Exhibit D

Data Submittal Guidelines for Regional Flood Planning

NOTE: REMAINS SUBJECT TO NON-SUBSTANTIAL CHANGE

July 2021

First Cycle of Regional Flood Plan Development (2020–2023)

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Background

The TWDB designated 15 regional flood planning areas each of which formed a regional planning group that will develop a regional flood plan for their region by January 2023. The TWDB will bring the regional flood plans together to produce the first state flood plan by September 1, 2024. While the development of the regional flood plans will be directed by the flood planning groups, in order to ensure the regional flood plans will follow consistent approach, TWDB staff prepared the following data submittal guidelines to assist with the regional plan submission process. These guidelines are in addition to the administrative rules and other technical guidance documents that are part of the regional flood planning grant contracts.

Purpose

These guidelines provide additional information on the required format of data to be submitted with each regional flood plan, in alignment with rule and contractual requirements including the Scope of Work (SOW). Exhibit D: Data Submittal Guidelines is complimentary to Exhibit C: Technical Guidelines and is intended to assist the RFPGs in carrying out their work, developing related information, and in organizing and delivering information to meet contract requirements.

The draft regional flood plans and the final adopted regional flood plans will be reviewed by TWDB based on statute, regional flood planning rules, as well as requirements in this and all other contract documents including the SOW.

This document summarizes data deliverable requirements for developing and delivering regional flood plans for the current planning cycle. These guidelines include specific “must” requirements that must be complied with by RFPGs as they prepare the regional flood plan. This guidance includes some may or consider language that leaves certain considerations to the discretion of the RFPGs.

This document augments existing statute and rules that govern regional flood planning. Provisions of Title 31 of Texas Administrative Code (TAC) Chapters 361, and 362 that serve as the foundation for guidance in this document and are not superseded or abridged by anything contained within or excluded from this guidance document**.**

1 General Data Requirements

The TWDB will provide a GIS geodatabase template for the RFPGs to fill in with region-specific data. The geodatabase template will be pre-populated with all feature classes and fields but will not have any data. The RFPGs and their consultants must not alter the geodatabase in any way that would alter or otherwise degrade the quality or configuration of the intended data collection or formats etc. in any manner. The geodatabase must be intact when delivered back to the TWDB, populated with regional flood planning data. The RFPGs may add additional fields in feature classes to address region specific needs with prior approval from the TWDB.

All data must conform and comply with all 31 TAC §361 & §362 rules. The data should also be developed based on the guidance in subsequent sections of this document and the most current Exhibit C: Technical Guidelines for Regional Flood Planning .

All required spatial data for the Flood Planning Region (FPR) will be submitted in a single geodatabase in a template geodatabase provided by the TWDB. The template geodatabase is comprised of 25 feature classes and tables which are listed and described in the Table 1 of this document.

This work should consider existing flood infrastructure, hazard areas, flood exposure (current and future condition), vulnerability, and identify potential flood management evaluations (FME), flood mitigation projects (FMP), and flood management strategies (FMS) along with any other relevant flood planning data and studies available.

In addition:

1. The submitted information must be accurate and based on the best data and science practicable;
2. potential interregional conflicts should be identified and resolved prior to data being submitted by the RFPG;
3. RFPGs must enter information in all fields of the geodatabase provided unless otherwise stated in this data submittal guidance;
4. data provided must follow specified units of measure or quantification (as identified in Sections 3);
5. spelling, word order, and proper names must be used consistently and correctly when submitting data; this is important for purposes of cross-referencing and consistency.
6. proper names used in the RFPs should match those submitted in data deliverables;
7. RFPGs must use the same reporting conventions for data shared by more than one region;
8. RFPGs that have shared interest in datasets must agree on underlying data (e.g. H&H models) prior to submittal by either region.

If there are any questions regarding the submission process, contact the TWDB Flood Planning Data staff early in the process to obtain assistance. This will help to prevent inadvertent creation of errors that could be difficult to correct. Flood planning data staff contact information can be found on the TWDB website (https://www.twdb.texas.gov/flood/planning-staff.asp).

2 Formats for Electronic Data

All final versions of files acquired or developed for the 2023 RFPs are considered joint property of the TWDB and are required to be submitted to the TWDB. All electronic files submitted to the TWDB by RFPGs must be provided using flash drive or DVD and be in a ready-to-use format which should accompany each hard copy of the reports. Electronic data is also to be submitted similarly to TWDB at key planning milestones (technical memo, draft regional plan, final regional plan) through an online file transfer system. Further details on the submission process will be provided by TWDB.

This includes but is not limited to all written technical reports, including the full regional flood plan document and any appendices (MS Word and PDF), MS Excel files, hydrological and hydraulic models (H&H) as applicable and input/output/supporting data files, GIS, CAD, and image-formatted data. Files required for delivery to the TWDB must be in an approved format as specified in this document. Alternative software or delivery methods will be allowed with pre-approval from the TWDB if these requirements present a significant burden on the RFPG or as technology changes.

2.1 Introduction

Formats of all computer files provided to the TWDB should be compatible with widely distributed versions of the following software:

1. Microsoft Word (MS Office 2010 or newer versions)
2. Microsoft Excel (MS Office 2010 or newer versions)
3. Microsoft Access (MS Office 2010 or newer versions)
4. ArcGIS (10.0 or newer versions)
5. Internet Explorer (11 or newer versions)
6. Adobe Acrobat (2015 or newer versions)

2.2 File Formatting

2.2.1 Accessibility

The digital copy of the final RFP must comply with the requirements and standards specified in 1 TAC §213, Subchapter B (Electronic and Information Resources Accessibility Standards for State Agencies) and the Contract.

All figures must have alternative text descriptions, except for decorative elements, which should be tagged as artifacts or background elements. The file must be titled and language specified. In addition, the document must establish a logical reading order through the consistent use of styles and headings. Non-accessible elements such as text boxes should be avoided.

2.2.2 PDF and MS Word Specifications

All PDFs intended for online publication must be tagged for accessibility and reflow. All electronic Adobe PDF files must use embedded fonts with electronically searchable text. Hyperlinks should be live and bookmarks used in a consistent manner to provide easy navigation. Reading order should be evaluated and tab order correctly set. PDFs must pass the Acrobat accessibility full check. It is recommended that PDF files be a size of 50 MB or less to minimize the amount of time it will take to download from the

TWDB website. However, if a larger file size is necessary, please ensure that the PDF file is no greater than a file size of 100 MB.

2.2.3 Image formatting

All drawings and graphs included in reports should also be provided separately to the TWDB in Encapsulated PostScript (EPS) or Tagged Image Format (TIFF) format. Color model should be CMYK and resolution should be 300 dpi.

2.2.4 Correspondence Specifications

All relevant email correspondence of significance must be saved as PDF files and adhere to the PDF specifications in Section 2.2.2.

2.2.5 Hydrologic and Hydraulic (H&H) Models

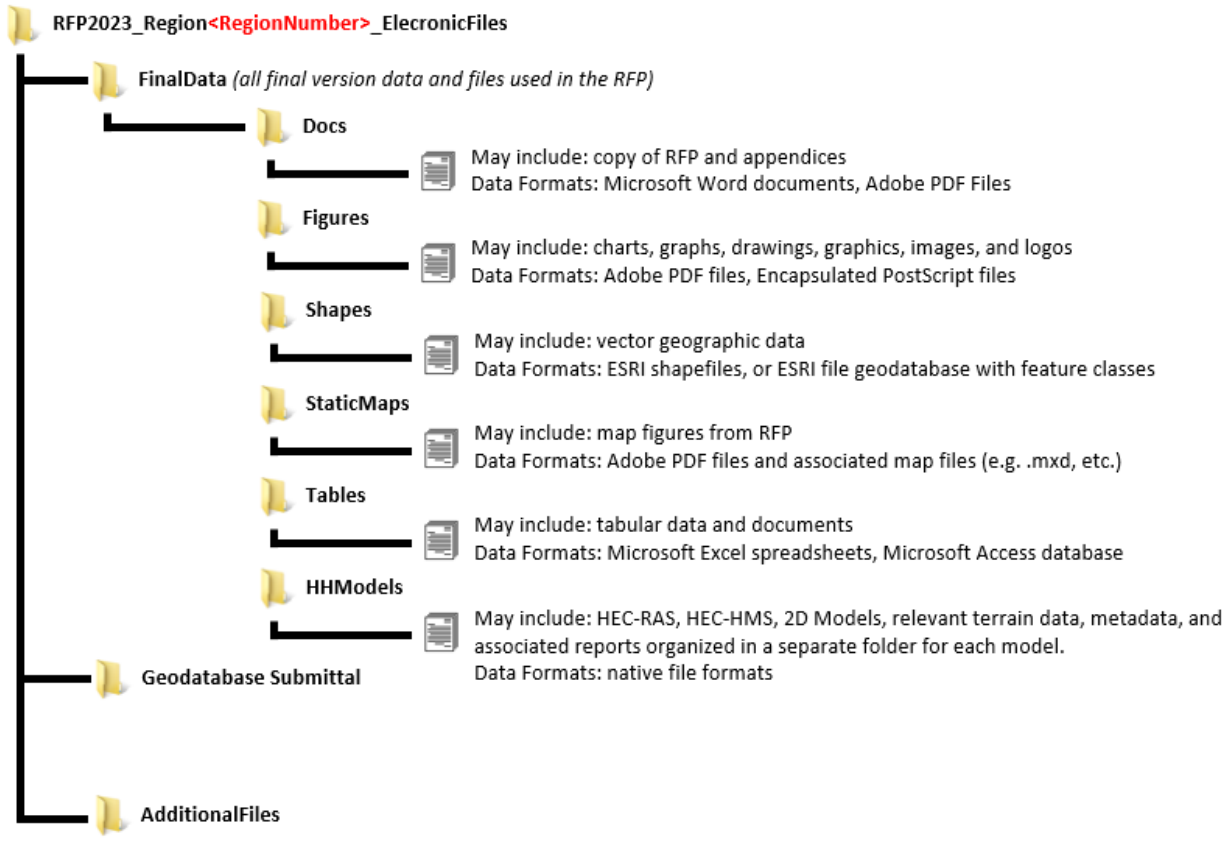
Any relevant H&H model files should be complete, include only relevant scenarios and files, properly named with associated description in the model, different scenario should be clearly identified, and include appropriate metadata. For the 2D models, files required to run the model and the output file containing results for relevant scenarios will be sufficient. All models should be submitted with appropriate metadata and associated reports.

2.3 File Structure

For the required files discussed in Section 3, follow the appropriate file naming convention identified therein. For all other files, a standard naming convention should be used consistently for all file names and include the region number, data type, and figure title when relevant. It is preferred that “camel case” be used for file name formatting, which is a formatting style that capitalizes the first letter of each word. File names should not contain spaces, or special characters except for underscores. See Figure 1 for an example of how data delivery folders should be structured. Contact the TWDB FP-FD team if you would like to receive a folder containing the preferred folder structure. It is not necessary to include files that were provided by the TWDB as supporting materials if their use is clearly documented and referenced.

To help TWDB locate the model supporting the Regional Flood Plan, please include a reference document in the root of the HHModels folder that provides a crosswalk between model folder and Flood Mitigation Project. If a model is used for another piece of the plan, provide this detail in the crosswalk document.

Figure 1. File Delivery Example



2.4 GIS Data Requirements

2.4.1 Metadata

All GIS files developed for the TWDB are required to have associated metadata. Deliverables are not considered complete without metadata. Metadata, including information about the data's projection, can be developed using one of several built-in or add-on tools within ArcGIS, and typically is associated with the geometry file as an XML file.

All GIS files submitted to the TWDB must have spatial reference information that describes the projection, datum, and where applicable, the collection methods.

2.4.2 Projection

All electronic geospatial data must have spatial reference information and be projection defined (have its coordinate system identified and embedded in or associated with the data file). All GIS data submitted to TWDB should be in the following projection:

NAD_1983_2011_Texas_Centric_Mapping_System_Lambert

Raster data, such as aerial photographs may be submitted in their native projection, and maps must be in the appropriate projection/coordinate system for the area depicted.

All CAD data must be in known real world coordinate space, ideally in geographic/decimal degrees/NAD83, and must NOT be in page space or a custom site-specific projection.

2.4.3 Tabular Data

Should tabular data be appropriate to connect location information with attribute information, then documentation specifying the primary and foreign keys is required (see Section 3 for guidance on required spatial deliverables). Should coordinate information be provided in tabular format it should contain at minimum the following fields:

1. ID: a unique identifier given to each feature
2. Latitude: the Y-coordinate in decimal degrees
3. Longitude: the X-coordinate in decimal degrees
4. Datum: the horizontal datum of the coordinates

2.4.4 ArcMap Documents

All ArcMap documents (.mxd) or equivalent map document formats used in final map production are also required for delivery to the TWDB with accompanying data in a stand-alone directory structure. Map document formats also need to be configured to use relative paths and not be set to use a printer-specific paper setting.

2.4.5 Data Deliverables

Each RFPG is responsible for submitting all required GIS data in a single geodatabase. The file geodatabase format is recommended for large datasets.

Sections 3 further specifies what data is required and the proper format for all required data. The Geodatabase should be named using the following naming convention – “RR_RFP_GIS_Data”. The “RR” is the two-digit RFPG number (for example, Region 2 geodatabase should be “02_RFP_GIS_Data”.

3 Required Spatial Data

As described in section 2.4.5, all required spatial data for the Flood Planning Region (FPR) will be submitted in a single geodatabase (with "RR_RFP_GIS_Data" as the title where "RR" is the two-digit region number, for example Region 1 would be "01"). This database will be made up of 25 feature classes and tables. See the table below for a summary of how to name each feature, the type of feature class, which SOW task the data correlates to, and the delivery milestone when the feature is first to be submitted.

All require data should be submitted as part of the geodatabase, not as separate files. Additional spatial data used to produce the Regional Flood Plan but outside this list are to be submitted using the file structure shown in section 2.3.

Each required feature is described in greater detail in **Table 1**. For each feature, a table and guidelines are provided. The table includes the correct field names, a description of the field, if the field is required, the data type, and a list of valid entries for that field, when applicable.

Table 1: Required Spatial Data

File #	Item Name	Description	Feature Class Name	Polygon /Line/ Point/ GDB Table	SOW Task	Submittal Milestone
1	**Entities**	Entities with flood-related authority and whether they are actively engaged in flood planning, floodplain management, and flood mitigation activities	**Entities**	Polygon	1.1.d	Technical Memo
2	**Watersheds**	The spatial layer for watersheds with associated FME, FMS, and FMPs	**Watersheds**	Polygon	1	Technical Memo
3	**Existing Infrastructure**	A general description of the location, condition, and functionality of existing natural flood mitigation features and constructed major flood infrastructure within the FPR.	**ExFldInfraPol**	Polygon	1.3.3	Technical Memo
4		A general description of the location, condition, and functionality of existing natural flood mitigation features and constructed major flood infrastructure within the FPR.	**ExFldInfraLn**	Line	1.3.3	Technical Memo
5		A general description of the location, condition, and	**ExFldInfraPt**	Point	1.3.3	Technical Memo

File #	Item Name	Description	Feature Class Name	Polygon /Line/ Point/ GDB Table	SOW Task	Submittal Milestone
		functionality of existing natural flood mitigation features and constructed major flood infrastructure within the FPR.				
6	**Proposed or Ongoing Flood Mitigation Projects**	Proposed or ongoing flood mitigation projects currently under construction, being implemented; and with dedicated funding to construct and the expected year of completion.	**ExFldProjs**	Polygon	1.6	Technical Memo
7	**Existing Flood Hazard**	Perform existing condition flood hazard analyses to determine the location and magnitude of both 1.0% annual chance and 0.2% annual chance flood events	**ExFldHazard**	Polygon	2A.1	Technical Memo
8	**Flood Mapping Gaps**	Gaps in inundation boundary mapping	**Fld_Map_Gaps**	Polygon	2A.1.e	Technical Memo
9	**Existing Exposure**	Develop high-level, region-wide, and largely GIS-based existing condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1.0% annual chance and 0.2% annual chance flood events	**ExFldExpPol**	Polygon	2A.2	Technical Memo
10		Develop high-level, region-wide, and largely GIS-based existing condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1.0% annual chance	**ExFldExpLn**	Line	2A.2	Technical Memo

File #	Item Name	Description	Feature Class Name	Polygon /Line/ Point/ GDB Table	SOW Task	Submittal Milestone
		and 0.2% annual chance flood events				
11		Develop high-level, region-wide, and largely GIS-based existing condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1.0% annual chance and 0.2% annual chance flood events	**ExFldExpPt**	Point	2A.2	Technical Memo
12		Combines the Exposure Poly, Line, and Point data into a single master layer, also includes Vulnerability data	**ExFldExpAll**	Point	2A.2	Technical Memo
13	**Future Flood Hazard**	Perform future condition flood hazard analyses to determine the location and magnitude of both 1.0% annual chance and 0.2% annual chance flood events	**FutFldHazard**	Polygon	2B.1	Technical Memo
14	**Future Exposure**	Perform future condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1.0% annual chance and 0.2% annual chance flood events	**FutFldExpPol**	Polygon	2B.2	Technical Memo
15		Perform future condition flood exposure analyses using the information identified in the flood hazard analysis to identify	**FutFldExpLn**	Line	2B.2	Technical Memo

File #	Item Name	Description	Feature Class Name	Polygon /Line/ Point/ GDB Table	SOW Task	Submittal Milestone
		who and what might be harmed within the region for, at a minimum, both 1.0% annual chance and 0.2% annual chance flood events				
16		Perform future condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1.0% annual chance and 0.2% annual chance flood events	**FutFldExpPt**	Point	2B.2	Technical Memo
17		Combines the Exposure Poly, Line, and Point data into a single master layer, also includes Vulnerability data	**FutFldExpAll**	Point	2B.2	Technical Memo
18	**Existing Floodplain Management Practices**	Identify areas with existing floodplain management practices, identify common and compare contrasting practices within the region, and acknowledge locations that may lack floodplain management.	**ExFpMP**	GDB Table	3A	Technical Memo
19	**Goals**	Identify specific and achievable flood mitigation and floodplain management goals along with target years by which to meet those goals	**Goals**	GDB Table	3B	Technical Memo
20	**Streams**	Shows the streams to be studied by FMEs, and those relevant to FMS and FMPs, when applicable.	**Streams**	Line	4B	Technical Memo

File #	Item Name	Description	Feature Class Name	Polygon /Line/ Point/ GDB Table	SOW Task	Submittal Milestone
21	**Flood Management Evaluations**	Flood Management Evaluations will identify areas requiring flood risk evaluation.	**FME**	Polygon	4B	Technical Memo (Limited fields)
22	**Flood Mitigation Projects**	Flood Mitigation Projects reduce flood risk through a variety of approaches. The service area is the region impacted by the project.	**FMP**	Polygon	4B	Technical Memo (Limited fields)
23	**Post-project Hazard**	Project specific features showing an updated hazard area that accounts for the impact of the project	**FMP_HazPost**	Polygon	5.2	Draft Plan
24	**Project Details**	A table included in the .gdb but built using the Project Details excel template. The table includes more detailed analysis of the project.	**FMP_Details**	.xls template, GDB Table	5.2	Draft Plan
25	**Flood Management Strategies**	Flood Management Strategies can be a broad array of policy or other strategies that aid in flood management.	**FMS**	Polygon	4B	Technical Memo (Limited fields)

Table 2 provides specific guidance for construction of unique IDs for each dataset. It is essential for the correct format to consistently used so that all RFPG data can be assembled into a single statewide dataset. Each ID will start with a two-digit region number, for example region 1 would start with "01".

Table 2: Unique ID Guidance

Feature Class	ID Field	Guidance	Starting ID
Entities	ENTITY_ID	Region No. + 6 Digits	RR000001
Watersheds	WS_ID	Region No. + 6 Digits	RR000001
ExFldInfraPol	EXINFPY_ID	Region No. + 6 Digits	RR000001
ExFldInfraLn	EXINFLN_ID	Region No. + 6 Digits	RR000001
ExFldInfraPt	EXINFPT_ID	Region No. + 6 Digits	RR000001
ExFldProjs	EXPROJ_ID	Region No. + 6 Digits	RR000001
ExFldHazard	EXHAZ_ID	Region No. + 6 Digits	RR000001
Fld_Map_Gaps	GAPS_ID	Region No. + 6 Digits	RR000001
ExFldExpPol	EXEXPPY_ID	Region No. + 7 Digits	RR0000001
ExFldExpLn	EXEXPLN_ID	Region No. + 7 Digits	RR0000001
ExFldExpPt	EXEXPPT_ID	Region No. + 7 Digits	RR0000001
ExFldExpAll	EXEXPALLID	Region No. + 7 Digits	RR0000001
FutFldHazard	FUTHAZ_ID	Region No. + 6 Digits	RR000001
FutFldExpPol	FTEXPPY_ID	Region No. + 7 Digits	RR0000001
FutFldExpLn	FTEXPLN_ID	Region No. + 7 Digits	RR0000001
FutFldExpPt	FTEXPPT_ID	Region No. + 7 Digits	RR0000001
FutFldExpAll	FTEXPALLID	Region No. + 7 Digits	RR0000001
ExFpMP	EXFPMP_ID	Region No. + 6 Digits	RR000001
Goals	GOAL_ID	Region No. + 6 Digits	RR000001
Streams	STREAM_ID	Region No. + 7 Digits	RR0000001
FME	FME_ID	Region No. + 1 + 6 Digits	RR1000001
FMS	FMS_ID	Region No. + 2 + 6 Digits	RR2000001
FMP	FMP_ID	Region No. + 3 + 6 Digits	RR3000001
FMP_HazPost	POSTHAZ_ID	Region No. + 6 Digits	RR000001
FMP_Details	FMP_ID	Region No. + 3 + 6 Digits	RR3000001

3.1 Entities [Entities]

Description:

Identifies flood planning entities and political subdivisions with flood-related authority and whether they are currently actively engaged in flood planning, floodplain management, and flood mitigation activities.

Table 3: List of Fields for 'Entities'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Entity	Y	ENTITY_ID	Text	Must be unique for each feature, begin with two-digit region code, except for those crossing boundaries, which begin with "00".	
	Y	ENT_NAME	Text		
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Political Subdivision	Y	POLSUB_FLG	Text	Is entity a political subdivision?	Yes, No
Entity Type	Y	ENT_TYPE	Text		Municipality, County, River Authority, Flood District, Other
Active	Y	ACTIVE	Text	Is entity active in flood planning?	Yes, No
FIPS Code	N	FIPS	Text	Census FIPS code if county or census place	
CID Code	N	CID	Text	FEMA-assigned community number (6-digit with the first two being "48" for Texas)	

Guidelines:

Identify all political subdivisions with flood-related authority as polygons. The polygons can overlap. If the subdivision aligns with a census geography such as County or Place (City, Town, Villages, Census Designated Places) please include the 2019 FIPS code that ties to the Census data. This will be 5 digits for Counties and 7 digits for Places, with the first two digits being the State FIPS code ("48").

For Entities that cross multiple RFPG boundaries, please include the entire polygon even if portions extend beyond the RFPG. TWDB will work with the RFPGs to ensure cross-boundary entities end up with the same unique IDs, with many known overlaps being pre-populated into the .gdb template distributed by TWDB. For Entities crossing multiple RFPGs that do not match any known overlapping geography, please coordinate with the corresponding RFPG to ensure the ENTITY_ID match.

3.2 Watersheds [Watersheds]

Description:

Identifies watersheds for the FPR.

Table 4: List of Fields for 'Watersheds'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Watershed	Y	WS_ID	Text	Must be unique for each feature	
	Y	WS_NAME	Text	The local name of the watershed	
	N	WS_DESC	Text		
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	

Guidelines:

The purpose of this layer to identify local watersheds, for example, Onion Creek, Shoal Creek, etc., as applicable. The scale for this layer is flexible and at the discretion of each FPR. Urban areas may require smaller scale watersheds while rural area watersheds may be larger.

3.3 Existing Flood Infrastructure

Description:

A general description of the location, condition, and functionality of existing natural flood mitigation features and constructed major flood infrastructure within the FPR.

Guidelines:

Since infrastructure exhibit diverse geometries, three separate existing flood infrastructure feature classes will be submitted – polygon, line, and point. See below for Tables for each feature class. The "_type" fields identify the discrete types of infrastructure to be included, with both constructed and natural types allowed. Storm drain systems are to include only pipes over 12 inches, culverts, and inlets. All infrastructure dimension fields (e.g. diameter, height, etc.) are included for each feature class; however, these are not required and were included to maintain flexibility. If a given infrastructure does

not have a name, refer to the name as “Unnamed [Infra Type]” with the type of infrastructure being part of the name.

3.3.1 Polygon [ExFldInfraPol]

Table 5: List of Fields for ‘ExFldInfraPol'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Infrastructure Polygon Feature	Y	EXINFPY_ID	Text	Must be unique for each feature	
	Y	NAME	Text	Name of feature	
	Y	DESCR	Text	A brief description of the infrastructure	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Infrastructure Type	Y	INFRA_TYPE	Text	Functioning floodplains, wetlands, playa lakes, sinkholes, alluvial fans, vegetated dunes, dams that provide flood protection, detention and retention ponds.	Floodplain, Wetland, Playa, Sinkhole, Fan, Dunes, Dam, Pond, Other
Natural or Constructed?	Y	NATBUILT	Text		Natural, Constructed, Combination
Construction Date	N	DT_CONST	Date		
Infrastructure Dimensions	N	DIAMETER	Float	Pipe diameter (feet)	
	N	HEIGHT	Float	Height of dam or levee, sea barrier, tunnel, pipe, culvert (feet)	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	N	WIDTH	Float	(feet)	
	N	LENGTH	Float	(feet)	
	N	AREA	Float	Area of detention pond, functioning floodplains, wetlands, playa lakes (acres)	
Condition	Y	CONDITION	Text	Functional infrastructure meets its intended design level of service. Otherwise, it is non-functional.	Functional, Non-functional, Unknown
	Y	COND_DESCR	Text	Condition description	
Level of Service	Y	LOS	Text	Enter the LOS in terms of annual probability	50, 10, 4, 2, 1, 0.2, Unknown
Deficiency	Y	DEF_TYPE	Text	Deficient infrastructure is in poor structural condition and needs replacement	Deficient, Non-deficient, Unknown
	Y	DEF_DESCR	Text	Describe the structural issue causing deficiency	
Population Protected by Infrastructure	N	POP_PROTEC	Long	This field is intended to identify approximate population effected by the infrastructure.	
Owning Entity	Y	OWN_ENT	Text	ENTITY_ID from Entity feature class, comma-separated	
Operating Entity	Y	OPER_ENT	Text	ENTITY_ID from Entity feature class, comma-separated	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.3.2 Line [ExFldInfraLn]

Table 6: List of Fields for 'ExFldInfraLn'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Infrastructure Line Feature	Y	EXINFLN_ID	Text	Must be unique for each feature	
	Y	NAME	Text	Name of feature	
	Y	DESCR	Text	A brief description of the infrastructure	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Infrastructure Type	Y	INFRA_TYPE	Text	See Valid Entries. Dams are those that provide risk reduction.	River, Tributary, Levee, Sea Barrier, Sea Wall, Revetment, Tidal barrier, Tidal Gate, Stormwater Tunnel, Stormwater Canal, Dam, Weir, Storm Drain System, Other
Natural or Constructed?	Y	NATBUILT	Text		Natural, Constructed, Combination
Construction Date	N	DT_CONST	Date		
Infrastructure Dimensions	N	DIAMETER	Float	Pipe diameter (feet)	
	N	HEIGHT	Float	Height of dam or levee, sea barrier, tunnel, pipe, culvert (feet)	
	N	WIDTH	Float	(feet)	
	N	LENGTH	Float	(feet)	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Condition	Y	CONDITION	Text	Functional infrastructure meets its intended design level of service. Otherwise, it is non-functional.	Functional, Non-functional, Unknown
	Y	COND_DESCR	Text	Condition description	
Level of Service	Y	LOS	Text	Enter the LOS in terms of annual probability	50, 10, 4, 2, 1, 0.2, Unknown
Deficiency	Y	DEF_TYPE	Text	Deficient infrastructure is in poor structural condition and needs replacement	Deficient, Non-deficient, Unknown
	Y	DEF_DESCR	Text	Describe the structural issue causing deficiency	
Population Protected by Infrastructure	N	POP_PROTEC	Long	This field is intended to identify approximate population effected by the infrastructure.	
Owning Entity	Y	OWN_ENT	Text	ENTITY_ID from Entity feature class, comma-separated	
Operating Entity	Y	OPER_ENT	Text	ENTITY_ID from Entity feature class, comma-separated	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.3.3 Point [ExFldInfraPt]

Table 7: List of Fields for 'ExFldInfraPt'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Infrastructure Line Feature	Y	EXINFPT_ID	Text	Must be unique for each feature	
	Y	NAME	Text	Name of feature	
	Y	DESCR	Text	A brief description of the infrastructure	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Infrastructure Type	Y	INFRA_TYPE	Text	Low Water Crossings listed as LWC	LWC, Dam, Sinkholes, Other
Natural or Constructed?	Y	NATBUILT	Text		Natural, Constructed, Combination
Construction Date	N	DT_CONST	Date		
Infrastructure Dimensions	N	DIAMETER	Float	Pipe diameter (feet)	
	N	HEIGHT	Float	Height of dam or levee, sea barrier, tunnel, pipe, culvert (feet)	
	N	WIDTH	Float	(feet)	
	N	LENGTH	Float	(feet)	
Condition	Y	CONDITION	Text	Functional infrastructure meets its intended design level of service. Otherwise, it is non-functional.	Functional, Non-functional, Unknown
	Y	COND_DESCR	Text	Condition description	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Level of Service	Y	LOS	Text	Enter the LOS in terms of annual probability	50, 10, 4, 2, 1, 0.2, Unknown
Deficiency	Y	DEF_TYPE	Text	Deficient infrastructure is in poor structural condition and needs replacement	Deficient, Non-deficient, Unknown
	Y	DEF_DESCR	Text	Describe the structural issue causing deficiency	
Population Protected by Infrastructure	N	POP_PROTEC	Long	This field is intended to identify approximate population effected by the infrastructure.	
Owning Entity	Y	OWN_ENT	Text	ENTITY_ID from Entity feature class, comma-separated	
Operating Entity	Y	OPER_ENT	Text	ENTITY_ID from Entity feature class, comma-separated	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.4 Proposed and Ongoing Flood Mitigation Projects [ExFldProjs]

Description:

Proposed or ongoing flood mitigation projects currently under construction, being implemented; and with dedicated funding to construct and the expected year of completion.

Table 8: List of Fields for 'ExFldProjs'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Project	Y	EXPROJ_ID	Text	Must be unique for each project	
	Y	EXPRJNAME	Text	Project name	
	Y	EXPRJDESC	Text	Project description	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Project Status	Y	STATUS	Text		Proposed, Ongoing
Cost	Y	COST	Float		
Dedicated Funding for Construction	Y	FUNDING	Text	Whether there is dedicated funding	Yes, No
	Y	FUND_SRC	Text	Funding source	
Expected Completion Year	Y	COMP_YR	Short		
Anticipated Benefit	Y	BENEFIT	Text		

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Associated Hazard	Y	EXHAZ_ID	Text	This is to be populated once existing condition flood hazard analysis is completed. EXHAZ_IDs from Existing Hazard feature class, comma-separated if multiple.	

Guidelines:

All proposed and ongoing projects should be represented in at least a single polygon in this feature class. The service area will most likely be a single contiguous polygon, though it is possible for a project to have discontinuous polygons represented the service area. In this case, the service area should still be represented by a single record in this feature set. The areas should include contributing drainage areas to the project.

3.5 Existing Condition Flood Risk Analysis

3.5.1 Existing Condition Flood Hazard [ExFldHazard]

Description:

Perform existing condition flood hazard analyses to determine the location and magnitude of both 1.0% annual chance and 0.2% annual chance floods. This task also includes identification of flood prone areas. These areas can be identified in the 'Annual Probability' field with a value of 'Unknown'.

Table 9: List of Fields for 'ExFldHazard'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Hazard	Y	EXHAZ_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"). For hazard and exposure feature classes, COUNTY must be **singular**.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Annual Probability	Y	FLOOD_FREQ	Text	Annual probability of occurrence	10, 4, 1, 0.2, Unknown
Area	Y	AREA_SQMI	Float	Hazard area (sqmi)	
Data Source	Y	SOURCE	Text		
	N	SRC_DATE	Date	Effective date (for FIRM) or published date (for others)	
	N	SRC_LINK	Text	URL	
Model Dates	N	HYDRO_DATE	Date	Date of existing hydrologic model	
	N	HYDRA_DATE	Date	Date of existing hydraulic model	
Terrain	N	TERR_DATA	Text	Identify the type of data, for example “30-meter DEM”. Be sure to include the resolution and source.	
	N	TERR_DATE	Date		
Hazard Map Date	N	MAP_DATE	Date	Date of current digital mapping, may be the same as SRC_DATE	
Is Source Regulatory?	Y	REGULATORY	Text		Yes, No
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

Guidelines:

It is the role of the RFP to review available flood hazard data and determine the best available data throughout the RFP. A variety of data sources should be used, with relevant source attribute data identified for each hazard. Each polygon represents the best data for a given hazard area, not different historic flood events. When the hazard polygon is derived through the public meetings or comments, indicate the FLOOD_FREQ as "Unknown" and the SOURCE as "PUBLIC". Make a best attempt to represent the data as a polygon.

3.5.1.1 Flood Mapping Gaps Polygon [Fld_Map_Gaps]

Description:

Identification of gaps in inundation boundary mapping.

Table 10: List of Fields for 'Fld_Map_Gaps'

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Flood Mapping Gap	Y	GAPS_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Annual Probability	Y	FLOOD_FREQ	Text	Annual probability of occurrence	10, 4, 1, 0.2, Unknown

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Hazard Map Date	N	MAP_DATE	Date	The date the hazard map was produced, if applicable	

Guidelines:

Flood mapping gaps are areas without sufficient or outdated mapping data. Existing maps covering the area may be out of date or lacking in analytical rigor. The minimum feature size is one watershed, which should be no smaller than 1-square mile. RFPGs are to utilize their own discretion to decided which maps are outdated since this will depend on various factors including but not limited to date of existing H&H models and mapping, change of land use and impervious cover in the area, change in rainfall pattern and availability of updated hydrology information.

3.5.2 Existing Condition Flood Exposure

Description:

Develop high-level, region-wide, and largely GIS-based existing condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1.0% annual chance and 0.2% annual chance flood events

Guidelines:

Since flood exposure exhibits diverse geometries, three separate existing flood exposure feature classes will be submitted – polygon, line, and point. See below for Tables for each feature class. Exposure feature layers should be created by intersecting the flood hazard layer with feature layers including but not limited to buildings, infrastructure, roadways, land area etc. The "_type" fields identify the discrete types of exposure to be included. Every exposure must be represented by a single record in the 'ExFldExpAll l' feature layer.

3.5.2.1 Polygon [ExFldExpPol]

Table 11: List of Fields for 'ExFldExpPol'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Exposure Polygon Feature	Y	EXEXPPY_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
County	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Exposure Type	Y	EXP_TYPE	Text	Identify the type of exposure	Residential Bldg, Commercial Bldg, Agricultural Bldg, Industrial Bldg, Public Bldg, Vacant or Unknown Bldg, Power Generation, Agricultural Land, Other
Exposure Description	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	
Low Water Crossing	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No
Population	Y	POP_DAY	Long	Daytime population at flood risk	
	Y	POP_NIGHT	Long	Nighttime population at flood risk	
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.5.2.2 Line [ExFldExpLn]

Table 12: List of Fields for 'ExFldExpLn'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Exposure Line Feature	Y	EXEXPLN_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Exposure Type	Y	EXP_TYPE	Text	Identify the type of exposure	Roadway Segment, Other
Exposure Description	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	
Low Water Crossing	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No
Population	Y	POP_DAY	Long	Daytime population at flood risk	
	Y	POP_NIGHT	Long	Nighttime population at flood risk	
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.5.2.3 Point [ExFldExpPt]

Table 13: List of Fields for 'ExFldExpPt'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Exposure Point Feature	Y	EXEXPPT_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Exposure Type	Y	EXP_TYPE	Text	Identify the type of exposure	Power Generation, Roadway Stream Crossing, Other
Exposure Description	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	
Low Water Crossing	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.5.3 Existing Condition Vulnerability [ExFldExpAll]

Description:

Combines the exposure polygon, line, and point data into a single point layer that includes all Exposure and Vulnerability data.

Table 14: List of Fields for 'ExFldExpAll'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Existing Exposure Converted to Point	Y	EXEXPALLID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Exposure	Y	EXP_GEOM	Text	Geometry type of corresponding feature in existing exposure polygon, line, or point feature class	Polygon, Line, Point
	Y	EXPORIG_ID	Text	Unique ID from existing exposure polygon, line, or point feature	
	Y	EXP_TYPE	Text		Residential Bldg, Commercial Bldg, Agricultural Bldg, Industrial Bldg, Public Bldg, Vacant or Unknown Bldgl, Power Generation, Roadway Stream Crossing, Roadway Segment, Agricultural Land, Other
	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	
	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No
	Y	CRITICAL	Text	Is this a critical facility?	Yes, No

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
	Y	CRIT_TYPE	Text	Required if CRITICAL = "Yes". Type of critical facility: Medical service provider, police/ fire/ EMS, schools, public infrastructure i.e. water/ WW treatment plants	Medical, Emergency, School, Infrastructure, Other
	Y	POP_DAY	Long	Daytime population at flood risk (for buildings, 0 if not applicable)	
	Y	POP_NIGHT	Long	Nighttime population at flood risk (for buildings, 0 if not applicable)	
	Y	SVI	Float	Social Vulnerability Index for exposure. A decimal number in range 0-1	
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

Guidelines:

The 'ExFldExpAll' layer combines the three exposure layers into a single point feature layer, identifies whether the exposure is a critical facility, and provides the Social Vulnerability Index for each point. The SVI should match the Tract SVI provided by TWDB. When converting from an exposure polygon or line into a point, the centroid may be used or any other method determined to best locate the point. This feature class is primarily for summarization of exposure data (e.g., Table 3 in Exhibit C) and visualization, not for detailed spatial analysis.

3.6 Future Condition Flood Risk Analysis

3.6.1 Future Condition Flood Hazard [FutFldHazard]

Description: Perform future condition flood hazard analyses to determine the location and magnitude of both 1.0% annual chance and 0.2% annual chance floods. This task also includes identification of flood prone areas. These areas can be identified in the 'Annual Probability' field with a value of 'Unknown'.

Table 15: List of Fields for 'FutFldHazard'

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Future Hazard	Y	FUTHAZ_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Annual Probability	Y	FLOOD_FREQ	Text	Annual probability of occurrence	10, 4, 1, 0.2, Unknown
Area	Y	AREA_SQMI	Float	Hazard area (sqmi)	
Data Source	Y	SOURCE	Text		
	N	SRC_DATE	Date	Effective date (for FIRM) or published date (for others)	
	N	SRC_LINK	Text	URL	
Model Dates	N	HYDRO_DATE	Date	Date of existing hydrologic model	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	N	HYDRA_DATE	Date	Date of existing hydraulic model	
Terrain	N	TERR_DATA	Text	Identify the type of data, for example "30-meter DEM". Be sure to include the resolution and source.	
	N	TERR_DATE	Date		
Hazard Map Date	N	MAP_DATE	Date	Date of current digital mapping, may be the same as SRC_DATE	
Is Source Regulatory?	Y	REGULATORY	Text		Yes, No
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

Guidelines:

It is the role of the RFP to review available flood hazard data and determine the best available data throughout the RFP. A variety of data sources should be used, with relevant source attribute data identified for each hazard.

3.6.2 Future Condition Flood Exposure

Description:

Perform future condition flood exposure analyses using the information identified in the flood hazard analysis to identify who and what might be harmed within the region for, at a minimum, both 1.0% annual chance and 0.2% annual chance flood events

Guidelines:

Since flood exposure exhibits diverse geometries, three separate future flood exposure feature classes will be submitted—polygon, line, and point. See below for Tables for each feature class. Exposure

feature layers should be created by intersecting the flood hazard layer with feature layers including but not limited to buildings, infrastructure, roadways, land area etc. The "_type" fields identify the discrete types of exposure to be included. Every exposure should be represented by a single record in the 'FutFldExpAll' feature layer.

3.6.2.1 Polygon [FutFldExpPol]

Table 16: List of Fields for 'FutFldExpPol'

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Future Exposure Polygon Feature	Y	FTEXPPY_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Exposure Type	Y	EXP_TYPE	Text	Residential, Non-residential, Industrial, Power Generation, Agriculture	Residential Bldg, Commercial Bldg, Agricultural Bldg, Industrial Bldg, Public Bldg, Vacant or Unknown Bldg, Power Generation, Agricultural Land, Other
Exposure Description	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	
Low Water Crossing	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Population	Y	POP_DAY	Long	Daytime population at flood risk	
	Y	POP_NIGHT	Long	Nighttime population at flood risk	
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.6.2.2 Line [FutFldExpLn]

Table 17: List of Fields for 'FutFldExpLn'

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Future Exposure Line Feature	Y	FTEXPLN_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
County	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Exposure Type	Y	EXP_TYPE	Text	Roadway segments	Roadway Segment, Other
Exposure Description	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	
Low Water Crossing	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.6.2.3 Point [FutFldExpPt]

Table 18: List of Fields for 'FutFldExpPt'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Future Exposure Point Feature	Y	FTEXPPT_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Exposure Type	Y	EXP_TYPE	Text	Power Generation, Roadway Stream Crossing	Power Generation, Roadway Stream Crossing, Other
Exposure Description	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Low Water Crossing	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

3.6.3 Future Condition Vulnerability [FutFldExpAll]

Description:

Combines the future polygon, line, and point data into a single point layer that also includes Vulnerability data.

Table 19: List of Fields for 'FutFldExpAll'

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Future Exposure Converted to Point	Y	FTEXPALLID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	Y	RFPG_NAME	Text		
County	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Flood Risk	Y	FLOOD_FREQ	Text	Lowest annual probability of occurrence	10, 4, 1, 0.2, Unknown
	N	INUN_DEPTH	Float	Inundation depth (feet)	
	N	VELOCITY	Float	Velocity (ft/sec)	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Exposure	Y	EXP_GEOM	Text	Geometry type of corresponding feature in future exposure polygon, line, or point feature class	Polygon, Line, Point
	Y	EXPORIG_ID	Text	Unique ID from future exposure polygon, line, or point feature	
	Y	EXP_TYPE	Text		Residential Bldg, Commercial Bldg, Agricultural Bldg, Industrial Bldg, Public Bldg, Vacant or Unknown Bldg, Power Generation, Roadway Stream Crossing, Roadway Segment,

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
					Agricultural Land, Other
	N	EXP_DESC	Text	Description of the exposure type, required when EXP_TYPE = "Other"	
	Y	EXP_LWC	Text	Identify if the exposure is a Low Water Crossing	Yes, No
	Y	CRITICAL	Text	Is this a critical facility?	Yes, No
	Y	CRIT_TYPE	Text	Required if CRITICAL = "Yes". Type of critical facility: Medical service provider, police/ fire/ EMS, schools, public infrastructure i.e. water/ WW treatment plants.	Medical, Emergency, School, Infrastructure, Other
	Y	POP_DAY	Long	Daytime population at flood risk (for buildings, 0 if not applicable)	
	Y	POP_NIGHT	Long	Nighttime population at flood risk (for buildings, 0 if not applicable)	
	Y	SVI	Float	Social Vulnerability Index for exposure. A decimal number in range 0-1	
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_ID from Entity feature class, comma-separated if multiple.	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

Guidelines:

The 'FutFldExpAll' layer combines the three exposure layers into a single point feature layer, identifies whether the exposure is a critical facility, and provides the Social Vulnerability Index for each point. The SVI should match the Tract SVI provided by TWDB. When converting from an exposure polygon or line into a point, the centroid may be used or any other method determined to best locate the point. This feature class is primarily for summarization of exposure data (e.g., Table 3 in Exhibit C) and visualization, not for detailed spatial analysis.

3.7 Existing Floodplain Management Practices [ExFpMP]

Description:

Identify areas with existing floodplain management practices, identify common practices within the region, and acknowledge locations that may lack floodplain management.

Table 20: List of Fields for 'ExFpMP'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Entity	Y	ENTITY_ID	Text	This ID should match the ENTITY_ID from the Entities feature class	
	Y	ENT_NAME	Text		
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Floodplain Management Regulations	Y	FLD_REG	Text	Does entity have floodplain management regulations?	Yes, No, Unknown
Meets Minimum Code 16.3145	Y	MIN_CODE	Text	Has the entity adopted minimum regulations pursuant to Texas Water Code Section 16.3145?	Yes, No
NFIP	Y	NFIP	Text	Is the entity an NFIP participant?	Yes, No
Higher Standards	N	HIGHER	Text	Are higher standards adopted?	Yes, No
Level of Enforcement	N	LEV_ENFRC	Text	Level of enforcement of practices	High, Moderate, Low, None
Floodplain Management Practices	N	LEV_FPMP	Text	Floodplain Management Practices	Strong, Moderate, Low, None
Existing Stormwater or Drainage Fee	N	DRAIN_FEE	Text	Does the entity already have stormwater or drainage fee	Yes, No
Regulations	N	REG_URL	Text	URL for entity regulations	

Guidelines:

This file will be included as a table in the geodatabase, not as a feature class. However, it can be mapped using the link to the Entity feature class.

3.8 Regional Flood Planning Goals [Goals]

Description:

Identify specific and achievable flood mitigation and floodplain management goals along with target years by which to meet those goals.

Table 21: List of Fields for 'Goals'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Goal	Y	GOAL_ID	Text	Must be unique for each feature	
	Y	GOAL_DESC	Text		
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Term of Goal	Y	TERM	Text	Identify the term of goal: Short Term (10 year) or Long Term (30 year) or another identified by the RFPG	Short Term (10 year), Long Term (30 year), Other
Target Year	Y	TGT_YEAR	Short	Identify the target year for accomplishment of goal	
Extent	Y	EXTENT	Text	Identify the extent of geographic area to which goal applies (such as entire RFPG or HUC 8 number(s))	
Residual Risk	Y	RESIDUAL	Text	Risk that remains after goal is met	
Measurement Method	N	MEASURE	Text	Method that will be used to measure goal attainment	
Overarching Goal	Y	OVER_GOAL	Text	To be determined by the RFPG	
Other Associated Goals	Y	ASSC_GOALS	Text	GOAL_IDs of associated goals, comma-separated if multiple	

Guidelines:

This is not a spatial layer and will be included in the geodatabase as a table only. Each goal should be represented as a single record in the table.

3.9 Regional Flood Planning Streams [Streams]

Description:

Shows the streams to be studied by FMEs, and those relevant to FMS and FMPs, when applicable.

Table 22: List of Fields for 'Streams'

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Stream	Y	STREAM_ID	Text	Must be unique for each feature	
	Y	STR_NAME	Text		
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
NHD Reach Code	N	NHD_CODE	Text	Optionally document NHD reach code(s) associated with this stream feature.	
CNMS Reach ID	N	CNMS_CODE	Text	Optionally document CNMS reach ID(s) associated with this stream feature.	
Length	Y	LEN_MILES	Float	Stream length in miles	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

Guidelines:

Stream features are to be included for all FMEs, and for FMS and FMPS as needed. The National Hydrology Database (NHD) stream layer provided by TWDB should be a starting point, with l stream features pointing back to NHD reach codes. Local entities will often have better stream network information which will supersede the NHD network. Different features can overlap if stream segments contribute to different FME, FMS, or FMPs that have overlapping service areas.

3.10 Flood Management Evaluation [FME]

Description:

Flood Management Evaluations will identify areas requiring flood risk evaluation.

Table 23: List of Fields for 'FME'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Flood Management Evaluation	Y	FME_ID	Text	Must be unique for each feature	
	Y	FME_NAME	Text		
	Y	DESCR	Text	Description of evaluation to be conducted	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. “Harris”, not “Harris County”); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Associated Goal	Y	GOAL_ID	Text	GOAL_ID from Goal feature	
Area	Y	AREA_SQMI	Float	Size of area to be evaluated, in square miles	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Sponsor	Y	SPONSOR	Text	ENTITY_ID of study sponsor	
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_IDs from Entities features, comma-separated	
Emergency Need	Y	EMER_NEED	Text	Does this project/strategy meet an emergency need?	Yes, No

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Study Type	Y	FME_TYPE	Text	See section 3.3 in Exhibit C for full listing.	Watershed Planning, Project Planning, Preparedness, Other
Estimated Study Cost	Y	FME_COST	Float		
Funding Sources	Y	FUND	Text	Is there potential for federal funding or other funding sources?	Yes, No
	N	FUND_SRC	Text	Sources of funding	
	N	FUND_AMNT	Float	Amount of available funding	
Flood Risk	Y	STRUCT_100	Long	Estimated number of structures at 100-year flood risk	
	Y	RES_STRUCT100	Long	Residential structures at 100-year flood risk	
	Y	POP_DAY100	Long	Daytime population at 100-year flood risk	
	Y	POP_NIGHT100	Long	Nighttime population at 100-year flood risk	
	Y	POP100	Long	Population at 100-year flood risk	
	Y	CRITFAC100	Long	Critical facilities at 100-year flood risk	
	Y	LWC	Long	Number of low water crossings in project area	
	Y	ROAD_MILES100	Float	Estimated length of roads at 100-year flood risk (in miles)	
	Y	ROADCLS	Long	Estimated number of road closure occurrences in the past 10 years	
	Y	FARMACRE100	Float	Estimated farm and ranch land at 100-year flood risk, in acres	
New Model	Y	NEW_MODEL	Text	Will this project include a new hydrologic or hydraulic model?	Yes, No
Existing or Anticipated Models	Y	MODEL_EXST	Text	Whether hydrologic and or hydraulic models exist or are anticipated in the near future that could be used in the FME	Yes, No
	N	MODEL_DESC	Text	Description of such models	
	N	HYDRO_DATE	Date	Date of existing hydrologic model	

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
	N	HYDRA_DATE	Date	Date of existing hydraulic model	
Existing or Anticipated Maps	Y	MAP_EXST	Text	Whether maps exist or are anticipated in the near future	Yes, No
	N	MAP_DESC	Text	Description of such maps	
	N	MAP_DATE	Date	Date of existing map	
Data Source	Y	SOURCE	Text		
	N	SRC_DATE	Date		
	N	SRC_LINK	Text	URL	
	Y	REGULATORY	Text	Is source regulatory?	Yes, No
Terrain	N	TERR_DATA	Text	Type of data	
	N	TERR_DATE	Date		
RFPG Recommendation	Y	RECOMMEND	Text	Is this FME recommended by RFPG for this planning cycle?	Yes, No
	Y	REC_DESC	Text	Reason for recommendation	

Guidelines:

All FMEs should be represented in this feature class. FME polygons should match known hydrological units. The appropriate size of FMEs varies from individual watersheds to larger HUCs.

3.11 Flood Mitigation Project

3.11.1 Project Service Area [FMP]

Description:

Flood Mitigation Projects reduce flood risk through a variety of approaches. The service area is the region impacted by the project.

Table 24: List of Fields for 'FMP'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
Flood Mitigation Project	Y	FMP_ID	Text	Must be unique for each feature	
	Y	FMP_NAME	Text	Name of project	
	Y	FMP_DESCR	Text	Description of evaluation to be conducted	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Associated Goals	Y	GOAL_ID	Text	GOAL_IDs from Goal feature, comma separated if multiple	
Area	Y	AREA_SQMI	Float	Project area in square miles	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Sponsor	Y	SPONSOR	Text	ENTITY_ID of study sponsor	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_IDs from Entities features, comma-separated	
Emergency Need	Y	EMER_NEED	Text	Does this project/strategy meet an emergency need?	Yes, No
	N	EMER_DESC	Text	Description of emergency need	
Project Type	Y	FMP_TYPE	Text	See section 3.3 in Exhibit C for full listing.	LWC upgrade, Infrastructure, Channel, Detention Pond, Storm Drain, Reservoir, Dam, Flood Walls and Levees, Coastal, Natural, Comprehensive, Property Acquisition, Property Elevation, Preparedness, Other
Project Cost	Y	FMP_COST	Float	Total project cost in dollars	
Recurring Cost	Y	RECUR_COST	Float	Estimated recurring cost	
Funding Sources	Y	FUND	Text	Is there potential for federal funding or other funding sources?	Yes, No
	N	FUND_SRC	Text	Sources of funding	
	N	FUND_AMNT	Float	Amount of available funding	
Flood Risk	Y	AREA_100	Float	Area of 100-year floodplain in square miles	
	Y	AREA_500	Float	Area of 500-year floodplain in square miles	
	Y	AREA_PRONE	Float	Area of flood prone area in square miles	
	Y	STRUCT_100	Long	Number of structures at 100-year flood risk	
	Y	STRUCT_500	Long	Number of structures at 500-year flood risk	
	Y	RES_STRUCT100	Long	Residential structures at 100-year flood risk	
	Y	POP_DAY100	Long	Daytime population at 100-year flood risk	
	Y	POP_NIGHT100	Long	Nighttime population at 100-year flood risk	
	Y	POP100	Long	Population estimate in 100-year flood risk (maximum between day and night)	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	Y	CRITFAC100	Long	Critical facilities in 100-year flood risk	
	Y	LWC	Long	Number of low water crossings in project area	
	Y	ROAD_MILES100	Float	Estimated length of roads at 100-year flood risk (in miles)	
	Y	ROADCLS	Long	Estimated number of road closure occurrences in the past 10 years	
	Y	FARMACRE100	Float	Acres of farm and ranch land at 100-year flood risk	
	N	FATAL	Long	Estimated total historic fatalities (if available)	
	N	INJURY	Long	Estimated total historic injuries (if available)	
	N	DAMAGE	Float	Estimated annual damages to residential, commercial, and public property	
Flood Risk Reduction	Y	REDSTRUCT100	Long	Number of structures with **reduced** 100-year flood risk	
	Y	REMSTRC100	Long	Number of structures **removed** from 100-year flood risk	
	Y	REMSTRC500	Long	Number of structures removed from 500-year flood risk	
	Y	REMRESSTRC100	Long	Residential structures removed from 100-year flood risk	
	Y	REMPOP100	Long	Population estimate removed from 100-year flood risk	
	Y	REMCRITFAC100	Long	Number of critical facilities removed from 100-year flood risk	
	Y	REMLWC100	Long	Number of low water crossings removed from 100-year flood risk	
	Y	REMRDLEN100	Long	Estimated miles of road removed from 100-year flood risk	
	Y	REMROADCLS	Long	Estimated reduction in number of road closures over 10 years	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	Y	REMFRMACRE100	Float	Acres of farm and ranch land removed from 100-year flood risk	
	N	REMFATAL	Long	Estimated reduction in number of fatalities (if available)	
	N	REMINJR	Long	Estimated reduction in number of injuries (if available)	
	N	REMDAMAGE	Float	Estimated reduction in annual damages to residential, commercial, and public property	
Level-of-Service	Y	PREPROJLOS	Text	Pre-Project Level-of-Service	
	Y	POSPROJLOS	Text	Post-Project Level-of-Service	
Cost per Structure Removed	Y	COSTSTRUCT	Float	Cost per structure removed from 100-year flood risk	
Benefit-Cost Ratio	Y	BC_RATIO	Float		
Other Benefits	Y	OTH_BENEFT	Text	Other benefits as deemed relevant by the RFPG including environmental benefits and other public benefits	
Social Vulnerability Index	Y	SVI	Float	The Social Vulnerability Index is a number between 0.00 and 1.00	
Negative Impact	Y	NEG_IMPACT	Text	Will this project/strategy have negative impact on neighboring areas?	Yes, No
	Y	NEG_DESC	Text	Description of negative impact	
	N	NEG_MITIG	Text	Measures to mitigate negative impact	
Water Supply	Y	WATER_SUP	Text	Does this project contribute to the water supply?	Yes, No

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	N	WSUP_DESCR	Text	Description of contribution to water supply. List relevant evaluations and describe consistency with state water plan.	
Residual Risks	Y	RISKS	Text	A description of residual, post-project, and future risks associated, including the risk of potential catastrophic failure and the potential for future increases to these risks due to lack of maintenance	
Nature-Based	Y	NATURE	Float	Percent nature-based solution by cost	
Traffic Count	N	TRAFFIC	Long	Traffic count for low water crossings	
Associated FMEs, FMSs, FMPs	Y	ASSOCIATED	Text	Are there associated FMEs, FMSs, or FMPs? Must account for any interdependencies	Yes, No
	N	ASSCFME_ID	Text	FME IDs of strategies compared, comma-separated if multiple	
	N	ASSCFMS_ID	Text	FMS IDs of strategies compared, comma-separated if multiple	
	N	ASSCFMP_ID	Text	FMP IDs of strategies and projects compared, comma-separated if multiple	
	N	ASSC_DESC	Text	A description of the how associated FME, FMS, and FMPs related to this FMP. Must include any interdependencies.	
Associated Post-Project Hazard	N	ASSCPOSTHZ	Text	POSTHAZ_IDs from FMP_Post_Hazard, comma-separated if multiple	
Implementation Issues	Y	ISSUES	Text	Implementation issues including those related to right-of-way, permitting, acquisitions, relocations, utilities and transportation	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
RFPG Recommendation	Y	RECOMMEND	Text	Is this FMP recommended by RFPG for this planning cycle?	Yes, No
	Y	REC_DESC	Text	Reason for recommendation	

Guidelines:

All FMPs should be represented in at least a single polygon in this feature class. The service area will most likely be a single contiguous polygon, though it is possible for a project to have discontinuous polygons represented the service area. In this case, the service area should still be represented by a single record in this feature set. The FMP areas should include contributing drainage areas to the project.

3.11.2 Post-Project Flood Hazard [FMP_HazPost]

Description:

Project specific features showing an updated hazard area that accounts for the impact of the project. This feature class is optional for projects, though it encouraged to be submitted.

Table 25: List of Fields for 'FMP_HazPost'

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
Post-Project Hazard	Y	POSTHAZ_ID	Text	Must be unique for each feature	
RFPG	Y	RFPG_NUM	Short (2)	1 to 15	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"). For hazard and exposure feature classes, COUNTY must be singular.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Annual Probability	Y	FLOOD_FREQ	Text	Annual probability of occurrence	10, 4, 1, 0.2, Unknown
Data Source	Y	SOURCE	Text		
	N	SRC_DATE	Date		
	N	SRC_LINK	Text	URL	
Model Dates	N	HYDRO_DATE	Date	Date of existing hydrologic model	
	N	HYDRA_DATE	Date	Date of existing hydraulic model	
Terrain	N	TERR_DATA	Text	Type of data	
	N	TERR_DATE	Date		
Hazard Map Date	N	MAP_DATE	Date	Date of existing map	
Is source regulatory?	Y	REGULATORY	Text		Yes, No
Entities with Oversight	Y	ENTITY_ID	Text	IDs from Entities features, comma-separated	
Associated FMEs	N	FME_ID	Text	IDs from FME features, comma-separated. This optional field is intended to identify cases where there is an associated FME.	
Associated FMSs	N	FMS_ID	Text	IDs from FMS features, comma-separated. This optional field is intended to identify cases where there is an associated FMS.	
Associated FMPs	N	FMP_ID	Text	IDs from FMP features, comma-separated. This optional field is intended to identify cases where there is an associated FMP.	

Guidelines:

This feature class represents the updated hazard condition as reduced by a given FMP. This should include post -project 1% and 0.2% annual chance hazard boundaries at a minimum. The RFPGs may flood hazard boundaries for additional frequencies at their discretion. Be sure to identify the data sources that were used to determine the post-project hazard area.

3.11.3 Project Details [FMP_Details]

Description:

An Excel workbook that, once complete, will be imported into the RFPG .gdb. The table includes detailed data that will be used to rank the FMPs in the state flood plan.

Table:

See the ProjectDetailsTemplate.xls template for a full list of fields.

Guidelines:

The Project Details table is to be completed for RECOMMENDED FMPs only. Some data fields (columns in the spreadsheet) should come straight from the FMP feature class. It is recommended that these are systematically brought into the .xls to avoid any data integrity issues. TWDB can assist with this process, if needed.

Before bringing the Project Details into the .gdb, it is first completed within the .xls template provided by TWDB. Once all project data has been entered into the .xls file, the Data Entry sheet is to be converted into a table within the geodatabase. See the .xls template for detailed instructions on use of the template.

An important component of the Project Details template are several metrics that will eventually be used to rank the FMPs. Guidance on these metrics is provided in Section 3.10.C in Exhibit C.

3.12 Flood Management Strategy [FMS]

Description:

Flood Management Strategies can be a broad array of policy or other strategies that aid in flood management.

Table 26: List of Fields for 'FMS'

Item	Required ?	Field Name	Data Type	Guidance	Valid Entries
FMS	Y	FMS_ID	Text	Must be unique for each feature	
	Y	FMS_NAME	Text	Name of strategy	
	Y	FMS_DESCR	Text	Description of strategy	
RFPG	Y	RFPG_NUM	Short (2)	RFPG number	
	Y	RFPG_NAME	Text		
Counties	Y	COUNTY	Text	County name, without "County" (e.g. "Harris", not "Harris County"); comma-separated if multiple.	
HUC8s	Y	HUC8	Text	NHD HUC8 numbers, comma-separated	
HUC10s	N	HUC10	Text	NHD HUC10 numbers, comma-separated	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
HUC12s	N	HUC12	Text	NHD HUC12 numbers, comma-separated. May be left blank if too many for field length.	
Watersheds	N	WS_ID	Text	WS_IDs from Watershed feature, comma-separated. May be left blank if too many for field length.	
Associated Goal	Y	GOAL_ID	Text	GOAL_ID from Goal feature, comma-separated if multiple	
Area	Y	AREA_SQMI	Float	Strategy area, in square miles	
Flood Risk Type(s)	Y	FLD_TP_RIV	Text	Flood risk type: Riverine	Yes, No
	Y	FLD_TP_CST	Text	Flood risk type: Coastal	Yes, No
	Y	FLD_TP_LOC	Text	Flood risk type: Urban/Local	Yes, No
	Y	FLD_TP_PLY	Text	Flood risk type: Playa	Yes, No
	Y	FLD_TP_OTH	Text	Flood risk type: Other	Yes, No
Sponsor	Y	SPONSOR	Text	ENTITY_ID of study sponsor	
Entities with Oversight	Y	ENTITY_ID	Text	ENTITY_IDs from Entities features, comma-separated	
Emergency Need	Y	EMER_NEED	Text	Does this project/strategy meet an emergency need?	Yes, No
Strategy Type	Y	FMS_TYPE	Text		Property Acquisition and Structural Elevation, Infrastructure Projects, Education and Outreach, Flood Measurement and Warning, Regulatory and Guidance, Other
Estimated Strategy Cost	Y	FMS_COST	Float	Estimated strategy cost in dollars	
Funding Sources	Y	FUND	Text	Is there potential for federal funding or other funding sources?	Yes, No
	N	FUND_SRC	Text	Sources of funding	
	N	FUND_AMNT	Float	Amount of available funding	
Flood Risk	Y	AREA_100	Float	Area of 100-year floodplain in square miles	
	Y	AREA_500	Float	Area of 500-year floodplain in square miles	
	Y	AREA_PRONE	Float	Area of flood prone area in square miles	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	Y	STRUCT_100	Long	Number of structures at 100-year flood risk	
	Y	STRUCT_500	Long	Number of structures at 500-year flood risk	
	Y	RES_STRUCT100	Long	Residential structures at 100-year flood risk	
	Y	POP_DAY100	Long	Daytime population at 100-year flood risk	
	Y	POP_NIGHT100	Long	Nighttime population at 100-year flood risk	
	Y	POP100	Long	Population estimate in 100-year flood risk (maximum between day and night)	
	Y	CRITFAC100	Long	Critical facilities in 100-year flood risk	
	Y	LWC	Long	Number of low water crossings in project area	
	Y	ROAD_MILES100	Long	Estimated length of roads at 100-year flood risk (in miles)	
	Y	ROADCLS	Long	Estimated number of road closure occurrences in the past 10 years	
	Y	FARMACRE100	Float	Acres of farm and ranch land in 100-year flood risk	
	N	FATAL	Long	Estimated total historic fatalities (if available)	
	N	INJURY	Long	Estimated total historic injuries (if available)	
	N	DAMAGE	Float	Estimated annual damages to residential, commercial, and public property	
Flood Risk Reduction	Y	REDSTRUCT100	Long	Number of structures with **reduced** 100-year flood risk	
	Y	REMSTRC100	Long	Number of structures **removed** from 100-year flood risk	
	Y	REMSTRC500	Long	Number of structures removed from 500-year flood risk	
	Y	REMRESSTRC100	Long	Residential structures removed from 100-year flood risk	
	Y	REMPOP100	Long	Population estimate removed from 100-year flood risk	

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	Y	REMCRITFAC100	Long	Number of critical facilities removed from 100-year flood risk	
	Y	REMLWC100	Long	Number of low water crossings removed from 100-year flood risk	
	Y	REMRDLEN100	Long	Estimated miles of road removed from 100-year flood risk	
	Y	REMROADCLS	Long	Estimated reduction in number of road closures over 10 years	
	Y	REMFRMACRE100	Float	Acres of farm and ranch land removed from 100-year flood risk	
	N	REMFATAL	Long	Estimated reduction in number of fatalities (if available)	
	N	REMINJR	Long	Estimated reduction in number of injuries (if available)	
	N	REMDAMAGE	Float	Estimated reduction in annual damages to residential, commercial, and public property	
Cost per Structure Removed	Y	COSTSTRUCT	Float	Cost per structure removed from 100-year flood risk	
Other Benefits	Y	OTH_BENEFT	Text	Other benefits as deemed relevant by the RFPG including environmental benefits and other public benefits	
Negative Impact	Y	NEG_IMPACT	Text	Will this project/strategy have negative impact on neighboring areas?	Yes, No
	Y	NEG_DESC	Text	Description of negative impact	
	N	NEG_MITIG	Text	Measures to mitigate negative impact	
Water Supply	Y	WATER_SUP	Text	Does this project contribute to the water supply?	Yes, No

Item	Required?	Field Name	Data Type	Guidance	Valid Entries
	N	WSUP_DESCR	Text	Description of contribution to water supply. List relevant evaluations and describe consistency with state water plan.	
Nature-Based	Y	NATURE	Float	Percent nature-based solution by cost	
Traffic Count	N	TRAFFIC	Long	Traffic count for low water crossings	
Associated FMEs, FMSs, FMPs	Y	ASSOCIATED	Text	Are there associated FMEs, FMSs, or FMPs?	Yes, No
	N	ASSCFME_ID	Text	FME IDs of strategies compared, comma-separated if multiple	
	N	ASSCFMS_ID	Text	FMS IDs of strategies compared, comma-separated if multiple	
	N	ASSCFMP_ID	Text	FMP IDs of strategies and projects compared, comma-separated if multiple	
	N	ASSC_DESC	Text	A description of the how associated FME, FMS, and FMPs related to this FMP including any interdependency.	
Comparison	Y	COMPARISON	Text	Has there been an equitable comparison between and consistent assessment of all FMSs and FMPs in the same area that the RFPGs determine to be potentially feasible?	Yes, No
	N	COMPFME_ID	Text	FME IDs of strategies compared, comma-separated if multiple	
	N	COMPFMS_ID	Text	FMS IDs of strategies compared, comma-separated if multiple	
	N	COMPFMP_ID	Text	FMP IDs of strategies and projects compared, comma-separated if multiple	
	N	COMP_DESC	Text	Describe the comparison	
RFPG Recommendation	Y	RECOMMEND	Text	Is this FMS recommended by RFPG for this planning cycle?	Yes, No
	Y	REC_DESC	Text	Reason for recommendation	

Guidelines:

Not all FMS need to be included in this Feature class. When an FMS points to a specific area, as opposed to being a general strategy for an entire entity's jurisdiction, the target area should be represented by a polygon.

4 GIS Tips

4.1 Spatial Join to Create a Delimited-List Field

4.1.1 Overview

These instructions cover using Spatial Join in ArcGIS Pro or ArcMap to fill a field for a polygon feature with a delimited list of every polygon intersected in another feature class. For illustration, this procedure will fill a COUNTY field in a Watershed feature class with every county intersected by the watershed.

Note that the Spatial Join will fail if any of the results exceed the field size. HUC12s and Watersheds are potentially too numerous for the field length for very large project areas and the field should be left blank in this case.

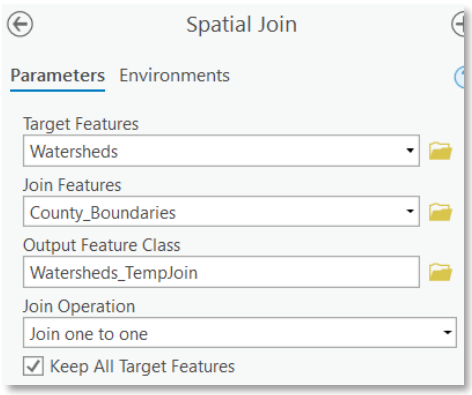
The goal is a COUNTY field such as this one:

WS_ID	WS_NAME	RF	RFPG_NA	COUNTY
08000001	Upper Oy...	8	Lower Br...	Fort Bend,Waller
08000002	Middle O...	8	Lower Br...	Brazoria,Fort Bend
08000003	Austin Ba...	8	Lower Br...	Brazoria,Fort Bend
08000004	Lower Oy...	8	Lower Br...	Brazoria
08000005	Freeport...	8	Lower Br...	Brazoria
08000006	Palo Pinto...	8	Lower Br...	Palo Pinto
08000007	Rocky Blu...	8	Lower Br...	Palo Pinto,Erath

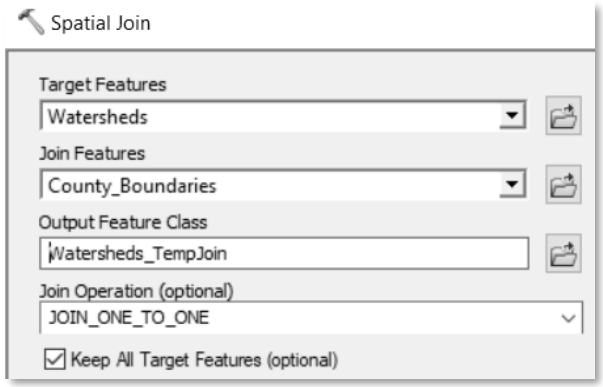
4.1.2 Steps for ArcGIS Pro or ArcMap

1. Open the Spatial Join tool. If in ArcMap, use the version available through Geoprocessing rather than the version available by right clicking on the layer. The Geoprocessing version has more functionality.
2. In the top of the dialog, enter the following parameters:

Pro

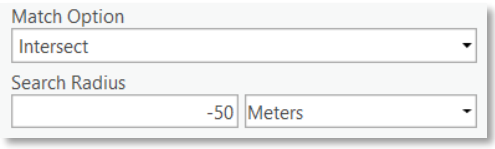


ArcMap

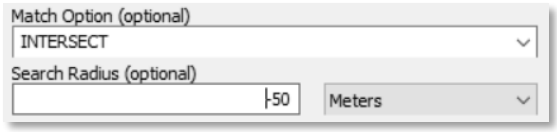


3. For the Match Option, use Intersect with a small negative Search Radius to omit polygons that only share boundaries.

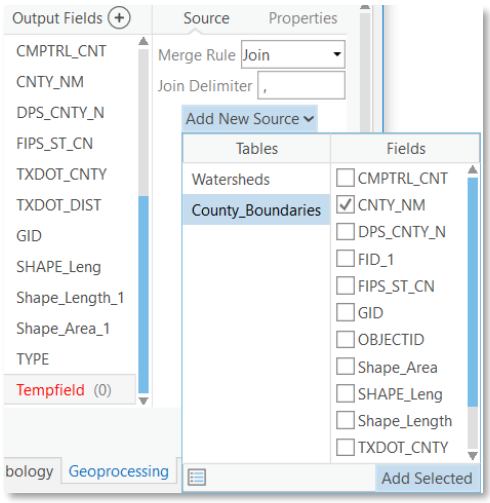
Pro



ArcMap

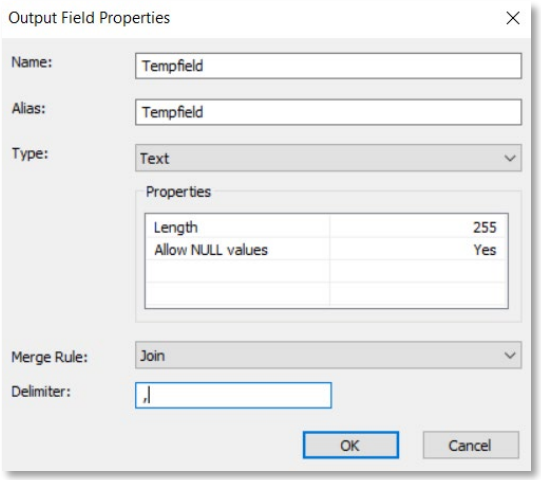


4. For the Field Map:
    a. For ArcGIS Pro:
        i. Use the “+” sign next to Output Fields to create a temporary field.
        ii. With that field selected in the left column, fill out the right column with Merge Rule = “First” and Delimiter=”,”.
        iii. Then select Add New Source and choose County_Boundaries with field CNTY_NM.



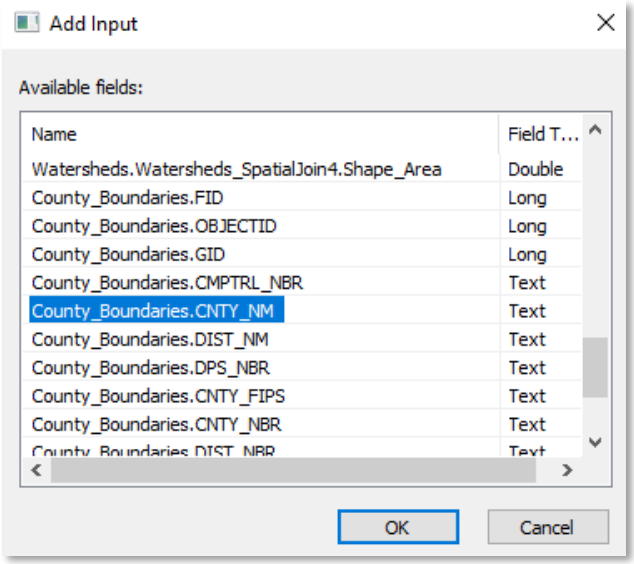
        iv. Click Add Selected.
    b. For ArcMap:

i. Use the "+" sign at the right of the Field Map area to add a new field.
ii. Fill out the Output Field Properties with Name, Alias, Type="Text", Length=254, Merge Rule= "Join", and Delimiter=",".



Click OK.

iii. Right click the new field and choose Add Input Field. Select the CNTY_NM field from the County_Boundaries dataset.



Click OK.

5. Run the tool.
6. Use Attribute Join on WS_ID to join the spatial join output to the Watershed layer.
7. Use Calculate Field to copy the temporary field to COUNTY in the Watershed layer.
8. Remove the Attribute Join.
9. Delete the temporary spatial join output.

4.2 Using a Query on a Delimited Field

A SQL query with the LIKE operator can be used in Definition Query or Select by Attributes to select from a delimited list. To select all entries with “Willacy” in the COUNTY list, use SQL query

```
COUNTY LIKE '%Willacy%'
```

In ArcGIS Pro, the dropdown choice of “contains the text” results in the use of the LIKE operator.