

HARRIS COUNTY FLOOD CONTROL DISTRICT

ENGINEERING AND CONSTRUCTION DIVISION *DEVELOPMENT SERVICES*

GIS DATA FORMAT STANDARDS FOR DELIVERABLES

FEMA CLOMR / LOMR SUBMITTALS

5/5/2015



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This document is to be followed by outside Agencies in formatting their Geographic Information System (GIS) data supporting their Federal Emergency Management Agency (FEMA) Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) submittals to the specifications and requirements of the Harris County Flood Control District. Document Authored by: Richard Rogers (Sr GIS Technician IS-GIS Group)

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1.0 FEMA Submittal Geospatial Data Requirements

1.1 Overview

Modifications to hydrologic or hydraulic models that necessitate the submission of a CLOMR or LOMR must be supported with appropriate geospatial information.

1.2 Purpose

The purpose of this subsection is to describe the requirements for geospatial information that must be submitted in support of studies that require preparation of a CLOMR or LOMR (revision or proposed revision to the effective Flood Insurance Rate Map [FIRM]), in addition to that required in direct support of hydrologic and hydraulic modeling.

1.3 Application

Update all relevant GIS data layers, including revisions to the 1% and 0.2% FEMA effective floodplains and FEMA floodway limits, for all submittals when proposed activities modify any or all of the following:

- Watershed drainage area boundaries
- Subbasin drainage area boundaries
- FEMA Effective Floodplain limits
- FEMA Effective Floodway limits
- Cross section location map

Update all relevant GIS data layers and modify the geospatial files distributed with the models checked-out for the study. In addition to the geospatial data requirements described in the previous section, submit geospatial data associated with the update of the floodplain mapping for a study.

The required layers include the following:

- 1% annual chance (100-year) floodplain (if applicable)
- 0.2% annual chance (500-year) floodplain (if applicable)
- Floodway (if applicable)
- Revised base flood elevations (if applicable)
- Added cross sections (if applicable)
- Revised or added area water features (if applicable)
- Revised or added linear water features (if applicable)
- CLOMR / LOMR boundary feature (if applicable)

1.4 Projection

All GIS data supporting CLOMR / LOMR submittal are to be in projected grid coordinates.

Data Type: ESRI Shapefile
Geometry Type: Polygon, Line or Point

Projected Coordinate System: NAD_1983_StatePlane_Texas_South_Central_FIPS_4204_Feet
Projection: Lambert_Conformal_Conic
False_Easting: 1968500.00000000
False_Northing: 13123333.33333333
Central_Meridian: -99.00000000
Standard_Parallel_1: 28.38333333
Standard_Parallel_2: 30.28333333
Latitude_Of_Origin: 27.83333333
Linear Unit: Foot_US

Geographic Coordinate System: GCS_North_American_1983
Horizontal Datum: North American Datum of 1983
Vertical Datum: North American Vertical Datum (NAVD) 88 with 2001 adjustment
Prime Meridian: Greenwich
Angular Unit: Degree

1.5 Topography

Use the HCFCD LIDAR dataset (2001) with 2-foot contours as the base topographic data set for modeling purposes. This data is available from the HCFCD Planning department and is organized in tiles by USGS quarter quad. The 2001 LIDAR dataset meets the minimum accuracy requirements for use in FEMA studies. However, the data must be supplemented with survey data for use in hydraulic analysis.

Use the 2001 LIDAR dataset provided by HCFCD for CLOMR and LOMR submissions. Other LIDAR datasets are not allowed except in the Addicks watershed. A study has been submitted to FEMA which will replace the effective information in the Addicks watershed. CLOMR and LOMR requests in Addicks watershed must currently analyze the effect of their request on the current effective condition and the submitted study condition. Analyses based on the submitted study must utilize the 2001 LiDAR flown in 2008 NUSA provided by H-GAC.

Note: Mapping proposed sites developed since 2001 may not be able to use the 2001 LIDAR dataset because the 2001 LIDAR does not reflect the change. In these cases, for a CLOMR use the conceptual plan or proposed design plans for the project, and for a LOMR use field surveyed topography or as-built survey data.

1.6 Topology

The submitting Agency shall ensure that vector data files created meet the following data structure requirements:

- Digitized linework must be collected at a reasonably fine line weight.
- Digitized Line features must be continuous (no dashes, dots, patterns, or hatching).
- Area spatial features for a given theme must cover the entire study area without overlaps, underlaps 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 submitting Agency must meet include the following:

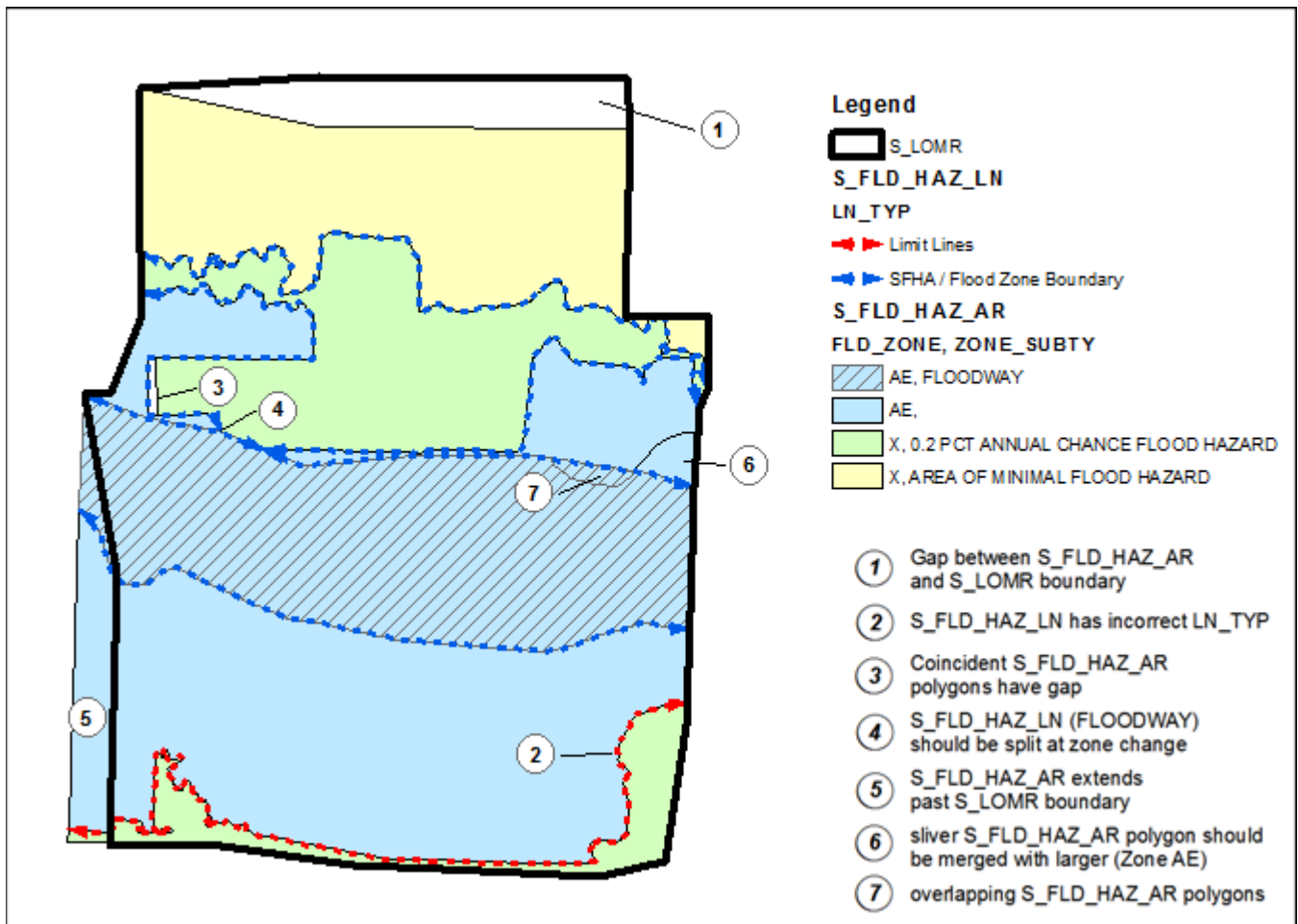
- Areas will be represented by closed polygons, without overshoots or undershoots.
- Unattributed polygons are not permitted, including "sliver" polygons that result from poor digitizing methods.
- Unnecessary nodes and vertices must be avoided.
- Vertices should be placed conservatively when designing 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 should 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.

Topology Properties to Check in ArcGIS

<u>Feature Class</u>	<u>Rule</u>	<u>Feature Class</u>
S_FLD_HAZ_LN	Must Not Self-Overlap	
S_FLD_HAZ_LN	Must Not Self-Intersect	
S_FLD_HAZ_LN	Must Not Intersect Or Touch Interior	
S_FLD_HAZ_AR	Must Not Overlap	
S_FLD_HAZ_AR	Must Not Gaps	
S_FLD_HAZ_AR	Boundary Must Be Covered By	S_FLD_HAZ_LN
S_FLD_HAZ_AR	Must Be Covered By Feature Class Of	S_LOMR

Topology Continued on next page

Figure 1: Common Area Digitizing or Topology Errors



1.7 Coincident Features

Coincident features are those that share the same location or boundary, such as flood zone boundaries. These coincident features must superimpose, vertex (shape point) for vertex, within the files.

The following pair of shape files have both area features and line features: S_FLD_HAZ_LN (line) and S_FLD_HAZ_AR (polygon). All spatial elements in the S_FLD_HAZ_LN must match exactly with the boundaries of the elements in the S_FLD_HAZ_AR.

1.8 GIS Data Structure

Only newly created or modified Shapefile features, supporting the CLOMR / LOMR submittal, are to be submitted. Shapefiles submitted should only cover the geographical extent of CLOMR / LOMR area.

All Shapefile names and Attribute Fields are to be in upper case and named as described in this manual. All Attribute Values for populated Text Fields should be upper case. For a Attribute Field that is required when applicable, but does not apply, the value should be Null (i.e. the field must be left empty, not set to zero). The submitting Agency shall use the value zero only when an attribute has the specific value of zero. Create the Attribute Fields as required for each GIS Shapefile required for CLOMR / LOMR submission and populate fields as completely and accurately as possible.

Design plans in a CAD data format, such as AutoCAD or MicroStation, will need to be converted to the GIS data format required unless special circumstances do not permit. If unable to submit data in GIS format required or for any questions concerning formatting of GIS data, please contact the Harris County Flood Control District (at 3.0 Contact Information) before submittal.

2.0 Format for Supporting GIS Data

2.1 S_BFE

Required if CLOMR/LOMR involves the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA).

Spatial file of location and attributes for base flood elevation lines.

Data Type: ESRI Shapefile
Geometry Type: Line

The Base Flood Elevation (BFE) Shapefile is required for any *newly* added digital data where BFE lines will be shown on the corresponding Flood Insurance Rate Map (FIRM). The S_BFE Shapefile contains information about the BFEs within a study area. 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.

S_BFE layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
BFE_LN_ID	Text	32	
ELEV	Double	18	8
LEN_UNIT	Text	16	
V_DATUM	Text	17	
SOURCE_CIT	Text	21	

Populated Fields

DFIRM_ID: 48201C
VERSION_ID: (Leave field empty)
BFE_LN_ID: Use unique identifier to your data if applicable; otherwise (Leave field empty)
ELEV: Base Flood Elevation. The rounded, whole foot elevation of the 1-percent-annual-chance flood
LEN_UNIT: FEET
V_DATUM: NAVD88
SOURCE_CIT: (Leave field empty)

2.2 S_FLD_HAZ_AR

Required if CLOMR/LOMR involves the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA).

Spatial file of location and attributes for flood insurance risk zones.

Data Type: ESRI Shapefile
 Geometry Type: Polygon

The S_FLD_HAZ_AR Shapefile contains information about the flood hazards within the study area. 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). 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.

S_FLD_HAZ_AR layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
FLD_AR_ID	Text	32	
STUDY_TYP	Text	28	
FLD_ZONE	Text	17	
ZONE_SUBTY	Text	57	
SFHA_TF	Text	1	
STATIC_BFE	Double	18	8
V_DATUM	Text	17	
DEPTH	Double	18	8
LEN_UNIT	Text	16	
VELOCITY	Double	18	8
VEL_UNIT	Text	20	
AR_REVERT	Text	17	
AR_SUBTRV	Text	57	
BFE_REVERT	Double	18	8
DEP_REVERT	Double	18	8
DUAL_ZONE	Text	1	
SOURCE_CIT	Text	21	

S_FLD_HAZ_AR Continued on next page

Populated Fields

DFIRM_ID: 48201C
 VERSION_ID: (Leave field empty)
 FLD_AR_ID: (Leave field empty)
 STUDY_TYP: SFHAs WITH HIGH FLOOD RISK
 FLD_ZONE: Flood zone designation value.

Value

ZONE	DESCRIPTION
A	Areas with at least a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	Areas with at least a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. The base floodplain where base flood elevations are provided.
AH	Areas with at least a 1% chance of shallow flooding each year, usually in the form of ponding, with an average depth ranging from 1 to 3 feet. These areas have at least a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
AO	River or stream flood hazard areas, and areas with at least a 1% chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have at least a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
VE	Coastal areas with at least a 1% chance of flooding and an additional hazard associated with storm waves. These areas have at least a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
X	Area which has been determined to be outside the 1% annual chance flood.

ZONE_SUBTY: Flood Zone Subtype. This field captures additional information about the flood zones not related to insurance rating purposes. For example, Zone X could have “AREA WITH REDUCED FLOOD RISK DUE TO LEVEE”, “AREA OF MINIMAL FLOOD HAZARD” or “0.2 PCT ANNUAL CHANCE FLOOD HAZARD” as a subtype. Types of floodways are also stored in this field.

S_FLD_HAZ_AR Continued on next page

Value

ZONE	DESCRIPTION
0.2 PCT ANNUAL CHANCE FLOOD HAZARD	The area of land that has a 0.2% annual chance of being inundated by flood waters from a bayou, stream or creek, or areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile. It is commonly referred to as the 500-year floodplain.
AREA OF MINIMAL FLOOD HAZARD	Area of minimal flood hazard, which has been determined to be outside the 500-year flood zone.
AREA WITH REDUCED FLOOD RISK DUE TO LEVEE	Areas protected by levees from the 1% annual chance flood.
FLOODWAY	Areas which are in the regulatory floodway.

SFHA_TF: 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.

Value

T – True
F – False

STATIC_BFE: Populate for areas that have been determined to have a constant Base Flood elevation over a flood zone;
Otherwise, -9999 (no value)

V_DATUM: NAVD88

DEPTH: Populate Depth for Zone AO areas;
Otherwise, -9999 (no value)

LEN_UNIT: FEET

VELOCITY: -9999

VEL_UNIT: (Leave field empty)

AR_REVERT: (Leave field empty)

AR_SUBTRV: (Leave field empty)

BFE_REVERT: -9999

DEP_REVERT: -9999

DUAL_ZONE: (Leave field empty)

SOURCE_CIT: (Leave field empty)

2.3 S_FLD_HAZ_LN

Required if CLOMR/LOMR involves the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA).

Spatial file of location and attributes for boundaries of flood insurance risk zones.

Data Type: ESRI Shapefile
Geometry Type: Line

S_FLD_HAZ_LN layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
FLD_LN_ID	Text	32	
LN_TYP	Text	26	
SOURCE_CIT	Text	21	

Populated Fields

DFIRM_ID: 48201C
VERSION_ID: (Leave field empty)
FLD_LN_ID: (Leave field empty)

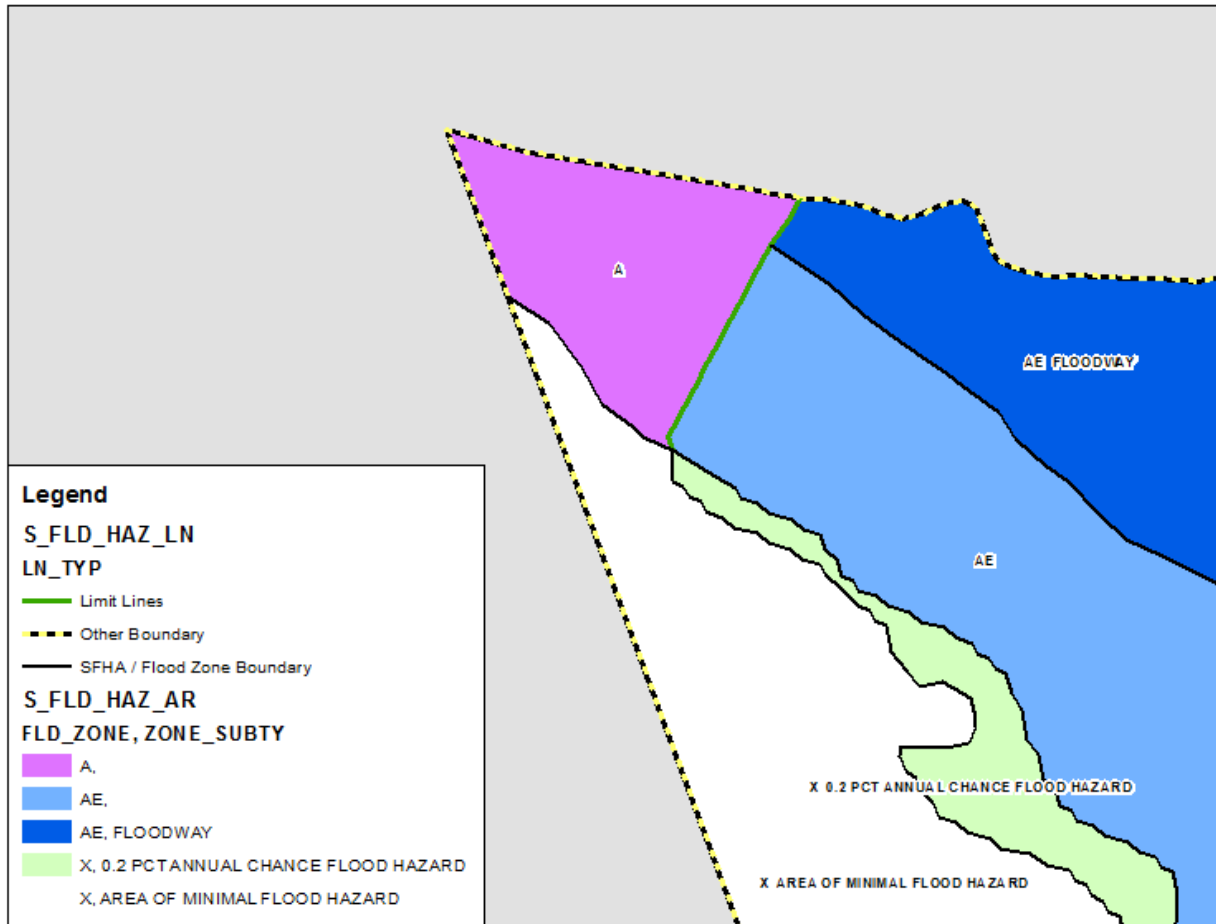
LN_TYP: Line Type. These lines indicate the location of the flood boundary, limit of detailed study, or the county boundary.

Value

SFHA / Flood Zone Boundary – Flood boundary
Limit Lines – Limit of Detailed Study
Other Boundary – Harris Co. boundary if in spatial extent of CLOMR/LOMR

SOURCE_CIT: (Leave field empty)

Figure 2: S_FLD_HAZ_LN line types



2.4 S_LOMR

Single bounding polygon to indicate LOMR areas that are to be incorporated into the Flood Insurance Rate Map (FIRM) or communicate areas of DFIRM data that were updated to reflect the results of LOMR's. Spatial extent should encompass the area where any of the following conditions have occurred: modification of the existing regulatory floodway, modification of the Special Flood Hazard Area (SFHA), modification of the 0.2% annual chance flood hazard area, added or revised base flood elevations, added or revised lettered cross sections, added or revised hydraulic structures, added or revised channel alignments or detention/retention features.

Spatial file of location and attributes for boundary of CLOMR/LOMR.

Data Type: ESRI Shapefile
 Geometry Type: Polygon

S_LOMR layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
LOMR_ID	Text	32	
EFF_DATE	Date	Default	0
CASE_NO	Text	13	
SCALE	Text	5	
STATUS	Text	12	
SOURCE_CIT	Text	21	

Populated Fields

DFIRM_ID: 48201C
 VERSION_ID: (Leave field empty)
 LOMR_ID: (Leave field empty)
 EFF_DATE: (Leave field empty)
 CASE_NO: (Leave field empty)
 SCALE: This is the denominator of the effective LOMR scale as a ratio.
 24000/1" = 2000' map, 12000/1"=1000', 6000/1"=500'
Value - 6000, 12000, 24000

STATUS: (Leave field empty)
 SOURCE_CIT: (Leave field empty)

2.5 S_WTR_LN

Required if new water features are created or pre-existing water features are realigned or modified due to CLOMR / LOMR.

Spatial file of location and attributes for water features in CLOMR / LOMR area.

Data Type: ESRI Shapefile
 Geometry Type: Polyline

S_WTR_LN layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
WTR_LN_ID	Text	32	
WTR_NM	Text	100	
SHOWN_FIRM	Text	1	
SHOWN_INDX	Text	1	
SOURCE_CIT	Text	21	

S_WTR_LN Continued on next page

Populated Fields

DFIRM_ID: 48201C

VERSION_ID: (Leave field empty)

WATER_LN_ID: (Leave field empty)

WTR_NM: Surface Water Feature Name

Value

Use formal name if pre-existing. ex: D100-00-00 (Brays Bayou)

For newly created features use (ex: Unnamed Channel, Unnamed Pond)

SHOWN_FIRM: Shown on FIRM. If the water feature is shown on the FIRM, this field would be True.

Value

T – True

F – False

SHOWN_INDX: Shown on Index Map. If the water feature is shown on the Index Map, this field would be True.

Value

T – True

F – False

SOURCE_CIT: (Leave field empty)

2.6 S_XS

Required if CLOMR / LOMR involves the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), the Special Flood Hazard Area (SFHA) and other hydraulic modeling of structures.

These lines represent the locations of channel surveys performed for input into the hydraulic model used to calculate flood elevations. The spatial elements representing cross sections are lines generally extending from outside the floodplain, across the entire floodplain and out the other side. The location and shape of the lines should depict as accurately as possible the position of the cross section used.

Data Type: ESRI Shapefile
 Geometry Type: Line

S_XS layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
XS_LN_ID	Text	32	
WTR_NM	Text	100	
STREAM_STN	Double	18	8
START_ID	Text	32	
XS_LTR	Text	12	
XS_LN_TYP	Text	24	
WSEL_REG	Double	18	8
STRMBED_EL	Double	18	8
LEN_UNIT	Text	16	
V_DATUM	Text	17	
PROFXS_TXT	Text	80	
MODEL_ID	Text	100	
SEQ	Long Integer	6	
SOURCE_CIT	Text	21	

Populated Fields

DFIRM_ID: 48201C
 VERSION_ID: (Leave field empty)
 XS_LN_ID: (Leave field empty)
 WTR_NM: Surface Water Feature Name

Value

Use formal name if pre-existing. [ex: D100-00-00 (Brays Bayou)]
 UNNAMED - newly created feature [ex: UNNAMED CHANNEL]

STREAM_STN: Stream Station. This is the measurement along the stream to the cross-section location.
Value
Derived from hydraulic modeling (should correspond spatially with any existing upstream or downstream adjacent cross sections)

START_ID: Start Identification. The station start describes the origin for the measurements in the STREAM_STN field.
Value
Found in START_ID field of pre-existing adjacent cross sections
(Leave field empty) – for unstudied areas or if unable to locate adjacent Start Id

XS_LTR: **Value**
Same lettered values as pre-existing/Effective FEMA XS *if* LOMR/CLOMR XS is located at same spatial (STREAM_STN) location
(Leave field empty) – for new or added XS or same non-lettered existing FEMA (STREAM_STN) location

XS_LN_TYP: Cross-Section Line Type.
Value
LETTERED, MAPPED – if XS_LTR field has *any value* other than Null
NOT LETTERED, MAPPED – if XS_LTR field value is Null but the XS is being mapped on the FIRM or annotated FIRM
NOT LETTERED, NOT MAPPED - if XS_LTR field value is Null and the XS is not being mapped on the FIRM or annotated FIRM

WSEL_REG: 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.
Value
derived from hydraulic modeling analysis
number value should be *rounded* to 2 digits right of decimal point (tenths)

STRMBED_EL: -8888
LEN_UNIT: FEET
V_DATUM: NAVD88
PROFSXS_TXT: (Leave field empty)
MODEL_ID: (Leave field empty)
SEQ: -9999
SOURCE_CIT: (Leave field empty)

2.7 S_GEN_STRUCT

For any newly created or revised/relocated hydraulic structures in the study area. Required for hydraulic structures shown in the flood profile or any structure (bridges, levees, dams, culverts, etc) that impacts the areas flood risk.

Spatial file (lines) of location and attributes for new or revised/relocated general structures. The lines should represent the primary characteristic of the structure. (bridges– transportation centerline, dams- line corresponding to top of dam, levees- line corresponding to top of levee, culverts- line corresponding to the main barrel)

Data Type: ESRI Shapefile
 Geometry Type: Line

S_GEN_STRUCT layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
STRUCT_ID	Text	32	
STRUCT_TYP	Text	60	
CST_STRUCT	Text	29	
STRUCT_NM	Text	50	
WTR_NM	Text	100	
LOC_DESC	Text	254	
STRUCT_DESC	Text	254	
SHOWN_FIRM	Text	1	
SOURCE_CIT	Text	21	

Populated Fields

DFIRM_ID: 48201C

VERSION_ID: (Leave field empty)

STRUCT_ID: (Leave field empty)

STRUCT_TYP: Structure Feature Type
 This type value describes the classification of the structure.

Value

- Bridge
- Channel
- Culvert
- Dam
- Drop Structure
- Footbridge
- Pier
- Storm Sewer
- Utility Crossing
- Weir

CST_STRUCT: (Leave field empty)
STRUCT_NM: This is the name of the feature (if known); otherwise (Leave field empty).
WTR_NM: Surface Water Feature Name
Value
Use formal name if pre-existing. [ex: D100-00-00 (Brays Bayou)]
UNNAMED - newly created feature [ex: UNNAMED CHANNEL]

LOC_DESC: (Leave field empty)
STRUC_DESC: (Leave field empty)
SHOWN_FIRM: Shown on FIRM. If the structure is shown on the FIRM, this field would be True.
Value
T – True
F – False

SOURCE_CIT: (Leave field empty)

2.8 S_TRANSPORT_LN

For any newly created or revised/relocated transportation structures in the study area.

Spatial file (lines) of location and attributes for newly created or revised/relocated transportation structures. The lines should represent the primary characteristic of the structure. (road– transportation centerline, railroad-transportation centerline, airport-property boundary, runways, buildings [edge of pavement]).

Data Type: ESRI Shapefile
 Geometry Type: Line

S_TRANSPORT_LN layer properties with required Field Names, Type, Length, Precision and Scale

Field	Type	Length/ Precision	Scale
DFIRM_ID	Text	6	
VERSION_ID	Text	11	
TRANS_ID	Text	32	
MTFCC	Text	70	
FULLNAME	Text	100	
ALTNAME1	Text	100	
ALTNAME2	Text	100	
ROUTENUM	Text	6	
ROUTE_TYP	Text	14	
SOURCE_CIT	Text	21	

Populated Fields

DFIRM_ID: 48201C
 VERSION_ID: (Leave field empty)
 TRANS_ID: (Leave field empty)
 MTFCC: MAF/TIGER feature class code. Defines of the primary feature type for the transportation feature.

Value

Railroad Feature
 Carline, Streetcar Track, Monorail, Other Mass Transit Rail
 Cog rail Line, Incline Rail Line, Tram
 Primary Road
 Secondary Road
 Local Neighborhood Road, Rural Road, City Street
 Vehicular Trail (4WD)
 Ramp
 Service Drive usually Along a Limited Access Highway
 Walkway/Pedestrian Trail
 Stairway
 Alley
 Private Road for Service Vehicles (Logging, Oil Fields, Ranches, Etc.)

S_TRANSPORT_LN Continued on next page

Internal U.S. Census Bureau Use
Parking Lot Road
Bike Path or Trail
Bridle Path
Road Median
NP

FULLNAME: Full name of feature. For areas with more than one name, this would be the primary name with subsequent names shown in fields below.
ALTNAME1: First alternative name of feature. This is the secondary name of the feature.
ALTNAME2: Second alternative name of feature. This is the tertiary name of the feature.
ROUTENUM: Route Number. This is where route numbers are stored for placing route shields on the FIRMs.
ROUTE_TYP: Route Type. This is the route type used for placing route shields on the FIRM panel.

Value

Interstates
US Highways
State Highways
County Roads
Railroads
Airports

SOURCE_CIT: (Leave field empty)

3.0 Document Revisions

2/01/2011

<u>Attribute Table</u>	<u>Field</u>	<u>Change</u>
S_BFE	BFE_LN_ID SOURCE_CIT	field length from 21 to 11
S_FLD_HAZ_AR	FLD_AR_ID SOURCE_CIT HYDRO_ID CST_MDL_ID	" " " "
S_FLD_HAZ_LN	FLD_LN_ID	"
S_LOMR	LOMR_ID SOURCE_CIT	" "
S_WTR_AR	WTR_AR_ID SOURCE_CIT	" "
S_WTR_LN	WTR_LN_ID SOURCE_CIT	" "
S_XS	XS_LN_ID START_ID SOURCE_CIT	field length from 21 to 11

5/05/2011

New HCFCF logo added to cover sheet

5/25/2011

S_XS - XS_LTR and XS_LN_TYP attribute field value wording change (pages 17-18)
WSEL_REG attribute field value wording change (page 20)

5/04/2012

S_LOMR - description revised (page13)
2.7 S_GEN_STRUCT – new shapefile with description added (pages 19- 20)

10/04/2012

Old 2.5 S_WTR_AR – shapefile description removed from manual
New 2.5 S_WTR_LN – modified values stored (page 15)
New Figure 2: S_FLD_HAZ_LN line types (page 12)
Added Topology Rules to Check in ArcGIS (page 4)

3.0 Document Revisions Continued on next page

5/13/2013

Modified STATIC_BFE & DEPTH fields for S_FLD_HAZ_AR (Page 10)

9/04/2013

Modified Topology Properties to Check in ArcGIS (Page 4)

New Figure 2: Common Area Digitizing or Topology Errors (Page 5)

2.8 S_TRANSPORT_LN – new shapefile with description added (pages 21- 23)

11/24/2014

Modified field names, formatting, values and figure 1 and figure 2 to reflect new GIS standards consistent with FEMA's *FIRM Database Technical Reference Preparing Flood Insurance Rate Map Databases – May 2014*

Modified Topology to reflect use of 2008 NUSA LiDAR in Addicks Watershed.

05/05/2015

Modified required scale for Double type fields to 8.

4.0 Contact Information

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