURE CONDITIONS
1007	A99
1008	V
1009	VE
2000	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
2001	0.2 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL
3000	AREA NOT INCLUDED
4000	D

ZONE_LID	FLD_ZONE
4001	X PROTECTED BY LEVEE
4002	X
5000	OPEN WATER