Data Capture Technical Reference

November 2023

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Requirements for the FEMA Risk Mapping, Assessment, and Planning (Risk MAP) Program are specified separately by statute, regulation, or FEMA policy (primarily the Standards for Flood Risk Analysis and Mapping). This document provides guidance to support the requirements and recommends approaches for effective and efficient implementation. Alternate approaches that comply with all requirements are acceptable.

For more information, please visit the FEMA Guidelines and Standards for Flood Risk Analysis and Mapping webpage (www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping). Copies of the Standards for Flood Risk Analysis and Mapping policy, related guidance, technical references, and other information about the guidelines and standards development process are all available here. You can also search directly by document title at www.fema.gov/resource-document-library.

Table of Revisions

Affected Section or Subsection	Date	Description
Section 5.2	November 2023	Added subsection for Revalidation Letter formatting
Section 5.3.2	November 2023	Update to note that Flood Risk Database is now optional
Section 6.17	November 2023	Update to note that Flood Risk Database is now optional

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1.　Introduction

The purpose of the <u>Data Capture Technical Reference</u> is to provide a consistent framework for submittal, storage and retrieval of the technical and administrative data needed for a Flood Risk Project. In addition, this document provides data submittal standards for supporting data that are used in performing risk assessment analyses and the creation of flood risk products. This framework is intended to improve the quality of Flood Risk Project documentation; facilitate effective project handoff between organizations; provide easier retrieval of Flood Risk Project data and preserve the investment made in the data.

The following major production data capture points in the Mapping Information Platform (MIP) are included in this technical reference: Discovery, Base Map, Topographic, Terrain, Survey, Hydrology, Hydraulics, Alluvial Fan, Coastal, Levee, Floodplain Mapping, Draft Flood Insurance Rate Map (FIRM) Database, Produce Preliminary Products, Outreach, Due Process, Final FIRM Map Production and Distribution, General Data, and Flood Risk Products.

This document is intended to be used in conjunction with <u>Technical Reference, No. 3, FIRM Database Technical Reference</u>, which details the Geographic Information System (GIS) file formats and content of the FIRM Database files. Most of the FIRM Database files are initially developed during the data development stages outlined as MIP Data Capture tasks and will be submitted incrementally as the Flood Risk Project progresses through data development. The standards outlined in the <u>FIRM Database Technical Reference</u> must be applied to the FIRM Database elements of the Data Capture data submittals.

This document outlines some additional data standards for Discovery, Elevation, and Survey data. It also provides the required submittal directory structure and file format requirements for each MIP Data Capture task and upload.

2.　Discovery Data Submittal Requirements

Discovery deliverables include all the data collected during Discovery (including data collected after the Discovery meeting) and the draft and final Discovery Map. Any data collected during Discovery that are required by the Coordinated Needs Management Strategy (CNMS) must use the data model provided in <u>Technical Reference No. 8, Coordinated Needs Management Strategy (CNMS) Technical Reference</u> to enter the data and update CNMS.

Discovery deliverables that are not captured by the CNMS are listed in the following sections and must be submitted as specified in this section and Section 6. An Extensible Markup Language (XML) file with the Discovery spatial data schema can be found on the FEMA Templates and Other Resources webpage.

If additional data are collected during Discovery that are not specifically mentioned in this section, those data must also be submitted in the format collected as part of Discovery deliverables as supplementary data. Data submitted to the MIP as part of this section must be consistent with data listed in the Discovery Report.

2.1.   Table: DCS_L_Mtg_POC

This table is required for all Discovery projects. This non-spatial table includes contact information for the county and every incorporated community in the Flood Risk Project that has the following positions/roles occupied: Chief Executive Officer (CEO), such as mayor, city manager, county judge or other; state National Flood Insurance Program (NFIP) coordinator; local Floodplain Administrator (if community participates in the NFIP); State Hazard Mitigation Officer (SHMO) and data/GIS contact (person to contact to obtain local data for use in the Flood Risk Project).

Table 1: DCS_L_Mtg_POC

Field	Type	Length	R/A	Description
POC_ID	Text	25	R	Primary key for this table. Assigned by table creator
POC_NAME	Text	50	R	Point of Contact Full Name
FIRST_NAME	Text	25	R	Point of Contact First Name
LAST_NAME	Text	25	R	Point of Contact Last Name
CNT_TITLE	Text	50	A	Contact Position or Title
AGENCY	Text	50	R	Contact Agency Name
AGY_ROLE	Text	50	A	Role of Contact Agency
CEO	Text	1	R	Community CEO for NFIP purposes. Acceptable values for this field can be found in the D_TrueFalse domain table
FPA	Text	1	R	Community Floodplain Administrator for NFIP Purposes. Acceptable values for this field can be found in the D_TrueFalse domain table
SHMO	Text	1	R	State Hazard Mitigation Officer. Acceptable values for this field can be found in the D_TrueFalse domain table
GIS	Text	1	R	GIS Point of Contact for Community/Agency. Acceptable values for this field can be found in the D_TrueFalse domain table
ADDRESS	Text	75	A	Contact Address

Field	Type	Length	R/A	Description
ADDRESS_2	Text	75	A	Contact Address 2
CITY	Text	25	A	Contact City
STATE	Text	24	A	Contact State. Acceptable values for this field are listed in the D_State_Name domain table
ZIP	Text	10	A	Contact ZIP Code
PHONE	Text	10	A	Contact Primary Phone Number. Only numbers (i.e., 3035551212)
PHONE_EXT	Text	6	A	Contact Primary Phone Number Extension. For example, x2345
EMAIL	Text	50	A	Contact E-mail Address
COMMENTS	Text	254	A	User provided comments

2.2.   Table: DCS_L_Source_Cit

This table is required for all Discovery projects. This non-spatial table includes information about the sources of the spatial data that are submitted.

Table 2: DCS_L_Source_Cit

Field	Type	Length	R/A	Description
SOURCE_CIT	Text	11	R	Source Citation identifier used in the FIRM Database and in the metadata files. Default source abbreviations are listed in Table 3 of the <u>FIRM Database Technical Reference</u>. Source citations start with the type of source, followed by sequential numbers, for example "BASE1", "BASE2", etc.
CITATION	Text	25	A	Citation A short and unique citation name (Author and Year) used within the Flood Insurance Study (FIS) Report to reference this publication, such as "U.S. Census 2010".
PUBLISHER	Text	254	R	Publisher Name This is the name of the publishing entity.
TITLE	Text	254	R	Title of referenced publication or data. Should include a volume number if applicable.

Field	Type	Length	R/A	Description
AUTHOR	Text	254	A	Author/Editor Used in FIS Report Bibliography and References Table. This is the author or editor of the reference. Multiple authors may be listed in this field.
PUB_PLACE	Text	100	A	Publication Place This is the place of publication (i.e., "Washington DC").
PUB_DATE	Text	30	R	Publication Date. This the date of publication or date of issuance.
WEBLINK	Text	128	A	Reference Web Address. This is the web address for the reference, if applicable.
SRC_SCALE	Text	12	A	Scale of the source data, if applicable. For example: 1:24000.
MEDIA	Text	50	R	Media on which the source data were received.
SRC_DATE	Date	Default	A	Calendar date of the source data. Required for spatial sources. Used in metadata.
DATE_REF	Text	254	A	Date reference. What the source date represents (e.g., ground condition, effective date, publication date, model date, MIP submission date, etc.). Required for spatial sources. Used in metadata.
CONTRIB	Text	254	A	Source contribution. Information contributed by the source to the data set. Required for spatial sources. Used in metadata.
NOTES	Text	254	A	User Defined Notes.

2.3.   Table: DCS_S_Pol_Ar

This table is required for all Discovery projects. This spatial file contains the political boundaries that cover the geographic extent of the Flood Risk Project. The spatial entity for this layer is a polygon.

Table 3: DCS_S_Pol_Ar

Field	Type	Length	R/A	Description
POL_AR_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
POL_NAME1	Text	50	R	Political Area Name 1. This is the primary name of the area shown, the area with floodplain management jurisdiction. For areas that have more than one name, this would be the primary name, with additional names shown in the field below. This would correspond to the official name of this jurisdiction used by FEMA within the NFIP. For unincorporated areas of a county, this must be the county name (e.g., Montgomery County).
POL_NAME2	Text	50	A	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.
POL_NAME3`	Text	50	A	Political Area Name 3. This is the tertiary name of the area shown. Populated if there is a situation where islands, National Parks, National Forests, military bases, or other area boundaries and labels need to be shown on the FIRM underneath the POL_NAME1 and POL_NAME2 labels.
CO_FIPS	Text	3	R	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	Text	2	R	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. Acceptable values for this field are listed in the D_State_FIPS domain table.
COMM_NO	Text	4	R	This is the four-digit number assigned by FEMA to each community for tracking purposes under the NFIP. On newer FIRMs the State FIPS and the community number appear below the community name.

Field	Type	Length	R/A	Description
CID	Text	6	R	This is the six-digit Community Identification (CID) 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	Text	1	R	Area Not Included. Acceptable values for this field are listed in the D_TrueFalse domain table.
ANI_FIRM	Text	6	A	Used for Area Not Included (ANI) polygons where ANI_TF equals "T" and where the data is included in another FIRM Database, usually because it is a multi-county community. Enter the DFIRM_ID of the FIRM Database that contains the Special Flood Hazard Area (SFHA) data of the ANI community. For a single-jurisdiction Flood Risk Project, the value is composed of the 2-digit state FIPS code and the 4-digit FEMA CID code (e.g., 480001). For a countywide Flood Risk Project, the value is composed of the 2-digit state FIPS code, the 3-digit county FIPS code, and the letter "C" (e.g., 48107C). Populate with "NP" if the area has never been converted to a FIRM Database from paper FIRM format.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.4.   Table: DCS_S_Trnsport_Ln

This table is required for all Discovery projects. This spatial file provides transportation features that cover the geographic extent of the Flood Risk Project/mapping project. The spatial entity for this layer is a line.

Table 4: DCS_S_Trnsport_Ln

Field	Type	Length	R/A	Description
TRANS_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
MTFCC	Text	70	R	Census Bureau Master Address File/Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) feature class code. Defines the primary feature for the edge. Acceptable values for this field are listed in the D_MTFCC domain table.
FULLNAME	Text	100	R	Full name of feature. Concatenation of expanded text for prefix, qualifier, prefix direction, prefix type, base map name, suffix type, suffix direction, and suffix qualifier (as available) with a space between each expanded text field. 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 "Intracoastal Waterway" would also be included in this item.
ALTNAME1	Text	100	A	First alternative name of feature. This is the secondary name of the feature.
ALTNAME2	Text	100	A	Second alternative name of feature. This is the tertiary name of the feature.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.5.   Table: DCS_S_HUC

This table is required for all Discovery projects. This spatial file contains the Hydrologic Unit Codes (HUCs) for the Flood Risk Project area. This will enable the capture of appropriate drainage basins, including those outside the community boundary. The spatial entity for this layer is a polygon.

Table 5: DCS_S_HUC

Field	Type	Length	R/A	Description
HUC_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.

Field	Type	Length	R/A	Description
HUC_CODE	Text	14	R	Unique hydrologic unit based on United States Geological Survey (USGS) levels of classification in the hydrologic unit system
HUC_NAME	Text	80	R	The primary name of the hydrologic unit
DIGITS	Short Integer	14	R	Number of digits in HUC-Code (e.g., 8, 10, 12, or 14)
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.6. Table: DCS_S_Discovery_Map

This table is required for all Discovery projects. This spatial file contains each stream segment and/or coastline contained within the FIRM database, National Hydrography Dataset (NHD) 100k coverage or best available streamline data for flood sources included in the scope of work for the flood map project update. This file should provide an inventory of stream mileage for the project area by effective and proposed zone and Flood Risk Project type. This will be shown on the final Discovery Map. The spatial entity for this layer is a line.

Table 6: DCS_S_Discovery_Map

Field	Type	Length	R/A	Description
DISCMAP_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
COUNTY	Text	100	R	County Name
COMMUNITY	Text	100	R	Community Name
STATE	Text	24	R	State Name. Acceptable values for this field are listed in the D_State_Name domain table.
CID	Text	6	R	This is the six-digit community identification number (CID) 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).

Field	Type	Length	R/A	Description
ST_FIPS	Text	2	R	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. Acceptable values for this field are listed in the D_State_FIPS domain table.
EZONE_TYP	Text	17	R	From effective Flood Risk Project. Acceptable values for this field are listed in the D_Zone domain table.
EST_TYP	Text	28	R	Effective Study Type. Acceptable values for this field are listed in the D_Study_Typ domain table.
FLOOD_TYP	Text	10	R	Flooding type. Acceptable values for this field are listed in the D_Flood_Typ domain table.
WTR_NM	Text	100	R	Surface Water Feature Name. This is the name of the stream or water body, including lakes and shorelines.
STREAM_LEN	Double	Default	R	Length of stream associated with a Flood Risk Project in feet
FBS_TF	Text	1	R	Are stream segments anticipated to meet Floodplain Boundary Standard (FBS)? Acceptable values for this field are listed in the D_TrueFalse domain table.
RANKING	Text	6	A	Ranking based on local/regional input. Values to be used for this field are High, Medium or Low.
FST_TYP	Text	28	R	Final Study Type. Acceptable values for this field are listed in the D_Study_Typ domain table.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.7.   Table: DCS_S_Prp_FirmPan

This table is required for Discovery projects if a Flood Risk Project will result from Discovery. This spatial file contains the proposed panel scheme for the Flood Risk Project area and the panels to be updated as a result of the Discovery meeting. The spatial entity for this layer is a polygon.

Table 7: DCS_S_Prp_FirmPan

Field	Type	Length	R/A	Description
FIRM_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
ST_FIPS	Text	2	R	State FIPS. Acceptable values for this field are listed in the D_State_FIPS domain table.
PCOMM	Text	4	R	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 FEMA CID. For countywide maps, this is the county (or county equivalent) FIPS code with a "C".
PANEL	Text	4	R	Panel Number. This is the 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.
SUFFIX	Text	1	R	Map Suffix. This is the final digit in the complete panel number. This is a letter suffix at the end of the panel number. The map suffix is incremented one letter every time the panel gets republished.
FIRM_PAN	Text	11	R	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	Text	30	R	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 domain table.
SCALE	Text	5	R	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 domain table.

Field	Type	Length	R/A	Description
BASE_TYP	Text	10	R	Base map type. The type of base map used for the FIRM panel shall be recorded in this field. Acceptable values for this field are listed in the D_Basemap_Typ domain table.
UPDATED_TF	Text	1	R	Will this panel be updated as a result of Discovery meeting? Acceptable values for this field are listed in the D_TrueFalse domain table.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

3.   Elevation Data Submittal Requirements

The MIP allows for several separate types of elevation data. Each of these types of elevation data are assigned a unique MIP Data Capture task type: New Topographic Data Capture tasks are for elevation data that are newly purchased, Existing Topographic Data Capture tasks are for existing elevation data gathered for a Flood Risk Project, and Terrain Data Capture tasks are for processed terrain data that are used in the Flood Risk Project modeling and mapping tasks.

Elevation data submittals must be submitted as specified in Section 6, in folders organized by the elevation task type. Within those folders, the data are to be organized in sub-folders based on the type of data being submitted (e.g., point cloud, break lines, DEM, Hydro-flattened or Hydro-enforced, Triangulated Irregular Network [TIN], contours, etc. as applicable). Note that even if elevation data are submitted on media to the Engineering Library, the supporting documentation (i.e., the content of the Task Documentation, Correspondence, and Spatial_Files folders) must be uploaded to the MIP.

See Guidance Document No. 47, Guidance for Flood Risk Analysis and Mapping, Elevation Guidance for information about elevation data types, elevation data accuracy standards and reporting, and elevation data acquisition. See Guidance Document No. 54, Guidance for Flood Risk Analysis and Mapping, Mapping Information Platform (MIP) Guidance for information about submitting large datasets on media.

3.1.   Elevation Inventory File

When FEMA purchases new topographic data (e.g., LiDAR, photogrammetry, or topo-bathymetry) directly, in addition to submitting the full suite of required data deliverables (i.e., raw point cloud, classified point cloud, and DEM), the data must be accompanied by a spatial elevation inventory file named S_Elev_Inv_Ar. This file was defined by the National Oceanic and Atmospheric Administration

(NOAA) and it may not conform to FEMA FIRM Database conventions (e.g., domain values).   FEMA and other agencies report the status of their elevation datasets to NOAA using this file and NOAA uses the data in this file to update the on-line U.S Interagency Elevation Inventory.

This table is required when FEMA purchases new elevation data directly. It is not required if the purchase was made using a USGS contract vehicle (i.e., the USGS Geospatial Product and Services Contract).

The spatial entities representing the elevation inventory footprints are polygons.

The S_Elev_Inv_Ar layer contains the following elements.

Table 8: S_Elev_Inv_Ar Elements

Field Name	Required/Required if Applicable	Description
ELEV_INV_ID	R	Primary key for table lookup. Assigned by table creator (NOAA).
ProjectName	R	Descriptive name of the project. The name should include the following in order: the year of collection, the source, and the title of the data collection. If it is already this way, there is no need to change it. For new data sets, make sure to include all the information mentioned above and make sure the data set name is unique. (Example: "2010 FEMA Lidar: Great Dismal Swamp".)
SourceDataType	R	Type of source data. Acceptable values for this field are: Lidar-Topo, Lidar-Topobathy, Lidar-Bathy, IfSAR, Multibeam, NOAA Hydro Survey, Other Bathy Survey, and Photogrammetry. Normally Lidar-Topo for FEMA projects.
ProjectStatus	R	The completion status of the data. Acceptable values for this field are: Complete, In Progress, Planned/Funded, and Unknown. Normally this file is submitted at Complete.
Restrictions	R	The restrictions, if any, on use of the data. Acceptable values for this field are: Public, Purchase, Government Only, Other, and Unknown. All FEMA purchased data must be public.
HorizontalDatum	R	Horizontal datum of the data. Acceptable values for this field are: NAD83, NAD83HARN, NAD83NSRS2007, NAD83NA2011, NAD27, WGS84, User Specified, Not Provided, Unknown.

Field Name	Required/Required if Applicable	Description
HorizontalAccuracy	R	The horizontal accuracy expressed in meters. This is accuracy of the positions of the data. Many times, this is not provided, if so, enter "Not Provided". Otherwise use actual value from Quality Assurance (QA) Report.
VerticalAccuracy	R	The vertical accuracy expressed in cm. This is open for different formats for reporting vertical accuracy. Preferred is cm RMSE (Root Mean Square Error). Please provide actual values from QA Report and indicate reporting format (e.g., $RMSE_z$ or $Accuracy_z$ at 95% confidence level).
VerticalDatum	R	Vertical datum of the data. Acceptable values for this field are: NAVD88, GRS80, NGVD29, WGS84, Local Tidal, MSL, MLLW, User Specified, Not Provided, Unknown. FEMA data should typically be in NAVD88.
Notes	A	Any items of interest, additional information not represented by previous attributes, etc. This information will be displayed in the public online viewer.
ProductsAvailable	R	The types of data available.
PointSpacing	R	The distance between data points. Also, may be called Horizontal Resolution of Ground Sample Distance (GSD). Expressed in meters, actual.
CollectionDate	R	The actual date(s) of collection of the data. Enter range of dates, if applicable.
PointSpacingNumber	R	Just the number, in meters, of the distance between data points. If Point Spacing is Not Provided or Unknown, enter 9999.
VerticalRMSE	R	Just the number of the cm RMSE Vertical Accuracy of the data. If Vertical Accuracy is Not Provided or Unknown, enter 9999.
QualityLevel	R	The USGS quality level assigned to the data set. Numeric value from 0 to 9. 0-5 are the quality levels. 7 is bad or unusable data. 8 is bathymetry, 9 is unknown.
InvID	R	USIEI ID number assigned by NOAA. Leave blank.

Field Name	Required/Required if Applicable	Description
MetadataLink	R	The URL for link to the metadata. If no link to the metadata available, enter "Not Provided." For metadata uploaded to the MIP: https://hazards.fema.gov
DataAccessDetail	R	The URL for data downloads where possible. If data is not available for online download, enter a Point of Contact. DO NOT INCLUDE PERSONAL INFORMATION (name, email). Do include title, name of office/agency, URL, phone number. For FEMA this will typically be: FEMA Engineering Library www.fema.gov/flood-maps/products-tools/know-your-risk/engineers-surveyors-architects (877) FEMA MAP (877-336-2627)
Meets3DEP	R	Whether the data meet USGS 3DEP requirements. Acceptable values for this field are: Yes, No, expected to meet, Unknown. All FEMA purchased data should be "Yes".
Reasons3DEP	R	Reasons the data do or do not meet the 3DEP requirements. All FEMA purchased data should be "QL2 or better quality lidar data with USGS Base Spec v1.2 products".
DistributorName	R	Distributor's name of the dataset (e.g., USGS: MD_FEMA_AlleganyCo_2012). Can be the same as the ProjectName

3.2.   Table: S_Elev_Inv_Ar

Table 9: DCS_S_Elev_Inv_Ar

Field	R/A	Type	Length/Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
ELEV_INV_ID	R	Text	25		N/A
ProjectName	R	Text	250		N/A
SourceDataType	R	Text	20		N/A
ProjectStatus	R	Text	20		N/A
Restrictions	R	Date	20	0	N/A
HorizontalDatum	R	Text	255		N/A

Field	R/A	Type	Length/Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
HorizontalAccuracy	R	Text	255		N/A
VerticalAccuracy	R	Text	255		N/A
VerticalDatum	R	Text	255		N/A
Notes	A	Text	255		N/A
ProductsAvailable	R	Text	255		N/A
PointSpacing	R	Text	50		N/A
CollectionDate	R	Text	200		N/A
PointSpacingNumber	R	Double	Default		N/A
VerticalRMSE	R	Double	Default		N/A
QualityLevel	R	Short Integer	Default		N/A
InvID	R	Long Integer	Default		N/A
MetadataLink	R	Text	255		N/A
DataAccessDetail	R	Text	255		N/A
Meet3DEP	R	Text	50		N/A
Reasons3DEP	R	Text	150		N/A
DistributorName	R	Text	255		N/A

3.3.   Topographic Breakline Topology Requirements

Topographic breaklines are optional and may be needed depending upon the planned procedures used to perform hydrologic and hydraulic modeling. When optional breaklines are produced, the following breakline topology rules must be followed for the applicable feature classes.

Table 10: Topographic Breakline Topology Rules

Topology Filename (*_TOPOLOGY)	Spatial Layer	Topology Rule	Parameter	Minimum Cluster Tolerance (ft.)
HydraulicStruct	HydraulicStructure	Must Not Intersect		0.003

Topology Filename (*_TOPOLOGY)	Spatial Layer	Topology Rule	Parameter	Minimum Cluster Tolerance (ft.)
HydraulicStruct	HydraulicStructure	Must Not Self Intersect		0.003
HydrographicStruct	HydrographicFeature	Must Not Intersect		0.003
HydrographicStruct	HydrographicFeature	Must Not Self Intersect		0.003
HydrographicStruct	HydrographicFeature	Must not Overlap		0.003
Coastal	CoastalShoreline	Must Not Intersect	CoastalShoreline	0.003
Coastal	CoastalShoreline	Must Not Self Intersect		0.003
PondsLakes	Ponds_and_Lakes	Must Not Intersect		0.003
PondsLakes	Ponds_and_Lakes	Must Not Self Intersect		0.003
Island	Island	Must Not Intersect		0.003
Island	Island	Must Not Self Intersect		0.003

4. Field Survey Submittal Standards

See Guidance Document No. 51, Guidance for Flood Risk Analysis and Mapping, Data Capture– Workflow Details Guidance for information about field survey submittals, including photos, sketches, survey data, survey field notebooks, survey data naming conventions, and survey codes. Examples of the use of survey codes for different types of structures are also included.

5. Deliverables

This section provides information about the required deliverables for the regulatory and Flood Risk products. These deliverables are submitted to the MIP and are subsequently made available to the public by the Flood Map Service Center (MSC). The MIP Data Capture task submittals are outlined in Section 6.

Note that the file names for deliverable products specified in this section also apply to the corresponding files in native format that are submitted to the MIP as outlined in Section 6. For example, the file naming convention used for the deliverable FIS Report Portable Document Format (.PDF) file(s) also applies to the FIS Report Word file uploaded to the MIP.

Note also that these requirements apply to all new study deliverables, regardless of project age.

5.1.   Preliminary Regulatory Products

The required documents that make up the preliminary regulatory products package are outlined in Section 6. They must be named using the product naming conventions outlined below for the final regulatory products and must be submitted in the digital format and directory structure indicated in Section 6.

Note that a separate standalone PDF of any 11"x17" FIRM Index page(s) must be submitted at Preliminary even though they are also included within the FIS report PDF.

5.2.   Final Regulatory Products

The required documents that make up the final regulatory products package include the items listed below. They must be in the digital format and directory structure indicated in Section 6. All deliverables are submitted to the MIP and the MSC will review, publish, and distribute the data directly from the MIP.

5.2.1.   TRANSMITTAL TO COMMUNITY CEO

A Transmittal Letter to the community CEO is sent by the MSC to each community, along with the final mapping products distributed by the MSC. Where possible, Post Office Box addresses should be avoided, in order to promote direct delivery to community officials. Templates for final regulatory products are available on the FEMA Risk MAP SharePoint site. You may contact your Regional Service Center (RSC) for access to the current letter templates. Other supporting letter templates may be found on the FEMA Risk MAP SharePoint site in the Flood Mapping Letter Repository at the following location:
https://rmd.msc.fema.gov/Flood%20Mapping%20Letter%20Repository/Forms/AllItems.aspx.

There must be one transmittal letter for each community that will receive mapping data and/or a FIS from the MSC. The letter must include the current (as of the date the post-preliminary study deliverables are prepared) CEO's name and address, the six-digit community identification number and the effective date. Each letter must be provided in Word format.

5.2.2.   INVENTORY WORKSHEET FOR EACH COMMUNITY

The Inventory Worksheet is used by the MSC to update the MSC inventory and community information. Every community — including the Unincorporated Areas; the countywide or all-jurisdictions mapping number, if applicable; non-flood-prone and non-participating communities; and

communities without a printed map but appearing in the FIS Report and/or FIRM Database — requires a separate Inventory Worksheet. This also includes communities that appear as part of a "Countywide" or "All Jurisdictions" study but are not part of the Physical Map Revision (PMR).

The Inventory Worksheet must be provided in Excel format (XLS/XLSX). The formatting of the standard Inventory Worksheet template must not be modified or otherwise altered. A sample Inventory Worksheet and directions on how to enter the community codes on the Inventory Worksheet can be found on the FEMA Flood Risk Templates and Other Resources webpage.

5.2.3.   FIS REPORT

The FIS Report must be submitted in digital format as an unsecure PDF file, with a resolution of 400 dots per inch (dpi). There must be one PDF file per FIS volume that is bookmarked as described in Technical Reference No. 1, Flood Insurance Study (FIS) Report Technical Reference.

The PDF version of the FIS Report must be named <ST_FIPS><PCOMM><VOLUME NUMBER>.pdf.

Examples:

24031CV000B.pdf – Single volume countywide FIS

120234V001A.pdf – Community FIS Volume 1 of 2

120234V002A.pdf – Community FIS Volume 2 of 2

5.2.4.   FIRM SCANS

FIRM Scans are the raster images of the FIRM panels and FIRM Index. The FIRM Scans of the FIRM panels must conform to the requirements of Technical Reference No. 2, FIRM Panel Technical Reference. The FIRM Scans of the FIRM Index must conform to the requirements of the Flood Insurance Study (FIS) Technical Reference if the FIRM Index is prepared in the Risk MAP format.

Note that a separate, standalone FIRM Index scan must be submitted in addition to the figure within the FIS Report.   The FIRM Scans must be named according to the map number shown on the title block of the FIRM panel or FIRM Index. Color and black and white images must be 400 dpi, in 24-bit Portable Network Graphics (PNG) format.

Examples:

FIRM Scans

24031C0001A.png – FIRM panel

24031CIND0A.png– FIRM Index

5.2.5. FIRM DATABASE

FIRM Databases must be submitted in Shapefile (SHP) format. The FIRM Database must conform to the requirements of the <u>FIRM Database Technical Reference</u>. FIRM Database Shapefiles must be named using the table names in the <u>FIRM Database Technical Reference</u>.

5.2.6. METADATA FILE

Metadata files should be provided in XML format. The metadata file must conform to the requirements of <u>Technical Reference No. 7, Metadata Profiles Technical Reference</u>. The FIRM Database metadata file must be named <ST_FIPS><PCOMM>_<EFF_DATE> _metadata.xml where ST_FIPS is the two-digit state FIPS code. PCOMM is either the three-digit county FIPS code with a trailing "C" or the four-digit CID. EFF_DATE is the effective date of the study in YYYYMMDD format.

Examples:

24031C_20031217_metadata.xml – a countywide FIRM Database

241234_20031217_metadata.xml – a community FIRM Database

5.2.7. FLOOD ELEVATION DETERMINATION DOCKET (FEDD) FILE

A FEDD File must be submitted for each affected community, including the documents listed in the FEDD Checklist, per 44 CFR 67.3[1]. Rolled into this file are copies of all correspondence related to due process and the FEDD File Checklist, organized in chronological order. One PDF file is to be submitted for each community. The file must be named as follows: County_state_Community_FEDD_Effective_Date. See <u>Guidance Document No. 55, Guidance for Flood Risk Analysis and Mapping, Post-Preliminary Deliverables Guidance</u> for additional information about the contents of the FEDD file.

Example:

Bergen_NJ_Alpine_FEDD_Effective Date

5.2.8. REVALIDATION LETTERS

Mailed revalidation letters are automatically uploaded to the MSC when individual copies are properly uploaded to the MIP via the Distribute Revalidation task. Only PDF files that follow the revalidation letter naming convention and have a case number-CID with corresponding SOMA records will be inserted into the MSC database. The file must be named as follows: MIP Case NumberV-CID.pdf.

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[1] The correspondence noted above may not be applicable to all communities. For instance, communities that have adopted an automatic revision clause in their floodplain management ordinances may not receive a 90- or 30-day suspension letter.

Example: 17-01-1012V-090101.pdf

See Guidance Document 85, Guidance for Flood Risk Analysis and Mapping, Summary of Map Actions and Revalidation Letters for additional information about the contents of the letters.

5.3. Final Flood Risk Products

The required documents that make up the final Flood Risk Products package include the Flood Risk Database (FRD) accompanied by metadata and a Flood Risk Report (FRR) and Flood Risk Map (FRM), if applicable. These products must be accompanied by an index that provides a cross reference to the communities covered in the FRD. These items must be submitted to the MIP in the digital format and directory structure indicated below and in Section 6.

5.3.1. PROJECT ID

The Project ID should be a description that most effectively summarizes what area is covered by the project. The Project ID may be an 8-digit HUC identifying the watershed (strongly preferred for watershed based projects), a text description (e.g., the coastal flooding source studied – "Delaware Bay"), or a CID or FIPS code identifying the primary county or community mapped. The Project ID should be the same across all products for the Flood Risk Project. Note that it is good practice to limit the Project ID to 40 characters or less.

5.3.2. FLOOD RISK DATABASE

Because the Flood Risk Database (FRD) datasets are quite large, the FRD data must be submitted in a series of .ZIP files that each contains data in one file format. FRD submittals must contain the following items:

- A .ZIP file containing the FRD files in Shapefile (SHP) format, Table (DBF) format, and the FRD metadata file in XML format.

- An optional .ZIP file containing the FRD in File Geodatabase (fGDB) format (including the Flood Depth and Analysis rasters in Environmental Systems Research Institute, Inc. (Esri) grid format) and the FRD metadata file in XML format.

- A .ZIP file containing the Flood Depth and Analysis rasters in Georeferenced Tagged Image File Format (GeoTIFF) format and the FRD metadata file in XML format.

The FRD must conform to the requirements of Technical Reference No. 5, Flood Risk Database Technical Reference.

The names of the .ZIP files identify the Project ID for the FRD, the volume number if applicable, the file format and the date the data are submitted to the MIP. The .ZIP files must be named <Project ID>_<Volume Number (if applicable)>_<File Format>_<YYYYMMDD>. The <Volume Number> is used only if there are multiple volumes; it is not needed for a single volume .ZIP file. The <File Format> is "GeoDatabase" for the fGDB, "ShapeFiles" for the SHP and DBF files, and "GeoTIFFS" for the GeoTIFFS. The <YYYYMMDD> is the date the data are submitted to the MIP.

The directory for an FRD must be named FRD_<Project ID>_<YYYYMMDD>. The FRD fGDB file must also be named FRD_<Project ID>_<YYYYMMDD>. FRD Shapefiles must be named using the table names in the <u>Flood Risk Database Technical Reference</u>. The GeoTIFF versions of the rasters must be named using the file naming convention in the <u>Flood Risk Database Technical Reference</u>.

Examples:

FRD_87654321_20130419.gdb – a watershed-wide FRD fGDB

FRD_87654321_GeoDatabase_20130419.zip – a single volume watershed-wide FRD fGDB .ZIP file

FRD_87654321_1_GeoDatabase_20130419.zip – volume 1 of a two-volume watershed-wide FRD fGDB .ZIP file

FRD_87654321_2_GeoDatabase_20130419.zip – volume 2 of a two-volume watershed-wide FRD fGDB .ZIP file

FRD_87654321_ShapeFiles_20130419.zip – a watershed-wide FRD shapefiles .ZIP file

FRD_87654321_GeoTIFFS_20130419.zip – a watershed-wide FRD GeoTIFFs .ZIP file

FRD_Delaware_Bay_20130419.gdb – a coastal FRD fGDB

FRD_Delaware_Bay_GeoDatabase_20130419.zip – a single volume coastal FRD fGDB .ZIP file

FRD_Delaware_Bay_1_GeoDatabase_20130419.zip – volume 1 of a two-volume coastal FRD fGDB .ZIP file

FRD_Delaware_Bay_2_GeoDatabase_20130419.zip – volume 2 of a two-volume coastal FRD fGDB .ZIP file

FRD_Delaware_Bay_Shapefiles_20130419.zip – a coastal FRD shapefiles .ZIP file

FRD_Delaware_Bay_GeoTIFFS_20130419.zip – a coastal FRD GeoTIFFs .ZIP file

FRD_42079C_20130419.gdb – a countywide FRD fGDB

FRD_42079C_GeoDatabase_20130419.zip – a single volume countywide FRD fGDB .ZIP file

FRD_42079C_1_GeoDatabase_20130419.zip – volume 1 of a two-volume countywide FRD fGDB .ZIP file

FRD_42079C_2_GeoDatabase_20130419.zip – volume 2 of a two-volume countywide FRD fGDB .ZIP file

FRD_42079C_ShapeFiles_20130419.zip – a countywide FRD shapefiles .ZIP file

FRD_42079C_GeoTIFFS_20130419.zip – a countywide FRD GeoTIFFs .ZIP file

5.3.3. FRD METADATA FILES

FRD metadata files must be provided in XML format. The metadata file must conform to the
<u>Metadata Profiles Technical Reference</u>. The FRD metadata file must be named <Project ID>_<FRD
>_metadata.

Examples:

87654321_FRD_metadata.xml – metadata for a watershed-wide FRD

Delaware_Bay_FRD_metadata.xml – metadata for a coastal FRD

42079C_FRD_metadata.xml – metadata for a countywide FRD

5.3.4. FLOOD RISK REPORT

If a Flood Risk Report (FRR) is prepared, and if it is prepared in a traditional format, it must be
submitted in digital format as an unsecure PDF file, with a resolution of 400 dpi. It must also be
uploaded to the MIP in Word format. If the FRR is prepared in an alternative all-digital format (i.e.,
Esri Story Map) the URL link to the location of the digital file must be provided in a readme file.

If a PDF version of the FRR is submitted, it must be named FRR_<Project ID>_<Volume Number (if
applicable)>_<YYYYMMDD>.pdf. The <Volume Number> is used only if the FRR requires multiple
volumes; it is not needed for a single volume FRR. The <YYYYMMDD> is the date the data are
submitted to the MIP. If submitted, the FRR in Word format must also conform to the same naming
convention.

Examples:

FRR_87654321_20130419.pdf – a single volume watershed-wide FRR

FRR_87654321_1_20130419.pdf – volume 1 of a two-volume watershed-wide FRR

FRR_87654321_2_20130419.pdf – volume 2 of a two-volume watershed-wide FRR

FRR_Delaware_Bay_20130419.pdf – a single volume coastal FRR

FRR_Delaware_Bay_1_20130419.pdf – volume 1 of a two-volume coastal FRR

FRR_Delaware_Bay_2_20130419.pdf – volume 2 of a two-volume coastal FRR

FRR_42079C_20130419.pdf – a single volume countywide FRR

FRR_42079C_1_20130419.pdf – volume 1 of a two-volume countywide FRR

FRR_42079C_2_20130419.pdf – volume 2 of a two-volume countywide FRR

5.3.5. FLOOD RISK MAP

If a Flood Risk Map (FRM) is prepared, and if it is prepared in a traditional format, it must be submitted in digital format as an unsecure PDF file, with a resolution of 400 dpi. If applicable, the MXD file used to create the FRM must also be uploaded to the MIP. If the FRM is prepared in an alternative all-digital format (i.e., Esri Story Map) the URL link to the location of the digital file must be provided in a readme file.

If a PDF version of the FRM is submitted, it must be named FRM_<Project ID>_<Sheet Number (if applicable)>_<YYYYMMDD>.pdf. The <Sheet Number> is used only if the FRM is too large or detailed to fit on a single sheet; it is not needed for a single page FRM. The <YYYYMMDD> is the date the data are submitted to the MIP. If submitted, the FRM in MXD format must also conform to the same naming convention.

Examples:

FRM_87654321_20130419.pdf – a single page watershed-wide FRM

FRM_87654321_1_20130419.pdf – sheet 1 of a two-page watershed-wide FRM

FRM_87654321_2_20130419.pdf – sheet 2 of a two-page watershed-wide FRM

FRM_Delaware_Bay_20130419.pdf – a single page coastal FRM

FRM_Delaware_Bay_1_20130419.pdf – sheet 1 of a two-page coastal FRM

FRM_Delaware_Bay_2_20130419.pdf – sheet 2 of a two-page coastal FRM

FRM_42079C_20130419.pdf – a single page countywide FRM

FRM_42079C_1_20130419.pdf – sheet 1 of a two-page countywide FRM

FRM_42079C_2_20130419.pdf – sheet 2 of a two-page countywide FRM

5.3.6. FLOOD RISK PRODUCTS INDEX

The index provides a listing of the communities covered in the FRD being submitted to the MIP. It is a table designed to ensure that all communities with data in the dataset are accurately represented on the MSC website. A sample Flood Risk Products Index form can be found on the Flood Risk Templates and Other Resources webpage. All regions, states, counties, CIDs, and products associated with the Flood Risk Products submission should be listed.

The Transmittal Form must be provided in Excel format. The Index for the Flood Risk Dataset must be named FRD_<Project ID>_Index.

Example:

FRD_87654321_Index.xls

6. MIP Directory Structure and File Formats

A complete set of the most up-to-date engineering and mapping data associated with changes to FEMA maps must be captured in the MIP before their effective date. These data form the scientific and technical basis for the flood map and are needed in the future to address challenges or changes to the maps. This requirement replaces the previous requirement to submit a hardcopy Technical Support Data Notebook (TSDN) at the end of each mapping project.

Mapping Partners must submit data to the MIP in the file format(s) and in the MIP directory structure shown below for each of their assigned MIP Data Capture tasks. If a sub-folder is not applicable to a particular study, it does not need to be created. Only folders that contain data need to be created. However, a readme file should be created, at the highest applicable folder level, to explain folders that are missing and/or not applicable, or to provide the location of relevant data elsewhere on the MIP. Where multiple file formats are shown separated by a slash, either is acceptable (e.g., Word/PDF). When multiple file formats are required to be submitted, they are noted as such (e.g., Word and PDF). Note: See Appendix A for a list of file format acronyms used in this section.

The MIP was previously organized with pre-defined directories for each FEMA region, state, county, community, MIP case number, assigned MIP tasks, and an auto-generated System ID# (Task SYSID). That folder structure will remain in place for legacy data. Data added to the MIP prior to June 2017 are considered to be legacy.

The current MIP Studies system includes folders that are organized by Fiscal Year, MIP project (case) number, Purchase, and Data Capture task as illustrated below in Figure 1. The folders associated with MIP Data Capture tasks are automatically generated in the MIP as the task upload button is used. These folders are considered task level folders. Folders at a lower level than the MIP Data Capture task level folders will need to be created by Mapping Partners, as applicable to the data being submitted. These folders should be created and populated with the data applicable to the task, named appropriately, zipped, and uploaded to the MIP. The uploaded data will subsequently be unzipped in the submitted folder structure on the MIP.

Note that the folder structure for each Data Capture task includes a Task Documentation folder that includes certification forms and a project narrative. Mapping Partners should complete and submit only one Certification of Completeness and one Certification of Compliance form when their work on a project is complete. If more than one Mapping Partner was involved in the Flood Risk Project, each should submit a certification of completeness and compliance as necessary. Refer to the Data Capture Workflow Details Guidance for additional details. Additionally, the Introduction/Project Overview and the Scope of Work do not need to be repeated in each Data Capture project narrative. They should be included in the project narrative that represents the first task completed under a project and in the final task submitted by the Mapping Partner. See Guidance Document No. 46, Guidance for Flood Risk Analysis and Mapping, Data Capture - General Guidance for additional details on the Task Documentation folder.

In general, the spatial extents of a MIP Data Capture task will be defined by the purchase geography. If subfolders that represent subdivisions of the purchase geography would facilitate the Mapping Partner's workflow and/or future use of the data (i.e., HUC8 basins within a larger HUC4 watershed-based project), the Mapping Partner should include logically named sub-folders.

Note that the directory structure shown in this section represents the structure below the Data Capture Tasks that are assigned in the MIP for each Purchase. Directory names are shown in bold for clarification.

The MIP is organized into J: and K: drives. Unless noted otherwise, all references in the following section are to the directory structure on the J: drive.
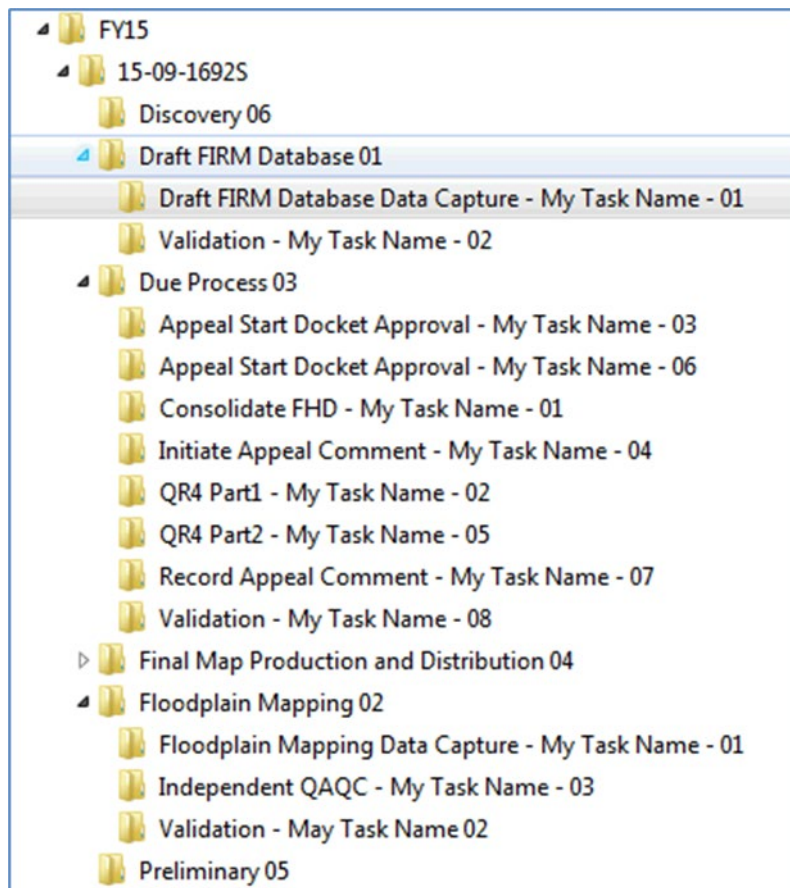

Figure 1: MIP Directory Structure

6.1.   Discovery

Discovery Data Capture

Task Documentation

- – Project Narrative – Word
- – Certification of Completeness (if applicable) – .PDF
- – Discovery Metadata - .XML

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Discovery_Preparation

- Project Team documents – Word/.PDF
- Community Profiles – Word/.PDF
- Project Plan – and/or Outreach Engagement Plan – Word/.PDF
- Draft Discovery Report – Word/.PDF
- Draft Discovery Map – .PDF
- Meeting materials, including but not limited to contact list, invitations, save the date emails, agenda, meeting minutes, attendance records, and meeting summary – Word/.PDF/.XLS/.XLXS
- Draft Mitigation/Resiliency Plan Action Matrix – Word/.PDF/. XLS/.XLSX
- Meeting Presentation or Outreach Materials – Word/.PDF/.PPT

Discovery_Meeting

- Meeting Invitations, save the date emails – Word/.PDF
- Meeting Agenda/Meeting Minutes – Word/.PDF
- Meeting Attendance Records – Word/.PDF/.XLS/.XLXS
- Meeting Summary – Word/.PDF
- Meeting Presentation or Outreach Materials – Word/.PDF/.PPT
- Draft Compilation of Mapping and Mitigation Needs – Word/.PDF/.XLS/.XLSX
- Project Charter – Word/.PDF

Post_Discovery

- Post-Discovery Meeting Notes – Word/.PDF
- Final Discovery Map – .PDF
- Final Discovery Report – Word/.PDF
- Compilation of Mapping and Mitigation Needs – Word/.PDF/.XLS/.XLSX
- Mapping Needs Ranking – Word/.PDF/.XLS/.XLSX
- Mitigation/Resiliency Plan Action Matrix – Word/.PDF/.XLS/.XLSX
- Community Engagement Plan – Word/.PDF
- Community Comments Received – Format as received
- SOW or Mapping Activity Statement (MAS) – Word/.PDF
- Geospatial Data Summary – Word/.PDF

Spatial_Files

- Community Contact List – (DCS_L_Mtg_POC) .DBF/.PGDB/.fGDB/.GML
- Source citations (DCS_L_Source_Cit) MDB/.DBF/.PGDB/.fGDB/.GML
- Political Areas (DCS_S_Pol_Ar) – .SHP/.PGDB/.fGDB/.GML
- Transportation (DCS_S_Trnsport_Ln) – .SHP/.PGDB/.fGDB/.GML
- Discovery Map (DCS_S_Discovery_Map) – .SHP/.PGDB/.fGDB/.GML
- Proposed FIRM Panel Index (DCS_S_Prp_FIRMPan) – SHP/PGDB/fGDB/GML
- HUC (DCS_S_HUC) – .SHP/.PGDB/.fGDB./GML

Supplemental_Data

- All other relevant data collected during Discovery – Format as received.

Validation

- Any review documents and/or checklists used during the validation of the Discovery Data Capture submittals – Word/.XLS/.XLSX/.PDF.

Independent QA/QC

– Any documents related to independent reviews of Discovery Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF.

6.2.   Base Map

Base Map Data Capture

Task Documentation

– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Certification of Compliance (if applicable) – .PDF
– Basemap Metadata – .XML
– Orthoimagery Metadata (if applicable) – .XML

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/PDF.

Spatial_Files

– FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.PGDB/.fGDB/.GML
– Feature Names– .SHP/.PGDB/.fGDB/.GML/text/annotation.
– Orthophotos (if applicable) – .BIL/.BIP/.ECW/.GeoTIFF/.IMG/.JPEG2000/MrSID/PNG + .PGW/georeferenced JPEG/TIF + .TFW

Supplemental_Data

– Any additional Base Map data collected for use in the preparation of this Flood Risk Project – Format as received.

Validation

– Any review documents and/or checklists used during the validation of the Base Map Data Capture submittals – Word/.XLS/.XLSX/.PDF.

Independent QA/QC

– Any documents related to independent reviews of Base Map Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF.

6.3.   Topographic

New Topographic Data Capture and Existing Topographic Data Capture deliverables may be able to be uploaded to the MIP. However, these data submittals may need to be submitted on media if they are too large for the 'Managed Upload' option. See the <u>Data Capture General Guidance</u> and the <u>MIP User Care</u> document for more information about data upload options. If the data need to be submitted on media, the data must be organized in folders organized using the folder structure shown below. The supporting documentation (i.e., the content of the Task Documentation, Correspondence, and Spatial_Files folders) must also be uploaded to the MIP.

Note that if new elevation data are purchased through USGS, either by FEMA or a CTP, Mapping Partners only need to submit documentation of the purchase and metadata for the purchase.   The raw point cloud and other LiDAR project components do not need to be submitted, since these are

archived and made available by USGS. However, the finished elevation surface used for modeling must be submitted under a Terrain Data Capture purchase.

New Topographic Data Capture

Task Documentation

– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Flight plans and logs – Word/.PDF
– Mapping Partner and independent QA/QC reports – Word/.PDF
– Photogrammetric Reports (if applicable) – Format as received
– Terrain Metadata – .XML
– Readme file specifying that the data are located in the Engineering Library

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Source

Raw_Point_Cloud_Data

– LiDAR Data – .LAS/.ASCII
– LiDAR Tile Index – .SHP/.PGDB/.fGDB

Classified_Point_Cloud_Data

– LiDAR Data – .LAS/.ASCII
– LiDAR Tile Index – .SHP/.PGDB/.fGDB

Breaklines

– 3D Breaklines – .SHP/.PGDB/.fGDB/.DXF
– 3D Breakline Tile Index – .SHP/.PGDB/.fGDB
– 2D Breaklines – .SHP/.PGDB/.fGDB/.DXF
– 2D Breakline Tile Index – .SHP/.PGDB/.fGDB
– Mass Points – .SHP/.PGDB/.fGDB/.DXF

Bare_Earth_DEM

– DEMs – Esri grid/GeoTIFF/ASCII grid
– DEM Tile Index – .SHP/.PGDB/.fGDB

Contours

– Contours – .SHP/.PGDB/.fGDB/.DXF
– Contour Tile Index – .SHP/.PGDB/.fGDB
– Bathymetric Data – .SHP/.PGDB/.fGDB/.DXF
– Bathymetry Tile Index – .SHP/.PGDB/.fGDB

TIN

– Uncorrected TIN Files – Esri ArcGIS
– Terrain – Esri ArcGIS
– TIN Tile Index – .SHP/.PGDB/.fGDB

HDEM

– Hydrologically Corrected DEMs – Esri grid/GeoTIFF/ASCII grid
– Terrain – Esri ArcGIS
– HDEM Tile Index – .SHP/.PGDB/.fGDB

Spatial_Files

– FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.PGDB/.fGDB/.GML
– S_Elev_Inv_Ar spatial elevation inventory file – .SHP/.PGDB/.fGDB/.GML
– Source Index – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

– Any additional elevation data collected for use in the preparation of this Flood Risk Project – Format as received

Validation

– Any review documents and/or checklists used during the validation of New Topographic Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of New Topographic Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

Existing Topographic Data Capture

– Note that if existing (gathered) elevation data are used, Mapping Partners only need to submit the bare earth data used for the Flood Risk Project and documentation for the data. The raw point cloud and other LiDAR project components not used for the project do not need to be submitted. Gathered LiDAR data outside the project area do not need to be submitted.

Task Documentation

– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Terrain Metadata – .XML
– Readme file specifying that the data are located in the Engineering Library

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Source

Raw_Point_Cloud_Data

– LiDAR Data – .LAS/.ASCII
– LiDAR Tile Index – .SHP/.PGDB/.fGDB

Classified_Point_Cloud_Data

– LiDAR Data – .LAS/.ASCII
– LiDAR Tile Index – .SHP/.PGDB/.fGDB

Breaklines

– 3D Breaklines – .SHP/.PGDB/.fGDB/.DXF
– 3D Breakline Tile Index – .SHP/.PGDB/.fGDB
– 2D Breaklines – .SHP/.PGDB/.fGDB/.DXF
– 2D Breakline Tile Index – .SHP/.PGDB/.fGDB
– Mass Points – .SHP/.PGDB/.fGDB/.DXF

Bare_Earth_DEM

– DEMs – Esri grid/GeoTIFF/ASCII grid
– DEM Tile Index – .SHP/.PGDB/.fGDB

Contours

– Contours – .SHP/.PGDB/.fGDB/.DXF
– Contour Tile Index – .SHP/.PGDB/.fGDB
– Bathymetric Data – .SHP/.PGDB/.fGDB/.DXF
– Bathymetry Tile Index – .SHP/.PGDB/.fGDB

TIN

– Uncorrected TIN Files – Esri ArcGIS
– Terrain – Esri ArcGIS
– TIN Tile Index – .SHP/.PGDB/.fGDB

HDEM

– Hydrologically Corrected DEMs – Esri grid/GeoTIFF/ASCII grid
– Terrain – Esri ArcGIS
– HDEM Tile Index – .SHP/.PGDB/.fGDB

Spatial_Files

– FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML
– Source Index – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

– Any additional elevation data collected for use in the preparation of this Flood Risk Project – Format as received

Validation

– Any review documents and/or checklists used during the validation of Existing Topographic Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Existing Topographic Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.4.   Terrain

Terrain Data Capture deliverables may be able to be uploaded to the MIP. However, these data submittals may need to be submitted on media if they are too large for the 'Managed Upload' option.

See the <u>Data Capture General Guidance</u> and the <u>MIP User Care</u> document for more information about data upload options.

Terrain Data Capture

Task Documentation

– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Terrain Metadata – .XML
– Readme file specifying that the data are located in the Engineering Library

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Final

Breaklines

– 3D Breaklines – .SHP/.PGDB/.fGDB/.DXF
– 3D Breakline Tile Index – .SHP/.PGDB/.fGDB
– 2D Breaklines – .SHP/.PGDB/.fGDB/.DXF
– 2D Breakline Tile Index – .SHP/.PGDB/.fGDB
– Mass Points – .SHP/.PGDB/.fGDB/.DXF

Bare_Earth_DEM

– DEMs – Esri grid/GeoTIFF/ASCII grid
– DEM Tile Index – .SHP/.PGDB/.fGDB

Contours

– Contours – .SHP/.PGDB/.fGDB/.DXF
– Contour Tile Index – .SHP/.PGDB/.fGDB
– Bathymetric Data – .SHP/.PGDB/.fGDB/.DXF
– Bathymetry Tile Index – .SHP/.PGDB/.fGDB

TIN

– Uncorrected TIN Files – Esri ArcGIS
– Terrain – Esri ArcGIS
– TIN Tile Index – .SHP/.PGDB/.fGDB

HDEM

– Hydrologically Corrected DEMs – Esri grid/GeoTIFF/ASCII grid
– Terrain – Esri ArcGIS
– HDEM Tile Index – .SHP/.PGDB/.fGDB

Spatial_Files

– FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.PGDB/.fGDB/.GML
– Source Index – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

– Any additional elevation data collected for use in the preparation of this Flood Risk Project – Format as received

Validation

– Any review documents and/or checklists used during the validation of Terrain Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Terrain Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.5. Survey

Survey Data Capture

Task Documentation

– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Certification of Compliance (if applicable) – .PDF
– Survey Metadata – .XML

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Photos

– Digital Photographs – .JPEG/.TIFF/.BMP

Sketches

– Digital Sketches – .JPEG/.TIFF/.BMP/.PDF

Survey_Data

– Survey Files – .MDB/.PGDB/.fGDB/.XLS/.XLSX/.DBF/.ASCII/.CSV

Supplemental_Data

– Any additional Survey data collected for use in the preparation of this Flood Risk Project (e.g., survey notebooks, etc.) – Format as received

As-Built

– As-Built Data – Format as received

Spatial_Files

– FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.PGDB/.fGDB/.GML

Validation

– Any review documents and/or checklists used during the validation of Survey Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Survey Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.6.   Hydrology

Hydrology Data Capture

Task Documentation

– Hydrology Report – Word and .PDF
– Draft FIS Section 5.1 – Word and .PDF
– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Certification of Compliance (if applicable) – .PDF
– Hydrology Metadata – .XML
– Large Scale Automated Engineering Report or Base Level Engineering Report (if applicable) – Word and .PDF

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Watershed_Name

Simulations

– Model input and output files – Native format
– Readme file explaining contents of each named file – .TXT

Supplemental_Data

– Database file(s) and/or spatial files such as data and analyses for stream and rainfall gages and computations for regional regression equations such as output from USGS PeakFQ, NFF or NSS computer programs – Native format
– Any additional Hydrology data collected for use in the preparation of this Flood Risk Project – Format as received
– Any orthophoto files referenced as part of the hydrologic analysis if not previously submitted as part of the base map task

Spatial_Files

– FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.PGDB/.fGDB/.GML

Note that Hydrology data submitted for Large Scale Automated Engineering, Base Level Engineering, or Levee analyses may not include all FIRM Database files listed in the <u>FIRM Database Technical Reference</u> Table 2.

Validation

– Any review documents and/or checklists used during the validation of Hydrology Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Hydrology Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.7. Hydraulics

Hydraulics Data Capture

Task Documentation

– Hydraulics Report – Word and .PDF
– Draft FIS Section 5.2 – Word and .PDF
– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Certification of Compliance (if applicable) – .PDF
– Hydraulics Metadata – .XML
– Large Scale Automated Engineering Report or Base Level Engineering Report (if applicable) – Word and .PDF

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Stream_Name (Station)

Simulations

– Model input and output files for all flood frequencies required by the MAS and floodway analysis – Native format
– HEC-RAS model archive with input and output files for all flood frequencies required by the MAS and floodway analysis. This includes the base RAS input files, GIS input files (for 2D models), and the computed files (post process output, mapping results, and stored maps). – .ZIP
– Model input and output files for levee analysis for the 1% annual-chance flood including, if applicable: de-accredited left levee and hold right levee; de-accredited right levee and hold left levee; both levees in place; and both levees de-accredited (for floodway analysis) – Native format
– Model input and output files for levee analyses for all flood frequencies required by the MAS [e.g., the 10%, 4%, 2%(normally with levees in place), 1%, 0.2% (normally without levees) annual-chance floods] – Native format
– Readme file explaining contents of each named file – .TXT

Profiles

– Profiles – RASPLOT .MDB/.DXF/.DWG

FWDT

– Floodway Data Tables – .MDB/.XLS/.XLSX/.DBF

Supplemental_Data

– Database file(s) and/or spatial files such as high water mark data for model calibration – Native format
– Zone A backup files – Native format
– Any additional Hydraulics data collected for use in the preparation of this Flood Risk Project – Format as received
– Any orthophoto files referenced as part of the hydraulic analysis if not previously submitted as part of the base map task

Spatial_Files

– FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

Note that the submitted FIRM Database files must match the model output with respect to floodplain boundaries, cross sections, and water surface elevations and their precision. Unlike in the regulatory data submittals, floodplain boundaries and cross sections should not be cartographically modified, and the data may not necessarily agree exactly with the regulatory FIRM, FIRM Database, flood profiles, and Floodway Data Tables.

Note also that Hydraulics data submitted for Large Scale Automated Engineering, Base Level Engineering, or Levee analyses may not include all FIRM Database files listed in the FIRM Database Technical Reference Table 2.

Validation

– Any review documents and/or checklists used during the validation of Hydraulic Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Hydraulic Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.8.   Alluvial Fan

Alluvial Fan Data Capture

Task Documentation

– Alluvial Fan Technical Report (including Stage 1, Stage 2, and Stage 3 documentation) – Word and .PDF
– Draft FIS Section 5.4 – Word and .PDF
– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Certification of Compliance (if applicable) – .PDF
– Alluvial Fan Metadata – .XML

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Stream_Name

Simulations

– Model input and output files – Native format
– Readme file explaining contents of each named file – .TXT

Profiles

– Profiles – RASPLOT .MDB/.DXF/.DWG

Hydraulic_Databases

– Database File(s) – Native format

FAN_Program_Files

– Model input and output files – Native format

Supplemental_Data

– Any additional spatial or non-spatial Alluvial Fan data collected for use in the preparation of this Flood Risk Project – Format as received

Spatial_Files

- FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.PGDB/.fGDB/.GML

Note that the submitted FIRM Database files must match the model output with respect to floodplain boundaries, cross sections, and water surface elevations and their precision. Unlike in the regulatory data submittals, floodplain boundaries and cross sections should not be cartographically modified, and the data may not necessarily agree exactly with the regulatory FIRM, FIRM Database, flood profiles, and Summary of Alluvial Fan Analyses and Results of Alluvial Fan Analyses tables.

Validation

- Any review documents and/or checklists used during the validation of Alluvial Fan Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

- Any documents related to independent reviews of Alluvial Fan Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.9.   Coastal

Coastal Data Capture

Water_Body_Name

Project_Name

Task Documentation

- ReadMe – simple text document describing the types of documents in the folder and the folder structure
- White Papers, Technical Memos, etc. related to Coastal Analyses and Mapping – Word or .PDF
- Draft FIS Coastal Hydrology and Coastal Hydraulic Analysis Sections (typically 5.1 and 5.3) – Word and .PDF
- FIS Graphics (e.g., SWEL contour map, transect location map) – .PDF./JPEG
- FIS Tables – .MDB/.XLS/.XLSX/.DBF
- FIS Coastal Profiles – .PDF/.JPEG and .DXF/.DWG
- Project Narrative – Word
- Certification of Completeness (if applicable) – .PDF
- Certification of Compliance (if applicable) – .PDF
- Coastal Metadata – .XML

Coastal_IDS_1

- Final IDS 1Report – .PDF
- IDS 1 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_2

- Final IDS 2Report – .PDF
- IDS 2 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_3

- Final IDS 3Report – .PDF
- IDS 3 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_4

- Final IDS 4Report – .PDF
- IDS 4 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_5

- Final IDS 5Report – .PDF
- IDS 5 QA/QC Tracking forms – Word or .XLS/.XLSX

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Stillwater_Data

Tidal Water Level Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including data source, units and datum for all raw data files – .PDF/.TXT
- Graphic showing location and names of stations from which tidal water level data was retrieved – .PDF.JPEG
- Historical hourly water level data for each station from which tidal water level data was retrieved – .MDB/.XLS/.XLSX/.DBF
- Historical annual maximum water level data for each station from which tidal water level data was retrieved – .MDB/.XLS/.XLSX/.DBF

High Water Mark Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Graphic showing location and names of locations where high water mark data was retrieved – .PDF/.JPEG
- High water mark data from each location from which high water mark data was retrieved – .MDB/.XLS/.XLSX/.DBF
- If available, any notes or documentation on methods applied to obtain the high water mark data or the quality of individual data points. – .PDF

Stillwater_Analysis

Stillwater_Analysis_Approach

- Narrative of approach used to determine water levels for use in performing the FIS (e.g., 2D surge modeling with JPM-OS, 2D modeling for multi-decadal hindcast, desktop analysis for multi-decadal hindcast, etc.) – .PDF

Desktop_Hydro_Analysis_Name

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- One fully worked example demonstrating inputs, analysis technique and outputs used for the analysis of water levels – .PDF
- Input and output data referenced in the fully worked example – Native format
- Complete analysis input and output for all stations within the study – Native format

2D_Hydro_Modeling_Analysis_Name

Hydro_Model_Geometry

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Final model mesh including nodal elevations, roughness coefficients and all other static boundary conditions assigned. – Native Format
- Final DEM of topography and bathymetry used in model mesh creation – .SHP/.PGDB/.fGDB/.GML

Tidal_Calibration

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Model input files needed to reproduce final tidal simulations – Native format
- Model output files from final tidal simulations – Native format

Hydro_Historic_Storm_Verification

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Model input files needed to reproduce final storm verification simulations – Native format
- Model output files from final storm verification simulations – Native format

Hydro_Production_Runs

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Model inputs needed to reproduce time varying water level elevations throughout the model domain for each event modeled – Native format
- Model output needed to reproduce results from the statistical analysis – Native format
- Optional additional output from analysis – Native format

Hydro_Statistical_Analysis

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- One fully worked example demonstrating inputs, analysis technique and outputs used to calculate the 0.2% and 1%-annual-chance water levels – .PDF
- Input and output data referenced in the fully worked example – Native format

Hydro_Supplemental_Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Any additional data used in the water level modeling of this Flood Risk Project – Native format

Hydro_Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Final 0.2% and 1%-annual-chance surge surfaces used as input for the transect based wave analysis – .SHP/.PGDB/.fGDB/.GML

Wave_Analysis

Wave_Analysis_Approach

– Narrative of approach used to determine regional wave conditions for use in performing the FIS (e.g., 2D wave modeling within JPM-OS, 2D wave modeling for multi-decadal hindcast, desktop analysis for multi-decadal hindcast, etc.). Includes explanation of how different ocean/regional/coastal scale wave domains were linked. – .PDF

Desktop_Wave_Analysis_Name

– ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
– One fully worked example demonstrating inputs, analysis technique and outputs used for the analysis of regional wave conditions – .PDF
– Input and output data referenced in the fully worked example – Native format
– Final analysis output for all locations within the study area – Native format

2D_Wave_Modeling_Analysis_Name

Wave_Model_Geometry

– ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files. Includes explanation of how different ocean/regional/coastal scale wave domains were linked – .PDF/.TXT
– Final model mesh including nodal elevations, roughness coefficients and all other static boundary conditions assigned. – Native format

Wave_Historic_Storm_Verification

– ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files. Includes explanation of how different ocean/regional/coastal scale wave domains were linked – .PDF/.TXT
– Model input files needed to reproduce final storm verification simulations – Native format
– Model output files from final storm verification simulations – Native format
– Wave data used to compare with model results from the verification runs – Native format

Wave_Production_Runs

– ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files. Includes explanation of how different ocean/regional/coastal scale wave domains were linked – .PDF/.TXT
– Model inputs needed to reproduce time varying wave conditions throughout the model domain for each event modeled – Native format
– Model output needed to reproduce results from the statistical analysis – Native format
– Final analysis output for all locations within the study area – Native format
– Data necessary to develop the final 1% and 0.2% annual-chance wave conditions – Native format

Wave_Supplemental_Data

– ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT

- Any additional data used in the modeling of offshore wave conditions for this Flood Risk Project – Native format

Transect_Based_Wave_Hazard_Analysis

- Narrative of approach used to determine wave hazards – .PDF
- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT

Wave_Statistical_Analysis_Event

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- One fully worked example demonstrating inputs, analysis technique and outputs used to determine the input wave conditions for use within the transect based wave analysis – .PDF
- Input and output data referenced in the fully worked example – Native format

Wave_Hazard_Model_Name

Simulations

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Model/calculation input and output files for wave hazard analyses – Native format
- For response-based studies, one fully worked example demonstrating inputs, analysis technique and outputs used to determine the Total Water Level – .PDF
- Wave Envelope Files – .PDF and .DXF or spatially compatible file

Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Field survey, land-use and other reference files for 1D wave calculations – Native format
- Topographic and bathymetric datasets if different from 2D_Hydro_Modeling_Analysis_Name\Hydro_Model_Geometry – .SHP/.PGDB/.fGDB/.GML
- Spatial files by model including Transect Layout file – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Any additional data used in the modeling of wave hazards for this Flood Risk Project, including orthophotos or oblique aerial imagery – Native format

Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.PGDB/.fGDB/.GML

Coastal_Flood_Risk_Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Final coastal Flood Risk Products produced for the study (i.e., depth grids, erosion hazard, etc.) – .SHP/.PGDB/.fGDB/.GML
- Maps of coastal final Flood Risk Products produced for the study. – .PDF

Validation

- Any review documents and/or checklists used during the validation of Coastal Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

- Any documents related to independent reviews of Coastal Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.10. Levee

Levee Analysis and Mapping (LAMP) Data Capture

Levee System ID_Levee Name

Task Documentation

- Project Narrative – Word
- Certification of Completeness (if applicable) – .PDF

Correspondence

- Local Levee Partnership Team (LLPT) meeting minutes; LLPT meeting invitation letters; Natural Valley Concurrence Letters; emails; transmittals; memoranda; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

LAMP_Package

- LAMP Report – Word/.PDF
- LAMP analysis – Native format
- LAMP identification and LAMP Plan preparation materials – Native format

Supplemental_Data

- Any additional supporting documentation collected or developed in support of a LAMP plan and path forward – Native format

Validation

- Any review documents and/or checklists used during the validation of LAMP Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

- Any documents related to independent reviews of LAMP Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

Levee Data Capture

Levee System ID_Levee Name

Task Documentation

- Project Narrative – Word
- Certification of Completeness (if applicable) – .PDF

Correspondence

– PAL agreements; Natural Valley Concurrence Letters submitted outside the formal LAMP process; emails; transmittals; memoranda; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

65.10 Data Package

– Certified data submittals associated with levee accreditation and LAMP scenarios; Operations and Maintenance plans – Word/.PDF

Supplemental_Data

– Any additional supporting documentation such as PAL research or non-certified engineering data – Native format

Validation

– Any review documents and/or checklists used during the validation of Levee Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Levee Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.11. Floodplain Mapping

Floodplain Mapping Data Capture

Task Documentation

– Draft FIS Report – Word and .PDF
– FIS Tables – .MDB/.XLS/.XLSX/.DBF
– FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Floodplain/Redelineation Metadata – .XML
– Large Scale Automated Engineering Report or Base Level Engineering Report (if applicable) – Word and .PDF

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Base_Map

– Orthophotos (if applicable and if not submitted under Base Map) – .BIL/.GeoTIFF/.IMG/.JPEG2000/.MrSID/.PNG + .PGW/.JPEG/.TIF + .TFW

Spatial_Files

– FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.GDB/.fGDB/.GML

Note that Floodplain Mapping data submitted for Large Scale Automated Engineering, Base Level Engineering, or Levee analyses may not include all FIRM Database files listed in the FIRM Database Technical Reference Table 2.

Topographic_Data

– Topographic Data Files (if not submitted under Terrain Capture) – .LAS/.ASCII/.SHP (2D or 3D)/.PGDB/.fGDB/.DXF/Esri Grid/.GeoTIFF/.ASCII Grid/Esri ArcGIS

Supplemental_Data

– Rectified effective maps and any other data that was used to re-create effective profiles and delineations – Native format

Validation

– Any review documents and/or checklists used during the validation of Floodplain Mapping Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Floodplain Mapping Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.12. Draft FIRM Database

Note that currently the Database Verification Tool (DVT) requires all data used for verification (i.e., SHP files and metadata) to be in the highest level folder.

Draft FIRM Database Data Capture

– FIRM Database Draft Metadata – .XML
– FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
– FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP/.GDB/.fGDB/.GML
  Task Documentation

  – Project Narrative – Word
  – Certification of Completeness (if applicable) – .PDF
  Correspondence

  – Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Validation

– Any review documents and/or checklists used during the validation of Draft FIRM Database Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Draft FIRM Database Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.13. Preliminary

Note that currently the Database Verification Tool (DVT) requires all data used for verification (i.e., SHP files and metadata) to be in the highest level folder.

Produce Preliminary Products Data Capture

- FIRM Database Preliminary Metadata – .XML
- FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP
  Task Documentation

  - Certification of Completeness (if applicable) – .PDF
  - Project Charter (if signed after Discovery) – .PDF
  - FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
  Correspondence

  - Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF
  RFIRM

  - Preliminary FIRM Panel Images – .PDF
  - Preliminary FIRM Index Images – .PDF
  FIS

  - Preliminary FIS Report – Word and Bookmarked .PDF
  Prelim_Letters

  - Preliminary or Revised Preliminary issuance letters – Word/.PDF
  SOMA

  - Preliminary SOMA documents – Word/.PDF
  Pre-and Post-Quality Review (QR)3   Documentation

  - Pre-QR3 Submission Questionnaire and Self-Certification – .PDF
  - Post-QR3 Confirmation and Self-Certification forms. – .PDF

QR3

- QR3 and SOMA Checklists – .XLS/.XLSX/Word/.PDF

Distribute Preliminary Products

- Distribute Preliminary Products receipts – .PDF

Validation

- Any review documents and/or checklists used during the validation of Produce Preliminary Products Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

- Any documents related to independent reviews of Produce Preliminary Products Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.14. Outreach

CCO Meeting Data Capture

  Task Documentation

  - Certification of Completeness (if applicable) – .PDF
  - Project Narrative – Word/.PDF
  Correspondence

  - Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

CCO Meeting Documentation

– CCO Meeting agenda – Word/.PDF
– CCO Meeting invitations, save the date emails – Word/.PDF
– CCO Meeting minutes – Word/.PDF
– CCO Meeting attendance record – Word/.XLS/.XLSX/.PDF
– CCO Meeting presentation file (if applicable) – .PDF/.PPT

Feedback Data Capture

Task Documentation

– Certification of Completeness (if applicable) – .PDF
– Project Narrative – Word/.PDF

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Feedback_Type

– Recorded feedback that occurs outside of the Appeal period – Word/.PDF
– Recorded feedback or comments provided by community(s) at community outreach meeting(s) or submitted separately during a review period (e.g., 30-day proposed model review, 30-day review of Draft FIRM [work map] and draft model) – Word/.PDF
– Technical files provided by community(s) at community outreach meeting(s) or submitted separately during a review period (e.g., 30-day proposed model review, 30-day review of Draft FIRM [work map] and draft model) – Format as provided

Event Data Capture

Task Documentation

– Certification of Completeness (if applicable) – .PDF
– Project Narrative – Word/.PDF

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Event_Type

– Outreach meeting or event file(s) to include meeting invitations, meeting agenda, meeting minutes, attendance records, and/or presentation materials – Word/.XLS/.XLSX/.PDF/.PPT
– Letters and other materials developed for notification to CEO of 30-day proposed model review (SID 620) – Word/.PDF
– Letters and other materials developed for notification to CEO of 30-day review of Draft FIRM (work map) and draft model (SID 621) – Word/.PDF
– Post-preliminary outreach materials (e.g., radio, television, etc.) (SID 622) – Word/.PDF

6.15. Due Process

QR4 Part 1

– QR4 Checklist Part 1– .XLS/.XLSX

Initiate Appeal/Comment

Task Documentation

– Certification of Completeness (if applicable) – .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Appeal Start Documentation

- Published Federal Register notice (Proposed) – .PDF
- Newspaper notice – Word/.PDF
- 90-day appeal start letters – Word/.PDF

QR4 Part 2

- QR4 Checklist Part 2 – .XLS/.XLSX

Appeal Start Docket Approval

- Any review documents and/or checklists used during the validation of the Appeal Start docket (optional) – Word/.XLS/.XLSX

Affidavit Receipts

Task Documentation

- Certification of Completeness (if applicable) – .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Affidavit/Receipt Documentation

- Appeal Start letter(s) sent to community(s) – .PDF
- Return receipt for certified mail for 90-day appeal start letters – .PDF
- Newspaper affidavit/tear sheet – .PDF

Record Appeal/Comment

Task Documentation

- Certification of Completeness (if applicable) – .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Appeal/Comment Documentation

- Recorded comments or appeal data submitted by community(s) – Format as provided
- Appeal acknowledgement letters –.PDF
- Appeal resolution letters – .PDF

Validation

- Any review documents and/or checklists used during the validation of Record Appeal/Comment submittals (optional) – Word/.XLS/.XLSX

6.16. Final Map Production and Distribution

Note that currently the DVT requires all data used for verification (i.e., .SHP files and metadata) to be in the highest level folder.

Develop Final Mapping Products Data Capture

– FIRM Database Final Metadata – .XML
– FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
– FIRM Database files as described in the <u>FIRM Database Technical Reference</u> Table 2 – .SHP

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

RFIRM

– Final FIRM Panel Images – PNG
– Final FIRM Index Image(s) – PNG

FIS

– Final FIS Report – Word and Bookmarked .PDF
– Profiles – RASPLOT .MDB/.DXF/.DWG

MSC_Paperwork

– Transmittal Letters – Word
– Inventory Worksheets – .XLS/.XLSX

MXD

– FIRM Panel and FIRM Index MXD Files (if applicable) – .MXD

QR5

– QR5 Checklist – .XLS/.XLSX
– QR5 Shapefile(s) – .SHP

QR7

– QR7 Checklist – .XLS/.XLSX

LFD Docket

– LFD Verification Form – .XLS/.XLSX
– Final Flood Hazard Determination (FHD) table (i.e., draft final LFD notice if available) – Word/.PDF
– LFD letter(s) – Word/.PDF
– Final SOMA(s) – Word/.PDF

QR6

– QR6 Checklist – .XLS/.XLSX

LFD Approval

– Any review documents and/or checklists used during the validation of the LFD docket (optional) – Word/.XLS/.XLSX

Finalize LFD

– LFD letter(s) sent to community(s) –PDF
– Final SOMA(s) – PDF
– Return receipt for certified mail for LFD letter(s) – .PDF

QR8

– QR8 Checklists – .XLS/.XLSX

Suspension Notification Letters

– 90-Day letters sent to community(s) including return receipt for certified mail for 90-Day letters – PDF

- 30-Day letters sent to community(s) including return receipt for certified mail for 30-Day letters – PDF

Prepare Revalidation

- Revalidation letter(s)– Word/.PDF

Review Revalidation

- Revalidation checklist(s) – Word/.XLS/.XLSX

Revalidation Approval

- Any review documents and/or checklists used during the validation of Revalidation submittals (optional) – Word/.XLS/.XLSX

Distribute Revalidation

- Revalidation letter(s) sent to community(s) –PDF

FEDD File Data Capture

- Complete FEDD files (one file per community) including Published Notice (Final)– .PDF
- Approved FEDD Checklist (one file per community)– .XLS/.XLSX

TSDN Data Capture

- Final Project Narrative – Word
- Certification of Completeness – .PDF
- Certification of Compliance – .PDF
- TSDN Checklist – .XLS/.XLSX/Word/.PDF
- Other checklists (if applicable) – .XLS/.XLSX/Word/.PDF
- Project Charter (if signed after Discovery) – .PDF

Validation

- Approved Interim FEDD File Checklist(s) –.XLS/.XLSX

6.17. Flood Risk Products Data

Note that an identical folder structure is provided for Draft and Final Flood Risk Products data submittals. Draft data uploads are only required if applicable.

Flood Risk Products Data Capture

Project ID

Draft

Task Documentation

- Project Narrative – Word
- Certification of Completeness (if applicable) – .PDF
- Large Scale Automated Engineering Report or Base Level Engineering Report (if applicable) – Word and .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Flood_Risk_Datasets

CSLF

– Input and output data associated with the Changes Since Last FIRM (CSLF) dataset (not the actual CSLF dataset which is submitted with the FRD) – Native format

FDAG

– Input and output data associated with the Flood Depth and Analysis Grids (FDAG) dataset (not the actual grids which are submitted with the FRD) – Native format

FRA

– Input and output data associated with the Flood Risk Assessment (FRA) dataset, which include Hazus data (not the actual Risk Assessment dataset which is submitted with the FRD) – Native format (.hpr files for Hazus data)

Flood_Risk_Products

FRD

– .ZIP file containing FRD and accompanying metadata file – SHP, DBF and .XML
– .ZIP file containing FRD and accompanying metadata file (if applicable) – fGDB and .XML
– .ZIP file containing Flood Depth and Analysis rasters and accompanying metadata file – GeoTIFF and .XML

FRR

– Flood Risk Report (if applicable) – Word and .PDF or readme file with hyperlink to the location of the digital file if alternate format is prepared (i.e., Story Map)

FRM

– Flood Risk Map (if applicable) - .PDF and .MXD or readme file with hyperlink to the location of the digital file if alternate format is prepared (i.e., Story Map)

Supplemental_Data

– Input and output data associated with the FRD (not the actual FRD which is submitted with the final mapping data) – Native format
– Any relevant input and output data associated with the Flood Risk Report (not the actual FRR which is submitted with the FRD), if applicable – Native format
– Any relevant input and output data associated with the Flood Risk Map (not the actual FRM which is submitted with the FRD), if applicable – Native format
– Any additional data used to assist in the preparation of this Flood Risk Project – Native format

Final

Task Documentation

– Project Narrative – Word
– Certification of Completeness (if applicable) – .PDF
– Large Scale Automated Engineering Report or Base Level Engineering Report (if applicable) – Word and .PDF

Correspondence

– Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Flood_Risk_Datasets

CSLF

– Input and output data associated with the Changes Since Last FIRM dataset (not the actual CSLF dataset which is submitted with the FRD) – Native format

FDAG

– Input and output data associated with the Flood Depth and Analysis Grids dataset (not the actual grids which are submitted with the FRD) – Native format

FRA

– Input and output data associated with the Flood Risk Assessment dataset, which include Hazus data (not the actual Risk Assessment dataset which is submitted with the FRD) – Native format (.HPR files for Hazus data)

Flood_Risk_Products

FRD

– .ZIP file containing FRD and accompanying metadata file – SHP, DBF and .XML
– .ZIP file containing FRD and accompanying metadata file (if applicable) – fGDB and .XML
– .ZIP file containing Flood Depth and Analysis rasters and accompanying metadata file – GeoTIFF and .XML

FRR

– Flood Risk Report (if applicable) – Word and .PDF or readme file with hyperlink to the location of the digital file if alternate format is prepared (i.e., Story Map)

FRM

– Flood Risk Map (if applicable) - .PDF and .MXD or readme file with hyperlink to the location of the digital file if alternate format is prepared (i.e., Story Map)

Supplemental_Data

– Input and output data associated with the FRD (not the actual FRD which is submitted with the final mapping data) – Native format
– Any relevant input and output data associated with the Flood Risk Report (not the actual FRR which is submitted with the FRD), if applicable – Native format
– Any relevant input and output data associated with the Flood Risk Map (not the actual FRM which is submitted with the FRD), if applicable – Native format
– Any additional data used to assist in the preparation of this Flood Risk Project – Native format

Validation

– Any review documents and/or checklists used during the validation of Flood Risk Products Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

– Any documents related to independent reviews of Flood Risk Products Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.18. General Data

Due to the flexible nature of the General purchase, additional folders may be created by the user as necessary.

General Data Capture

Project_Name_Project_ID

Task Documentation

– Project Narrative – Word

- Certification of Completeness (if applicable) – .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Supplemental_Data

- Input and output data associated with a General Data submittal (if applicable) – Native format
- Any additional supporting documentation associated with a General Data submittal – Native format

Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all spatial data files – .PDF/.TXT
- Any spatial data associated with a General Data submittal – Native format
- Metadata for spatial data associated with a General Data submittal – .XML

Validation

- Any review documents and/or checklists used during the validation of General Data Capture submittals – Word/.XLS/.XLSX/.PDF

Independent QA/QC

- Any documents related to independent reviews of General Data Capture submittals (if applicable) – Word/.XLS/.XLSX/.PDF

6.19. Project Correspondence

Using the MIP Tools & Links >Data Upload >Load Studies Data Artifacts interface, the following information may be uploaded to the MIP K: drive. These files will be stored in folders under the project number on the K: drive.

These files must be submitted as a .ZIP file for each of the data categories organized in the following directory structure.

Correspondence
  FIPS

- Any additional supporting correspondence relevant to the Flood Risk Project not previously submitted during Data Capture. These may include letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

FBS Reports

  FIPS

- Floodplain Boundary Standard (FBS) Self-Certification Document (this document must be submitted within 30 days after issuance of preliminary maps). The file must be named as follows: County or Community_State_FBS_Preliminary.

- Revised FBS Self-Certification Document (this document must be submitted within 30 days after issuance of the Letter of Final Determination (LFD) if floodplain boundaries were revised during the post-preliminary phase). The file must be named as follows: County or Community_State_FBS_Final.

Supporting_Artifacts

FIPS

– Any additional supporting documentation relevant to the Flood Risk Project not previously submitted during Data Capture – Native format

7.   File Format Acronyms List

The following acronyms are used in the list of file format(s) shown in the directory structure.

.ASCII – American Standard for Information Interchange

.BIL – Band Interleaved by Line

.BIP – Band Interleaved by Pixel

.BMP – Bitmap image file

.CSV – Comma Separated Values

.DBF – dBase DataBase File

.DXF – AutoCAD® Drawing Interchange Format or Drawing Exchange Format

.DWG – AutoCAD® DraWinG file

.ECW – Intergraph® (ERDAS) Enhanced Compression Wavelet

Esri grid – Esri® raster file format

.fGDB – Esri® File Geodatabase

.GML – Geographic Markup Language

GeoTIFF – Georeferenced TIFF

.HPR – Hazus Packaged Region

.IMG – Image file

.JPEG/.JPEG2000 – Joint Photographic Experts Group

.LAS – LASer (ASPRS)

.MDB – Microsoft® Access Database

.MrSID – LizardTech® Multiresolution Seamless Image Database

.MSG - Microsoft® Outlook Message

.MXD – Esri® ArcMap document

.PDF – Adobe® Portable Document Format

.PGDB – Esri® Personal Geodatabase

.PNG – Portable Network Graphics

.PPT - Microsoft® PowerPoint

.SHP – Esri® Shapefile

.TIFF – Tagged Image File Format

.TIN – Triangulated Irregular Network

.TXT – Text file

Word – Microsoft® Word .doc or .docx file format

.XLS/.XLSX – Microsoft® Excel format

.XML – Extensible Markup Language

.ZIP – Archive compressed file format