

Technical Memorandum

TO:	Mr. Jeff Walker, Executive Administrator Texas Water Development Board Stephen F. Austin Building 1700 N. Congress Avenue, 6 th Floor Austin, Texas 78701	DATE:	January 5, 2022
THROUGH	Mr. Glenn Clingenpeel, Chair Region 3 Trinity RFPG Trinity River Authority of Texas 5300 S. Collins Street Arlington, Texas 76018	AVO:	TRA Contract No. 2101792488 43791.001 - 000430
FROM:	Halff Associates, Inc. 4000 Fossil Creek Blvd. Fort Worth, TX 76137	SUBJECT:	Region 3 Trinity Regional Flood Plan Task 4C – Technical Memorandum

Process Overview

In 2019, the 86th Texas Legislature enacted Senate Bill 8 directing the creation of the first State Flood Plan. The Texas Legislature also adopted changes to the Texas Water Code §16.061 to establish the regional and state flood planning processes that are overseen by the Texas Water Development Board (TWDB). The State Flood Plan follows a region-driven, bottom-up approach that has been used for the State Water Plan in Texas for over 20 years. As outlined by the Texas Water Code, the purpose of the Regional and State Flood Plans is to:

- Provide orderly preparation and response to flood conditions to protect against loss of life and property;
- Guide state and local flood control policy; and
- Contribute to water development, where possible.

TWDB established 15 flood planning regions based on river basin boundaries. **Figure 1** shows the delineation of the 15 flood planning regions as well as the boundaries of the Trinity Flood Planning Region (Region 3). The Trinity Region encompasses all of the Trinity River and its tributaries, covering an area of 17,845 square miles. Over 290 municipalities and 38 counties are included in the Trinity River Basin.

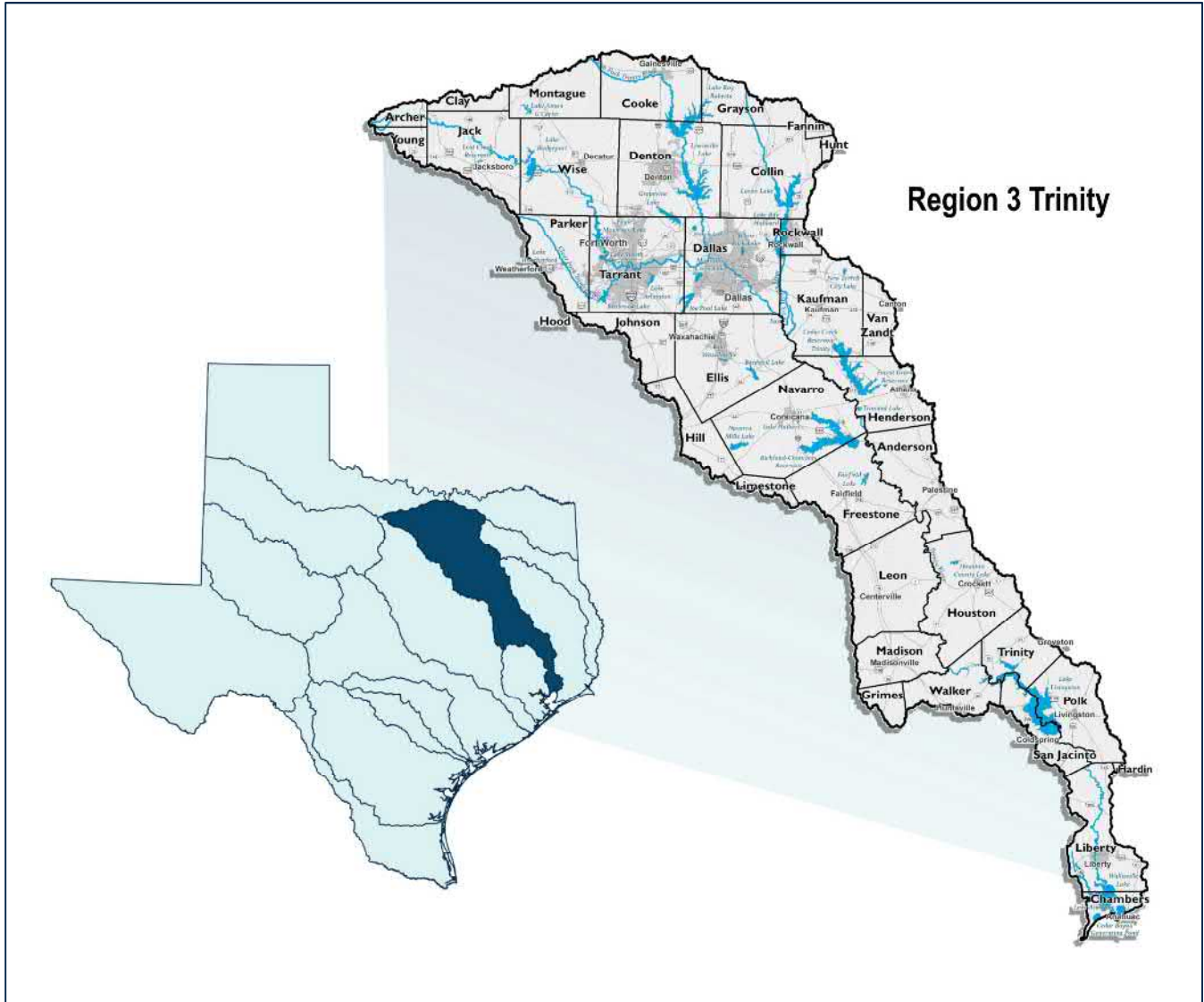


Figure 1: Trinity Flood Planning Region

The TWDB established the required scope of work that each RFPG must complete. TWDB also allocated funding for each RFPG to use to complete its Regional Flood Plan. Each RFPG selected a contract administrator to serve on its behalf in contracts with the TWDB and with the RFPG’s selected consultant team.

TWDB appointed the original RFPG members representing 12 interest categories, as listed.

- Agriculture
- Counties
- Electric Generation Utilities
- Environmental Interests
- Flood Districts
- Industry
- Municipalities
- Public
- River Authorities
- Small Businesses
- Water Districts
- Water Utilities

As depicted in the regional flood planning schedule in **Figure 2**, the draft Regional Flood Plans are due to TWDB by August 1, 2022 with final Regional Flood Plans to be adopted by the RFPGs and submitted to the TWDB by January 10, 2023. The TWDB will roll up the fifteen Regional Flood Plans to create the first Texas Flood Plan, ready for adoption by TWDB by September 1, 2024. Subsequently, the Regional Flood Plans and State Flood Plan will be updated on a five-year cycle.

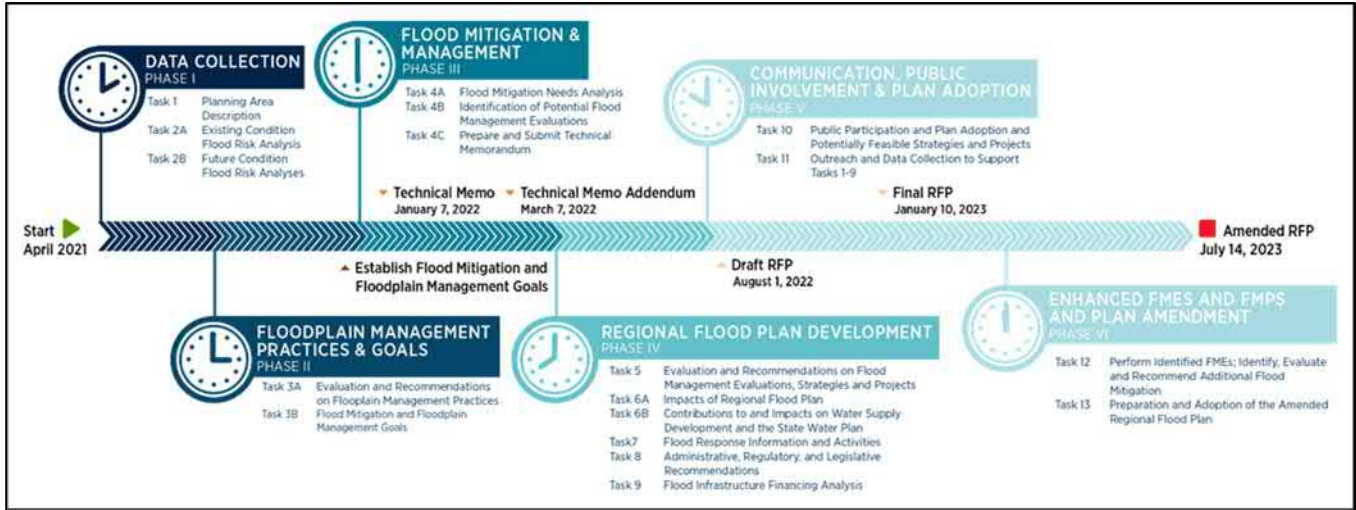


Figure 2: Regional Flood Planning Timeline

Regional Flood Planning Tasks

TWDB guidance, scope of work, and technical guidelines for regional flood planning prescribes a process consisting of ten tasks as outlined in **Table 1**.

Table 1: Regional Flood Planning Tasks

Task	Description
1	Planning Area Description
2	Existing and Future Condition Flood Risk Analysis
3	Floodplain Management Practices and Flood Mitigation and Floodplain Management Goals
4	Flood Mitigation Needs Analysis and Identification and Evaluation of Potential Flood Management Evaluations (FMEs), Potentially Feasible Flood Management Strategies (FMSs), and Flood Mitigation Projects (FMPs)
5	Recommendation of FMEs and FMSs and Associated FMPs
6	Impacts of Regional Flood Plan and Contributions to and Impacts on Water Supply Development and the State Water Plan
7	Flood Response Information and Activities
8	Administrative, Regulatory, and Legislative Recommendations
9	Flood Infrastructure Financing Analyses
10	Public Participation and Plan Adoption

Task 1 through Task 4 comprise the initial phase of regional flood planning, concluding with the preparation of this Technical Memorandum. The Technical Memorandum must be approved by the RFPG and submitted to TWDB on or before January 7, 2022. Per TWDB guidelines, the Technical Memorandum must include the following:

- Identification of existing political subdivisions with flood-related authority/responsibility (Task 4C.1.a);
- Previous flood studies and models considered relevant for the plan (Tasks 4C.1.b and 4C.1.f);
- Adopted flood mitigation and floodplain management goals (Task 4C.1.g);
- Process used to identify potentially feasible FMSs and FMPs (Task 4C.1.h);
- List of potential FMEs and potentially feasible FMSs and FMPs (Task 4C.1.i);
- List of infeasible FMSs and FMPs with reason of exclusion (Task 4C.1.j); and
- Associated geospatial database

To accommodate the delayed release of the Fathom data associated with the TWDB's floodplain quilt (TWDB Data Hub, 2021), TWDB extended the deadline for completion and submittal of three subtasks associated with the Technical Memorandum to be submitted as an addendum by March 7, 2022. The Technical Memorandum Addendum includes:

- Existing and future condition flood risk (Task 4C.1.c);
- Floodplain mapping gaps (Task 4C.1.d); and
- Hydrologic and hydraulic model availability (Task 4C.1.e)

Task 4C – Technical Memorandum Deliverables

The following sections introduce the technical memorandum deliverables associated with the first TWDB submittal for the Trinity Region. Several attachments are included at the end of this document. **Table 2** indicates which subtasks and information is contained in each one.

Table 2: Technical Memorandum Attachments

Attachment	TWDB Task	Description
1	4C.1.a	List of existing political subdivisions with flood-related authority/responsibility
2	4C.1.b; 4C.1.f	List of previous flood studies and models relevant to plan development
3	4C.1.g	Flood mitigation and floodplain management goals adopted by the RFPG
4	4C.1.h	Process to identify potentially feasible FMSs and FMPs
5	4C.1.i	List of potential FMEs
6	4C.1. i	List of potentially feasible FMPs
7	4C.1. i	List of potentially feasible FMSs
8	4C	Geodatabase

4C.1.a – List of existing political subdivisions with flood-related authority/responsibility

The TWDB provided a list of 596 political subdivisions, or entities, that were thought to have some degree of flood-related authority in the region. It is important to note that in the broadest sense, “authority” could be any entity or agency that plans, regulates, constructs, or maintains flood infrastructure. In a narrowed sense, “authority” would only indicate entities with the authority to enact and enforce floodplain regulations, such as municipalities, counties, and river authorities. The Trinity Region researched entities whose responsibility for flood control was less obvious. Some data was provided via entities that contacted the RFPG while other information was found on entity websites. **Table 3** provides a summary of the entity types within the region. A complete list of entities is located in **Attachment 1**.

Table 3: Political Subdivisions with Potential Flood-Related Authority

Entity Type	Number of Entities Originally Provided by TWDB	Number of Entities Determined to have Flood-Related Authority ¹	NFIP Participants ²
Municipality	289	290	287
County	38	38	38
River Authority	12	10	-
Flood Control, WCIDs, Drainage Districts, Ports, Navigation Districts	284	40	-
Water Supply, Water Authority, Water District, Improvement District, Management District, Utility Districts, MUDs, WSDs, FWSDs, MWDs, SUDs, COGs		247	-

¹ Count of entities determined to have flood-related authority is based on the Region’s research but is subject to change based on future input.

² Only municipalities and counties are eligible to participate in the NFIP program. Number of NFIP participating entities is as of October 2020.

The associated geospatial files are included in the geodatabase located in **Attachment 8**. The geodatabase feature classes titled ‘Entities’ and ‘ExFpMP’ provide a spatial representation of existing political subdivisions with flood-related authorities or responsibilities.

4C.1.b and 4C.1.f – List of previous flood studies and models relevant to plan development

A list of previous studies was compiled using collected and researched information as displayed in **Attachment 2**. The compiled flood studies and associated models were identified as studies that were used to refine the region’s floodplain quilt and/or identify and validate potential evaluations, strategies, and/or projects. In addition to submittal through the data collection tool, studies were also collected through online research and consultant team experience in the region.

As the planning process continues, the list of available studies and associated models will be enhanced to document sources of information relevant to plan development within the Trinity Region.

4C.1.c, 4C.1.d and 4C.1.e – Lists, maps, and geodatabase of existing and future condition flood risk and gaps

These three subtasks are highly dependent on the Fathom data that TWDB provided to the RFPG on October 29, 2021. The Trinity Region is currently reviewing and assessing the data provided to enhance the information gathered through its data collection effort in Summer 2021. The TWDB recognizes the need for additional time to incorporate the data it recently provided and is allowing these three subtasks to be prepared, approved, and submitted by the RFPG by March 7, 2022. Therefore, these items are not included as a part of this Technical Memo.

4C.1.g – Flood mitigation and floodplain management goals adopted by the RFPG

The Trinity RFPG began working on its goals for its Regional Flood Plan in June 2021. The goals discussions are of significant interest to the planning group. In August 2021, the Trinity RFPG established a Goals Subcommittee who

met on August 31, 2021 to refine the overarching goals and specific goal statements. On September 23, 2021, the RFPG approved seven (7) draft goals with specific goal statements for inclusion the Trinity Regional Flood Plan. Following the meeting, the RFPG posted the approved draft goals on its website and distributed them to the list of interested parties with a request to provide feedback on the adopted draft goals by October 27, 2021. The only response received was from one city within Region 3 that submitted a comment in support of the draft goals for this first round of regional flood planning. On December 16, 2021, the RFPG adjusted the wording in some goals and added four additional specific goal statements to the seven overarching goals. The RFPG approved the goals on December 16, 2021 that are included in **Attachment 3**.

At its September 23, 2021 meeting, the RFPG approved the *recommendation* of six (6) minimum floodplain management standards to be applicable regionwide for this first round of regional flood planning. Recommended standards are encouraged but are not required in order for an entity’s FME, FMS and/or FMP to be included in the Regional Flood Plan. The standards were also posted to the website and distributed to the list of interested parties requesting feedback on the recommendations by October 27. No one submitted any comments on the regionwide standards. The flood mitigation and flood management recommendations that were approved in September 2021 are included in **Attachment 3**.

The approved recommendations include short-term and long-term measurements that may be further refined to include quantifiable standards through flood plan development.

4C.1.h – Process to identify potentially feasible FMSs and FMPs

TWDB requirements for Task 4B state that each RFPG is to develop and receive public comment on a “... proposed process to be used by the RFPG to identify and select flood management evaluations, flood mitigation strategies, and flood mitigation projects.” The proposed process was designed to conform with TWDB requirements as expressed in rules, scope of works, and technical guidelines for regional flood planning.

The proposed process for screening, evaluation, and recommendation of potential evaluations (FMEs), strategies (FMSs), and projects (FMPs), was introduced during the August 19, 2021 RFPG meeting. On September 23, 2021, the RFPG reviewed and discussed the proposed process and accepted public comment. No public comments were provided. At the November 18th RFPG meeting, the RFPG approved of the proposed process as provided in **Attachment 4**. This attachment also includes the memos developed as part of Task 4A and Task 4B.

4C.1.i – List of potential FMEs and potentially feasible FMSs and FMPs

The data collection effort included soliciting information from survey participants regarding flood-related studies (FMEs) and projects (FMPs) that were planned and/or known to be needed by a specific entity. The region also used GIS and other tools to determine where potential studies and projects might be warranted. Using the screening process outlined in **Attachment 4**, the Trinity RFPG developed an initial list of potential FMEs and potentially feasible FMPs and FMSs provided in **Attachments 5, 6 and 7**, respectively. These lists are subject to revisions as Task 4B is completed in the near future.

4C.1.j – List of FMSs and FMPs that were determined infeasible

As the RFPG is still soliciting potentially feasible FMSs and FMPs, none have been determined to be infeasible at this time. The screening process outlined in **Attachment 4** will be applied to each potentially feasible FMS and FMP to filter out infeasible solutions. As of now, the primary reasons that an FMS or FMP might be considered infeasible is if it does not align with one of the goals for this plan or the TWDB requirements for FMPs or FMSs. No attachment was created.

4C – Technical Memorandum Geodatabase

As outlined in the TWDB Extension of Time to Complete Technical Memorandum dated August 17, 2021 and associated Technical Memorandum Data Deliverable Clarification dated October 29, 2021, documentation in **Attachment 8** outlines geodatabase deliverables included in this Technical Memorandum as well as spatial files and tables. Specific data deliverables are in alignment with the TWDB’s Exhibit D: Data Submittal Guidelines for Regional Flood Planning. The geodatabase files require ArcGIS software to be used to view the files. The RFPG can provide these files to anyone requesting said files by emailing info@trinityrfg.org. Please keep in mind that these files will continue to be updated and enhanced throughout the development of the Regional Flood Plan and simply reflect a snapshot in time of the project as it stands today.

Attachment 1

Task 4C.1a – List of Existing Political Subdivisions with Flood-Related Authority/Responsibility

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
Cities					
03003160	Aledo	City	Yes	4801744	481659
03002458	Allen	City	Yes	4801924	
03002750	Alma	City	Yes	4802044	480207
03002489	Alvarado	City	Yes	4802260	480397
03002958	Alvord	City	Yes	4802284	481617
03003323	Ames	City	Yes	4803072	480044
00003571	Anahuac	City	Yes	4803144	480120
03002572	Angus	City	Yes	4803288	481547
03003272	Anna	City	Yes	4803300	481620
03003490	Annetta South	City	Yes	4803342	481665
03003362	Arlington	City	Yes	4804000	480606
00002826	Athens	City	Yes	4804504	481174
03002448	Aubrey	City	Yes	4804600	480776
03002959	Aurora	City	Yes	4804672	481561
03003285	Azle	City	Yes	4805168	480584
03002823	Balch Springs	City	Yes	4805372	480166
03002434	Bardwell	City	Yes	4805612	481087
03002668	Barry	City	Yes	4805708	480951
03002449	Bartonville	City	Yes	4805768	480777
00003343	Baytown	City	Yes	4806128	480119
00003344	Beach City	City	Yes	4806200	480121
03003582	Bedford	City	Yes	4807132	480601
03003304	Bedias	City	Yes	4807144	481173
03003585	Benbrook	City	Yes	4807552	480586
03002601	Blooming Grove	City	Yes	4808788	480950
03003518	Blue Mound	City	Yes	4808860	480587
00003042	Bowie	City	Yes	4809640	480939
03002965	Boyd	City	Yes	4809748	480676
03002490	Briaroaks	City	Yes	4810216	480398
03002429	Bridgeport	City	Yes	4810264	481051
03003171	Buffalo	City	Yes	4811116	480903
00003009	Burleson	City	Yes	4811428	485459
03002597	Bynum	City	Yes	4811656	480857
00003209	Callisburg	City	Yes	4811968	480260
03002892	Caney City	City	Yes	4812472	481550
00002590	Canton	City	Yes	4812496	481040
00002598	Carl's Corner	City	Yes	4812895	480857
03003353	Carrollton	City	Yes	4813024	480140
03002747	Cedar Hill	City	Yes	4813492	480173
03003135	Celina	City	Yes	4813684	480135
03003172	Centerville	City	Yes	4813900	480903
03002960	Chico	City	Yes	4814620	481053
03002824	Cockrell Hill	City	Yes	4815796	480169
00003513	Coldspring	City	Yes	4815892	481599
03002385	Colleyville	City	Yes	4815988	480607
03003241	Collinsville	City	Yes	4816036	480829
03003578	Combine	City	Yes	4816216	480187
00002946	Coolidge	City	Yes	4816552	480911
03003357	Coppell	City	Yes	4816612	480167
03002486	Copper Canyon	City	Yes	4816636	480194
03002487	Corinth	City	Yes	4816696	480194
03003281	Corsicana	City	Yes	4817060	481158
03002627	Cottonwood	City	Yes	4817200	480411
03003572	Cove	City	Yes	4817336	481510
00003263	Coyote Flats	City	Yes	4817429	480879
03003384	Crandall	City	Yes	4817504	480411
00003183	Cresson	City	Yes	4817648	480177
03002706	Crockett	City	Yes	4817744	480872
03002739	Cross Roads	City	Yes	4817852	481513
03002497	Cross Timber	City	Yes	4817917	481685
03002498	Crowley	City	Yes	4817960	480879
03002819	Dallas	City	Yes	4819000	
03003519	Dalworthington Gardens	City	Yes	4819084	481013
03002602	Dawson	City	Yes	4819420	480953
00002531	Dayton	City	Yes	4819432	480441
03002613	Dayton Lakes	City	Yes	4819435	481593
03002961	Decatur	City	Yes	4819528	481051
03003355	Denton	City	Yes	4819972	480782
03002825	DeSoto	City	Yes	4820092	481265
00002614	Devers	City	Yes	4820140	481514
03003376	Dish	City	Yes	4820540	480229
03003422	Draper (formerly "Corral City")	City	Yes	4821310	480782

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
00003242	Dorchester	City	Yes	4820932	481309
03002491	Double Oak	City	Yes	4821028	480777
03002560	Duncanville	City	Yes	4821628	480173
03002903	Enchanted Oaks	City	Yes	4824228	481634
03002751	Ennis	City	Yes	4824348	480207
03003590	Eules	City	Yes	4824768	480601
03003282	Eureka	City	Yes	4824816	480950
03002904	Eustace	City	Yes	4824828	480327
03003521	Everman	City	Yes	4824912	480594
03002552	Fairfield	City	Yes	4825104	480001
03002561	Farmers Branch	City	Yes	4825452	480167
00002459	Farmersville	City	Yes	4825488	481627
00002648	Fate	City	Yes	4825572	480548
03003264	Ferris	City	Yes	4825752	481076
03003522	Forest Hill	City	Yes	4826544	480595
03003080	Forney	City	Yes	4826604	480411
03002831	Fort Worth	City	Yes	4827000	480180
03002460	Frisco	City	Yes	4827684	480130
03002611	Frost	City	Yes	4827768	480950
00003204	Gainesville	City	Yes	4827984	480154
03003265	Garland	City	Yes	4829000	485471
03002752	Garrett	City	Yes	4829036	480207
03002748	Glenn Heights	City	Yes	4829840	481265
03003283	Goodlow	City	Yes	4830188	480955
03002554	Goodrich	City	Yes	4830224	480526
03002761	Grand Prairie	City	Yes	4830464	480180
03003011	Grandview	City	Yes	4830512	480881
00002527	Grapeland	City	Yes	4830632	480873
03002821	Grapevine	City	Yes	4830644	480180
03002660	Grays Prairie	City	Yes	4830752	480411
00003580	Groveton	City	Yes	4831340	480526
03002886	Gun Barrel City	City	Yes	4831592	480414
03003243	Gunter	City	Yes	4831616	480130
03002492	Hackberry	City	Yes	4831715	481607
03003589	Haltom City	City	Yes	4831928	480607
00003330	Hardin	City	Yes	4832240	480438
03002832	Haslet	City	Yes	4832720	480600
03003372	Heath	City	Yes	4832984	480411
03003358	Hebron	City	Yes	4833020	480140
03002740	Hickory Creek	City	Yes	4833476	480195
03002521	Highland Village	City	Yes	4833848	480777
00003244	Howe	City	Yes	4835084	485509
03002605	Hubbard	City	Yes	4835180	480857
03003491	Hudson Oaks	City	Yes	4835254	480520
00002584	Huntsville	City	Yes	4835528	481042
03003588	Hurst	City	Yes	4835576	480607
03002562	Hutchins	City	Yes	4835612	480182
00003186	Iola	City	Yes	4836068	480449
03002563	Irving	City	Yes	4837000	480167
03002435	Italy	City	Yes	4837072	480798
00002606	Itasca	City	Yes	4837084	480857
03003569	Jacksboro	City	Yes	4837168	480378
00003173	Jewett	City	Yes	4837648	480903
00002427	Joshua	City	Yes	4838080	485462
03002411	Justin	City	Yes	4838332	480778
03003379	Kaufman	City	Yes	4838488	480411
00003012	Keene	City	Yes	4838548	480879
03003321	Keller	City	Yes	4838632	480607
03003382	Kemp	City	Yes	4838788	480411
03002644	Kenefick	City	Yes	4838872	480438
03003586	Kennedale	City	Yes	4838896	480595
03002631	Kerens	City	Yes	4838992	480955
03002463	Kirvin	City	Yes	4839520	480950
03002412	Krugerville	City	Yes	4839916	480776
03002413	Krum	City	Yes	4839928	480194
03002962	Lake Bridgeport	City	Yes	4840450	481616
03002414	Lake Dallas	City	Yes	4840516	480780
03003557	Lake Worth	City	Yes	4841056	480611
03002415	Lakewood	City	Yes	4841050	481663
03002564	Lancaster	City	Yes	4841212	480182
03002533	Latexo	City	Yes	4841644	480872
03003139	Lavon	City	Yes	4841800	
03002642	Leona	City	Yes	4842340	480907
00003068	Leonard	City	Yes	4842352	480814

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
03003354	Lewisville	City	Yes	4842508	480167
03002645	Liberty	City	Yes	4842568	480044
00003210	Lindsay	City	Yes	4842868	480154
03003350	Little Elm	City	Yes	4843012	481639
03003502	Livingston	City	Yes	4843132	480526
03002827	Log Cabin	City	Yes	4843354	481635
03002599	Lovelady	City	Yes	4844260	480872
03003274	Lowry Crossing	City	Yes	4844308	480130
03003275	Lucas	City	Yes	4845012	480130
03003380	Mabank	City	Yes	4845324	480414
03003493	Madisonville	City	Yes	4845996	481173
03002905	Malakoff	City	Yes	4846224	481550
03003367	Malone	City	Yes	4846260	480857
03003013	Mansfield	City	Yes	4846452	485472
03002762	Maypearl	City	Yes	4847268	480798
03002624	McKinney	City	Yes	4845744	480135
03003164	Mclendon-Chisholm	City	Yes	4845804	480411
03003140	Melissa	City	Yes	4847496	481626
03002607	Mertens	City	Yes	4847820	480857
03002852	Mesquite	City	Yes	4847892	480166
00002948	Mexia	City	Yes	4847916	480442
03002466	Midlothian	City	Yes	4848096	480168
03002815	Midway	City	Yes	4848180	480872
03003284	Mildred	City	Yes	4848372	480380
03002759	Milford	City	Yes	4848408	480798
03003165	Mobile City	City	Yes	4848858	480543
00003573	Mont Belvieu	City	Yes	4849068	481637
03002697	Muenster	City	Yes	4849932	480765
03002656	Murphy	City	Yes	4850100	480130
03002632	Mustang	City	Yes	4850184	481547
03002573	Navarro	City	Yes	4850448	480950
00002657	Nevada	City	Yes	4850760	481657
03002963	New Fairview	City	Yes	4850920	480774
03002901	Newark	City	Yes	4850772	480582
00002909	Normangee	City	Yes	4851840	480436
03003363	North Richland Hills	City	Yes	4852356	480607
03002661	Oak Grove	City	Yes	4852902	480411
03002467	Oak Leaf	City	Yes	4853115	481650
03003349	Oak Point	City	Yes	4853130	481639
03002662	Oak Ridge	City	Yes	4853160	480411
03003170	Oakwood	City	Yes	4853232	480903
03003591	Old River-Winfree	City	Yes	4853824	481637
03002519	Onalaska	City	Yes	4854048	480974
03003266	Ovilla	City	Yes	4854444	481265
00003346	Palestine	City	Yes	4854708	480001
03002760	Palmer	City	Yes	4854744	480209
03003558	Pantego	City	Yes	4855020	481013
03002964	Paradise	City	Yes	4855056	480503
03003311	Parker	City	Yes	4855152	
03002871	Payne Springs	City	Yes	4856276	481174
03002468	Pecan Hill	City	Yes	4856485	481673
03003559	Pelican Bay	City	Yes	4856640	480582
03002609	Penelope	City	Yes	4856672	480857
03002874	Pilot Point	City	Yes	4857476	480133
03003360	Plano	City	Yes	4858016	
03003514	Point Blank	City	Yes	4858556	481528
03002663	Post Oak Bend	City	Yes	4859066	480411
03002634	Powell	City	Yes	4859168	480950
03002622	Princeton	City	Yes	4859576	481631
03002623	Prosper	City	Yes	4859696	480130
03002469	Red Oak	City	Yes	4861196	480182
03002861	Reno	City	Yes	4861604	480969
03002635	Retreat	City	Yes	4861616	481158
03002430	Rhome	City	Yes	4861700	481561
03002636	Rice	City	Yes	4861736	480950
03002820	Richardson	City	Yes	4861796	480184
03002637	Richland	City	Yes	4861820	481547
03003560	Richland Hills	City	Yes	4861844	480607
03003566	River Oaks	City	Yes	4862384	480609
03003392	Riverside	City	Yes	4862408	481044
03002987	Road Runner	City	Yes	4862486	480765
03002880	Roanoke	City	Yes	4862504	481606
00003373	Rockwall	City	Yes	4862828	480130
03003383	Rosser	City	Yes	4863404	480411

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
03002822	Rowlett	City	Yes	4863572	485471
03002791	Runaway Bay	City	Yes	4863782	481618
03003577	Sachse	City	Yes	4864064	485471
03003286	Saginaw	City	Yes	4864112	480587
00002797	Saint Jo	City	Yes	4864184	480940
03002652	Sanctuary	City	Yes	4865066	481285
03003348	Sanger	City	Yes	4865408	480217
03003583	Sansom Park	City	Yes	4865660	480611
03002664	Scurry	City	Yes	4866368	480411
03003579	Seagoville	City	Yes	4866428	480187
03003430	Seven Oaks	City	Yes	4866884	480314
03003381	Seven Points	City	Yes	4866908	481174
03003515	Shepherd	City	Yes	4867424	480554
03003356	Southlake	City	Yes	4869032	480612
03003492	Springtown	City	Yes	4869800	480521
03002885	Star Harbor	City	Yes	4870076	481174
03002600	Streetman	City	Yes	4870604	480950
03002665	Talty	City	Yes	4871756	480388
00002464	Teague	City	Yes	4872020	480910
00002949	Tehuacana	City	Yes	4872080	480913
03002666	Terrell	City	Yes	4872284	480411
03003352	The Colony	City	Yes	4872530	480167
03003153	Tioga	City	Yes	4873112	480829
00003154	Tom Bean	City	Yes	4873328	480829
03002829	Tool	City	Yes	4873352	481174
00003207	Trenton	City	Yes	4873592	480758
03002872	Trinidad	City	Yes	4873652	480333
03003581	Trinity	City	Yes	4873664	481042
03002850	University Park	City	Yes	4874492	480178
03003212	Valley View	City	Yes	4874756	480217
03003313	Van Alstyne	City	Yes	4874924	481620
03003014	Venus	City	Yes	4875236	480883
03003287	Watauga	City	Yes	4876672	480607
03003401	Waxahachie	City	Yes	4876816	480211
00003292	Weatherford	City	Yes	4876864	480520
03003314	Weston	City	Yes	4877740	480130
03003587	Westover Hills	City	Yes	4877788	480615
03003288	Westworth Village	City	Yes	4878076	480616
03003584	White Settlement	City	Yes	4878544	480616
00003156	Whitesboro	City	Yes	4878532	481623
00003229	Whitewright	City	Yes	4878628	480839
03003537	Willow Park	City	Yes	4879492	480520
00002589	Wills Point	City	Yes	4879564	480633
03002566	Wilmer	City	Yes	4879576	481076
03002465	Wortham	City	Yes	4880296	480950
03003267	Wylie	City	Yes	4880356	480130
Counties					
00000156	Anderson County	County	Yes	48001	480001
00000223	Archer County	County	Yes	48009	481078
00000013	Chambers County	County	Yes	48071	480199
00000194	Clay County	County	Yes	48077	480742
00000207	Collin County	County	Yes	48085	480130
00000189	Cooke County	County	Yes	48097	480765
03000225	Dallas County	County	Yes	48113	480165
03000208	Denton County	County	Yes	48121	480774
03000105	Ellis County	County	Yes	48139	480798
00000188	Fannin County	County	Yes	48147	480807
00000143	Freestone County	County	Yes	48161	480822
00000190	Grayson County	County	Yes	48181	480829
00000044	Grimes County	County	Yes	48185	481173
00000035	Hardin County	County	Yes	48199	480284
00000164	Henderson County	County	Yes	48213	481174
00000161	Hill County	County	Yes	48217	480857
00000103	Hood County	County	Yes	48221	480356
00000128	Houston County	County	Yes	48225	480872
00000212	Hunt County	County	Yes	48231	480363
00000253	Jack County	County	Yes	48237	480377
00000104	Johnson County	County	Yes	48251	480879
00000108	Kaufman County	County	Yes	48257	480411
00000132	Leon County	County	Yes	48289	480903
00000033	Liberty County	County	Yes	48291	480428
00000137	Limestone County	County	Yes	48293	480910
00000055	Madison County	County	Yes	48313	481180
00000191	Montague County	County	Yes	48337	480939

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
03000163	Navarro County	County	Yes	48349	480950
00000122	Parker County	County	Yes	48367	480520
00000058	Polk County	County	Yes	48373	480526
00000175	Rockwall County	County	Yes	48397	480543
00000047	San Jacinto County	County	Yes	48407	480553
03000224	Tarrant County	County	Yes	48439	480582
00000065	Trinity County	County	Yes	48455	481031
00000110	Van Zandt County	County	Yes	48467	481040
00000053	Walker County	County	Yes	48471	481042
03000209	Wise County	County	Yes	48497	481051
00000185	Young County	County	Yes	48503	480684
Drainage Districts					
03001827	Ellis County Drainage District 1	Drainage District	Invalid		
00002236	Liberty County Drainage District	Drainage District	Yes		
03001532	Old River Drainage District 1-Liberty County	Drainage District	No info		
03000403	Raywood Drainage District 2	Drainage District	Yes		
Environmental					
00000854	Aquilla Hackberry Creek CD	Environmental	Invalid		
	Dixon Water	Environmental	Unspecified		
	Friends of Lake Livingston - Texan by Nature	Environmental	Unspecified		
00000552	Gulf Coast Waste Disposal Authority	Environmental	No		
	Public Lab	Environmental	No		
00000548	Southeast Texas Agricultural Development District	Environmental	Invalid		
	Texas A&M Agrilife Extension Anderson County	Environmental	No		
	Texas A&M Agrilife Extension Archers County	Environmental	No		
	Texas A&M Agrilife Extension Chambers County	Environmental	No		
	Texas A&M Agrilife Extension Clay County	Environmental	No		
	Texas A&M Agrilife Extension Collin County	Environmental	No		
	Texas A&M Agrilife Extension Cooke County	Environmental	No		
	Texas A&M Agrilife Extension Dallas County	Environmental	No		
	Texas A&M Agrilife Extension Denton County	Environmental	No		
	Texas A&M Agrilife Extension Ellis County	Environmental	No		
	Texas A&M Agrilife Extension Fannin County	Environmental	No		
	Texas A&M Agrilife Extension Freestone County	Environmental	No		
	Texas A&M Agrilife Extension Grayson County	Environmental	No		
	Texas A&M Agrilife Extension Grimes County	Environmental	No		
	Texas A&M Agrilife Extension Hardin County	Environmental	No		
	Texas A&M Agrilife Extension Henderson County	Environmental	No		
	Texas A&M Agrilife Extension Hill County	Environmental	No		
	Texas A&M Agrilife Extension Hood County	Environmental	No		
	Texas A&M Agrilife Extension Houston County	Environmental	No		
	Texas A&M Agrilife Extension Hunt County	Environmental	No		
	Texas A&M Agrilife Extension Jack County	Environmental	No		
	Texas A&M Agrilife Extension Johnson County	Environmental	No		
	Texas A&M Agrilife Extension Kaufman County	Environmental	No		
	Texas A&M Agrilife Extension Leon County	Environmental	No		
	Texas A&M Agrilife Extension Liberty County	Environmental	No		
	Texas A&M Agrilife Extension Limestone County	Environmental	No		
	Texas A&M Agrilife Extension Madison County	Environmental	No		
	Texas A&M Agrilife Extension Montague County	Environmental	No		
	Texas A&M Agrilife Extension Navarro County	Environmental	No		
	Texas A&M Agrilife Extension Parker County	Environmental	No		
	Texas A&M Agrilife Extension Polk County	Environmental	No		
	Texas A&M Agrilife Extension Rockwall County	Environmental	No		
	Texas A&M Agrilife Extension San Jacinto County	Environmental	No		
	Texas A&M Agrilife Extension Tarrant County	Environmental	No		
	Texas A&M Agrilife Extension Trinity County	Environmental	No		
	Texas A&M Agrilife Extension Van Zandt County	Environmental	No		
	Texas A&M Agrilife Extension Walker County	Environmental	No		
	Texas A&M Agrilife Extension Wise County	Environmental	No		
	Texas A&M Agrilife Extension Young County	Environmental	No		
00000703	Trinity Bay Conservation District	Environmental	Yes		
00000865	Van Zandt County Waste Disposal District	Environmental	Invalid		
Federal Entities					
	Federal Emergency Management Agency	Federal	Yes		
	National Weather Service / West Gulf River Forecast Center	Federal	Yes		
	U. S. Army Corps of Engineers - Fort Worth District	Federal	Yes		
	U. S. Army Corps of Engineers - Galveston District	Federal	Yes		
Flood Control Districts					
03002111	Dallas County FCD 1	Flood Control	Yes		
03000400	Irving Flood Control District Section 1	Flood Control	Yes		
03000401	Irving Flood Control District Section 3	Flood Control	Yes		
03000533	Northwest Dallas County FCD	Flood Control	Yes		
00004000	Southeast Texas Flood Control District	Flood Control	Yes		

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
Freshwater Supply Districts					
03000682	Belmont FWSD 1 of Denton County	Water Supply District	Has Drainage Responsibilities		
03001686	Belmont FWSD 2 of Denton County	Water Supply District	Has Drainage Responsibilities		
00000316	Bistone Municipal Water Supply District	Water Supply District	No		
00001216	Bowie Water Supply District	Water Supply District	No info		
03001491	Denton County FWSD 10	Water Supply District	Has Drainage Responsibilities		
03001491	Denton County FWSD 10	Water Supply District	Has Drainage Responsibilities		
03001492	Denton County FWSD 11-A	Water Supply District	Has Drainage Responsibilities		
03001489	Denton County FWSD 11-B	Water Supply District	Has Drainage Responsibilities		
03001490	Denton County FWSD 11-C	Water Supply District	Has Drainage Responsibilities		
03001916	Denton County FWSD 1-A	Water Supply District	Invalid		
03001993	Denton County FWSD 1-B	Water Supply District	Invalid		
03002234	Denton County FWSD 1-C	Water Supply District	Invalid		
03002235	Denton County FWSD 1-D	Water Supply District	No info		
03001992	Denton County FWSD 1-E	Water Supply District	Invalid		
03001220	Denton County FWSD 1-F	Water Supply District	No info		
03002001	Denton County FWSD 1-G	Water Supply District	Invalid		
03001219	Denton County FWSD 1-H	Water Supply District	No info		
03001696	Denton County FWSD 2-A	Water Supply District	Invalid		
03001288	Denton County FWSD 2-C	Water Supply District	No info		
03001802	Denton County FWSD 3	Water Supply District	No info		
03001695	Denton County FWSD 4-A	Water Supply District	Has Drainage Responsibilities		
03001697	Denton County FWSD 6	Water Supply District	No		
03000778	Denton County FWSD 7	Water Supply District	No		
03000778	Denton County FWSD 7	Water Supply District	No		
03001493	Denton County FWSD 8-A	Water Supply District	Has Drainage Responsibilities		
03001238	Denton County FWSD 8-B	Water Supply District	Has Drainage Responsibilities		
03000799	East Cedar Creek FWSD	Water Supply District	No		
03001253	East Fork FWSD 1	Water Supply District	No info		
03000740	Ellis County FWSD 1	Water Supply District	No		
03000605	Ellis County FWSD 2	Water Supply District	Has Drainage Responsibilities		
03000554	Ellis County FWSD 3	Water Supply District	No		
03000323	Johnson County FWSD 2	Water Supply District	No		
03002334	Kaufman County FWSD 1A	Water Supply District	No		
03001296	Kaufman County FWSD 1B	Water Supply District	Has Drainage Responsibilities		
03001295	Kaufman County FWSD 1C	Water Supply District	Has Drainage Responsibilities		
03000719	Kaufman County FWSD 1D	Water Supply District	Has Drainage Responsibilities		
03001986	Kaufman County FWSD 1E	Water Supply District	Invalid		
03002141	Kaufman County FWSD 1F	Water Supply District	Invalid		
03000880	Kaufman County FWSD 2	Water Supply District	Invalid		
03001245	Kaufman County FWSD 4A	Water Supply District	No		
03001546	Kaufman County FWSD 4B	Water Supply District	Has Drainage Responsibilities		
03001447	Kaufman County FWSD 5	Water Supply District	Invalid		
03001449	Kaufman County FWSD 6	Water Supply District	No		
03002211	Kaufman County FWSD 7	Water Supply District	No info		
03001476	Parker County FWSD 1	Water Supply District	Invalid		
03000521	Polk County FWSD 2	Water Supply District	No		
03000743	Polo Ridge FWSD	Water Supply District	Unspecified		
03000994	Tarrant County FWSD 1	Water Supply District	Has Drainage Responsibilities		
03000324	The Lakes FWSD of Denton County	Water Supply District	No		
03002220	Denton County Fresh Water Supply District 12	Water Supply District	Unspecified		
03001510	Wise County WSD	Water Supply District	Unspecified		
Improvement Districts					
00000710	Chambers County Improvement District 1	Improvement District	No		
00000527	Chambers County Improvement District 3	Improvement District	Has Drainage Responsibilities		
00000890	Choctaw Watershed WID	Improvement District	Yes		

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
03002363	Cole Ranch ID 1	Improvement District	Has Drainage Responsibilities		
03000732	Dallas County Improvement District	Improvement District	Invalid		
03001825	Dallas County LID14	Improvement District	No info		
03001826	Denton County Development District 4	Improvement District			
03000477	Denton County LID 1	Improvement District	No info		
03002164	Denton County Reclamation & Road District	Improvement District	Yes		
03000603	Ellis County LID 3	Improvement District	Unspecified		
03000473	Ellis County LID 4	Improvement District	Unspecified		
03001258	Falcons Lair Utility & Reclamation District	Improvement District	Invalid		
03001667	Grand Prairie Metropolitan Utility & Reclamation District	Improvement District	No info		
03000771	Great Southwest Improvement District	Improvement District	No info		
03000661	Henderson County LID 1	Improvement District	No info		
03000911	Henderson County LID 3	Improvement District	Unspecified		
03002216	Hunter Ranch Improvement District 1	Improvement District	Invalid		
03000382	Kaufman County LID 1	Improvement District	No info		
03001536	Kaufman County LID 4	Improvement District	Invalid		
03000356	Kaufman County Parks Improvement District	Improvement District	Invalid		
00000960	Lake Granbury Water Improvement District	Improvement District	Invalid		
03000700	Lakeside Utility & Reclamation District	Improvement District	Invalid		
03001289	Meadow Road Improvement District	Improvement District	Unspecified		
03000670	Navarro County LID 10	Improvement District	Invalid		
03000635	Navarro County LID 11	Improvement District	Invalid		
03001862	River Ranch ID	Improvement District	Has Drainage Responsibilities		
03000455	Valwood Improvement Authority	Improvement District	Yes		
Management Districts					
03000993	Arlington Entertainment Area Management District	Management District	Unspecified		
03002200	Celina MMD 2	Management District	Has Drainage Responsibilities		
03002024	Celina MMD 3	Management District	Has Drainage Responsibilities		
03000507	Frisco Square Management District	Management District	No		
03002097	Highway 380 MMD 1	Management District	Has Drainage Responsibilities		
03002375	Karis Municipal Management District	Management District	Has Drainage Responsibilities		
03002153	Lake View Management and Development District	Management District	Invalid		
03001943	Mesquite Medical Center Management District	Management District	Invalid		
03002264	Midlothian MMD 3	Management District	Invalid		
03000439	New Park MMD	Management District	Invalid		
03002277	North Celina MMD 3	Management District	Invalid		
03000755	North Oak Cliff Municipal Management District	Management District	Unspecified		
03000733	Northlake MMD 1	Management District	No		
03002357	Northlake MMD 2	Management District	Has Drainage Responsibilities		
03002337	Oak Farms MMD	Management District	Invalid		
03002263	Prairie Ridge MMD 1	Management District	Invalid		
03000352	Prosper Management District 1	Management District	Has Drainage Responsibilities		
03002270	SoGood Cedars MMD	Management District	No info		
03000647	Triple Creek Municipal Management District	Management District	Invalid		
03002311	University Hills MMD	Management District	Invalid		
03000706	Viridian Municipal Management District	Management District	Has Drainage Responsibilities		
03002202	Windsor Hills MMD 1	Management District	No		
Municipal Utility Districts					
03002329	Bear Creek Ranch MUD 1	MUD	Unspecified		
03002283	Big Sky MUD	MUD	Unspecified		
03000431	Burns Branch MUD 1	MUD	Has Road Drainage Responsibilities		
03000624	Canyon Falls MUD 1	MUD	Has Drainage Responsibilities		
00002356	Chambers County MUD 2	MUD	Invalid		
00002222	Chambers County MUD 3	MUD	Invalid		
03000730	Circle T MUD 1	MUD	Invalid		
03000493	Circle T MUD 2	MUD	Invalid		
03000995	Circle T MUD 3	MUD	Invalid		
03000879	Collin County MUD 1	MUD	Has Drainage Responsibilities		
03001929	Collin County MUD 2	MUD	Invalid		
00002281	Cresson Crossroads MUD 2	MUD	Invalid		
03002348	Dallas County MUD 4	MUD	Invalid		

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
03001620	Dallas County Park Cities MUD	MUD	No		
03001620	Dallas County Park Cities MUD	MUD	No		
03001836	Denton County MUD 10	MUD	Has Drainage Responsibilities		
03002218	Denton County MUD 4	MUD	Has Drainage Responsibilities		
03001541	Denton County MUD 5	MUD	Has Drainage Responsibilities		
03000508	Denton County MUD 6	MUD	Has Drainage Responsibilities		
03000737	Denton County MUD 7	MUD	Invalid		
03001418	Denton County MUD 8	MUD	No info		
03002306	Denton County MUD 9	MUD	Has Drainage Responsibilities		
03002335	Double M MUD	MUD	Invalid		
03002346	Dove Valley Ranch MUD	MUD	Invalid		
03002032	Ellis County MUD 1	MUD	Invalid		
03000660	Fairfields MUD	MUD	Has Drainage Responsibilities		
03002178	Far North Fort Worth MUD 1	MUD	Has Drainage Responsibilities		
03002178	Far North Fort Worth MUD 1	MUD	Has Drainage Responsibilities		
00000345	Farmers Creek Watershed Authority	MUD	Invalid		
03000573	Four Seasons Ranch MUD 1	MUD	Invalid		
03002336	Grayson County MUD 1	MUD	Invalid		
03001875	Grayson County MUD 2	MUD	Invalid		
03002255	Grayson County MUD 3	MUD	Invalid		
03002347	Grayson County MUD 5	MUD	Invalid		
03000641	Gunter MUD 1	MUD	Invalid		
03000642	Gunter MUD 2	MUD	Invalid		
03001874	Howe MUD 1	MUD	No info		
03001601	Kaufman County MUD 10	MUD	Has Drainage Responsibilities		
03001602	Kaufman County MUD 11	MUD	Has Drainage Responsibilities		
03001603	Kaufman County MUD 12	MUD	Cannot retrieve info		
03001304	Kaufman County MUD 14	MUD	Has Drainage Responsibilities		
03001385	Kaufman County MUD 2	MUD	Has Drainage Responsibilities		
03001035	Kaufman County MUD 3	MUD	Has Drainage Responsibilities		
03001384	Kaufman County MUD 4	MUD	Has Drainage Responsibilities		
03000485	Kaufman County MUD 5	MUD	Cannot retrieve info		
03000486	Kaufman County MUD 6	MUD	Has Drainage Responsibilities		
03001599	Kaufman County MUD 7	MUD	Has Drainage Responsibilities		
03001600	Kaufman County MUD 9	MUD	No info		
03000838	Kimberlin Ranch MUD 1	MUD	No info		
03000878	Kimberlin Ranch MUD 2	MUD	Unspecified		
03000877	Kimberlin Ranch MUD 3	MUD	Unspecified		
00001702	Kings Crossing MUD	MUD	Invalid		
03002344	La La Ranch MUD	MUD	Invalid		
03000686	Lake Weatherford MUD 1	MUD	Invalid		
03000687	Lake Weatherford MUD 2	MUD	Invalid		
03002041	Lakehaven MUD	MUD	No info		
03001141	Lancaster MUD 1	MUD	Has Drainage Responsibilities		
03001163	Las Lomas MUD 1	MUD	No info		
03001164	Las Lomas MUD 2	MUD	Invalid		
03000311	Las Lomas MUD 3	MUD	Invalid		
03002092	Las Lomas MUD 4A of Kaufman County	MUD	No info		
03002093	Las Lomas MUD 4B of Kaufman County	MUD	No		
03002094	Las Lomas MUD 4C of Kaufman County	MUD	Invalid		
03002017	Lazy W District 1	MUD	Invalid		
03000789	Liberty County MUD 5	MUD	Invalid		
03000531	Live Oak Creek MUD 1 of Tarrant County	MUD	Has Drainage Responsibilities		
03002103	McKinney MUD 1 of Collin County	MUD	No		

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03001832	McKinney MUD 2 of Collin County	MUD	Has Drainage Responsibilities		
03002086	Mobberly MUD	MUD	No info		
03000681	Morningstar Ranch MUD 1 of Parker County	MUD	No		
03001080	Morningstar Ranch MUD 2 of Parker County	MUD	No		
03002201	New Fairview MUD 1	MUD	No		
00001636	North Zulch MUD	MUD	No		
03001976	Platinum Ranch MUD 1A	MUD	Invalid		
03001977	Platinum Ranch MUD 1B	MUD	Invalid		
03000636	Preston Summit MUD 1	MUD	No		
03002349	Ranch at FM 1385 MUD	MUD	Invalid		
03001907	River Ranch MUD 1	MUD	Has Drainage Responsibilities		
03001938	River Ranch MUD 10	MUD	No info		
03001945	River Ranch MUD 11	MUD	No info		
03001948	River Ranch MUD 12	MUD	No info		
03002135	River Ranch MUD 13	MUD	No info		
03002137	River Ranch MUD 14	MUD	No info		
03002136	River Ranch MUD 15	MUD	No info		
03001908	River Ranch MUD 2	MUD	No info		
03001909	River Ranch MUD 3	MUD	No info		
03001910	River Ranch MUD 4	MUD	No info		
03001950	River Ranch MUD 5	MUD	No info		
03001951	River Ranch MUD 6	MUD	No info		
03001952	River Ranch MUD 7	MUD	No info		
03001953	River Ranch MUD 8	MUD	No info		
03001954	River Ranch MUD 9	MUD	No info		
03001863	Riverside MUD	MUD	Invalid		
00001265	Rockwall County Consolidated MUD 1	MUD	No		
03001772	Rockwall County Consolidated MUD 2	MUD	Invalid		
03001346	Rockwall County MUD 8	MUD	Has Drainage Responsibilities		
00001347	Rockwall County MUD 9	MUD	Has Drainage Responsibilities		
03000837	Sangani Ranch MUD 1	MUD	Invalid		
03000872	Somerset MUD 1	MUD	Invalid		
03000871	Somerset MUD 2	MUD	Invalid		
03000683	Tradition MUD 1 of Denton County	MUD	Invalid		
03000646	Tradition MUD 2 of Denton County	MUD	Invalid		
03001050	Trophy Club MUD 1	MUD	No		
03000615	Twin Lakes MUD 1 of Kaufman County	MUD	Invalid		
03000613	Van Alstyne MUD 1 of Grayson County	MUD	Unspecified		
03000437	Van Alstyne MUD 2 of Collin County	MUD	Invalid		
03001322	Waterwood MUD 1	MUD	No		
03000315	West Cedar Creek MUD	MUD	No		
03001244	Westwood Shores MUD	MUD	No		
03002018	Wilmer MUD 1	MUD	Unspecified		
03002268	Wise County MUD 4	MUD	No		
Navigation Districts					
00000582	Chambers-Liberty Counties Navigation District	Navigation District	No		
River Authorities					
00000285	Angelina & Neches River Authority	River Authority	Yes		
00000295	Brazos River Authority	River Authority	Yes		
03000289	Dallas County Utility & Reclamation District	River Authority	Yes		
00000302	Lower Neches Valley Authority	River Authority	Yes		
00000294	Red River Authority of Texas	River Authority	Yes		
00000293	Sabine River Authority	River Authority	Yes		
00000287	San Jacinto River Authority	River Authority	Yes		
00000281	Sulphur River Basin Authority	River Authority	Yes		
03000286	Tarrant Regional Water District	River Authority	Yes		
03000286	Tarrant Regional Water District	River Authority	Yes		
00000280	Trinity River Authority of Texas	River Authority	Yes		
00000296	Upper Neches River Municipal Water Authority	River Authority	Yes		
State Entities					
	General Land Office	State	Yes		
	GLO Consultant	State	No		
	Texas Commission on Environmental Quality	State	Yes		
	Texas Department of Agriculture	State	Yes		
	Texas Department of Emergency Management	State	Yes		
	Texas Department of Emergency Management - Region 1	State	Yes		
	Texas Department of Emergency Management - Region 2	State	Yes		
	Texas Department of Emergency Management - Region 6	State	Yes		
	Texas Department of Transportation Beaumont District	State	Yes		
	Texas Department of Transportation Bryan District	State	Yes		

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	Texas Department of Transportation Dallas District	State	Yes		
	Texas Department of Transportation Fort Worth District	State	Yes		
	Texas Department of Transportation Lufkin District	State	Yes		
	Texas Department of Transportation Paris District	State	Yes		
	Texas Department of Transportation Tyler District	State	Yes		
	Texas Department of Transportation Waco District	State	Yes		
	Texas Department of Transportation Wichita Falls District	State	Yes		
	Texas Department of Transportation Yoakum District	State	Yes		
	Texas Parks and Wildlife Department	State	Yes		
	Texas State Soil and Water Conservation Board	State	Yes		
	Texas Water Development Board	State	Yes		
SUDs					
03001379	Bethany SUD	SUD	Unspecified		
03001189	Buena Vista-Bethel SUD	SUD	Unspecified		
00001348	Caddo Basin SUD	SUD	No		
03001103	East Fork SUD	SUD	No		
00000896	Johnson County SUD	SUD	No		
03000831	Lake Kiowa SUD	SUD	Unspecified		
00000627	Lavon Special Utility District	SUD	No		
03001512	Mountain Peak SUD	SUD	No		
00001213	Phelps SUD	SUD	No		
03001511	Rockett SUD	SUD	No		
00001475	Southwest Fannin County SUD	SUD	No		
00001446	Tarkington SUD	SUD	No		
03001059	Walnut Creek SUD	SUD	No		
Towns					
03002851	Addison	Town	Yes	4801240	
03003161	Annetta	Town	Yes	4803336	
03003489	Annetta North	Town	Yes	4803340	
03002447	Argyle	Town	Yes	4803768	
03003134	Blue Ridge	Town	Yes	4808872	
03003520	Edgecliff Village	Town	Yes	4822588	
03003404	Elkhart	Town	Yes	4823140	
03002603	Emhouse	Town	Yes	4824168	
03003273	Fairview	Town	Yes	4825224	
03003351	Flower Mound	Town	Yes	4826232	
03003032	Highland Park	Town	Yes	4833824	
03003523	Lakeside	Town	Yes	4840744	
03002461	New Hope	Town	Yes	4851036	
03002881	Northlake	Town	Yes	4852212	
03002633	Oak Valley	Town	Yes	4853217	
03002879	Ponder	Town	Yes	4858664	
03002623	Prosper	Town	Yes	4859696	
03003205	Providence Village	Town	Yes	4859748	
03002908	Saint Paul	Town	Yes	4864220	
03003359	Shady Shores	Town	Yes	4867100	
03002565	Sunnyvale	Town	Yes	4871156	
03002859	Trophy Club	Town	Yes	4873710	
03002860	Westlake	Town	Yes	4877620	
Utility Districts					
03000973	Cape Royale Utility District	Utility District	Unspecified		
03001649	Denton County Road Utility District 1	Utility District	Invalid		
03000984	Lake Cities Municipal Utility Authority	Utility District	Unspecified		
03001058	Memorial Point Utility District	Utility District	Unspecified		
03001671	Seis Lagos Utility District	Utility District	Unspecified		
Water Authorities					
00001765	Baytown Area Water Authority	Water Authority	Invalid		
03000904	Benbrook Water Authority	Water Authority	No		
00000338	Clear Creek Watershed Authority	Water Authority	Yes		
00000720	Coastal Water Authority	Water Authority	Yes		
00001281	Greater Texoma Utility Authority	Water Authority	No		
	Gulf Coast Water Authority	Water Authority	No		
Water Districts					
00000304	North Texas MWD	Water District	No		
03000912	Upper Trinity Regional Water District	Water District	Has Drainage Responsibilities		
03000406	Muenster Water District	Water District	No		
WCIDs					
03000484	Alpha Ranch WCID	WCID	Has Drainage Responsibilities		
03001887	Canyon Falls WCID 2	WCID	Has Drainage Responsibilities		
03002040	Collin County WCID 3	WCID	Has Drainage Responsibilities		

Entity ID	Entity	Entity Type	Floodplain Responsibilities	Census FIPs Code	FEMA CID Code
03000738	Double Platinum Ranch WCID 1 of Grasyon County	WCID	Invalid		
00001048	East Keechi Creek WCID 1	WCID	Has Drainage Responsibilities		
03001233	Ellis County WCID 1	WCID	No info		
03002116	Frisco West WCID	WCID	Has Drainage Responsibilities		
00000847	Houston County WCID 1	WCID	No		
00000836	Jack County WCID 1	WCID	No info		
03001303	Kaufman County WCID 1	WCID	Unspecified		
03001179	Liberty County WCID 1	WCID	Has Drainage Responsibilities		
03000402	Liberty County WCID 5	WCID	Has Drainage Responsibilities		
03001364	Liberty County WCID 6	WCID	No info		
03002338	Moore Farm WCID 1	WCID	No info		
03001759	North Fort Worth WCID 1	WCID	No		
03001774	Oak Point WCID 1	WCID	Yes		
03001077	Oak Point WCID 2	WCID	Has Drainage Responsibilities		
03001755	Oak Point WCID 3	WCID	Unspecified		
03001756	Oak Point WCID 4	WCID	No		
03001539	Providence Village WCID of Denton County	WCID	Invalid		
03001188	Rockwall County WCID 1	WCID	No info		
03001174	Rockwall County WCID 2	WCID	No info		
03000343	Rolling V Ranch WCID 1 of Wise County	WCID	No info		
03002192	Smiley Road WCID 1	WCID	No info		
03002191	Smiley Road WCID 2	WCID	No info		
03001961	South Denton County WCID 1	WCID	No		
03002031	Talley Ranch WCID 1 of Denton County	WCID	Invalid		
03000466	Valencia on the Lake WCID	WCID	No info		
03001987	Walden Pond WCID	WCID	Unspecified		

◦Invalid indicates that there is sufficient information to conclude or assume that the entity in question has been disbanded, annexed into other entities, has yet to be constructed, or is otherwise non-functional.

◦Unspecified indicates that though information was provided or discovered, none of the resources obtained indicate whether or not the entity has flood-related responsibilities.

Attachment 2

Task 4C.1b and 4C.1f – List of Previous Flood Studies and Models Relevant to Plan Development

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Corridor Development Certificate Manual, Trinity River Corridor- North Central Texas	UTCDC_Model_v3	7/1/09	West Fork/Elm Fork confluence to Lewisville Dam, West Fork/Elm Fork confluence to Lake Worth Dam, West Fork/Elm Fork confluence to Lake Worth Dam, West Fork/Elm Fork confluence to about 7,300 feet downstream of Dowdy-Ferry Road in southeast Dallas	Existing and Future conditions	CDC HEC-RAS	Steady Flow	USACE
Town Creek and Shannon Creek Master Drainage Plan, City of Burleson	QUILLMILLER	11/21/14	Quill Miller Creek	Existing Conditions	4.1.0	Steady Flow	USACE
Town Creek and Shannon Creek Master Drainage Plan, City of Burleson	SHANNON	11/21/14	Shannon Creek	Existing Conditions	4.1.0	Steady Flow	USACE
Town Creek and Shannon Creek Master Drainage Plan, City of Burleson	Village	11/21/14	Village Creek	Existing Conditions	4.1.0	Steady Flow	USACE
Town Creek and Shannon Creek Master Drainage Plan, City of Burleson	SOUTHSHANNON	1/1/10	South Shannon	Existing Conditions	4.1.0	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_002yr	9/17/18	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_002yr_NOA A	1/18/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_002yr_NOA A_WF	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_005yr	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_005yr_NOA A	9/17/18	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_005yr_NOA_A_WF	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_010yr	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_010yr_NOA_A_WF	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_010yr_NOA_A	1/11/19	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_025yr	9/17/18	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_025yr_NOA_A_WF	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_050yr	9/17/18	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_050yr_NOA_A	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watersehd Hydrology Assessment for the Trinity River Basin	AP_Freq_050yr_NOA_A_WF	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_100yr	12/10/18	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_100yr_NOA A	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_100yr_NOA A_WF	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_200yr	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_200yr_NOA A_WF	1/18/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_250yr	9/17/18	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_500yr	12/10/18	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_500yr_NOA A	1/14/19	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE
Interagency Flood Risk Management (InFRM) Watershed Hydrology Assessment for the Trinity River Basin	AP_Freq_500yr_NOA A_WF	5/7/21	Trinity Bay, Lewisville Lake, Lavon Lake, Grapevine Lake, Ray Roberts Lake, Benbrook Lake, Joe Pool Lake	Future conditions	HEC-HMS 4.3	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Marine and Cement Creek Frequency and Propability Maximum Flood Study	002_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	005_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	010_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	025_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	050_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	100_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	500_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	002_Year_AMC_II	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	AMC_II_002_Freq	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	AMC_II_005_Freq	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	AMC_II_100_Freq	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Marine and Cement Creek Frequency and Propability Maximum Flood Study	AMC_II_500_Freq	4/9/20	Marine and Cement Creeks	Future conditions	HEC-HMS 3.5	Steady Flow	USACE
Marine and Cement Creek Frequency and Propability Maximum Flood Study	Marine_Cement_Creek	3/1/08	Marine and Cement Creeks	Future conditions	HEC-HMS 4.0	Steady Flow	USACE
Shady Lane Feasibility Study	1_ACE	9/25/20	Shady lane	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Shady Lane Feasibility Study	2_ACE	9/25/20	Shady lane	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Shady Lane Feasibility Study	10_ACE	9/25/20	Shady lane	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Shady Lane Feasibility Study	20_ACE	9/25/20	Shady lane	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Shady Lane Feasibility Study	50_ACE	9/25/20	Shady lane	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Shady Lane Feasibility Study	Existing_Conditions	9/25/20	Shady lane	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Shady Lane Feasibility Study	Shady_Lane	9/25/20	Shady lane	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Drainage Study for Stream 2C5, Keen Creek, From North Barnes Drive To North Yale Drive	KeenCreek	5/25/21	Keen Creek	Existing Conditions	HEC-HMS 4.3	Steady Flow	USACE
Miami Dr Drainage Study	Miami_Drive	12/8/20	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Miami Dr Drainage Study	2_yr_24_hr	8/31/00	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Miami Dr Drainage Study	5_yr_24_hr	8/31/00	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Miami Dr Drainage Study	10_yr_24_hr	8/31/00	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Miami Dr Drainage Study	25_yr_24_hr	8/31/00	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Miami Dr Drainage Study	50_yr_24_hr	8/31/00	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Miami Dr Drainage Study	100_yr_24_hr	8/31/00	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Miami Dr Drainage Study	500_yr_24_hr	8/31/00	Miami Drive	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	2_year_det	1/30/03	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 1	2_year_existing	12/6/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	5_year	1/30/03	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	5_year_existing	12/6/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	5yr_det	1/30/03	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	10_year_existing	12/6/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	10year_det	1/30/03	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	25_year_existing	12/6/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	25_yr_det	1/30/03	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	50_year_detention	1/30/03	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	50_year_existing	12/6/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	100_year_detention	11/4/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	100_yr_with_detentio	11/7/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Area_1_Hydrology	9/17/07	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Basin2_100yr	9/17/07	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Basin2_addsubbasins	11/7/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 1	area1_det_box_us	3/11/03	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Basin3	9/17/07	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Run_1	10/18/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Run_2	10/18/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Run_6	10/18/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Run_7	10/18/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 1	Run_8	10/18/02	Stream 2C5	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 2	Area 2-Existing	2/3/03	Holiday Park North	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 2	Area 2-Prop #1	2/3/03	Holiday Park North	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 2	Area 2-Prop #2	2/3/03	Holiday Park North	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 2	Area 2-Prop #3	2/3/03	Holiday Park North	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 3	2DSS_EC_20201117_DFW 100yr24hr	11/17/20	Stream 2C3	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 3	2DSS_Option1_revGO_DFW 100yr24hr	7/29/21	Stream 2C3	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 3	2DSS_Option2_revGO_DFW 100yr24hr	7/29/21	Stream 2C3	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 3	2DSS_Option3_revGO_DFW 100yr24hr	7/29/21	Stream 2C3	Existing Conditions	HEC-RAS 5.0.7	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 4	4-stormcad - alt 2	3/10/03	Buhler, Cresthaven, Madewell, and Maryland streams	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 4	4-stormcad - alt 3	3/10/03	Buhler, Cresthaven, Madewell, and Maryland streams	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 4	4-stormcad - existing	3/10/03	Buhler, Cresthaven, Madewell, and Maryland streams	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 5	GND02111AREAS	8/11/02	Stream MB-6	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-proposed	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_905	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_905r26	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_905r79	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_905r105	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1136	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1136r26	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1136r79	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1136r105	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1155	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1155r26	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1155r79	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1155r105	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1186	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1186r26	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1186r79	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1186r105	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1205	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1205r26	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1205r79	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-existing_1205r105	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-proposed	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD A,B-stormcad-proposed_1255	4/8/03	Storm Drain A,B	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD C-stormcad-existing	4/8/03	Storm Drain C	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-existing	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-existing_1	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-existing_108	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-existing_109	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-existing_2062	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-existing_2063	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-existing_2191	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-proposed	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-proposed_1	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-proposed_108	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD D-stormcad-proposed_109	4/8/03	Storm Drain D	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-existing	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-existing_1	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-existing_55	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-existing_68	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-existing_69	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-proposed	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-proposed_1	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD E-stormcad-proposed_55	4/8/03	Storm Drain E	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-existing	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-existing_1	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-existing_86	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-existing_2417	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-existing_2418	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-existing_2575	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-existing_2576	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-proposed	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-proposed_1	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD F to M-stormcad-proposed_86	4/8/03	Storm Drain F-M	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-existing	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-existing_1	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-existing_86	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-existing_827	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-existing_840	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-existing_901	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-existing_903	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-prop	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area 6-SD O to R-stormcad-prop_86	4/8/03	Storm Drain O-R	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 6	Area_6_Hydrology	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Control_1	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Met_2	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Met_5	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Met_10	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Met_25	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Met_50	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	Met_100	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 6	Ultimate__MP_rout	4/8/03	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 6	trib2d1	11/6/02	Storm Drain O-R	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 7	Existing Conditions	7/17/03	Storm Drains A, B, F, H, I, J, K	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 7	Marquis	7/17/03	Storm Drains A, B, F, H, I, J, K	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 7	Existing Conditions	7/17/03	Storm Drains A, B, F, H, I, J, K	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 10	Area10_Strea2C1	8/16/02	Eastern Meadows No 2, Southlake Estates No 3, Greenbrook Estates No 2, Green Acres Addition, Rosehill Acreage Subdivisions Storm Drainage	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 10	Area 10-stormcad-AMG Alt 1	3/10/03	Eastern Meadows No 2, Southlake Estates No 3, Greenbrook Estates No 2, Green Acres Addition, Rosehill Acreage Subdivisions Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 10	Area 10-stormcad-AMG Alt 2	3/10/03	Eastern Meadows No 2, Southlake Estates No 3, Greenbrook Estates No 2, Green Acres Addition, Rosehill Acreage Subdivisions Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 10	Area 10-stormcad-existing	3/10/03	Eastern Meadows No 2, Southlake Estates No 3, Greenbrook Estates No 2, Green Acres Addition, Rosehill Acreage Subdivisions Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 10	Area 10-stormcad-Miami Alt 1	3/10/03	Eastern Meadows No 2, Southlake Estates No 3, Greenbrook Estates No 2, Green Acres Addition, Rosehill Acreage Subdivisions Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 10	Area 10-stormcad-Miami Alt 2	3/10/03	Eastern Meadows No 2, Southlake Estates No 3, Greenbrook Estates No 2, Green Acres Addition, Rosehill Acreage Subdivisions Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 11	Area 11-stormcad-existing	2/24/03	La Prda Subdivision Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 12	Area 12-stormcad-existing	2/24/03	Gatewood Subdivision Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 14	Area 14 alternative 1	3/11/03	Center Creek Plaza and Southgate Estates No 7 Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 14	Area 14 existing	3/11/03	Center Creek Plaza and Southgate Estates No 7 Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 15	clubcreek	9/27/02	Club Creek	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 16	Alternative 2b--Bore single	5/14/03	Camelot Additionas Nos 3, 5, 7, 8, 11a, 11b	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 16	Alternative 3--Galaxie Bypass2	5/14/03	Camelot Additionas Nos 3, 5, 7, 8, 11a, 11b	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 16	existing	5/14/03	Camelot Additionas Nos 3, 5, 7, 8, 11a, 11b	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 17	city_alternative_split_wout_detention_G	2/5/10	Storm sewer lines A, B, C, E, F, G, H, I, J, K	Existing Conditions	XPStorm 10.52	Steady Flow	XP Software
Garland Systematic Storm Sewer Study, Project Area 17	city_alternative_wout_detention_G	2/5/10	Storm sewer lines A, B, C, E, F, G, H, I, J, K	Existing Conditions	XPStorm 10.52	Steady Flow	XP Software
Garland Systematic Storm Sewer Study, Project Area 18	Area18-stormcad-alt2a	6/12/03	Main Street and Wilson Street Storm Drainage	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 18	Area18-stormcad-existing1	6/12/03	Main Street and Wilson Street Storm Drainage	Existing Conditions	HEC-HMS 2.2	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 20	Existing Conditions	7/17/03	National Drive nd Channels in Garland, Gavron West, Innovation, and Kingsley Industrial Park Storm Drainage	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 20	Marquis	7/17/03	National Drive nd Channels in Garland, Gavron West, Innovation, and Kingsley Industrial Park Storm Drainage	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 20	South watershed alternative 2	7/17/03	National Drive nd Channels in Garland, Gavron West, Innovation, and Kingsley Industrial Park Storm Drainage	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 20	South watershed alternative	7/17/03	National Drive nd Channels in Garland, Gavron West, Innovation, and Kingsley Industrial Park Storm Drainage	Existing Conditions	HEC-RAS 3.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 21	area21exist1	8/5/04	Northlake Estates and Castlewood Subdivisions Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 21	area21NorLakAlt1	8/5/04	Northlake Estates and Castlewood Subdivisions Storm Drainage	Existing Conditions	StormCAD	Steady Flow	Bentley
Garland Systematic Storm Sewer Study, Project Area 25	LA JOLLA-SURVEY 2020-1012	10/12/20	La Jolla Drive Drainage	Existing Conditions	XP Storm 2019.1.3	Steady Flow	XP Software

Study Name	Model Name	Date Created	Stream Section	Current or Future Conditions	HEC RAS version	Steady or Unsteady state	Model Developer
Garland Systematic Storm Sewer Study, Project Area 25	LA JOLLA-C3D-EXIST SURFACE 2020-1012	10/12/20	La Jolla Drive Drainage	Existing Conditions	XP Storm 2019.1.4	Steady Flow	XP Software
Garland Systematic Storm Sewer Study, Project Area 26	LongBranchBridges	6/24/19	Centerville Marketplace Storm Sewer	Existing Conditions	HEC-HMS 4.0	Steady Flow	USACE
Garland Systematic Storm Sewer Study, Project Area 26	LongBranchCulverts	6/24/19	Centerville Marketplace Storm Sewer	Existing Conditions	HEC-HMS 4.0	Steady Flow	USACE

Attachment 3

Task 4C.1g – Flood Mitigation and Floodplain Management Goals Adopted by the RFPG

Region 3 Trinity RFPG: Specific Goal Statements

As Adopted by Region 3 RFPG on 12/16/21

Goal 1. Improving Flood Warning & Public Safety

Improve the dissemination of information regarding early flood recognition and danger, emergency response procedures, and post-flood recovery actions.

Goals	Specific Goal Statements	Short Term (2033)	Long Term (2053)
A	Increase the number of communities with flood warning programs that can detect flood threats and provide timely warning of impending flood danger.	Initiated	Maintained
B	Improve safety at low water crossings by adding warning systems/signage or improving low water crossings in high-risk areas	100 crossings	300 crossings

Goal 2. Improving Flood Analyses

Increase the number and extent of regional flood planning studies (FMEs) and analyses to better prepare communities for implementing flood mitigation projects.

Goals	Specific Goal Statements	Short Term (2033)	Long Term (2053)
A	Increase the availability of flood hazard data that uses the best available land use and precipitation data to reduce gaps in floodplain mapping.	25% gap reduction	95% gap reduction
B	Increase the number of entities that conduct detailed studies of localized/urban flooding impacts within the FPR.	Establish a baseline measurement	30%
C	Increase the number of communities that utilize latest and most appropriate precipitation and land use data as a basis for design criteria and flood prevention regulations.	Establish a baseline measurement	30%

Goal 3. Reducing Property Damage & Loss

Increase the number and extent of protective regulatory measures and programs to limit future risk and reduce flood damage in the flood planning region.

Goals	Specific Goal Statements	Short Term (2033)	Long Term (2053)
A	Increase the number of entities that have floodplain standards that meet or exceed the NFIP-minimum standards.	5	25
B	Reduce the number of structures within the 1% floodplain (i.e. through structural projects, property buyouts, acquisitions, elevations, and/or relocations).	5%	10%
C	Reduce the vulnerability of agriculture, ranching and forestry to flood-related losses.	Establish a baseline measurement	30%
D	Reduce the number of critical facilities within the 1% floodplain	5%	10%
E	When relocation and/or elevation adjustment is not possible, increase the number of non-residential facilities that implement floodproofing	5	25

Goal 4. Floodplain Preservation

Maintain the natural and beneficial functions of floodplains by preservation and conservation programs.

Goals	Specific Goal Statements	Short Term (2033)	Long Term (2053)
A	Increase the acreage of publicly protected natural areas for flood and ecosystem purposes to reduce future impacts of flooding.	Establish a baseline measurement	10%
B	Increase the number of entities that include the 1% annual chance floodplain on Future Land Use plans and other planning documents	20	50
C	Avoid new exposure to flood hazards by adopting comprehensive plans or subdivision regulations that direct development away from the floodplain.	Establish a baseline measurement	10%

Goal 5. Flood Infrastructure Improvement

Reduce flood risk and mitigate flood hazards to life and property through the maintenance and rehabilitation of existing infrastructure and implementation of new flood infrastructure projects.

Goals	Specific Goal Statements	Short Term (2033)	Long Term (2053)
A	Increase the number of nature-based practices as part of flood risk reduction projects.	Establish a baseline measurement	30%
B	Improve flood infrastructure and maintain streams and drainage channels to reduce flood risk to agricultural lands.	Establish a baseline measurement	10%
C	Improve urban drainage infrastructure to minimize flood risk.	50 miles	500 miles
D	Perform regular inspections and maintain existing dams, levees, and other flood mitigation structures.	Establish a baseline measurement	10%

Goal 6. Expanding Flood Education & Outreach

Increase the amount of flood education and outreach opportunities to improve awareness of flood hazards and future participation throughout the flood planning region (FPR).

Goals	Specific Goal Statements	Short Term (2033)	Long Term (2053)
A	Improve the participation of community stakeholder entities in the regional flood planning process.	35%	90%
B	Increase the number of local entities that host annual public outreach and education activities to improve awareness of flood hazards, benefits of flood planning, and procedures associated with emergency response associated with flooding.	Establish a baseline measurement	50
C	Increase the number of communities that work cooperatively as part of an overall floodplain management program.	5	25

Goal 7. Expand Funding

Goals	Specific Goal Statements	Short Term (2033)	Long Term (2053)
A	Increase communities with dedicated stormwater funding mechanisms	10%	30%

MEMORANDUM

TO: Interested Parties of the Region 3 Trinity Regional Flood Planning Group (RFPG) **DATE:** September 24, 2021

FROM: Stephanie Griffin **AVO:** 43791.001 000800

EMAIL: sgriffin@halff.com

SUBJECT: Region-wide Floodplain Management Standards for Trinity Regional Flood Plan

On September 23, 2021, the Trinity RFPG held a public meeting in a hybrid setting during which the consultant team presented the results of the data collection effort related to the topics of potentially recommending and potentially adopting region-wide floodplain management standards.

The Trinity RFPG is required to consider the possibility of recommending or adopting consistent minimum floodplain management standards and land use practices for the entire region. While **recommended** practices encourage entities with flood control responsibilities to establish minimum floodplain management standards, the **adoption** of minimum standards requires that entities adopt the minimum standards before their floodplain management evaluations (FMEs), floodplain management strategies (FMSs), and/or floodplain mitigation projects (FMPs) could be considered for potential inclusion in the regional flood plan.

The RFPG approved the following **recommended** region-wide floodplain management standards:

1. Participate in the NFIP or adopt equivalent standards
2. Regulate development in the FEMA floodplain or other local floodplain designated by local jurisdiction
3. Establish higher standards (more stringent than the NFIP) for development or freeboard above the floodplain
4. Drainage corridor preservation
5. Land use standards to reduce future flood risk
6. Compensatory flood storage

The Trinity RFPG did not adopt any region-wide floodplain management standards.

Goal ID	RFPG No.	RFPG Name	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How will the Goal be Measured	Overarching Goal	Associated Goal IDs	RFPG Goal Statement
03000001	3	Trinity	Increase the number of communities with flood warning programs that can detect flood threats and provide timely warning of impending flood danger.	Short Term (10 year)	2033	Entire RFPG	Drivers may choose to ignore flood warning signs or barricaded roads for a variety of reasons.	Initiated	Goal 1: Improving Flood Warning & Public Safety	03000002	1A
03000002	3	Trinity	Increase the number of communities with flood warning programs that can detect flood threats and provide timely warning of impending flood danger.	Long Term (30 year)	2053	Entire RFPG	Drivers may choose to ignore flood warning signs or barricaded roads for a variety of reasons.	Maintained	Goal 1: Improving Flood Warning & Public Safety	03000001	1A
03000003	3	Trinity	Improve safety at low water crossings by adding warning systems/signage or improving low water crossings in high-risk areas.	Short Term (10 year)	2033	Entire RFPG	Drivers may choose to ignore flood warning signs or barricaded roads for a variety of reasons.	100 total crossings	Goal 1: Improving Flood Warning & Public Safety	03000004	1B
03000004	3	Trinity	Improve safety at low water crossings by adding warning systems/signage or improving low water crossings in high-risk areas.	Long Term (30 year)	2053	Entire RFPG	Drivers may choose to ignore flood warning signs or barricaded roads for a variety of reasons.	300 total crossings	Goal 1: Improving Flood Warning & Public Safety	03000003	1B
03000005	3	Trinity	Increase the availability of flood hazard data that uses the best available land use and precipitation data to reduce gaps in floodplain mapping.	Short Term (10 year)	2033	Entire RFPG	Due to the change and updates to terrain, land use, precipitation, and other data, the risk associated with the floodplains may change over time.	25% gap reduction	Goal 2: Improving Flood Analyses	03000006	2A
03000006	3	Trinity	Increase the availability of flood hazard data that uses the best available land use and precipitation data to reduce gaps in floodplain mapping.	Long Term (30 year)	2053	Entire RFPG	Due to the change and updates to terrain, land use, precipitation, and other data, the risk associated with the floodplains may change over time.	95% gap reduction	Goal 2: Improving Flood Analyses	03000005	2A
03000007	3	Trinity	Increase the number of entities that conduct detailed studies of localized/urban flooding impacts within the Trinity Region.	Short Term (10 year)	2033	Entire RFPG	Due to the change and updates to terrain, land use, precipitation, and other data, the risk associated with the floodplains may change over time.	Establish a baseline measurement	Goal 2: Improving Flood Analyses	03000008	2B
03000008	3	Trinity	Increase the number of entities that conduct detailed studies of localized/urban flooding impacts within the Trinity Region.	Long Term (30 year)	2053	Entire RFPG	Due to the change and updates to terrain, land use, precipitation, and other data, the risk associated with the floodplains may change over time.	30%	Goal 2: Improving Flood Analyses	03000007	2B
03000009	3	Trinity	Increase the number of communities that utilize latest and most appropriate precipitation and land use data as a basis for design criteria and flood prevention regulations.	Short Term (10 year)	2033	Entire RFPG	Due to the change and updates to terrain, land use, precipitation, and other data, the risk associated with the floodplains may change over time.	Establish a baseline measurement	Goal 2: Improving Flood Analyses	03000010	2C
03000010	3	Trinity	Increase the number of communities that utilize latest and most appropriate precipitation and land use data as a basis for design criteria and flood prevention regulations.	Long Term (30 year)	2053	Entire RFPG	Due to the change and updates to terrain, land use, precipitation, and other data, the risk associated with the floodplains may change over time.	30%	Goal 2: Improving Flood Analyses	03000009	2C
03000011	3	Trinity	Increase the number of entities that have floodplain standards that meet or exceed the NFIP-minimum standards.	Short Term (10 year)	2033	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	5 new cities/towns	Goal 3: Reducing Property Damage & Loss	03000012	3A
03000012	3	Trinity	Increase the number of entities that have floodplain standards that meet or exceed the NFIP-minimum standards.	Long Term (30 year)	2053	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	25 additional cities/towns	Goal 3: Reducing Property Damage & Loss	03000011	3A
03000013	3	Trinity	Reduce the number of structures within the 1% floodplain (i.e. through structural projects, property buyouts, acquisitions, elevations, and/or relocations).	Short Term (10 year)	2033	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	5%	Goal 3: Reducing Property Damage & Loss	03000014	3B
03000014	3	Trinity	Reduce the number of structures within the 1% floodplain (i.e. through structural projects, property buyouts, acquisitions, elevations, and/or relocations).	Long Term (30 year)	2053	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	10%	Goal 3: Reducing Property Damage & Loss	03000013	3B

Goal ID	RFPG No.	RFPG Name	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How will the Goal be Measured	Overarching Goal	Associated Goal IDs	RFPG Goal Statement
03000015	3	Trinity	Reduce the vulnerability of agriculture, ranching and forestry to flood-related losses.	Short Term (10 year)	2033	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	Establish a baseline measurement	Goal 3: Reducing Property Damage & Loss	03000016	3C
03000016	3	Trinity	Reduce the vulnerability of agriculture, ranching and forestry to flood-related losses.	Long Term (30 year)	2053	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	30%	Goal 3: Reducing Property Damage & Loss	03000015	3C
03000017	3	Trinity	Reduce the number of critical facilities within the 1% floodplain	Short Term (10 year)	2033	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	5%	Goal 3: Reducing Property Damage & Loss	03000018	3D
03000018	3	Trinity	Reduce the number of critical facilities within the 1% floodplain	Long Term (30 year)	2053	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	10%	Goal 3: Reducing Property Damage & Loss	03000017	3D
03000019	3	Trinity	When relocation and/or elevation adjustment is not possible, increase the number of non-residential facilities that implement floodproofing	Short Term (10 year)	2033	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	5%	Goal 3: Reducing Property Damage & Loss	03000020	3E
03000020	3	Trinity	When relocation and/or elevation adjustment is not possible, increase the number of non-residential facilities that implement floodproofing	Long Term (30 year)	2053	Entire RFPG	Getting every community within the Trinity Region to adopt and enforce NFIP minimum standards, let alone higher standards, may prove to be challenging. The lack of local enforcement of floodplain regulations also creates risk.	25%	Goal 3: Reducing Property Damage & Loss	03000019	3E
03000021	3	Trinity	Increase the acreage of publicly protected natural areas for flood and ecosystem purposes to reduce future impacts of flooding.	Short Term (10 year)	2033	Entire RFPG	Residual risk depends on people stepping back and allowing space for flooding to remain in natural areas.	Establish a baseline measurement	Goal 4: Floodplain Preservation	03000022	4A
03000022	3	Trinity	Increase the acreage of publicly protected natural areas for flood and ecosystem purposes to reduce future impacts of flooding.	Long Term (30 year)	2053	Entire RFPG	Residual risk depends on people stepping back and allowing space for flooding to remain in natural areas.	10%	Goal 4: Floodplain Preservation	03000021	4A
03000023	3	Trinity	Increase the number of entities that include the 1% annual chance floodplain on Future Land Use plans and other planning documents	Short Term (10 year)	2033	Entire RFPG	Residual risk depends on people stepping back and allowing space for flooding to remain in natural areas.	20 new entities	Goal 4: Floodplain Preservation	03000024	4B
03000024	3	Trinity	Increase the number of entities that include the 1% annual chance floodplain on Future Land Use plans and other planning documents	Long Term (30 year)	2053	Entire RFPG	Residual risk depends on people stepping back and allowing space for flooding to remain in natural areas.	50 new entities	Goal 4: Floodplain Preservation	03000023	4B
03000025	3	Trinity	Avoid new exposure to flood hazards by adopting comprehensive plans or subdivision regulations that direct development away from the floodplain.	Short Term (10 year)	2033	Entire RFPG	Residual risk depends on people stepping back and allowing space for flooding to remain in natural areas.	Establish a baseline measurement	Goal 4: Floodplain Preservation	03000026	4C
03000026	3	Trinity	Avoid new exposure to flood hazards by adopting comprehensive plans or subdivision regulations that direct development away from the floodplain.	Long Term (30 year)	2053	Entire RFPG	Residual risk depends on people stepping back and allowing space for flooding to remain in natural areas.	10%	Goal 4: Floodplain Preservation	03000026	4C
03000027	3	Trinity	Increase the number of nature-based practices as part of flood risk reduction projects.	Short Term (10 year)	2033	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	Establish a baseline measurement	Goal 5: Flood Infrastructure Improvement	03000028	5A
03000028	3	Trinity	Increase the number of nature-based practices as part of flood risk reduction projects.	Long Term (30 year)	2053	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	30%	Goal 5: Flood Infrastructure Improvement	03000027	5A

Goal ID	RFPG No.	RFPG Name	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How will the Goal be Measured	Overarching Goal	Associated Goal IDs	RFPG Goal Statement
03000029	3	Trinity	Improve flood infrastructure and maintain streams and drainage channels to reduce flood risk to agricultural lands.	Short Term (10 year)	2033	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	Establish a baseline measurement	Goal 5: Flood Infrastructure Improvement	03000030	5B
03000030	3	Trinity	Improve flood infrastructure and maintain streams and drainage channels to reduce flood risk to agricultural lands.	Long Term (30 year)	2053	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	10%	Goal 5: Flood Infrastructure Improvement	03000029	5B
03000031	3	Trinity	Improve urban drainage infrastructure to minimize flood risk	Short Term (10 year)	2033	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	50 miles	Goal 5: Flood Infrastructure Improvement	03000032	5C
03000032	3	Trinity	Improve urban drainage infrastructure to minimize flood risk	Long Term (30 year)	2053	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	500 miles	Goal 5: Flood Infrastructure Improvement	03000031	5C
03000033	3	Trinity	Perform regular inspections and maintain existing dams, levees, and other flood mitigation structures	Short Term (10 year)	2033	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	Establish a baseline measurement	Goal 5: Flood Infrastructure Improvement	03000034	5D
03000034	3	Trinity	Perform regular inspections and maintain existing dams, levees, and other flood mitigation structures	Long Term (30 year)	2053	Entire RFPG	If any storm that exceeds the design capacity was to occur, the infrastructure will still be at risk.	10%	Goal 5: Flood Infrastructure Improvement	03000033	5D
03000035	3	Trinity	Improve the participation of community stakeholder entities in the regional flood planning process.	Short Term (10 year)	2033	Entire RFPG	The primary risks associated with public education and outreach are misunderstandings and lack of attention.	35%	Goal 6: Expanding Flood Education & Outreach	03000036	6A
03000036	3	Trinity	Improve the participation of community stakeholder entities in the regional flood planning process.	Long Term (30 year)	2053	Entire RFPG	The primary risks associated with public education and outreach are misunderstandings and lack of attention.	90%	Goal 6: Expanding Flood Education & Outreach	03000035	6A
03000037	3	Trinity	Increase the number of local entities that host annual public outreach and education activities to improve awareness of flood hazards, benefits of flood planning, and procedures associated with emergency response associated with flooding.	Short Term (10 year)	2033	Entire RFPG	The primary risks associated with public education and outreach are misunderstandings and lack of attention.	Establish a baseline measurement	Goal 6: Expanding Flood Education & Outreach	03000038	6B
03000038	3	Trinity	Increase the number of local entities that host annual public outreach and education activities to improve awareness of flood hazards, benefits of flood planning, and procedures associated with emergency response associated with flooding.	Long Term (30 year)	2053	Entire RFPG	The primary risks associated with public education and outreach are misunderstandings and lack of attention.	50 total	Goal 6: Expanding Flood Education & Outreach	03000037	6B
03000039	3	Trinity	Increase the number of communities that work cooperatively as part of an overall floodplain management program.	Short Term (10 year)	2033	Entire RFPG	The primary risks associated with public education and outreach are misunderstandings and lack of attention.	5 total	Goal 6: Expanding Flood Education & Outreach	03000040	6C
03000040	3	Trinity	Increase the number of communities that work cooperatively as part of an overall floodplain management program.	Long Term (30 year)	2053	Entire RFPG	The primary risks associated with public education and outreach are misunderstandings and lack of attention.	25 total	Goal 6: Expanding Flood Education & Outreach	03000041	6C
03000041	3	Trinity	Increase communities with dedicated stormwater funding mechanisms.	Short Term (10 year)	2033	Entire RFPG	Lack of funding for maintenance may result in unanticipated infrastructure failure that costs much more to repair than had it been maintained.	10%	Goal 7: Expand Funding	03000042	7A
03000042	3	Trinity	Increase communities with dedicated stormwater funding mechanisms.	Long Term (30 year)	2053	Entire RFPG	Lack of funding for maintenance may result in unanticipated infrastructure failure that costs much more to repair than had it been maintained.	30%	Goal 7: Expand Funding	03000041	7A

Attachment 4

Task 4C.1h – Process to Identify Potentially Feasible FMSs and FMPs

TO: Region 3 Trinity Regional Flood Planning Group

CC: Stephanie Griffin – Halff Associates, Inc., David Rivera – Freese and Nichols, Inc.

FROM: Scott Hubley, PE, CFM – Vice President, Freese and Nichols, Inc.

SUBJECT: Process for Identification and Evaluation of Potential FMEs and Potentially Feasible FMPs and FMSs

DATE: 12/07/2021

PROJECT: Trinity Regional Flood Plan (FNI Proj. No. HAF21337)

Introduction

Halff Associates, Inc. (Halff) along with Freese and Nichols, Inc. (FNI) has been retained as the Technical Consultant (TC) to the Trinity Regional Flood Planning Group (RFPG) to develop the first ever Regional Flood Plan (RFP) for the basin, as part of the state flood planning process administered by the Texas Water Development Board (TWDB). A major component of the process is to identify, evaluate, and recommend Flood Management Evaluations (FMEs), Flood Mitigation Projects (FMPs), and Flood Management Strategies (FMSs) to be included in the RFP and the cumulative State Flood Plan (SFP).

The *Scope of Work (SOW)* developed by TWDB includes a requirement to “receive public comment on a proposed process to be used by the RFPG to identify and select FMEs, FMSs, and FMPs for the 2023 Regional Flood Plan.” This Technical Memorandum (TM) has been furnished to provide background information about the overall flood planning process and the associated technical requirements and to document the TC’s proposed process for this task. It is intended to comply with the *SOW* and the relevant provisions of *Title 31 of the Texas Administrative Code (TAC) Chapters 361 and 362 (Rules)* which serve as the statute and rules that govern regional flood planning, and to be consistent with the *Exhibit C Technical Guidelines for Regional Flood Planning (Technical Guidelines)* prepared by the TWDB.

Definitions

According to the *Technical Guidelines*, definitions of key terms include:

A **Flood Management Evaluation (FME)** is a proposed flood study of a specific, flood-prone area that is needed in order to assess flood risk and/or determine whether there are potentially feasible FMSs or FMPs.

A **Flood Mitigation Project (FMP)** is a proposed project, either structural or non-structural, that has non-zero capital costs or other non-recurring cost and when implemented will reduce flood risk, and mitigate flood hazards to life or property.

A **Flood Management Strategy (FMS)** is a proposed plan to reduce flood risk or mitigate flood hazards to life or property. At a minimum, RFPGs should include as FMSs any proposed action that they would like to identify, evaluate, and recommend that does not qualify as either an FME or FMP.

Background

Identification and evaluation of FMEs, FMPs, and FMSs occur under *Task 4B* of the *SOW*, with recommendations being developed as part of *SOW Task 5*. Each of these recommendations must tie back to the floodplain management goals adopted by the RFPG and must contribute to the assessment and mitigation of flood risk across the basin.

FMEs, FMSs, and FMPs are broadly categorized as “flood risk reduction projects” (henceforth, “actions”) in the *Technical Guidelines*. The *Technical Guidelines* also list several potential action types for each subcategory, summarized in **Table 1** below:

Table 1: Flood Risk Reduction Action Types

Flood Risk Reduction Action Category	Action Types
Flood Management Evaluation (FME)	<ul style="list-style-type: none"> a. Watershed Planning <ul style="list-style-type: none"> i. H&H Modeling ii. Flood Mapping Updates iii. Regional Watershed Studies b. Engineering Project Planning <ul style="list-style-type: none"> i. Feasibility Assessments c. Preliminary Engineering (alternative analysis and up to 30% design) d. Studies on Flood Preparedness
Flood Mitigation Project (FMP)	<p>Structural</p> <ul style="list-style-type: none"> a. Low Water Crossings or Bridge Improvements b. Infrastructure (channels, ditches, ponds, stormwater pipes, etc.) c. Regional Detention d. Regional Channel Improvements e. Storm Drain Improvements f. Reservoirs g. Dam Improvements, Maintenance, and Repair h. Flood Walls/Levees i. Coastal Protections j. Nature Based Projects – living levees, increasing storage, increasing channel roughness, increasing losses, de-synchronizing peak flows, dune management, river restoration, riparian restoration, run-off pathway management, wetland restoration, low impact development, green infrastructure k. Comprehensive Regional Project – includes a combination of projects intended to work together <p>Non-Structural</p> <ul style="list-style-type: none"> a. Property or Easement Acquisition b. Elevation of Individual Structures c. Flood Readiness and Resilience d. Flood Early Warning Systems, including stream gauges and monitoring stations e. Floodproofing f. Regulatory Requirements for Reduction of Flood Risk
Flood Management Strategy (FMS)	None specified; at a minimum, RFPGs should include as FMSs any proposed action that the group would like to identify, evaluate, and recommend that does not qualify as either a FME or FMP.

Particularly during this first round of flood planning, several areas are likely to be identified for potential FMEs due to a lack of sufficiently complete or current flood study data to accurately evaluate and quantify flood risk. Not every conceivable FME can or will be recommended for inclusion in the plan. The RFPG and the TC must decide which potential FMEs will be recommended in the RFP so that limited state and stakeholder resources can be directed efficiently and accordingly to implement those studies.

Similarly, regional stakeholders will likely propose several projects and strategies for managing flood risk that could be candidates for inclusion in the plan and eligible for state funding. Each FMP and FMS identified by the TC will be screened to determine if the FMP or FMS is potentially feasible. At a minimum, FMPs and FMSs must be developed in an adequate level of detail to furnish the required technical information and adhere to the minimum criteria set forth in the *SOW*, the *Rules*, and the *Technical Guidelines*.

For FMPs, these minimum criteria include having appropriate hydrologic and hydraulic (H&H) models required to evaluate that the project adheres to TWDB Mapping and Modeling Guidelines and a requirement that the FMP causes No Negative Impact on a neighboring area. These requirements must also be met for FMSs, as applicable. These standards are described in more detail in *Section 3.5* and *Section 3.6* of the *Technical Guidelines*.

Process for Identification of Potential FMEs and Potentially Feasible FMPs and FMSs

Identification

Identification of potential FMEs and potentially feasible FMPs and FMSs begins with the development of the Flood Mitigation Needs Analysis (*Task 4A*). Generally, this task is meant to guide action, evaluation and recommendation by highlighting:

- The areas with the greatest gaps in flood risk knowledge that should be considered for potential FMEs.
- The areas of greatest known flood risk and flood mitigation needs that should be considered for implementation of potentially feasible FMSs and FMPs.

FNI has developed a process for identifying areas of greatest need based on application of the requirements outlined in the *Rules* and *SOW*. The process is summarized in **Table 2**, below.

Table 2: Guidance for Assessment and Identification of Flood Mitigation Needs

Guidance	Factors to Consider
1. Most prone to flooding that threatens life and property	<ul style="list-style-type: none"> • Area overlapped by inundation mapping and/or included in any historical flooding record • Building footprints / polygons within flood hazard layer • Critical facilities with evacuation routes impacted by flooding • Fully developed flood models (where available) • Low water crossings • Agricultural areas at risk of flooding

Guidance	Factors to Consider
2. Locations, extent and performance of current floodplain management and land use policies and infrastructure	<ul style="list-style-type: none"> • Communities not participating in NFIP and/or without NFIP equivalent or higher standards • Disadvantaged / Underserved communities • City / County design manuals • Community Rating System (CRS) score • Land use policies • Floodplain ordinance(s)
3. Inadequate inundation mapping	<ul style="list-style-type: none"> • No mapping • Presence of Fathom / BLE / FEMA Zone A flood risk data • Detailed FEMA models older than 10 years
4. Lack of H&H models	<ul style="list-style-type: none"> • Communities with zero models • Communities with limited models
5. Emergency need	<ul style="list-style-type: none"> • Damaged or failing infrastructure • Other emergency conditions
6. Existing models, analysis and flood risk mitigation plans	<ul style="list-style-type: none"> • Exclude flood mitigation plans already in implementation • Leverage existing models, analyses, and flood risk mitigation plans • Benefit-Cost Ratio > 1
7. Already identified and evaluated flood mitigation projects	<ul style="list-style-type: none"> • Exclude flood mitigation projects already in implementation • Leverage existing flood mitigation projects • Benefit-Cost Ratio > 1
8. Historic flooding events	<ul style="list-style-type: none"> • Disaster declarations • Flood insurance claim information • Other significant local events
9. Already implemented flood mitigation projects	<ul style="list-style-type: none"> • Exclude areas where flood mitigation projects have already been implemented unless significant residual risk remains
10. Additional other factors deemed relevant by RFPG	<ul style="list-style-type: none"> • Alignment with RFPG goals • Alignment with TWDB guidance principles

After identification of the areas of greatest flood mitigation need, the TC will review the available data to develop a list of potential flood risk reduction actions for addressing the needs in these areas. The data will include information compiled under previous tasks in the *SOW*, including:

- Data collection regarding existing flood infrastructure, flood projects currently in progress, and known flood mitigation needs (*Task 1*);
- Quantification of existing and future flood risk exposure and vulnerability (*Tasks 2A and 2B*);
- Goals and strategies adopted and/or recommended by the RFPG for addressing existing flood hazards and mitigating future flood risk (*Tasks 3A and 3B*); and,
- Stakeholder-provided input throughout the flood planning process.

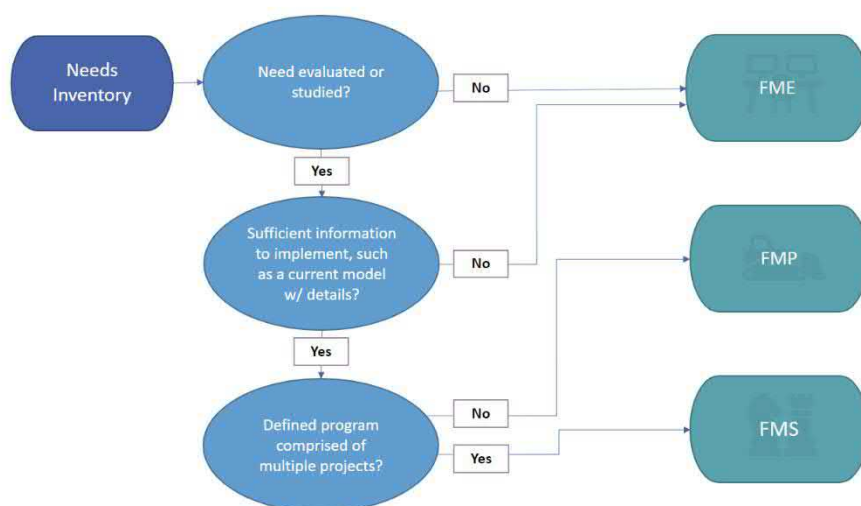
The TC anticipates several potential actions will be identified, primarily FMEs, to address gaps in available flood risk data associated with the first planning cycle. The *Rules* and *SOW* require FMSs and FMPs to be developed in a sufficient level of detail to be included in the RFP and recommended for state funding. The

TC does not anticipate that this first planning cycle will have sufficient data, time, or budget to develop new FMSs and FMPs. Rather, the list of potentially feasible FMSs and FMPs likely will be compiled based on contributions from the RFPG and other regional stakeholders from sources such as previous flood studies, drainage master plans, and capital improvement programs.

Evaluation

Once potential flood risk reduction actions are identified, the TC will perform a screening process to sort actions into their appropriate categorization. The screening process is shown below in **Figure 1**.

Figure 1: Potential Flood Risk Reduction Action Screening Process



In addition to falling into the general buckets of action types outlined in **Table 1**, FMPs and FMSs will be screened to determine if they have been developed in enough detail and include current technical data to meet the TWDB’s requirements for these action types as outlined in the *Technical Guidelines*. For instance, one requirement is to prove the project has no negative impacts on neighboring areas. Table 21 in Section 3.6 of the *Technical Guidelines* specifies the impacts analysis should include discharge, velocity, valley storage, and downstream conveyance considerations. This detailed analysis is only achievable if hydrologic and hydraulic models are available. Furthermore, a Benefit-Cost Analysis (BCA) is also required to demonstrate that a recommended FMP has a Benefit-Cost Ratio (BCR) greater than one (see Section 3.8 of the *Technical Guidelines*). As part of the FMP evaluation, it is likely that the BCA will need to be updated to reflect updated cost estimates. Therefore, sufficient data must be available to perform the necessary BCA calculations. Actions that were initially considered for FMSs and FMPs that do not meet these requirements may be recommended for future study as part of an FME.

Selection

The TC will seek to identify and recommend a comprehensive list of potential flood risk reduction actions for inclusion in the RFP. In practice, this means that as many FMPs and FMSs as possible will be recommended which have information available to meet the detailed requirements specified in the *Technical Guidelines*. FMSs will also be recommended for other strategies the RFPG wishes to pursue that do not fit cleanly into the FME or FMP categorizations. One example of a potential FMS is a program of separate FMPs that is part of an overall strategy to reduce flood risk within a particular area, such as a

community-wide buyout program to be implemented over several years. Generally, FMEs will be recommended for any remaining areas with potential flood risk and exposure of people and property based on results of *Task 4A*.

All recommended actions must meet the technical requirements of the *Technical Guidelines*, including demonstrating No Negative Impacts and identifying at least one local sponsor. However, some potential actions that meet these baseline requirements may not be appropriate for recommendation. While this is not a comprehensive list, some potential reasons a project may not be recommended include:

- Action does not achieve flood risk reduction
- Action does not align with the flood mitigation goal(s) adopted by the region and/or the guidance principles set forth by the state
- Action does not demonstrate benefits at a scale appropriate for inclusion in a regional plan
- Action duplicates the benefits of another action(s) included in the plan
- Action cannot obtain a Memorandum of Understanding (MOU) or other form of concurrence from impacted entities
- Action does not demonstrate a sensible benefit-cost ratio or other metric
- Public input regarding the action demonstrates a need for further evaluation or consensus building with regional stakeholders
- Action does not receive a simple majority vote from a quorum of the RFPG members for inclusion in the RFP.

Schedule

The process to identify and evaluate FMEs, FMPs, and FMSs must be approved by the RFPG and included in the Technical Memorandum (TM) furnished under *Task 4C* of the SOW. This deliverable deadline has been set for January 7, 2022 by the TWDB. After the delivery of the TM, the TWDB will review and provide Notice to Proceed (NTP) on *Task 5*, after which the TC may begin the process of recommending FMEs and FMPs for inclusion in the RFP. The TWDB has not provided an anticipated date for issuance of NTP. As such, the schedule provided in **Table 3** below is the TC’s proposed timeline of activities to meet the TM deadline and anticipated schedule of activities after NTP on *Task 5*.

Table 3: Timeline of Activities

Flood Planning Process Activity	Anticipated Date
TC delivers <i>Process for Identification and Evaluation of Potential FMEs and Potentially Feasible FMPs and FMSs</i> TM to RFPG for review	September 16, 2021
RFPG considers approval of Process at November meeting	November 18, 2021
TC delivers TM including identified potential FMEs and potentially feasible FMPS and FMSs to RFPG for review	November 23, 2021
RFPG considers approval to submit TM	December 16, 2021
TC delivers TM to TWDB	January 7, 2022

Flood Planning Process Activity	Anticipated Date
TWDB review TM; TC continue process to evaluate FMEs, FMPs, and FMSs	January 2022 – TBD
TWDB issues NTP on Task 5; TC to begin process of recommending FMEs, FMPs, and FMS for inclusion in RFP	TBD (after NTP by TWDB)

When reviewing and considering whether to approve drafts of the TM, the RFPG members should do so with the understanding that the TWDB has established the TM as a “draft, mid-point, work-in-progress deliverable...to demonstrate that [the RFPG] are making appropriate progress towards the development of their regional flood plan and in meeting contract requirements.” On August 17, 2021, the TWDB emailed the TC and further clarified that:

“If RFPGs need to make changes to content that was included in deliverables submitted under the technical memorandum after the submission deadline, RFPGs do not need to resubmit any previously submitted deliverables. The content of the draft and final versions of each regional flood plan will supersede all content included in any previous deliverables.”

As such, the TM does not need to include the final list of potential flood risk reduction actions. Actions can be updated, added, or removed as additional flood risk information or other details are evaluated by the TC and through future engagement with stakeholders.

Attachment 5

Task 4C.1i – List Potential FMEs

FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
031000001	Archer County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Archer County				Watershed Planning - Flood Mapping Updates	922.9157	Riverine, Urban	Archer County				
031000002	Anderson County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Anderson County				Watershed Planning - Flood Mapping Updates	1073.748	Riverine, Urban	Anderson County				
031000003	Chambers County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Chambers County				Watershed Planning - Flood Mapping Updates	629.8801	Riverine, Urban, Coastal	Chambers County				
031000004	Clay County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Clay County				Watershed Planning - Flood Mapping Updates	1107.936	Riverine, Urban	Clay County				
031000005	Collin County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Collin County				Watershed Planning - Flood Mapping Updates	883.4201	Riverine, Urban	Collin County				
031000006	Cooke County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Cooke County				Watershed Planning - Flood Mapping Updates	893.2441	Riverine, Urban	Cooke County				
031000007	Denton County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Denton County				Watershed Planning - Flood Mapping Updates	948.686	Riverine, Urban	Denton County				
031000008	Ellis County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Ellis County				Watershed Planning - Flood Mapping Updates	948.0358	Riverine, Urban	Ellis County				
031000009	Fannin County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Fannin County				Watershed Planning - Flood Mapping Updates	897.0308	Riverine, Urban	Fannin County				
031000010	Freestone County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Freestone County				Watershed Planning - Flood Mapping Updates	888.3791	Riverine, Urban	Freestone County				
031000011	Grayson County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Grayson County				Watershed Planning - Flood Mapping Updates	976.7403	Riverine, Urban	Grayson County				
031000012	Grimes County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Grimes County				Watershed Planning - Flood Mapping Updates	798.8741	Riverine, Urban	Grimes County				
031000013	Henderson County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Henderson County				Watershed Planning - Flood Mapping Updates	944.9949	Riverine, Urban	Henderson County				
031000014	Hill County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Hill County				Watershed Planning - Flood Mapping Updates	981.9723	Riverine, Urban	Hill County				
031000015	Hood County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Hood County				Watershed Planning - Flood Mapping Updates	438.7257	Riverine, Urban	Hood County				
031000016	Houston County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Houston County				Watershed Planning - Flood Mapping Updates	1232.08	Riverine, Urban	Houston County				
031000017	Hunt County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Hunt County				Watershed Planning - Flood Mapping Updates	879.4233	Riverine, Urban	Hunt County				
031000018	Jack County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Jack County				Watershed Planning - Flood Mapping Updates	917.5756	Riverine, Urban	Jack County				
031000019	Johnson County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Johnson County				Watershed Planning - Flood Mapping Updates	731.0471	Riverine, Urban	Johnson County				
031000020	Kaufman County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Kaufman County				Watershed Planning - Flood Mapping Updates	804.6422	Riverine, Urban	Kaufman County				
031000021	Leon County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Leon County				Watershed Planning - Flood Mapping Updates	1076.136	Riverine, Urban	Leon County				
031000022	Liberty County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Liberty County				Watershed Planning - Flood Mapping Updates	1169.763	Riverine, Urban	Liberty County				
031000023	Limestone County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Limestone County				Watershed Planning - Flood Mapping Updates	929.1238	Riverine, Urban	Limestone County				
031000024	Madison County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Madison County				Watershed Planning - Flood Mapping Updates	470.0766	Riverine, Urban	Madison County				
031000025	Montague County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Montague County				Watershed Planning - Flood Mapping Updates	933.4482	Riverine, Urban	Montague County				
031000026	Navarro County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Navarro County				Watershed Planning - Flood Mapping Updates	1081.563	Riverine, Urban	Navarro County				
031000027	Parker County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Parker County				Watershed Planning - Flood Mapping Updates	903.0412	Riverine, Urban	Parker County				
031000028	Polk County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Polk County				Watershed Planning - Flood Mapping Updates	1105.867	Riverine, Urban	Polk County				
031000029	Rockwall County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Rockwall County				Watershed Planning - Flood Mapping Updates	148.0785	Riverine, Urban	Rockwall County				
031000030	San Jacinto County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	San Jacinto County				Watershed Planning - Flood Mapping Updates	625.6851	Riverine, Urban	San Jacinto County				
031000031	Trinity County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Trinity County				Watershed Planning - Flood Mapping Updates	710.015	Riverine, Urban	Trinity County				
031000032	Van Zandt County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Van Zandt County				Watershed Planning - Flood Mapping Updates	856.3715	Riverine, Urban	Van Zandt County				
031000033	Walker County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Walker County				Watershed Planning - Flood Mapping Updates	797.8362	Riverine, Urban	Walker County				
031000034	Wise County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Wise County				Watershed Planning - Flood Mapping Updates	919.7757	Riverine, Urban	Wise County				
031000035	Young County FEMA Mapping	Create FEMA mapping in previously unmapped areas and update existing FEMA mapping as needed.	03000005, 03000006	Young County				Watershed Planning - Flood Mapping Updates	927.7111	Riverine, Urban	Young County				
031000036	East Fork Trinity HUC-8 - East Fork Trinity and Tributaries Flood Risk Identification	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Grayson County, Fannin County, Hunt County, Collin County, Rockwall County, Dallas County, Kaufman County				Watershed Planning - Flood Mapping Updates	5494.498		NCTCOG				
031000037	Denton HUC-8 - Hog Branch Flood Risk Identification	Create FEMA mapping in previously unmapped areas and update existing FEMA maps as needed.	03000005, 03000006	Denton County				Watershed Planning - Flood Mapping Updates	948.686		NCTCOG				
031000038	Collin County Dam Inundation Study	Inundation studies of all high and moderate hazard dams	03000009, 03000010, 03000029, 03000030	Collin County				Watershed Planning - Flood Mapping Updates - Dam Failure	883.4201	Riverine, Urban	Collin County				
031000039	Chambers County Dam/Levee Failure Inundation Map Updates	Update dam and levee failure inundation maps.	03000009, 03000010, 03000029, 03000030	Chambers County				Watershed Planning - Flood Mapping Updates - Dam Failure	629.8801	Riverine, Urban, Coastal	Chambers County, Anahuac, Beach City, Mount Belvieu, Cove, Chambers-Liberty Counties Navigation District, and Old-River-Winfree				

FME ID	Estimated number of structures at flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road segment closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Existing or Anticipated Models (year)	Existing or Anticipated Maps (year)
031000001										
031000002										
031000003										
031000004										
031000005										
031000006										
031000007										
031000008										
031000009										
031000010										
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FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
03100040	Dallas County Dam Inundation Study	Conduct studies to develop dam inundation maps and models	03000009, 03000010, 03000029, 03000030	Dallas County				Watershed Planning - Flood Mapping Updates - Dam Failure	905.1625	Riverine, Urban	Dallas County				
03100041	Lake Ray Hubbard and Duck Creek Tributary Inundation Study	Conduct studies to develop inundation maps for Lake Ray Hubbard and Duck Creek Tributary and how it affects the Town of Sunnyvale.	03000005, 03000006, 03000007, 03000008	Dallas County				Watershed Planning - Flood Mapping Updates - Dam Failure	1299.064	Riverine, Urban	Town of Sunnyvale				
03100042	Denton County Dam Inundation Study	Inundation studies of all high and moderate hazard dams	03000009, 03000010, 03000029, 03000030	Denton County				Watershed Planning - Flood Mapping Updates - Dam Failure	948.686	Riverine, Urban	Denton County				
03100043	Ellis County Dam Inundation Study	Inundation studies of all high and moderate hazard dams	03000009, 03000010, 03000029, 03000030	Ellis County				Watershed Planning - Flood Mapping Updates - Dam Failure	948.0358	Riverine, Urban	Ellis County, Alma, Bardwell, Ennis, Ferris, Garrett, Italy, Maypearl, Midlothian, Milford, Oak Leaf, Ovilla, Palmer, Red Oak, Waxahachie				
03100044	Madison County Dam Inundation Study	Create dam failure inundation maps	03000009, 03000010, 03000029, 03000030	Madison County				Watershed Planning - Flood Mapping Updates - Dam Failure	470.0766	Riverine, Urban	Madison County				
03100045	Navarro County Dam Inundation Study	Conduct inundation studies of all high and moderate hazard dams.	03000009, 03000010, 03000029, 03000030	Navarro County				Watershed Planning - Flood Mapping Updates - Dam Failure	1081.563	Riverine, Urban	Navarro County, Corsicana, Kerens				
03100046	Parker County Dam Inundation Study	Conduct a dam inundation study	03000009, 03000010, 03000029, 03000030	Parker County				Watershed Planning - Flood Mapping Updates - Dam Failure	903.0412	Riverine, Urban	Parker County, Willow Park				
03100047	Tarrant County Dam Inundation Study	Identify and evaluate high hazard dams.	03000009, 03000010, 03000029, 03000030	Tarrant County				Watershed Planning - Flood Mapping Updates - Dam Failure	900.6097	Riverine, Urban	Fort Worth, Tarrant County				
03100048	Irving Levee District Flood Risk Assessment	Conduct review of the area in the four levee districts that would be inundated by a levee failure. Analyze all available routes out of the Levee Districts and any new streets that would not be flooded	03000009, 03000010, 03000031, 03000032	Dallas County				Watershed Planning - Flood Mapping Updates - Levee Failure	67.81654		Irving				
03100049	West Fork of the Trinity River Levee Failure Hydrologic Study	Hydrologic study to determine threat, risk, and potential impacts of flooding from levee failure along the West Fork of the Trinity River	03000009, 03000010, 03000031, 03000032	Tarrant County				Watershed Planning - Flood Mapping Updates - Levee Failure	2104.255	Riverine, Urban	River Oaks				
03100050	City of Lavon DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Collin County				Watershed Planning - Drainage Master Plan	3.027795	Riverine, Urban	Lavon				
03100051	University Park DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Dallas County				Watershed Planning - Drainage Master Plan	3.68651	Riverine, Urban	University Park				
03100052	City of Rowlett DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Dallas County				Watershed Planning - Drainage Master Plan	20.51274	Riverine, Urban	Rowlett				
03100053	City of Richardson DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Dallas County				Watershed Planning - Drainage Master Plan	28.54863	Riverine, Urban	Richardson				
03100054	City of Cockrell Hill, City of Sunnyvale, City of Wilmer DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Dallas County				Watershed Planning - Drainage Master Plan	25.40652	Riverine, Urban	Cockrell Hill, Sunnyvale, Wilmer				
03100055	City of Aubrey DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Denton County				Watershed Planning - Drainage Master Plan	2.92793	Riverine, Urban	Aubrey				
03100056	City of Argyle DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Denton County				Watershed Planning - Drainage Master Plan	11.52621	Riverine, Urban	Argyle				
03100057	City of Maypearl DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Ellis County				Watershed Planning - Drainage Master Plan	0.833458	Riverine, Urban	Maypearl				
03100058	City of Dayton DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Liberty County				Watershed Planning - Drainage Master Plan	20.95696	Riverine, Urban	Dayton				
03100059	City of Denton DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Denton County				Watershed Planning - Drainage Master Plan	97.00524		City of Denton				
03100060	City of Madisonville DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Madison County				Watershed Planning - Drainage Master Plan	4.876529	Riverine, Urban	Madisonville				
03100061	City of Rockwall DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Rockwall County				Watershed Planning - Drainage Master Plan	29.88859	Riverine, Urban	Rockwall				

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031000040										
031000041										
031000042										
031000043										
031000044										
031000045										
031000046										
031000047										
031000048										
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031000058										
031000059										
031000060										
031000061										

FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
03100062	City of Everman DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	1.748423	Riverine, Urban	Everman				
03100063	City of Colleyville DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	13.18481	Riverine, Urban	Colleyville				
03100064	Haltom City DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	12.37433	Riverine, Urban	Haltom City				
03100065	City of Southlake DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	22.3341	Riverine, Urban	Southlake				
03100066	City of North Richland Hills DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	18.20458	Riverine, Urban	North Richland Hills				
03100067	City of Mansfield DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	36.50386	Riverine, Urban	Mansfield				
03100068	City of Trinidad DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Henderson County				Watershed Planning - Drainage Master Plan	14.80455	Riverine, Urban	Trinidad				
03100069	Cedar Hill-DeSoto-Duncanville DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Dallas County				Watershed Planning - Drainage Master Plan	68.37325	Riverine, Urban	Cedar Hill, DeSoto, Duncanville				
03100070	City of Athens DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Henderson				Watershed Planning - Drainage Master Plan	13.48551	Urban Flooding/Riverine	City of Athens				
03100071	Sansom Park DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	1.204764		Sansom Park				
03100072	City of Decatur DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Wise				Watershed Planning - Drainage Master Plan	8.769081	Riverine	City of Decatur				
03100073	City of Waxahachie DMP (Phase 2 Continuation)	Evaluate City and identify future projects. Continue efforts of current DMP Phase 2 efforts.	03000007, 03000008, 03000009, 03000010	Ellis				Watershed Planning - Drainage Master Plan	49.16673	Riverine	City of Waxahachie				
03100074	City of Crockett DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Houston				Watershed Planning - Drainage Master Plan	9.241759	Urban Flooding/Riverine	City of Crockett				
03100075	Town of Dish DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Denton				Watershed Planning - Drainage Master Plan	1.513417	Riverine	Town of Dish				
03100076	City of Corinth DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Denton				Watershed Planning - Drainage Master Plan	7.799837	Riverine	City of Corinth				
03100077	City of Keller DMP	Evaluate City and identify future projects.	03000007, 03000008, 03000009, 03000010	Tarrant County				Watershed Planning - Drainage Master Plan	18.41632	Urban Flooding	City of Keller				
03100078	Anderson County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Anderson County				Watershed Planning - Drainage Master Plan	1073.748	Riverine, Urban	Anderson County				
03100079	Cooke County DMP	Evaluate County to identify future projects.	03000007, 03000008, 03000009, 03000010	Cooke County				Watershed Planning - Drainage Master Plan	893.2441	Riverine, Urban	Cooke County				
03100080	Fannin County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Fannin County				Watershed Planning - Drainage Master Plan	897.0308	Riverine, Urban	Fannin County				
03100081	Freestone County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Freestone County				Watershed Planning - Drainage Master Plan	888.3791	Riverine, Urban	Freestone County, Fairfield, Streetman, Teague, Wortham				
03100082	Houston County DMP	Evaluate County and Identify future projects.	03000007, 03000008, 03000009, 03000010	Houston County				Watershed Planning - Drainage Master Plan	1232.08	Riverine, Urban	Houston County				
03100083	Jack County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Jack County				Watershed Planning - Drainage Master Plan	917.5756	Riverine, Urban	Jack County				

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03100062										
03100063										
03100064										
03100065										
03100066										
03100067										
03100068										
03100069										
03100070										
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03100082										
03100083										

FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
03100084	Johnson County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Johnson County				Watershed Planning - Drainage Master Plan	731.0471	Riverine, Urban	Johnson County				
03100085	Leon County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Leon County				Watershed Planning - Drainage Master Plan	1076.136	Riverine, Urban	Leon County				
03100086	Liberty County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Liberty County				Watershed Planning - Drainage Master Plan	1169.763	Riverine, Urban	Liberty County				
03100087	Montague County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Montague County				Watershed Planning - Drainage Master Plan	933.4482	Riverine, Urban	Montague County				
03100088	Parker County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Parker County				Watershed Planning - Drainage Master Plan	903.0412	Riverine, Urban	Parker County, Willow Park				
03100089	Polk County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Polk County				Watershed Planning - Drainage Master Plan	1105.867	Riverine, Urban	Polk County, Livingston, Goodrich, Onalaska, Seven Oaks, Corrigan				
03100090	San Jacinto DMP	Evaluate County and Identify future projects.	03000007, 03000008, 03000009, 03000010	San Jacinto County				Watershed Planning - Drainage Master Plan	625.6851	Riverine, Urban	San Jacinto County, Coldspring, Point Blank, Shepherd				
03100091	Trinity County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Trinity County				Watershed Planning - Drainage Master Plan	710.015	Riverine, Urban	Trinity				
03100092	Van Zandt County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Van Zandt County				Watershed Planning - Drainage Master Plan	856.3715	Riverine, Urban	Van Zandt County				
03100093	Wise County DMP	Evaluate County and identify future projects.	03000007, 03000008, 03000009, 03000010	Wise County				Watershed Planning - Drainage Master Plan	919.7757	Riverine, Urban	Wise County				
03100094	Dallas County DMP and Vulnerability Assessment	Evaluate County to identify future projects. Risk and vulnerability assessment to determine the number of people, property and infrastructure exposed to flooding.	03000007, 03000008, 03000009, 03000010	Dallas County				Watershed Planning - Drainage Master Plan	905.1625	Riverine, Urban	Dallas County				
03100095	Merritt Road, Sachse Road, and Willow Lake Improvements	Hydrologic and Hydraulic Study of Stream 2E3, 2E4 and Willow Lake to determine causes of flooding along Merritt Rd and identify necessary drainage improvements.	03000005, 03000006, 03000007, 03000008	Collin County, Dallas County				Watershed Planning - H&H Modeling	41.9857		City of Sachse				
03100096	Richardson West Fork Cottonwood Creek Watershed Study	Richardson West Fork Cottonwood Creek Watershed Study	03000005, 03000006	Dallas County, Collin County				Watershed Planning - H&H Modeling	32.87911		Richardson				
03100097	Copper Canyon Poindexter Branch Flood Mitigation Plan	Copper Canyon Poindexter Branch Flood Mitigation Plan	03000005, 03000006, 03000007, 03000008	Denton County				Watershed Planning - H&H Modeling	6.519702		Copper Canyon				
03100098	Holiday Park North Drainage Study Update	Area 2	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	13.8159		City of Garland				
03100099	Buhler, Cresthaven, Madewell & Maryland Drainage Study Update	Area 4	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.6813		City of Garland				
03100100	Bellaire Heights Drainage Study Update	Area 5	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.6813		City of Garland				
03100101	Country Club Add., Club Hill Est., & Eastern Hills Est. Drainage Study Update	Area 6	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	5.984579		City of Garland				
03100102	Shorehaven-Garvon-Rosewood Terrace-Garland Heights-Freeman Heights-Range-Cooper-Barger Drainage Study Update	Area 7	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.6813		City of Garland				
03100103	Brentwood Place-Two Worlds-Apollo_East Park Village Drainage Study Update	Area 8	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	13.8159		City of Garland				
03100104	Ridgewood Park-Regal Estates-Meadowcreek Square Drainage Study Update	Area 9	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	6.473083		City of Garland				
03100105	Eastern Meadows-Southlake Estates-Greenbrook-Green Acres-Rosehill Acreage Drainage Study Update	Area 10	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	12.73468		City of Garland				
03100106	La Prada 7 & 8 Drainage Study Update	Area 11	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	6.473083		City of Garland				
03100107	Gateway Drainage Study Update	Area 12	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	6.473083		City of Garland				
03100108	Curtis Drive Drainage Study Update	Area 13	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.6813		City of Garland				
03100109	Center Creek Plaza 8 Southgate Estates Drainage Study Update	Area 14	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	6.473083		City of Garland				
03100110	Bluffview Drainage Study Update	Area 15	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	5.984579		City of Garland				
03100111	Camelot Drainage Study Update	Area 16	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	13.8159		City of Garland				
03100112	Downtown Drainage Study Update	Area 17	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.6813		City of Garland				
03100113	Main & Wilson Streets Drainage Study Update	Area 18	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	13.4799		City of Garland				
03100114	Royal Crest-Meadowview Drainage Study Update	Area 19	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	5.984579		City of Garland				
03100115	Garvon West, Innovation & Kingsley Ind. Park Drainage Study Update	Area 20	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.732004		City of Garland				

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031000115										

FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
031000116	Northlake & Castlewood Drainage Study Update	Area 21	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.460856		City of Garland				
031000117	Legend Drive Drainage Study Update	Area 22	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	4.6813		City of Garland				
031000118	Brazos Drive Drainage Study Update	Area 23	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	6.473083		City of Garland				
031000119	Sweetbriar-Glenrose Alley Drainage Study Update	Area 26	03000005, 03000006	Dallas County				Watershed Planning - H&H Modeling	8.7986		City of Garland				
031000120	Mc Adams Ditch Widening Project	Widen Mc Adams Ditch that crosses FM 3180 South	03000029, 03000030	Chambers County				Engineering Project Planning	2.235629		Chambers County				
031000121	Rhonda Rosa Lane Bridge	Construct bridge on Rhonda Rosa Lane in Ranches on Turtle Bayou to replace box culverts	03000003, 03000004, 03000029, 03000030	Chambers County				Engineering Project Planning	0.04416		Chambers County				
031000122	Hackberry Gully and Cotton Bayou Shelving Project	Shelving the entire length of Hackberry Gully and Cotton Bayou from South of I-10 to Cotton Lake; thereby increasing their flow capacity.	03000029, 03000030	Chambers County				Engineering Project Planning	24.55016		Chambers County				
031000123	Collin County Retention Structures Rehabilitation Project	Implement results of hazard/vulnerability assessment and inundation study on NRCS flood retention structures and rehabilitate structures found to be a high hazard	03000009, 03000010, 03000013, 03000014	Collin County				Engineering Project Planning	883.4201	Riverine	Collin County				
031000124	McMillen Rd Bridge Lift Project (Maxwell Creek)	Flood study to determine parameters to raise bridge at McMillen Rd to reduce flooding	03000003, 03000004	Collin County				Engineering Project Planning	10.29665		Wylie				
031000125	Cooke County Low-Water Crossing Barriers Project	Installation of automatic flood crossing barriers at low water crossing to prevent automobiles from driving through high water.	03000003, 03000004	Cooke County				Engineering Project Planning	893.2441		Cooke County				
031000126	Wheeler Creek Channelization Project	Channelization of Wheeler Creek to reduce flooding in the west side of town.	03000031, 03000032	Cooke County				Engineering Project Planning	39.50079		Gainesville				
031000127	Pecan Creek Channelization Project	Channelization project for Pecan Creek to reduce flooding.	03000031, 03000032	Cooke County				Engineering Project Planning	12.54815		Valley View				
031000128	Lindsay Waterways Improvements	Reshape waterways to allow quicker flow in areas that have regular flooding. Construction of Gabion retaining walls, and widening and/or deepening of the waterway.	03000031, 03000032	Cooke County				Engineering Project Planning	2.201927		Lindsay				
031000129	O'Neal St Low-Water Crossing Automatic Barrier Installation	Installation of an automatic barricade for low-water crossing on O'Neal St.	03000003, 03000004	Cooke County				Engineering Project Planning	10.33312		Gainesville				
031000130	Elm Fork Bridge Improvements	Alleviate flooding issues with the Elm Fork bridge on I-35.	03000003, 03000004, 03000031, 03000032	Cooke County				Engineering Project Planning	7.226984	Riverine, Urban	Gainesville				
031000131	Brockbank and Embassy Channel Basin Improvements	Channel improvement on Brockbank Channel Basin north of SH 183; Channel improvement on Embassy Channel Basin north of SH 183	03000031, 03000032	Dallas County				Engineering Project Planning	9.207256		Irving				
031000132	University Park Storm Water Infrastructure Improvements	Construction of new storm sewer inlets, mains, and underground detention system to reduce flooding in Northeast portion of the City	03000031, 03000032	Dallas County				Engineering Project Planning	3.68651	Riverine, Urban	University Park				
031000133	Exall and Wycliffe Dam Maintenance Protocol for Drainage Systems and Flood Control Structures	Develop and implement a maintenance protocol for Drainage Systems and Flood Control Structures in and around the Exall and Wycliffe Dams. Roadway reconstruction, culvert / bridge construction and associated bank protection and improvements.	03000033, 03000034	Dallas County				Engineering Project Planning	2.231735		Highland Park				
031000134	Farmers Branch Retention Pond Dredging	Dredge the retention ponds along the creeks within the City.	03000013, 03000014, 03000031, 03000032	Dallas County				Engineering Project Planning	12.01878	Riverine, Urban	Farmers Branch				
031000135	Ten Mile Creek Channel Expansion	Improve and increase the capacity of storm water system by expanding the Ten Mile Creek downstream channel to prevent flooding in flood prone areas to include structural stormwater management projects	03000031, 03000032	Dallas County				Engineering Project Planning	77.00207		Lancaster				
031000136	Hunterwood Stream Stabilization Project	Installation and maintenance of gabion walls to mitigate stream bank erosion during extreme flood events	03000031, 03000032, 03000033, 03000034	Dallas County				Engineering Project Planning	9.514258		Coppell				
031000137	Carrollton Flood Warning Barrier System	Procure and install flood warning barrier system to prevent motorists from driving into flooded areas.	03000003, 03000004	Dallas County				Engineering Project Planning	37.26516		Carrollton				
031000138	Westside Drive Drainage System and Street Reconstruct Project	Reconstruct Drainage System and Street in the 4500-4700 blocks of Westside Drive	03000031, 03000032	Dallas County				Engineering Project Planning	2.051189		Highland Park				
031000139	Garner Rd, Chiesa Rd, and Wayne Way Storm Drain System Improvements	Storm drain system redirection and improvements at Garner Rd, Chiesa Rd, and Wayne Way	03000031, 03000032	Dallas County				Engineering Project Planning	10.02064		Rowlett				
031000140	Cooks Creek Drainage Infrastructure Improvements	Improve the drainage infrastructure along Cooks Creek between Bee St and Spring Valley.	03000031, 03000032	Dallas County				Engineering Project Planning	6.255423		Farmers Branch				
031000141	Carrollton Drainage Upgrades	Upgrade drainage and targeted regrading of streets and properties. Add additional drains and supporting infrastructure in older neighborhoods to increase offloading of flash flood waters.	03000031, 03000032	Dallas County				Engineering Project Planning	37.26516		Carrollton				
031000142	Little Elm Drainage Improvements	Drainage improvements to mitigate future flash and lake flooding problems.	03000031, 03000032	Denton County				Engineering Project Planning	22.2939		Little Elm				
031000143	Shady Shores Rd Elevation Project	Elevate Shady Shores Rd to reduce future loss due to flooding	03000003, 03000004, 03000031, 03000032	Denton County				Engineering Project Planning	16.72174		Shady Shores				
031000144	Sanger Creek Waterways Reconstruction	Reconstruct creek waterways to correct drainage issues	03000031, 03000032	Denton County				Engineering Project Planning	11.72661		Sanger				
031000145	CR 1400 drainage study	Evaluate widening road and installing box drains where necessary.	03000003, 03000004, 03000031, 03000032	Henderson County				Engineering Project Planning	2.457839		Malakoff				
031000146	Malone Bridge Improvements	Elevate roadways in flood-prone areas through bridge improvements	03000003, 03000004, 03000031, 03000032	Hill County				Engineering Project Planning	0.394345		Malone				

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FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
031000147	FM 2114 Automated Flood Gate Installation	Install an automated flood gate that prevents traffic flow on FM 2114 within the flood-prone area during flooding events.	03000003, 03000004	Hill County				Engineering Project Planning	8.824934		Penelope				
031000148	Houston County dike for critical facilities	Build earthen dike to elevate emergency vehicle access road to critical facilities to provide protection to 500-year flood level	03000003, 03000004, 03000011, 03000012, 03000019, 03000020	Houston County				Engineering Project Planning	1232.08	Riverine, Urban	Houston County				
031000149	Grapeland Critical Facilities Floodproofing Assessment	Flood proof critical facilities to the 500-year flood that are located in flood-prone areas of the city	03000011, 03000012, 03000019, 03000020	Houston County				Engineering Project Planning	0.527835	Riverine, Urban	Grapeland				
031000150	Jack County WWTP and Lift Station Flood-Proofing.	Flood-proof sewage treatment plants in flood hazard / low-lying areas. Raise electrical components of sewage lift stations above the BFE.	03000019, 03000020	Jack County				Engineering Project Planning	917.5756	Riverine, Urban	Jack County				
031000151	County Rd 125 Automatic Warning Barricade Installation	Install automatic warning barricades at County Rd 125 low-water crossing	03000003, 03000004	Kaufman County				Engineering Project Planning	23.09261		Kaufman County				
031000152	City of Liberty WWTP Levee	Construct levee floodwall around waste water treatment plant	03000019, 03000020	Liberty County				Engineering Project Planning	42.26091	Riverine, Urban	City of Liberty				
031000153	Liberty County Re-canalization	Dechannelize existing feeder creeks that flow from north to south and improve drainage for storm water runoff	03000029, 03000030	Liberty County				Engineering Project Planning	1169.763		Liberty County				
031000154	Liberty County Culverts Upgrades	Reduce flooding by increasing size of culverts to 24 inches on County Rd 2361, 2362, 2363, and 2364 and CR 2358	03000003, 03000004, 03000029, 03000030	Liberty County				Engineering Project Planning	3.575908		Liberty County				
031000155	County Rd 2331 Re-Routing	Re-route County Rd 2331 to area not prone to flooding	03000013, 03000014, 03000031, 03000032	Liberty County				Engineering Project Planning	6.43647		Dayton Lake Estates				
031000156	"Aqueduct" Drainage System Replacement	Replace current drainage system known as the "Aqueduct" in the city. Includes creating underground drainage along North Main St	03000031, 03000032	Parker County				Engineering Project Planning	3.080678		Hudson Oaks				
031000157	Polk County Road and Drainage Improvements	Conduct road elevation and drainage improvements.	03000003, 03000004, 03000029, 03000030	Polk County				Engineering Project Planning	1105.867		Polk County				
031000158	Seven Oaks Drainage Ditches	Evaluate drainage ditch along city streets Camp Rd, Pickens Loop, Franklin Rd, Austin Street, and Hunt Street	03000031, 03000032	Polk County				Engineering Project Planning	7.890806		Seven Oaks				
031000159	Old 35 Sover Sampson Creek Bridge Elevation	Elevate bridge on Old 35 Sover Sampson Creek	03000003, 03000004	Polk County				Engineering Project Planning	4.854962		Goodrich				
031000160	Pennington Rd Culverts	Install multiple culverts under Pennington Rd	03000003, 03000004, 03000031, 03000032	Polk County				Engineering Project Planning	4.854962		Goodrich				
031000161	Seven Oaks Culvert Installation	Install multiple new culverts under Camp Rd, Pickens Loop, and Franklin Rd	03000003, 03000004, 03000031, 03000032	Polk County				Engineering Project Planning	7.890806		Seven Oaks				
031000162	San Jacinto County Drainage and Conveyance Capacity Improvements	Improve drainage and conveyance capacity for Big Creek.	03000029, 03000030	San Jacinto County				Engineering Project Planning	625.6851		Shepherd, San Jacinto County				
031000163	Rock Creek Road Improvements	Mitigate repetitive damages to Rocky Creek Rd sustained between 2015 - Present	03000003, 03000004, 03000029, 03000030	San Jacinto County				Engineering Project Planning	3.994466	Riverine, Urban	San Jacinto County, Shepherd				
031000164	Chipmunk Rd Culverts Replacement	Replace Chipmunk Rd culverts with a bridge	03000003, 03000004, 03000029, 03000030	San Jacinto County				Engineering Project Planning	3.719271		San Jacinto County, Shepherd				
031000165	Comanche Drive Culvert and Retention Wall Construction Project	Build a larger culvert and retention wall for watershed over low crossing on Comanche Drive	03000003, 03000004	Tarrant County				Engineering Project Planning	9.854984		Lake Worth				
031000166	Aton Storm Drain System Updates	Improve drainage capabilities on the Aton Storm drain system.	03000031, 03000032	Tarrant County				Engineering Project Planning	4.839253	Urban	Westworth Village				
031000167	Lower Hardisty Stormdrain Improvements	Conduct Lower Hardisty drain improvements	03000031, 03000032	Tarrant County				Engineering Project Planning	14.76084		Richland Hills				
031000168	Big Bear Creek, Little Bear Creek, and Marshall Branch Stream Bank Erosion Study	Study to reduce stream bank erosion impacts along Big Bear Creek, Little Bear Creek, and Marshall Branch to improve drainage within the City of Keller	03000031, 03000032	Tarrant County				Engineering Project Planning	734.8721		Keller				
031000169	Calloway Branch Erosion Control Installation	Install erosion control in Calloway Branch to eliminate erosion of stream bank	03000031, 03000032	Tarrant County				Engineering Project Planning	27.5144		Hurst				
031000170	Mansfield Stream Stabilization	Design and construct projects to protect public infrastructure and private property from damages due to streambank erosion. Projects could include Saddlehorn/Walnut Creek sewer interceptor aerial crossing and Brookfield Hogpen sewer interceptor	03000031, 03000032	Tarrant County				Engineering Project Planning	36.50386		Mansfield				
031000171	Turkey Creek Trail Bridge	Construct Bridge at Low-Water Crossing on Turkey Creek Trail.	03000003, 03000004	Wise County				Engineering Project Planning	4.940866		Bridgeport				
031000172	Turkey Creek Trail Rebuild	Rebuild Turkey Creek Trail from 9th Street to State Highway 114.	03000031, 03000032	Wise County				Engineering Project Planning	4.940866		Bridgeport				
031000173	West Bridgeport Creek Channelization and Drainage Project	West Bridgeport Creek Channelization and Drainage Project.	03000031, 03000032	Wise County				Engineering Project Planning	27.78795		Bridgeport				
031000174	North Weatherford St and Oakwood St Structure Improvements	Structure improvements -North Weatherford St in front of fire station and Oakwood St between Granada and El Camino.	03000031, 03000032	Wise County				Engineering Project Planning	5.837761		Chico				
031000175	Hurstview Drive Bridge Improvement - found road but not bridge?	Lorean watershed; \$390,000 cost estimate; from 2013 study	03000003, 03000004, 03000031, 03000032	Tarrant County				Engineering Project Planning	4.266773		City of Hurst				
031000176	Regional Detention at Mayfair Park	Valley View watershed; \$1,900,000 cost estimate; from 2017 study	03000013, 03000014, 03000031, 03000032	Tarrant County				Engineering Project Planning	3.298793		City of Hurst				

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FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
031000177	TRE & SH-10 Culvert Improvements	Valley View watershed; \$750,000 cost estimate; from 2017 study	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	27.5144		City of Hurst				
031000178	Pipeline Road Bridge Improvement	Walker watershed; \$1,700,000 cost estimate; from 2020 study	03000031, 03000032	Tarrant County				Engineering Project Planning	27.5144		City of Hurst				
031000179	Redbud Drive Bridge Improvement	Walker watershed; \$1,200,000 cost estimate; from 2020 study	03000031, 03000032	Tarrant County				Engineering Project Planning	4.266773		City of Hurst				
031000180	Northeast Mall Culvert Improvement	Walker watershed; \$11,600,000 cost estimate; from 2020 study	03000031, 03000032	Tarrant County				Engineering Project Planning	5.17349		City of Hurst				
031000181	Grand Parkway Culvert Crossing	Upsize cross-culverts to allow for developed flow	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Chambers County				Engineering Project Planning	8.604521		City of Mont Belvieu				
031000182	Cherry Point Gully	Construction of a diversion channel; channel improvements upstream of diversion; construction of regional detention basins as alternative to diversion channel construction	03000031, 03000032	Chambers County				Engineering Project Planning	5.64239		City of Mont Belvieu				
031000183	Cotton Bayou	Construction of diversion channel within irrigation canal ROW to drain to Old River; construction of detention basins as needed to serve new development; linear detention through channel improvements; expansion of existing detention basins	03000031, 03000032	Chambers County				Engineering Project Planning	24.55016		City of Mont Belvieu				
031000184	Belt Line Rd (FM1382) at Cottonwood Creek	Channel Improvements; \$4,502,500	03000031, 03000032	Dallas County				Engineering Project Planning	12.51662		City of Grand Prairie				
031000185	North Grand Prairie High School Pond Crossing	Gopher Creek 430 feet north of Small Hill St; channel improvements; \$159,500	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000186	Belt Line Rd at Plattner Creek	Channel Improvements; \$435,500	03000031, 03000032	Dallas County				Engineering Project Planning	2.619756		City of Grand Prairie				
031000187	Small Hill St at Gopher Creek	Channel Improvements; \$307,700	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000188	Carrier Parkway at Dalworth Creek	190 feet southeast of Capetown; Channel Improvements; \$1,092,000	03000031, 03000032	Dallas County				Engineering Project Planning	2.19092		City of Grand Prairie				
031000189	East Tarrant Rd at Gopher Creek	Channel Improvements; \$381,300	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000190	NE 5th St at Gopher Creek	Channel Improvements; \$390,200	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000191	Grass-covered Culvert at Dalworth Creek - cant find	520 feet west of Carrier Parkway; Channel Improvements; \$1,048,700	03000031, 03000032	Dallas County				Engineering Project Planning	2.19092		City of Grand Prairie				
031000192	High School Drive at Gopher Creek	Channel Improvements; \$402,400	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000193	Duncan Perry Rd at Johnson Creek	Channel Improvements; \$5,374,200	03000031, 03000032	Dallas County				Engineering Project Planning	20.9541		City of Grand Prairie				
031000194	Great Southwest Parkway at Cottonwood Creek Bridge and Roadway Raising Improvements (Stream Station 104+64)	Channel Improvements; \$9,538,300	03000031, 03000032	Dallas County				Engineering Project Planning	5.589483		City of Grand Prairie				
031000195	West Park Square Rd at Turner Branch	Channel Improvements; \$445,200	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000196	Carrier Parkway at Cottonwood Creek and South Fork Cottonwood Creek - Bridges	Channel Improvements; \$18,164,400	03000031, 03000032	Dallas County				Engineering Project Planning	5.589483		City of Grand Prairie				
031000197	3rd St at Cottonwood Creek and Cottonwood Creek from SW 3rd to FM 1382	Channel Improvements; \$12,733,000	03000031, 03000032	Dallas County				Engineering Project Planning	12.51662		City of Grand Prairie				
031000198	FM 661 at Mountain Creek (Future with Development)	Channel Improvements; \$7,750,000	03000031, 03000032	Dallas County				Engineering Project Planning	49.60626		City of Grand Prairie				
031000199	Green Hollow Drive North and South of Thornbush Drive	Storm Drain Improvements; \$247,000	03000031, 03000032	Dallas County				Engineering Project Planning	1.579697		City of Grand Prairie				
031000200	Carrier Parkway & Egyptian Way	Storm Drain Improvements; \$3,165,300	03000031, 03000032	Dallas County				Engineering Project Planning	20.9541		City of Grand Prairie				
031000201	East Pioneer Parkway & SE 14th St	Storm Drain Improvements; \$3,742,700	03000031, 03000032	Dallas County				Engineering Project Planning	5.19755		City of Grand Prairie				
031000202	Great Southwest Parkway & Pinewood Drive	Storm Drain Improvements; \$3,998,200	03000031, 03000032	Dallas County				Engineering Project Planning	4.588455		City of Grand Prairie				
031000203	Lake Park Drive and Victoria Drive	Storm Drain Improvements; \$1,094,100	03000031, 03000032	Dallas County				Engineering Project Planning	2.619756		City of Grand Prairie				
031000204	Regional Detention at Bowie Elementary School - find coordinates	Storm Drain Improvements; \$3,433,500	03000031, 03000032	Dallas County				Engineering Project Planning	2.338681		City of Grand Prairie				
031000205	Shady Grove Rd - Jones St Storm Drainage Improvements	Storm Drain Improvements; \$1,679,200	03000031, 03000032	Dallas County				Engineering Project Planning	1.767152		City of Grand Prairie				
031000206	Duncan Perry Rd, Heritage Court and Goodwin Branch - ?	Storm Drain Improvements; \$1,175,300	03000031, 03000032	Dallas County				Engineering Project Planning	1.767152		City of Grand Prairie				
031000207	Thousand Oaks Court	Storm Drain Improvements; \$742,700	03000031, 03000032	Dallas County				Engineering Project Planning	3.206578		City of Grand Prairie				
031000208	East Marshall Drive, Santa Cruz Circle & Belt Line Rd	Storm Drain Improvements; \$1,753,800	03000031, 03000032	Dallas County				Engineering Project Planning	2.619756		City of Grand Prairie				
031000209	East Main St & NE 14th St	Storm Drain Improvements; \$5,879,400	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000210	Marshall Drive from Emerald to SW 3rd	Storm Drain Improvements; \$3,603,100	03000031, 03000032	Dallas County				Engineering Project Planning	2.338681		City of Grand Prairie				
031000211	Varsity Drive and Christy St from Varsity to Mountain Creek Lake	Storm Drain Improvements; \$4,768,500	03000031, 03000032	Dallas County				Engineering Project Planning	7.817307		City of Grand Prairie				
031000212	SE 10th Street and Avion Parkway from Perman South to Culvert Crossing	Storm Drain Improvements; \$1,158,400	03000031, 03000032	Dallas County				Engineering Project Planning	2.338681		City of Grand Prairie				
031000213	SW 3rd Street from Dorris North to Concrete Channel	Storm Drain Improvements; \$4,024,800	03000031, 03000032	Dallas County				Engineering Project Planning	2.619756		City of Grand Prairie				
031000214	Bowles St & Hensley Drive	Storm Drain Improvements; \$1,295,700	03000031, 03000032	Dallas County				Engineering Project Planning	2.767222		City of Grand Prairie				
031000215	Manana Channel Improvements	Storm Drain Improvements; \$967,600	03000031, 03000032	Dallas County				Engineering Project Planning	3.206578		City of Grand Prairie				

FME ID	Estimated number of structures at flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road segment closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Existing or Anticipated Models (year)	Existing or Anticipated Maps (year)
031000177										
031000178										
031000179										
031000180										
031000181										
031000182										
031000183										
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FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
031000216	South of Bardin Rd and North of Newberry St	Storm Drain Improvements; \$2,007,600	03000031, 03000032	Dallas County				Engineering Project Planning	4.807257		City of Grand Prairie				
031000217	Cherokee Trace and Choctaw Trace to Clarice	Storm Drain Improvements; \$2,715,600	03000031, 03000032	Dallas County				Engineering Project Planning	2.338681		City of Grand Prairie				
031000218	Gilbert Rd Drainage Improvements	Storm Drain Improvements; \$5,825,500	03000031, 03000032	Dallas County				Engineering Project Planning	3.206578		City of Grand Prairie				
031000219	27th Street and Graham Street from Rinehart to Channel	Storm Drain Improvements; \$1,419,800	03000031, 03000032	Dallas County				Engineering Project Planning	1.60721		City of Grand Prairie				
031000220	East Marshall Drive & Avenue C, East Coral & SE 14th Street and in SE 14th Street & Bogarte Drive	Storm Drain Improvements; \$6,399,100	03000031, 03000032	Dallas County				Engineering Project Planning	5.19755		City of Grand Prairie				
031000221	Lakeview Drive & SE 14th Street	Storm Drain Improvements; \$3,570,700	03000031, 03000032	Dallas County				Engineering Project Planning	5.19755		City of Grand Prairie				
031000222	WE Roberts St & SW 16th St	Storm Drain Improvements; \$1,625,900	03000031, 03000032	Dallas County				Engineering Project Planning	5.589483		City of Grand Prairie				
031000223	Jelmak Rd - Hardrock Rd	Storm Drain Improvements; \$5,095,800	03000031, 03000032	Dallas County				Engineering Project Planning	3.142501		City of Grand Prairie				
031000224	Shady Grove Rd, Gilbert Rd, Wright Blvd	Storm Drain Improvements; \$2,860,900	03000031, 03000032	Dallas County				Engineering Project Planning	6.349079		City of Grand Prairie				
031000225	Parker Rd - Hardrock Rd	Storm Drain Improvements; \$5,760,800	03000031, 03000032	Dallas County				Engineering Project Planning	5.230644		City of Grand Prairie				
031000226	North Carrier Parkway & Main St to Dalworth Creek Channel	Storm Drain Improvements; \$8,803,700	03000031, 03000032	Dallas County				Engineering Project Planning	2.19092		City of Grand Prairie				
031000227	Pioneer Parkway from Brady to Plattner Creek (TXDOT)	Storm Drain Improvements; \$9,511,900	03000031, 03000032	Dallas County				Engineering Project Planning	2.619756		City of Grand Prairie				
031000228	NW 24th St & NW 23rd St from West Main to Ditch Near Dalworth St and Doreen St	Storm Drain Improvements; \$5,982,600	03000031, 03000032	Dallas County				Engineering Project Planning	2.19092		City of Grand Prairie				
031000229	Detention Basin at St. Michael's Church Vacant Property and Relief Storm Drains in Corn Valley Rd and Neighboring Streets from Santa Anna to Kirby Creek Channel	Storm Drain Improvements; \$18,766,400	03000031, 03000032	Dallas County				Engineering Project Planning	11.65431		City of Grand Prairie				
031000230	River Ridge Boulevard	Storm Drain Improvements; \$6,148,800	03000031, 03000032	Dallas County				Engineering Project Planning	7.925712		City of Grand Prairie				
031000231	East Grand Prairie Rd & 14th Street from Austin to Ditch South of Skyline	Storm Drain Improvements; \$8,549,300	03000031, 03000032	Dallas County				Engineering Project Planning	1.767152		City of Grand Prairie				
031000232	Shady Grove Rd	Storm Drain Improvements; \$6,737,200	03000031, 03000032	Dallas County				Engineering Project Planning	2.804848		City of Grand Prairie				
031000233	Various Streets and Alleys from Dallas Street West of NW 20th Street to Ditch Just South of WE Roberts Street	Storm Drain Improvements; \$10,656,800	03000031, 03000032	Dallas County				Engineering Project Planning	5.589483		City of Grand Prairie				
031000234	South Great Southwest Parkway from Warrior to Kirby Creek Concrete Channel North of Mayfield	Storm Drain Improvements; \$1,411,100	03000031, 03000032	Dallas County				Engineering Project Planning	2.836488		City of Grand Prairie				
031000235	South Great Southwest Parkway from North of Forum Drive to Prairie Creek Channel	Storm Drain Improvements; \$2,127,800	03000031, 03000032	Dallas County				Engineering Project Planning	5.760393		City of Grand Prairie				
031000236	South Great Southwest Parkway from Sherman to Cottonwood Creek	Storm Drain Improvements; \$6,881,500	03000031, 03000032	Dallas County				Engineering Project Planning	5.589483		City of Grand Prairie				
031000237	Arbor Creek Pedestrian Bridge Repair and Channel Bottom Stabilization	270 feet south of Johnson Creek and 290 feet east of SH 161; \$270,900	03000031, 03000032	Dallas County				Engineering Project Planning	21.14364		City of Grand Prairie				
031000238	Gopher Creek Stream Bottom Stabilization - creek?	downstream of NE 5th Street; between High School Drive and NE 5th Street; downstream of Belt Line Road; \$65,600 (?) + \$127,300; downstream of High School Drive; \$70,500	03000031, 03000032	Dallas County				Engineering Project Planning	3.194938		City of Grand Prairie				
031000239	Turner Branch Stream Bottom Stabilization - creek?	380 feet south of Small Hill Street to 450 feet north of East Tarrant Road; \$187,200 (?)	03000031, 03000032	Dallas County				Engineering Project Planning	3.837141		City of Grand Prairie				
031000240	Arbor Creek Channel Bottom Stabilization - creek?	Channelization, Stabilization, and Bank Armoring from SH 161 East to Johnson Creek Confluence; \$2,096,900; from Duncan Perry to SH 161; \$991,600	03000031, 03000032	Dallas County				Engineering Project Planning	2.629		City of Grand Prairie				
031000241	North Fork of Cottonwood Creek Stabilization	from Great Southwest to Carrier; \$214,900	03000031, 03000032	Dallas County				Engineering Project Planning	1.347155		City of Grand Prairie				
031000242	Kirby Creek Channel Lining Replacements	from 800 feet east of Great Southwest to West of Waterwood; just north of Kildeer cul-de-sac and from Waterwood East to End of Channel Lining just east of Greenwista; \$1,267,200	03000031, 03000032	Dallas County				Engineering Project Planning	2.836488		City of Grand Prairie				
031000243	Dry Branch Stream Bottom Stabilization	300 feet south of Rock Island (2 locations); \$91,300	03000031, 03000032	Dallas County				Engineering Project Planning	0.74639		City of Grand Prairie				
031000244	Johnson Creek Avenue J Stabilization	Bridge abutment repair and channel bank stabilization; \$168,500	03000031, 03000032	Dallas County				Engineering Project Planning	20.9541		City of Grand Prairie				
031000245	Garden Branch Stabilization - creek?	Channel bottom stabilization from Camp Wisdom to Great Southwest; \$176,100	03000031, 03000032	Dallas County				Engineering Project Planning	0.71651		City of Grand Prairie				
031000246	Warrior Creek Stabilization	From Great Southwest to South Fork Cottonwood Creek; \$518,500	03000031, 03000032	Dallas County				Engineering Project Planning	10.17794		City of Grand Prairie				
031000247	Dalworth Creek Stabilization	Repair of gabions and protection of wastewater crossing downstream of I-30; \$402,000; from Dalworth Street to Roman; \$278,900	03000031, 03000032	Dallas County				Engineering Project Planning	2.19092		City of Grand Prairie				
031000248	South Fork Cottonwood Creek	from Great Southwest to Carrier; \$781,200	03000031, 03000032	Dallas County				Engineering Project Planning	4.588455		City of Grand Prairie				
031000249	Willis Branch Stabilization	Dam removal and south channel bank stabilization just west of Devon cul-de-sac; \$48,600; from Great Southwest to Sheffield; \$200,700	03000031, 03000032	Dallas County				Engineering Project Planning	7.295641		City of Grand Prairie				
031000250	Johnson Creek Stabilization	Replacement of failed inline channel structure 500 feet east of SH 161 and channel sediment removal; \$1,979,000; south channel bank stabilization north of Babbling Brook from Quest to Shadow Pass; \$831,700; north channel bank stabilization north of North Great Southwest Dead-end near Hidden Brook Drive; \$213,800; north bank stabilization 250 feet east of SH-360 crossing; \$454,800	03000031, 03000032	Dallas County				Engineering Project Planning	20.9541		City of Grand Prairie				
031000251	Henry Branch Stream Stabilization	from apartments at 1000 South Belt Line to Grand Prairie Road; \$127,900	03000031, 03000032	Dallas County				Engineering Project Planning	2.338681		City of Grand Prairie				
031000252	Plattner Creek Stabilization	from FM 1382 to City Limits of Dallas, west of SE 14th; \$252,900	03000031, 03000032	Dallas County				Engineering Project Planning	2.619756		City of Grand Prairie				
031000253	Prairie Creek Stabilization	from upstream of Great Southwest Pkwy to upstream of Robinson Road; \$606,900	03000031, 03000032	Dallas County				Engineering Project Planning	5.760393		City of Grand Prairie				
031000254	Stuart Branch Stabilization	from 460 feet north of Sanctuary Drive and 350 feet northeast of Nature Court cul-de-sac to Joe Pool Lake (future with development); \$349,700	03000031, 03000032	Dallas County				Engineering Project Planning	6.21219		City of Grand Prairie				

FME ID	Estimated number of structures at flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road segment closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Existing or Anticipated Models (year)	Existing or Anticipated Maps (year)
031000216										
031000217										
031000218										
031000219										
031000220										
031000221										
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031000223										
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031000254										

FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
031000255	Swadley Branch Stabilization	from 2200 feet south of Koscher Drive to Joe Pool Lake (future with development); \$286,800	03000031, 03000032	Dallas County				Engineering Project Planning	3.600594		City of Grand Prairie				
031000256	Mills Branch Stabilization	from 880 feet south of South Periwinkle Court cul-de-sac to Joe Pool Lake (future with development); \$599,300	03000031, 03000032	Dallas County				Engineering Project Planning	3.600594		City of Grand Prairie				
031000257	Tarrell Creek Stabilization	from a Stream Point 2420 feet south of South Periwinkle Court cul-de-sac and 800 feet east of South Periwinkle Court cul-de-sac to Joe Pool Lake (future with development); \$747,200	03000031, 03000032	Dallas County				Engineering Project Planning	3.600594		City of Grand Prairie				
031000258	Jackson Meadows Pond Erosion Control	Erosion control measures around three pond headwalls to decrease flow velocity.	03000031, 03000032	Collin County, Dallas County				Engineering Project Planning	6.055942		City of Sachse				
031000259	Long Branch Channel Improvements (Dewitt to Ingram)	Channel improvements to replace a failed headwall and reduce erosive velocities. Sewer line relocation to protect against potential failure due to erosion.	03000031, 03000032	Collin County, Dallas County				Engineering Project Planning	6.055942		City of Sachse				
031000260	North Colony Blvd. at Powers Street	Streams SC-1A Drainage Study and storm drain upgrades to deal with flooding	03000005, 03000006, 03000007, 03000008, 03000009, 03000010	Denton County				Engineering Project Planning	2.951196		City of The Colony				
031000261	Office Creek Drainage Study	updated Drainage Study and Improvements at Five Star Park	03000005, 03000006, 03000007, 03000008, 03000009, 03000010	Denton County				Engineering Project Planning	2.47604		City of The Colony				
031000262	Bill Allen Park Erosion Repairs	Blair Oaks Drive to Good Shepherd Lutheran Church	03000031, 03000032	Denton County				Engineering Project Planning	5.288741		City of The Colony				
031000263	Johnson County Low Water Crossings - East Side	Hydraulic evaluation to determine how to reduce flooding risk at multiple low water crossings.	03000003, 03000004, 03000009, 03000010	Johnson County				Engineering Project Planning	731.0471		Johnson County				
031000264	Johnson County Low Water Crossings - West Side	Hydraulic evaluation to determine how to reduce flooding risk at multiple low water crossings.	03000003, 03000004, 03000009, 03000010	Johnson County				Engineering Project Planning	731.0471		Johnson County				
031000265	Tributary SB-1: Circle Lane Culvert Improvements	Evaluate and define necessary culvert improvements.	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	4.507311		City of Bedford				
031000266	Tributary SB-1: Shirley Way Culvert Improvements	Evaluate and define necessary culvert improvements.	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	4.507311		City of Bedford				
031000267	Tributary SB-1: Briar Drive Culvert Improvements	Evaluate and define necessary culvert improvements.	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	4.507311		City of Bedford				
031000268	Tributary SB-1: Schumac Lane Culvert Improvements	Evaluate and define necessary culvert improvements.	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	10.58418		City of Bedford				
031000269	Tributary SB-1: Donna Lane Culvert Improvements	Evaluate and define necessary culvert improvements.	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	4.507311		City of Bedford				
031000270	Sulphur Branch: Circle Lane Culvert Improvements	Evaluate and define necessary culvert improvements.	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	4.507311		City of Bedford				
031000271	Sulphur Branch: Bedford Road Culvert Improvements	Evaluate and define necessary culvert improvements.	03000003, 03000004, 03000009, 03000010, 03000031, 03000032	Tarrant County				Engineering Project Planning	2.249681		City of Bedford				
031000272	Fairfield South Bateman Drainage Study	Fairfield South Bateman Drainage Study	03000005, 03000006	Freestone County				Engineering Project Planning	8.847814		Fairfield				
031000273	City of Plano - Citywide Drainage Improvements	Citywide drainage improvements for areas with history of flooding.	03000031, 03000032	Collin				Engineering Project Planning	71.85863	Urban Flooding/Riverine	City of Plano				
031000274	Collin County flooding hazard/vulnerability assessment	Develop and implement a hazard/vulnerability assessment for personal properties and structures located in the floodplain.	03000013, 03000014	Collin County				Studies on Flood Preparedness	883.4201	Riverine, Urban	Collin County				
031000275	Houston County Lake Dam Emergency Action Plan	Develop Emergency Action Plan for Houston County Lake Dam	03000001, 03000002	Houston County				Studies on Flood Preparedness	1232.08	Riverine, Urban	Houston County				

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031000255										
031000256										
031000257										
031000258										
031000259										
031000260										
031000261										
031000262										
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031000275										

FME ID	FME Name	Description	Associated Goal No.	Counties	HUC8s	HUC12s	Watersheds	Study Type	FME Area (sqmi)	Flood Risk Type	Sponsor	Entities with Oversight	Emergency Need	Estimated Study Cost	Potential Funding Sources and Amount
031000276	Grayson County Dams Compliance Assessment	Determine owners of all high and significant hazard dams and obtain copies of all EAPs. Obtain available dam failure impact data necessary for determining the most appropriate mitigation approach that would achieve compliance with the State's TCEQ regulations for all high and significant hazard dams.	03000001, 03000002, 03000029, 03000030, 03000039, 03000040	Grayson County				Studies on Flood Preparedness	976.7403	Riverine, Urban	Grayson County				
031000277	Denton County USDA Dam Studies and Rehabilitation	USDA Dam Studies and Rehabilitation	03000009, 03000010, 03000029, 03000030	Denton County				Other - Dam Studies	948.686	Riverine, Urban	Denton County				

FME ID	Estimated number of structures at flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road segment closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Existing or Anticipated Models (year)	Existing or Anticipated Maps (year)
031000276										
031000277										

Attachment 6

Task 4C.1i – List Potentially Feasible FMPs

FMP ID	FMP Name	Description	Associated Goals (ID)	Counties	HUC12s	Watersheds	Project Type	Project Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa, Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Project Cost (\$)	Potential Funding Sources and Amount	Flood Risk										
															Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at 100-year flood risk	Estimated Population at 100-year flood risk	Critical facilities at 100-year flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at 100-year flood risk (Miles)	Estimated farm & ranch land at 100-year flood risk (acres)	
033000001	Town Creek Railroad Improvements	Due to the backwater caused by the undersized Railroad crossing, this alternative recommends improving the capacity of the crossing. The existing crossing contains two 12' x 10' RCB's. This alternative suggests an additional 12' x 10' RCB. The additional capacity at the Railroad crossing provides the most benefit to inundated structures in the 25-year event. Modeling shows that 14 structures will be removed from 1-foot of inundation in the 25-year storm event after the completion of the Railroad alternative alone.	03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	27.94031		Burleson															
033000002	Town Creek S. Warren Street Improvements	It is proposed to provide an accessible crossing between SW Johnson Ave. and the Railroad in the event of a frequent flooding event. FNI suggests the most feasible location to provide a safe crossing during lower storm events is at S Warren Street. While currently the four 9' x 6' RCB's are overtopped during the 2-year storm event, it is proposed to raise the road approximately 2.5 feet and replace the existing culverts with (5) 12' x 8' RCB's.	03000007, 03000008, 03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	27.94031		Burleson															
033000003	Town Creek Warren Park Extension	This alternative proposes voluntary acquisitions of structures at risk of flooding and extending the existing Warren Park. Based on modeling results, 19 structures that were once inundated over 1-foot can be bought by the City and the property can be converted into a park, effectively extending Warren Park.	03000013, 03000014, 03000021, 03000022	Tarrant			Property or Easement Acquisition	27.94031		Burleson															
033000004	Shannon Creek - Culvert to South Shannon Creek	This alternative proposes increasing the capacity of the culverts beneath the commercial development by adding two 11' x 8' RCB's that follow the right-of-way along the northern side of the existing development in addition to the existing two 10' x 8' RCB's that are located beneath the existing development. Results indicate that increasing the culvert capacity alone does not entirely mitigate the street flooding; therefore, channel improvements (including 12,000 cubic yards of excavation) downstream of the development is necessary due to the insufficient capacity of South Shannon Creek downstream of the culvert.	03000007, 03000008, 03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	27.94031		Burleson															
033000005	Shannon Creek - Culvert to Main Stem Shannon Creek	This alternative recommends facilitating the flow from South Shannon Creek to the main stem Shannon Creek with two 11' x 8' RCB's along SW Wilshire Blvd for 1,900 LF.	03000007, 03000008, 03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	27.94031		Burleson															
033000006	Town and Shannon Creek Crossing Safety Improvements	4 crossings; Safety improvements may include, but are not limited to, high-water warning flashers, staff gauges, flood hazard signs, and additional light fixtures. The four crossings analyzed include SE Tarrant Ave, N Warren St, SW Johnson Ave, and SE Newton Dr.	03000001, 03000002, 03000003, 03000004	Tarrant			Flood Early Warning Systems	27.94031		Burleson															
033000007	Spring Meadows Estates Detention Pond Design	Pond redesign and reconstruction to lower normal pool elevation to be below inlets upstream. Increase storage capacity and design outlet works to increase level of service to 100-yr storm event.	03000013, 03000014, 03000031, 03000032	Dallas			Regional Detention	9.900977		Sachse															
033000008	West Irving Creek Phases 2, 3, and 4	FIF - 13792; The West Irving Creek channel improvements project consists of reconstruction of over 2.5 miles of shallow trapezoidal concrete channel as deeper vertical walled channel to increase capacity and relieve historical flooding issues. The vertical walled channels allow the project to remain within a similar footprint as the existing channel to minimize easement needs and impacts to private properties while meeting the flood carrying capacity goals of the project. The channel improvements will also require the reconstruction of 15 road crossings and several miles of wastewater main. In conjunction with the channel improvements upstream detention improvements will be made as well as the implementation of water quality ponds to reduce pollutant load in the channel and to provide amenity to the adjoining neighborhoods.	03000007, 03000008, 03000021, 03000022, 03000027, 03000028, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	67.58862		Irving															
033000009	University Park Storm Water Improvements for Area 2	University Park Storm Water Improvements for Area 2; unfunded FIF #13578	03000031, 03000032	Dallas			Storm Drain Improvements	3.687842		University Park															
033000010	University Park Storm Water Improvements for Area 1 Phase 2	University Park Storm Water Improvements for Area 1 Phase 2; unfunded FIF #13576	03000007, 03000008, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	3.687842		University Park															
033000011	Kennedale Valley Lane Streambank Stabilization	Kennedale Valley Lane Streambank Stabilization; unfunded FIF #13793	03000009, 03000010, 03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	6.653221		Kennedale															

FMP ID	Reduction in Flood Risk												Pre-Project Level-of-Service	Post-Project Level-of-Service	Cost/Structure removed	Percent Nature-based Solution (by cost)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Social Vulnerability Index (SVI)	Water Supply Benefit (Y/N)	Traffic Count for Low Water Crossings	Benefit-Cost Ratio
	Number of structures with reduced 100yr (1% annual)	Number of structures removed from 100yr (1% annual)	Number of structures removed from 500yr (0.2% annual)	Residential structures removed from 100yr (1% annual)	Estimated Population removed from 100yr (1% annual)	Critical facilities removed from 100yr (1% annual)	Number of low water crossings removed from 100yr	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr	Estimated farm & ranch land removed from 100yr flood risk	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)										
033000001																						
033000002																						
033000003																						
033000004																						
033000005																						
033000006																						
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033000008																						
033000009																						
033000010																						
033000011																						

FMP ID	FMP Name	Description	Associated Goals (ID)	Counties	HUC12s	Watersheds	Project Type	Project Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa, Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Project Cost (\$)	Potential Funding Sources and Amount	Flood Risk								
															Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at 100-year flood risk	Estimated Population at 100-year flood risk	Critical facilities at 100-year flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at 100-year flood risk (Miles)
03300012	University Park Storm Water Improvements for Area 1 Phase 3	University Park Storm Water Improvements for Area 1 Phase 3; unfunded FIF #13577	03000031, 03000032	Dallas			Storm Drain Improvements	3.687842		University Park													
03300013	Highland Park Wycliffe Avenue Improvements	Highland Park Wycliffe Avenue Improvements; unfunded FIF #13778	03000007, 03000008, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	2.228036		Highland Park													
03300014	Richardson Cottonwood Creek Headwaters Drainage Improvements	Richardson Cottonwood Creek Headwaters Drainage Improvements; unfunded FIF #13733	03000007, 03000008, 03000031, 03000032	Collin, Denton			Infrastructure (channels, ditches, ponds, pipes, etc.)	28.64373		Richardson													
03300015	Richardson N. Plano Road Culvert Improvements at Huffhines Creek	Richardson N. Plano Road Culvert Improvements at Huffhines Creek; unfunded FIF #13734	03000003, 03000004, 03000031, 03000032	Collin, Denton			Infrastructure (channels, ditches, ponds, pipes, etc.)	28.64373		Richardson													
03300016	Arlington VC(A)-1 Drainage and Erosion Improvements	Arlington VC(A)-1 Drainage and Erosion Improvements; unfunded FIF #13646	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	101.8808		Arlington													
03300017	Western Heights Drainage Improvements	Area 1 Stream 2C5; The proposed system would begin near the intersection of Doss Drive and Matador Drive. It would include adding additional curb inlets north of March Lane to capture excess runoff that would contribute to existing flooding conditions in March Lane. Due to the proposed inlets and greater runoff captured in the proposed system, the existing line from March Lane to the outlet into Keen Creek would also have to be replaced for greater capacity.	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	56.0813		Garland													
03300018	Saturn Springs Estates Drainage Improvements	Area 3 Streams 2C3 and 2C4; Increasing storm drain pipe sizes along with other improvements is sufficient to manage flooding in this drainage basin. Pave and grade the alley between Briarwood and Overhill Drives to improve overland flow to the storm inlet there. In addition to upsizing pipe sizes as in Option 1, new lateral lines will be installed along Briarwood, Glenbrook and Overhill Drives to collect drainage and prevent overland flow. Install new drainage lines along Saturn Springs, Larry Drive and Kynn Drive to relieve systems in the area and prevent overland flow.	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	56.0813		Garland													
03300019	Lakewood Addition Drainage Improvements	Area 24; The proposed improvements to Storm Sewer D would be intended to provide relief to houses in the vicinity of Lakeside Drive by capturing additional runoff and reduce the flows that are contributing to Lakeside Drive. A secondary benefit to the proposed improvements in Storm Sewer D would be to provide relief to the houses in the vicinity of Meadowcrest Drive by reducing the excess runoff contributing to Meadowcrest Drive and reduce the ponding water depths at the low point near 1826 Meadowcrest Drive.	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	56.0813		Garland													
03300020	Montclair No 2 & 3 Drainage Improvements	Area 25; The proposed recommended alternative considers the addition of new inlets along the three feeder roads into La Jolla Drive: Intervale Drive, Tahoe Drive, and Mill River Drive. This would allow for surface runoff to be introduced to an underground drainage system earlier rather than collection along La Jolla Drive and its current undersized system. This proposed mitigation is expected to reduce flooding experienced by the residents along La Jolla Drive.	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	56.0813		Garland													
03300021	Centerville Market Place Drainage Improvements	Area 27; The proposed solutions included in this report will mitigate flooding caused by the ultimate flow scenario. It is recommended that the City of Garland encourage the practices of low impact development (LID) and other strategies to reduce the quantity of runoff reaching the city's storm water infrastructure.	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	56.0813		Garland													
03300022	Shady Lane Drainage Improvements	The study consists of 6 potential alternatives to address flooding issues. The report includes H & H models in support of the floodplain reclamation analysis.	03000013, 03000014, 03000021, 03000022	Dallas			Property Acquisition	56.0813	Riverine	Garland													
03300023	Drainage Improvements for Stream 2C5, Keen Creek, From North Barnes Drive to North Yale Drive	Evaluate existing drainage conditions for the area and determine the current areas impacted by flooding from the stream. It includes developing recommendations to reduce flooding and erosion impacts throughout the study area.	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	56.0813	Riverine	Garland													

FMP ID	Reduction in Flood Risk												Pre-Project Level-of-Service	Post-Project Level-of-Service	Cost/Structure removed	Percent Nature-based Solution (by cost)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Social Vulnerability Index (SVI)	Water Supply Benefit (Y/N)	Traffic Count for Low Water Crossings	Benefit-Cost Ratio
	Number of structures with reduced 100yr (1% annual)	Number of structures removed from 100yr (1% annual)	Number of structures removed from 500yr (0.2% annual)	Residential structures removed from 100yr (1% annual)	Estimated Population removed from 100yr (1% annual)	Critical facilities removed from 100yr (1% annual)	Number of low water crossings removed from 100yr	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr	Estimated farm & ranch land removed from 100yr flood risk	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)										
033000012																						
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FMP ID	FMP Name	Description	Associated Goals (ID)	Counties	HUC12s	Watersheds	Project Type	Project Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa, Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Project Cost (\$)	Potential Funding Sources and Amount	Flood Risk											
															Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at 100-year flood risk	Estimated Population at 100-year flood risk	Critical facilities at 100-year flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at 100-year flood risk (Miles)	Estimated farm & ranch land at 100-year flood risk (acres)		
033000024	Miami Drive Drainage Improvements	This study included a hydraulic analysis and recommendations to mitigate for bank erosion on stream 2C-1.	03000007, 03000008, 03000009, 03000010, 03000031, 03000032	Dallas			Infrastructure (channels, ditches, ponds, pipes, etc.)	56.0813	Riverine	Garland																
033000025	Arlington Bonneville/Greenbrook Drainage Improvements	Arlington Bonneville/Greenbrook Drainage Improvements; unfunded FIF project	03000007, 03000008, 03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	101.8808		Arlington																
033000026	Arlington California Lane Drainage Improvements	Arlington California Lane Drainage Improvements; unfunded FIF project	03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	101.8808		Arlington																
033000027	Arlington Harvest Hills Channel and Drainage Improvements	Arlington Harvest Hills Channel and Drainage Improvements; unfunded FIF project	03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	101.8808		Arlington																
033000028	Arlington Randol Mill (Cooper to Collins)	Arlington Randol Mill (Cooper to Collins); unfunded FIF project	03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	101.8808		Arlington																
033000029	Arlington Stream CC2 Drainage Improvements	Arlington Stream CC2 Drainage Improvements; unfunded FIF project	03000031, 03000032	Tarrant			Infrastructure (channels, ditches, ponds, pipes, etc.)	101.8808		Arlington																

FMP ID	Reduction in Flood Risk												Pre-Project Level-of-Service	Post-Project Level-of-Service	Cost/Structure removed	Percent Nature-based Solution (by cost)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Social Vulnerability Index (SVI)	Water Supply Benefit (Y/N)	Traffic Count for Low Water Crossings	Benefit-Cost Ratio
	Number of structures with reduced 100yr (1% annual)	Number of structures removed from 100yr (1% annual)	Number of structures removed from 500yr (0.2% annual)	Residential structures removed from 100yr (1% annual)	Estimated Population removed from 100yr (1% annual)	Critical facilities removed from 100yr (1% annual)	Number of low water crossings removed from 100yr	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr	Estimated farm & ranch land removed from 100yr flood risk	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)										
033000024																						
033000025																						
033000026																						
033000027																						
033000028																						
033000029																						

Attachment 7

Task 4C.1i – List Potentially Feasible FMSs

FMS ID	FMS Name	Description	Associated Goals (ID)	Counties	HUC10s	Watersheds	Strategy Type	Strategy Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Strategy Cost (\$)	Potential Funding Sources and Amount
03200001	Lavon Warning System	Expand the Early Warning Sirens and Local Warning System to notify new populations of impending severe weather or imminent hazards to reduce the loss of life and mitigate the effects of the hazards	03000001, 03000002	Collin County			Flood Warning Systems	3.061617		Lavon				
03200002	Lindsay Flood Warning and Public Safety Improvements	Citywide "reverse 911" to enable local emergency officials to notify emergency information pertaining to flood advisories, flood warnings, and flood evacuations. Stream flow and rain gauges to monitor water levels on local streams and tributaries that have a history of flooding.	03000001, 03000002	Cooke County			Flood Warning Systems	1.585856		Lindsay				
03200003	Dallas County Addition of Low Water Crossing Signs and Gates	Identify and add low water crossing signs and gates to low water crossing areas as described in The Road to The Future Report	03000001, 03000002, 03000003, 03000004	Dallas County			Flood Warning Systems	67.95843		Irving				
03200004	Richardson Flood Warning and Public Safety Improvements	Monitor streams and waterways for potential flooding problems including installation of gauges, sensors, and precipitation measuring sites.	03000001, 03000002	Dallas County			Flood Warning Systems	28.66611		Richardson				
03200005	Timber Creek Flood Warning System Installation	Purchase and Install Flood Warning Systems in Key Areas Along Timber Creek	03000001, 03000002	Denton County			Flood Warning Systems	3.245447		Lewisville				
03200006	Houston County Stream and Rain Gauge Installation	Install stream and rain gauges in flood prone areas and waterways as part of new alert notification system	03000001, 03000002	Houston County			Flood Warning Systems	818.0052		Houston County				
03200007	Hunt County Flood Warning and Public Safety	Adopt and Promote the program of "Turn Around Don't Drown Campaign." Implement early warning program.	03000001, 03000002, 03000003, 03000004	Hunt County			Flood Warning Systems	29.35304		Hunt County				
03200008	City of Kemp Siren Notification System	Install siren notification system for disasters, including dam failure of Kemp Lake Dam	03000001, 03000002	Kaufman County			Flood Warning Systems	2.516948		Kemp				
03200009	Leon County Local Flood Warning System	This action proposes a local flood warning system to reduce the potential impacts of future flood events	03000001, 03000002	Leon County			Flood Warning Systems	811.3662		Leon County				
03200010	Rockwall County Warning Signs and Flood Control Gates	Install automatic flood warning gates to prevent access into flooded areas. Install warning signs and flood control	03000001, 03000002, 03000003, 03000004	Rockwall County			Flood Warning Systems	148.5548		Rockwall County				
03200011	Chambers Creek Stream Flow Monitoring System	Implement a Stream Flow Monitoring system that will allow for historical tracking and constant monitoring of water levels to assist with early warnings to residents	03000001, 03000002	Tarrant County			Flood Warning Systems	1.751943		Everman				
03200012	Creek Level Monitoring Systems and Weather Stations Installation	Install creek level monitoring systems and weather stations	03000001, 03000002	Tarrant County			Flood Warning Systems	902.8067		Mansfield				
03200013	Dalworthington Flood Warning System	Purchase and install a technological based high water detection system for low water crossings to mitigate the hazards when the location floods	03000001, 03000002, 03000003, 03000004	Tarrant County			Flood Warning Systems	1.821882		Dalworthington				
03200014	Colleyville Flood Warning System	Enhance high water warning system by adding automatic gates on the streets that normally flood	03000001, 03000002, 03000003, 03000004	Tarrant County			Flood Warning Systems	13.22029		Colleyville				
03200015	Haslet Flood Warning System	Install flood warning devices to low water crossing.	03000001, 03000002, 03000003, 03000004	Tarrant County			Flood Warning Systems	9.338147		Haslet				
03200016	Additional Rain/Stream Gauges for 13 locations	West Fork Trinity River at MacArthur Blvd, Bowman Creek at Mirabella Blvd, Cottonwood Creek at Robinson Road, Johnson Creek at Duncan Perry Road, Foster Branch at Seeton Road, Mountain Creek at county road FM 661, Carrier Parkway underneath I-20, Robinson Road underneath I-20, Dalworth Creek at NW 22nd Street, Soap Creek at Prairie Ridge, Johnson Creek at High flow bypass outlet, Kirby Creek at Robinson Road, Lakeridge at Fish Creek	03000001, 03000002	Dallas County			Flood Warning Systems	87.5568		Grand Prairie				
03200017	Additional Low Water Crossing Flashing Lights and Automated Gates	Duncan Perry Road between Ave K and Sherwood Drive, Riverside Pkwy LWC (lights already in place need gates added), SW 3rd from Phillips Ct to Dickey Road (gates being added in September 2021)	03000003, 03000004	Dallas County			Flood Warning Systems	87.5568		Grand Prairie				
03200018	Grayson County Flood Warning and Public Safety Improvements	Create improved gauge notification system. Increased Public Awareness prior to occurrences and during flooding.	03000001, 03000002	Grayson County			Flood Warning Systems	343.5406		Grayson County				
03200019	Dallas County Floodplain Management	Manage the Floodplain beyond the minimum requirements. This action will include developing an incentive program for building above the required freeboard minimum	03000005, 03000006	Dallas County			Floodplain Management Policy	908.0262		Dallas County				
03200020	Anderson County Structure Permitting Requirement Update	Increase freeboard requirements for permitting structures in the SFHA; Adopt a "no-rise" in BFE in the 100-year floodplain; Update local flood ordinance to prohibit granting of variance in SFHA	03000011, 03000012, 03000025, 03000026	Anderson County			Floodplain Management Policy	1078.46		Anderson County				
03200022	Flood Protection Ordinance Updates	Develop and Implement a City and Town flood protection ordinance	03000005, 03000006	Denton County			Floodplain Management Policy	60.10798		Corinth, Hickory Creek, Lake Dallas, Little Elm, Shady Shores, The Colony,				
03200023	Hill County Flooding Regulations Update	Catalog, evaluate, and update any floodplain regulations within the City to comply with the latest FEMA regulations.	03000011, 03000012, 03000025, 03000026	Hill County			Floodplain Management Policy	986.2728		Hill County				
03200024	Freestone County Flood Damage Prevention Ordinance	Develop and Implement a Flood Damage Prevention Ordinance	03000011, 03000012, 03000025, 03000026	Freestone County			Floodplain Management Policy	788.6512		Freestone County				
03200025	Caney City Floodproofing Ordinances	Implement ordinances to ensure new housing developments meet current floodproofing, as well as ensure that critical facilities owned by jurisdiction are protected from flood.	03000025, 03000026	Henderson County			Floodplain Management Policy	1.210552		Caney City				
03200026	Leon County Floodplain Construction Restrictions Re-Evaluation	This action proposes a re-evaluation of all existing floodplain construction restrictions to identify strengths and weaknesses in order to reduce future damages during flood events	03000025, 03000026	Leon County			Floodplain Management Policy	811.3662		Leon County				
03200027	Rockwall County Flood Prevention Ordinance	Update Flood Prevention ordinance, adopting a "no-rise" in Base Flood Elevation in the 100-year floodplain	03000011, 03000012, 03000025, 03000026	Rockwall County			Floodplain Management Policy	8.495173		Royse City				

FMS ID	Flood Risk										Reduction in Flood Risk												
	Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Number of structures with reduced 100yr (1% annual chance) Flood risk	Number of structures removed from 100yr (1% annual chance) Flood risk	Number of structures removed from 500yr (0.2% annual chance) Flood risk	Habitable structures removed from 100yr (1% annual chance) Flood risk	Estimated Population removed from 100yr (1% annual chance) Flood risk	Critical facilities removed from 100yr (1% annual chance) Flood risk (#)	Number of low water crossings removed from 100yr (1% annual chance) Flood risk (#)	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr flood risk (Miles)	Estimated active farm & ranch land removed from 100yr flood risk (acres)	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)	
03200001																							
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FMS ID	Cost/ Structure removed	Consideration of Nature-based Solution (Y/N)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Water Supply Benefit (Y/N)
03200001					
03200002					
03200003					
03200004					
03200005					
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03200007					
03200008					
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03200010					
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03200027					

FMS ID	FMS Name	Description	Associated Goals (ID)	Counties	HUC10s	Watersheds	Strategy Type	Strategy Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Strategy Cost (\$)	Potential Funding Sources and Amount
03200028	San Jacinto County Ordinance to Control Location of Development	Strengthen ordinance(s)/code(s) to control location of development, especially in low lying flood hazard areas	03000021, 03000022, 03000025, 03000026	San Jacinto County			Floodplain Management Policy	629.4188		San Jacinto County, Shepherd, Coldspring, Point Blank				
03200029	Montague County Floodplain Policy Update	Increase freeboard requirements for permitting structures in the SFHA; Update local flood ordinance to prohibit granting of variance in SFHA	03000011, 03000012, 03000021, 03000022, 03000025, 03000026	Montague County			Floodplain Management Policy	405.0302		Montague County				
03200030	Town of Westlake's Floodplain Mitigation Ordinances Review	Review and enhance the Town of Westlake's floodplain mitigation ordinances and policies as needed	03000025, 03000026	Tarrant County			Floodplain Management Policy	7.051543		Westlake				
03200031	Willis Point Structure Permitting Requirement Update	Increase freeboard requirements for permitting structures in the SFHA; Adopt a "no-rise" in BFE in the 100-year floodplain; Update local flood ordinance to prohibit granting of variance in SFHA; Include "cumulative damage" provision in local floodplain management ordinances	03000011, 03000012, 03000025, 03000026	Van Zandt County			Floodplain Management Policy	3.679896		Willis Point				
03200032	Wise County Storm Water Management Plan	Create a Storm water Management Plan	03000025, 03000026	Wise County			Floodplain Management Policy	922.161		Wise County, Alvord				
03200033	Cooke County Floodplain Regulation Updates	Update local ordinances to include regulation of floodplain so that the community may participate in NFIP program.	03000011, 03000012, 03000025, 03000026	Cooke County			Floodplain Management Policy	895.5508		Valley View				
03200034	City of Sachse Parks Construction Along Low Lying Areas	Establish city parks along low-lying areas	03000021, 03000022, 03000027, 03000028	Dallas County			Floodplain Preservation & Zoning Regulations	9.85234		Sachse				
03200035	Carrollton Targeted Flood Remediation	Plan for and establish City-owned stand-by contracts for targeted flood remediation of private homes if authorized by City Administration. Actions to include mitigation measures such as elevation, acquisition / demolition, and relocation, among other feasible alternatives	03000013, 03000014, 03000025, 03000026	Dallas County			Floodplain Preservation & Zoning Regulations	40.29473		Carrollton				
03200036	Sunnyvale Floodplain Preservation Program	Restrict future development in high risk areas.	03000025, 03000026	Dallas County			Floodplain Preservation & Zoning Regulations	16.75311		Sunnyvale				
03200037	Itasca Zoning Regulations	Establish zoning regulations to prohibit residential construction in flood prone areas	03000025, 03000026	Hill County			Floodplain Preservation & Zoning Regulations	1.237535		Itasca				
03200038	Kaufman County Regulation Standards to Protect Open Space Flood-Prone Areas	Conduct program in conjunction with local communities to incorporate regulatory standards to protect open space flood-prone areas	03000021, 03000022, 03000025, 03000026, 03000027, 03000028	Kaufman County			Floodplain Preservation & Zoning Regulations	766.5049		Kaufman County				
03200039	Tarrant County Promotion of Open Space and LID	Promote the inclusion of low impact development requirements in local and regional ordinances	03000027, 03000028	Tarrant County			Floodplain Preservation & Zoning Regulations	902.8067		North Central Texas Council of Govt				
03200040	Itasca Land Use Planning Mechanisms	Implement strategic land-use planning mechanisms to ensure flood-resistant development occurs in flood-prone areas	03000021, 03000022, 03000025, 03000026, 03000027, 03000028	Hill County			Floodplain Preservation & Zoning Regulations	1.237535		Itasca				
03200041	Dallas County Land Use Program	Continue to develop and maintain special use parks and green belt areas as flooding mitigation strategies & further prohibiting development in the floodplain.	03000021, 03000022, 03000025, 03000026, 03000027, 03000028	Dallas County			Floodplain Preservation & Zoning Regulations	28.66611		Richardson				
03200042	Houston County Maintenance Program	Conduct annual program to clear debris from bridges, box culverts, and drainage systems throughout unincorporated county. Implement program to clear debris from flood-prone areas, bridges, drains and culverts to prevent overtopping and backup during flash floods.	03000029, 03000030	Houston County			Preventive Maintenance Programs	818.0052		Houston County				
03200043	Kaufman County Agreement to Monitor High Hazard Dams	Develop a mutual aid agreement with the City of Terrell, City of Kemp, City of Kaufman to monitor High hazard dams with automated monitor to minimize potential dam failure of the structure	03000001, 03000002, 03000025, 03000026	Kaufman County			Preventive Maintenance Programs	766.5049		Kaufman County, Terrell, Kemp, Kaufman				
03200044	Rowlett Creek Tributary Maintenance Program	Routine channel maintenance and erosion control for Rowlett Creek Tributary (Stream 2D13). Keep creek and inlets clear of debris and overgrown vegetation.	03000031, 03000032	Dallas County			Preventive Maintenance Programs	57.06755		City of Garland				
03200045	Addison-Carrollton Debris Cleaning Program	Adopt and implement a program for clearing debris from bridges, drains and culverts.	03000031, 03000032	Dallas County			Preventive Maintenance Programs	41.5553		Addison, Carrollton				
03200046	Navarro County Waterways Clearing	Clear waterways of debris and prevent further collection of debris in waterways	03000031, 03000032	Navarro County			Preventive Maintenance Programs	24.00643		Corsicana				
03200047	Parker County Biannual Dam Inspection Program	Create and implement a biannual inspection program to inspect the city-owned dams to help prevent dam failure	03000033, 03000034	Parker County			Preventive Maintenance Programs	906.221		Weatherford				
03200048	Tarrant County Semi-Annual Levee Inspections	Perform semi-annual inspection of the levee to look for any maintenance problems or levee failure issues	03000033, 03000034	Tarrant County			Preventive Maintenance Programs	902.8067		Richland Hills				
03200049	Rowlett Creek Tributary Maintenance Program	Routine channel maintenance and erosion control for Rowlett Creek Tributary (Stream 2D13). Keep creek and inlets clear of debris and overgrown vegetation.	03000031, 03000032	Collin County, Dallas County			Preventive Maintenance Programs	885.9687		City of Sachse				
03200050	Hazard Hardening Retrofit for Polk County Facilities	Flood proofing, impact resistant windows, storm shutters, roof straps, structural bracing, low-flow plumbing fixtures, roll-up door reinforcement, grounding systems, surge-protection, data back-up systems, plumbing reinforcement and insulation, heat resilient roofing materials, foundation support and expansion joints, shade providing-drought resistant landscaping	03000019, 03000020	Polk County			Property Acquisition and/or Floodproofing Programs	1118.562		Polk County, Corrigan, Goodrich, Livingston, Onalaska, Seven Oaks				

FMS ID	Flood Risk									Reduction in Flood Risk													
	Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Number of structures with reduced 100yr (1% annual chance) Flood risk	Number of structures removed from 100yr (1% annual chance) Flood risk	Number of structures removed from 500yr (0.2% annual chance) Flood risk	Habitable structures removed from 100yr (1% annual chance) Flood risk	Estimated Population removed from 100yr (1% annual chance) Flood risk	Critical facilities removed from 100yr (1% annual chance) Flood risk (#)	Number of low water crossings removed from 100yr (1% annual chance) Flood risk (#)	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr flood risk (Miles)	Estimated active farm & ranch land removed from 100yr flood risk (acres)	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)	
03200028																							
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FMS ID	Cost/ Structure removed	Consideration of Nature-based Solution (Y/N)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Water Supply Benefit (Y/N)
032000028					
032000029					
032000030					
032000031					
032000032					
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032000046					
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032000048					
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032000050					

FMS ID	FMS Name	Description	Associated Goals (ID)	Counties	HUC10s	Watersheds	Strategy Type	Strategy Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Strategy Cost (\$)	Potential Funding Sources and Amount
03200051	Acquire and Protect Red Oak Creek, Bentle Branch Creek, and Balcones Escarpment	Acquire floodplain and protect environmentally sensitive areas and convert them into open space land	03000021, 03000022, 03000025, 03000026, 03000027, 03000028	Dallas County			Property Acquisition and/or Floodproofing Programs	32.54092		Cedar Hill				
03200052	Ten Mile Creek Comprehensive Loss Reduction Program	Develop a comprehensive loss reduction program, involving buy outs and relocation in areas along Ten Mile Creek to reduce losses and repetitive damages. Buyout structures that are in the floodplain. Land Acquisition for repetitive loss structures	03000013, 03000014, 03000021, 03000022	Dallas County			Property Acquisition and/or Floodproofing Programs	33.07881		Lancaster				
03200053	Midway Property Acquisition and Elevation Program	Acquire existing homes located in the identified special flood hazard area (the 100-year floodplain).	03000013, 03000014	Madison County			Property Acquisition and/or Floodproofing Programs	1.609329		Midway				
03200054	Montague County Property Acquisition and Land Preservation Program	Acquire and preserve open space adjacent to floodplain areas.	03000013, 03000014, 03000021, 03000022, 03000027, 03000028	Montague County			Property Acquisition and/or Floodproofing Programs	405.0302		Montague County				
03200055	Montague County Sewage Treatment Plants and Sewage Lift Stations Flood-Proofing Program	Flood-proof sewage treatment plants in flood hazard / low-lying areas. Raise electrical components of sewage lift stations above the Base Flood Elevation (BFE)	03000019, 03000020	Montague County			Property Acquisition and/or Floodproofing Programs	405.0302		Montague County				
03200056	San Jacinto County Voluntary Property Acquisition & Elevation Program	Pursue voluntary acquisition projects for flood prone properties. Elevate homes in low lying or flood prone areas.	03000013, 03000014	San Jacinto County			Property Acquisition and/or Floodproofing Programs	629.4188		Shepherd, San Jacinto County				
03200057	Johnson County Acquisition of Flood Prone Structures	Acquire, relocate, and/or elevate flood prone structures	03000013, 03000014	Johnson County			Property Acquisition and/or Floodproofing Programs	360.5534		Johnson County				
03200058	Acquisition of Repetitive Loss Properties in the Deep River Plantation Subdivision	Acquire repetitive flood loss properties and properties prone to flooding in the Deep River Plantation Subdivision	03000013, 03000014	Walker County			Property Acquisition and/or Floodproofing Programs	802.3347		Walker County				
03200059	Anderson County Floodplain Acquisition and Preservation Program	Acquire and preserve open spaces adjacent to floodplain areas.	03000013, 03000014, 03000021, 03000022, 03000027, 03000028	Anderson County			Property and Land Acquisition Programs	1078.46		Anderson County				
03200060	Collin County Property and Structures Buyout Program	Develop and implement a buyout program for personal properties and structures located in the floodplain	03000013, 03000014	Collin County			Property and Land Acquisition Programs	885.9687		Collin County				
03200061	Cooke County Acquisition of Repetitive Loss and Damaged Properties	Purchase and removal of damaged homes that are located in the floodplain. Buyout of repetitive flood loss properties in the Wilson Court area.	03000013, 03000014	Cooke County			Property and Land Acquisition Programs	895.5508		Cooke County				
03200062	Dallas County Acquisition of Flood-Prone and Repetitive Loss Properties	Acquisition / demolition of flood-prone and repetitive loss properties.	03000013, 03000014	Dallas County			Property and Land Acquisition Programs	908.0262		Dallas County				
03200063	Grayson County Buyout of Repetitive Flood Properties	Buyout of repetitive flood properties, which includes any structures found to be located in flood areas that aren't incorporated in NFIP areas.	03000013, 03000014	Grayson County			Property and Land Acquisition Programs	343.5406		Grayson County				
03200064	Terrell Property Acquisition Program	Acquire high risk and repetitive flood-prone structures	03000013, 03000014	Kaufman County			Property and Land Acquisition Programs	27.58941		Terrell				
03200065	Leon County Property Acquisition Program	Acquire any repetitive loss structures located below the high hazard dams and homes located in the floodplain.	03000013, 03000014	Leon County			Property and Land Acquisition Programs	811.3662		Leon County				
03200066	City of Fate Floodplain Acquisition and Preservation Program	Acquire, reuse, and preserve open spaces adjacent to floodplain areas	03000013, 03000014, 03000021, 03000022, 03000027, 03000028	Rockwall County			Property and Land Acquisition Programs	12.24927		Fate				
03200067	City of Kennedale Property Acquisition Program - Village Creek	Acquire all private property located within the Village Creek 100-year floodplain in the City of Kennedale	03000013, 03000014	Tarrant County			Property and Land Acquisition Programs	6.674063		Kennedale				
03200068	City of Mansfield Property Acquisition Program	Acquire properties at risk of flooding and permanently remove them from special flood hazard areas.	03000013, 03000014	Tarrant County			Property and Land Acquisition Programs	36.59948		Mansfield				
03200069	Tarrant County Property Acquisition Program	Create a Buyout Program for Repetitive Loss Properties	03000013, 03000014	Tarrant County			Property and Land Acquisition Programs	902.8067		Arlington, Azle, Bedford, Blue Mound, Colleyville, Crowley, Dalworthington, Euless, Everman, Forest Hill, Forth Worth, Groveton, Haltom City, Haslet, Hurst, Keller, Kennedale, Lake Worth, Lakeside, North Richland Hills, Pantego, River Oaks, Saginaw, Southlake, Tarrant County, Watauga, Westlake, Westworth Village				
03200070	Walker County Voluntary Buyout Program	The county and partnering jurisdictions will begin a voluntary buyout program for insured severe repetitive loss properties that are in the floodplain	03000013, 03000014	Walker County			Property and Land Acquisition Programs	802.3347		Walker County, New Waverly, Riverside				
03200071	Wise County Repetitive Flood Loss Buyout Program	Develop a buyout program for repetitive flood loss areas within the county	03000013, 03000014, 03000021, 03000022	Wise County			Property and Land Acquisition Programs	922.161		Wise County				
03200072	City of Chico Property Acquisition Program	City will acquire property and structures in the flood zone along Dry Creek and its tributaries and remove structures to prevent loss of life and property during flooding events.	03000013, 03000014	Wise County			Property and Land Acquisition Programs	1.51853		Chico				
03200073	Town Creek Warren Park Extension (Property Acquisition Program)	Create a buyout program	03000013, 03000014, 03000021, 03000022	Tarrant County			Property and Land Acquisition Programs	28.46464		Burleson				
03200074	City of Hurst Buyout Program	107 total structures across the Lorean, Valley View, and Walker watersheds	03000013, 03000014	Tarrant County			Property and Land Acquisition Programs	9.968044		City of Hurst				

FMS ID	Flood Risk										Reduction in Flood Risk												
	Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Number of structures with reduced 100yr (1% annual chance) Flood risk	Number of structures removed from 100yr (1% annual chance) Flood risk	Number of structures removed from 500yr (0.2% annual chance) Flood risk	Habitable structures removed from 100yr (1% annual chance) Flood risk	Estimated Population removed from 100yr (1% annual chance) Flood risk	Critical facilities removed from 100yr (1% annual chance) Flood risk (#)	Number of low water crossings removed from 100yr (1% annual chance) Flood risk (#)	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr flood risk (Miles)	Estimated active farm & ranch land removed from 100yr flood risk (acres)	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)	
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FMS ID	Cost/ Structure removed	Consideration of Nature-based Solution (Y/N)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Water Supply Benefit (Y/N)
03200051					
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03200053					
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FMS ID	FMS Name	Description	Associated Goals (ID)	Counties	HUC10s	Watersheds	Strategy Type	Strategy Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Strategy Cost (\$)	Potential Funding Sources and Amount
03200075	Anderson County Flood Education Program	Coordinate and implement a natural hazards public awareness campaign. Educate community on the dangers of low water crossings through the installation of warning signs and promotion of "Turn Around, Don't Drown" Program.	03000003, 03000004, 03000037, 03000038	Anderson County			Public Awareness & Educational Programs	1078.397		Anderson County				
03200076	Cooke County Public Information and Education	"Turn Around Don't Drown" campaign.	03000003, 03000004	Cooke County			Public Awareness & Educational Programs	895.5508		Lindsay				
03200077	Cooke County Flood Insurance Public Awareness Program	Education of the public on the importance of Flood Insurance.	03000037, 03000038, 03000039, 03000040	Cooke County			Public Awareness & Educational Programs	895.5508		Cooke County				
03200078	Glenn Heights-Seagoville-Wilmer Flood Safety Improvements and Education	Educate community on the dangers of low water crossings through the installation of warning signs and promotion of "Turn Around, Don't Drown" Program	03000003, 03000004, 03000037, 03000038	Dallas County			Public Awareness & Educational Programs	32.33673		Glenn Heights, Seagoville, Wilmer				
03200079	Krum "Turn Around, Don't Drown" Campaign	Implement "Turn Around, Don't Drown" campaign.	03000003, 03000004, 03000037, 03000038	Denton County			Public Awareness & Educational Programs	2.635514		Krum				
03200080	Fannin County Flood Safety Education	Education programs such as "Turn around Don't Drown." Work with local newspaper to run flood safety information. Public education via water bills, social media, and webpage to promote flood safety.	03000003, 03000004, 03000037, 03000038	Fannin County			Public Awareness & Educational Programs	43.94715		Fannin County				
03200081	Fannin County Flood Insurance Education	Develop and distribute information about the availability and need for flood insurance. Public awareness of NFIP.	03000037, 03000038, 03000039, 03000040	Fannin County			Public Awareness & Educational Programs	43.94715		Fannin County				
03200082	Grayson County Flood Insurance Education	Educate local residents on the NFIP program and the importance of purchasing flood insurance.	03000037, 03000038, 03000039, 03000040	Grayson County			Public Awareness & Educational Programs	343.5406		Grayson County				
03200083	Grayson County Flood Safety Education	Turn Around Don't Drown Campaign. Educate property owners near high hazard dams of the potential of a dam failure. Better inform residents of mitigation activities that they can implement in their homes.	03000003, 03000004, 03000037, 03000038	Grayson County			Public Awareness & Educational Programs	343.5406		Grayson County				
03200084	Hill County Flooding Education and Outreach Program	Develop a coordinated education, outreach, and training program to inform and educate the public about the dangers of flooding and how to prevent flood damages to property.	03000037, 03000038	Hill County			Public Awareness & Educational Programs	986.2728		Hill County				
03200085	Houston County Flood Insurance Education	Develop and implement NFIP public education program for residents affected by high flood risk areas.	03000037, 03000038, 03000039, 03000040	Houston County			Public Awareness & Educational Programs	818.0052		Houston County				
03200086	Houston County Public Education on Dam Education	Educate the Public on mitigation activities that can help protect their properties in the event of structural failures and extreme flooding	03000037, 03000038	Houston County			Public Awareness & Educational Programs	818.0052		Houston County				
03200087	Jack County Flood Education	Implement a flood awareness program by providing FEMA / NFIP materials to mortgage lenders, real estate agents and insurance agents	03000037, 03000038, 03000039, 03000040	Jack County			Public Awareness & Educational Programs	659.2971		Jack County				
03200088	Kaufman County Flood Education Program	Conduct countywide outreach to educate residents on flood hazards, mitigation techniques and promote availability of NFIP flood insurance.	03000037, 03000038, 03000039, 03000040	Kaufman County			Public Awareness & Educational Programs	766.5049		Kaufman County				
03200089	Montague County Flood Education	Implement a flood awareness program by providing FEMA / NFIP materials to mortgage lenders, real estate agents and insurance agents and place them in local libraries.	03000037, 03000038, 03000039, 03000040	Montague County			Public Awareness & Educational Programs	405.0302		Montague County				
03200090	Parker County Flood and Dam Education	Create and implement a community-wide educational campaign to educate residents about the NFIP and dam safety	03000037, 03000038, 03000039, 03000040	Parker County			Public Awareness & Educational Programs	906.221		Weatherford, Hudson Oaks, Aledo, Parker County				
03200091	Livingston Flood Damage Mitigation Educational Program	Establish an educational program to teach citizens how to mitigate flood damage to their property	03000037, 03000038	Polk County			Public Awareness & Educational Programs	8.752881		Livingston				
03200092	Tarrant County Flood Education	Provide flood risk and mitigation risk mapping materials for property owners in floodplains. Include mitigation techniques	03000037, 03000038	Tarrant County			Public Awareness & Educational Programs	2.015986		River Oaks				
03200093	Tarrant County Flood Education Program	Conduct NFIP community workshops to provide information and incentives for property owners to acquire flood insurance.	03000037, 03000038, 03000039, 03000040	Tarrant County			Public Awareness & Educational Programs	902.8067		Arlington, Azle, Bedford, Blue Mound, Colleyville, Crowley, Dalworthington, Edgecliff, Euless, Everman, Forest Hill, Fort Worth, Haltom City, Haslet, Hurst, Keller, Kennedale, Lake Worth, Lakeside, Pantego, River Oaks, Saginaw, Southlake, Tarrant County, Watauga, Westlake, Westworth Village				
03200094	Van Zandt County Flood Safety Improvements and Education	Educate community on the dangers of low water crossings	03000003, 03000004, 03000037, 03000038	Van Zandt County			Public Awareness & Educational Programs	859.4528		Wills Point				
03200095	Walker County Floodplain Regulatory Awareness Public Information Campaign	Rewrite, improve, and implement new local floodplain regulations, to include a public information campaign on regulatory awareness	03000025, 03000026, 03000037, 03000038	Walker County			Public Awareness & Educational Programs	802.3347		New Waverly, Riverside				
03200096	City of Chico NFIP Education Program	Distribute information to downstream property owners educating homeowners about the National Flood Insurance Program.	03000037, 03000038, 03000039, 03000040	Wise County			Public Awareness & Educational Programs	1.51853		Chico				

FMS ID	Flood Risk										Reduction in Flood Risk												
	Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Number of structures with reduced 100yr (1% annual chance) Flood risk	Number of structures removed from 100yr (1% annual chance) Flood risk	Number of structures removed from 500yr (0.2% annual chance) Flood risk	Habitable structures removed from 100yr (1% annual chance) Flood risk	Estimated Population removed from 100yr (1% annual chance) Flood risk	Critical facilities removed from 100yr (1% annual chance) Flood risk (#)	Number of low water crossings removed from 100yr (1% annual chance) Flood risk (#)	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr flood risk (Miles)	Estimated active farm & ranch land removed from 100yr flood risk (acres)	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)	
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FMS ID	Cost/ Structure removed	Consideration of Nature-based Solution (Y/N)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Water Supply Benefit (Y/N)
032000075					
032000076					
032000077					
032000078					
032000079					
032000080					
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032000083					
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032000095					
032000096					

FMS ID	FMS Name	Description	Associated Goals (ID)	Counties	HUC10s	Watersheds	Strategy Type	Strategy Area (sqmi)	Flood Risk Type (Riverine, Coastal, Urban, Playa Other)	Sponsor	Entities with Oversight	Emergency Need (Y/N)	Estimated Strategy Cost (\$)	Potential Funding Sources and Amount
03200097	Dallas County Open Space System Program and Dallas Trails Program	Adopt and implement Dallas County Open Space System Program and Dallas Trails Program.	03000021, 03000022, 03000027, 03000028	Dallas County			Nature-Based Solutions	908.0262		Dallas County				
03200098	Parker County Nature-Based Practices for Flood Control	Implement the use of green infrastructure	03000027, 03000028	Parker County			Nature-Based Solutions	906.221		Parker County, Hudson Oaks				
03200099	Krugerville waterways stabilization program.	Develop and implement waterways stabilization program.	03000031, 03000032	Denton County			Erosion Control Programs	1.321508		Krugerville				
03200100	City of Euless Stream Bank Protection Program	Develop a plan to reduce stream bank erosion impacts due to flooding along specific creeks	03000031, 03000032	Tarrant County			Erosion Control Programs	16.19965		Euless				
03200101	Lewisville Storm Water Utility Fee	Levy a storm water fee for developers to fund developments to the storm water drainage systems	03000041, 03000042	Denton County			Funding Mechanisms	43.4791		Lewisville				

FMS ID	Flood Risk										Reduction in Flood Risk												
	Area in 100yr (1% annual chance) Floodplain	Area in 500yr (0.2% annual chance) Floodplain	Estimated number of structures at 100yr flood risk	Residential structures at flood risk	Estimated Population at flood risk	Critical facilities at flood risk (#)	Number of low water crossings at flood risk (#)	Estimated number of road closures (#)	Estimated length of roads at flood risk (Miles)	Estimated farm & ranch land at flood risk (acres)	Number of structures with reduced 100yr (1% annual chance) Flood risk	Number of structures removed from 100yr (1% annual chance) Flood risk	Number of structures removed from 500yr (0.2% annual chance) Flood risk	Habitable structures removed from 100yr (1% annual chance) Flood risk	Estimated Population removed from 100yr (1% annual chance) Flood risk	Critical facilities removed from 100yr (1% annual chance) Flood risk (#)	Number of low water crossings removed from 100yr (1% annual chance) Flood risk (#)	Estimated reduction in road closure occurrences	Estimated length of roads removed from 100yr flood risk (Miles)	Estimated active farm & ranch land removed from 100yr flood risk (acres)	Estimated reduction in fatalities (if available)	Estimated reduction in injuries (if available)	
03200097																							
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03200100																							
03200101																							

FMS ID	Cost/ Structure removed	Consideration of Nature-based Solution (Y/N)	Negative Impact (Y/N)	Negative Impact Mitigation (Y/N)	Water Supply Benefit (Y/N)
032000097					
032000098					
032000099					
032000100					
032000101					

Attachment 8

Task 4C – Geodatabase

This January 7, 2022 Technical Memorandum submittal for the Trinity Basin includes a geodatabase named [03_RFP_GIS_Data_01072022.gdb](#) populated with the layers and tables below:

Item Name	Description	Feature Class Name	Data Format Polygon/Line/ Point/GDB Table
Entities	Entities with flood-related authority and whether they are actively engaged in flood planning, floodplain management, and flood mitigation activities	Entities	Polygon
Watersheds	Entities with flood-related authority and whether they are actively engaged in flood planning, floodplain management, and flood mitigation activities	Watersheds	Polygon
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
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	ExFldInfraLn	Polyline
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	ExFldInfraPt	Point
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
Existing Floodplain Management Practices	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	ExFpMP	Table
Goals	Identify specific and achievable flood mitigation and floodplain management goals along with target years by which to meet those goals	Goals	GDB Table
Streams	Shows the streams to be studied by FMEs, and those relevant to FMS and FMPs, when applicable.	Streams	Line

Item Name	Description	Feature Class Name	Data Format Polygon/Line/ Point/GDB Table
Flood Management Evaluations	Shows the streams to be studied by FMEs, and those relevant to FMS and FMPs, when applicable.	FME	Polygon
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
Flood Management Strategies	A table included in the .gdb but built using the Project Details excel template. The table includes more detailed analysis of the project.	FMS	Polygon