Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

30 Day Engineering Models Notification

November 15, 2019

The Honorable Hoppy Haden
Caldwell County Judge
110 S Main St, Lockhart, TX 78644

Dear Mayor Haden:

This letter is to notify you of the engineering data models being used in the Texas Water Development Board's (TWDB) upcoming flood risk project for Plum Creek in Caldwell County and Hays County. As part of your community's participation in the work performed with the TWDB's Flood Protection grant, the TWDB will use the gathered data to create useful, credible data, and a fair process to help you make informed decisions to continue building a safer and stronger community.

These engineering data models will form the basis for the proposed Special Flood Hazard Areas (SFHAs) that will ultimately be presented on the Flood Insurance Rate Map for your community. A SFHA is an area that is subject to inundation by the 1-percent-annual-chance flood (also called the base flood). Over time, water flow and drainage patterns in your area may have changed dramatically due to surface erosion, land use, and natural forces. Given these factors, the likelihood of flooding in certain areas may have increased or decreased over time, changing the SFHA designation(s).

Upon receipt of this notification, your community will have 30 days to consult with the TWDB project staff (identified in the last paragraph of this letter) regarding the appropriateness of the models selected for the project. Your community will have additional opportunities to comment on and provide feedback about the models and other draft flood hazard information throughout the project. With the TWDB leading this effort, we plan to work closely with the counties to gain buy-in prior to project close-out. However, if there are uncertainties about the mapping data that have been collected and analyzed, a formal appeals process and period will be available to help resolve any remaining questions before the flood hazard information becomes effective.

The TWDB, as a mapping partner with the Federal Emergency Management Agency (FEMA), will develop draft flood hazard information for Caldwell and Hays County, Texas, based on the engineering models developed by the TWDB, shown on the attached

Engineering Models Summary Table, which lists the flooding sources to be studied, along with details regarding the selected models, and the rationale for their use. As a continuation of the County's commitment to floodplain management through the funding of the TWDB Flood Protection Studies, the TWDB intends to utilize the models developed by both Counties and advance them toward FEMA products.

The TWDB and FEMA want to ensure that the most up-to-date and accurate technical data are used to develop the flood risk products. The TWDB and FEMA rely on your feedback, partnership, and knowledge during this important project to determine the extent of flood risk in your community, and support your efforts to reduce those risks. We look forward to working with community officials and other stakeholders in Caldwell and Hays County, Texas, to increase flood risk awareness and reduce the risk to life and property from flooding. Your initial feedback will not affect your community's ability to provide feedback later, or to formally appeal the flood hazard information during a future appeal period.

Please provide your comments related to the types of models selected for this project by December 31, 2019. To provide your comments or get answers to any other questions about this project, please contact the TWDB Project Officer, Manuel Razo at manuel.razo@twdb.texas.gov or (512) 475-1850.

Respectfully,

Manuel J. Razo
Cooperating Technical Partners Coordinator

Enclosures: Engineering Models Summary Table
Project Area – Study Map

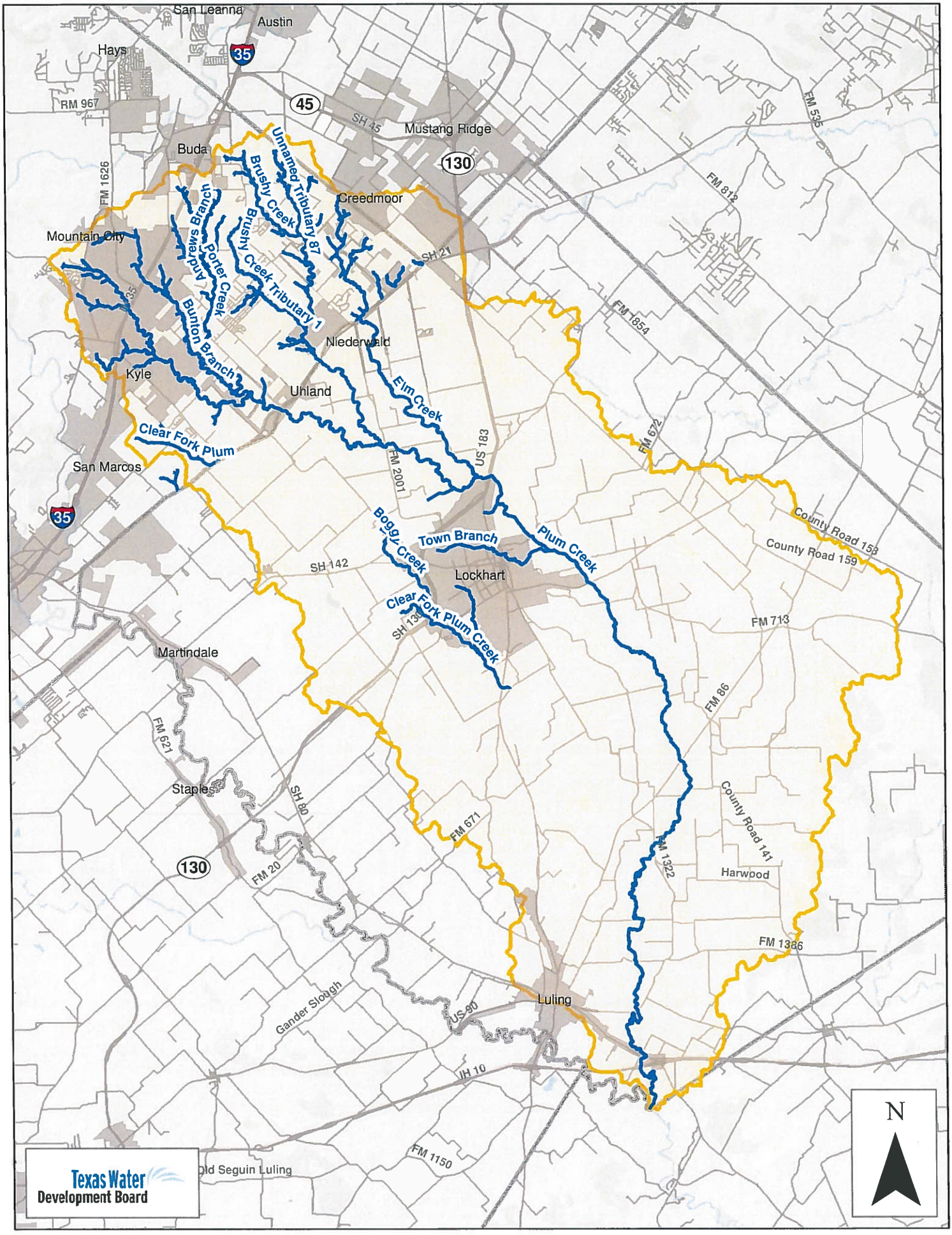
cc: Kasi Miles, Director of Sanitation, Caldwell County
Larry Voice, FEMA Project Monitor, FEMA Region VI
Cindy Engelhardt, P.E., Project Manager, Halff Associates

Proposed Engineering Model Summary - Plum Creek Watershed

ID	Flooding Source Name	Current Study Method (BLE, Approximate, Detailed)	Proposed Study Method (Approximate, Limited Detail, Detailed)	Total Mileage	Hydrologic Model Proposed	Hydraulic Model Proposed
1	Andrews Branch	Approximate	Limited Detail	3.6		UpperPlum_ZnA HEC-RAS v 5.0.7
2	Andrews Branch	Approximate	Detailed	0.5		UpperPlum_ZnA HEC-RAS v 5.0.7
3	Andrews Branch	Approximate	Detailed	1.6		UpperPlum_ZnA HEC-RAS v 5.0.7
4	Andrews Branch Tributary 1	Approximate	Limited Detail	0.3		UpperPlum_ZnA HEC-RAS v 5.0.7
5	Andrews Branch Tributary 2	Approximate	Limited Detail	0.1		UpperPlum_ZnA HEC-RAS v 5.0.7
6	Andrews Branch Tributary 3	Approximate	Limited Detail	0.2		UpperPlum_ZnA HEC-RAS v 5.0.7
7	Andrews Branch Tributary 4	Approximate	Limited Detail	0.2		UpperPlum_ZnA HEC-RAS v 5.0.7
8	Andrews Branch Tributary 5	Approximate	Limited Detail	0.2		UpperPlum_ZnA HEC-RAS v 5.0.7
9	Andrews Branch Tributary 6	Approximate	Limited Detail	0.2		UpperPlum_ZnA HEC-RAS v 5.0.7
10	Boggy Creek	Limited Detail	Limited Detail	0.8		Boggy_Creek HEC-RAS v 5.0.7
11	Boggy Creek	Limited Detail	Limited Detail	6.0		Boggy_Creek HEC-RAS v 5.0.7
12	Brushy Creek	Limited Detail	Limited Detail	4.7		BrushyCreek HEC-RAS v 5.0.7
13	Brushy Creek	Limited Detail	Detailed	10.6		BrushyCreek HEC-RAS v 5.0.7
14	Brushy Creek Spillway Site 10	Limited Detail	Limited Detail	0.2		BrushyCreek HEC-RAS v 5.0.7
15	Brushy Creek Spillway Stic 12	Limited Detail	Limited Detail	0.3		BrushyCreek HEC-RAS v 5.0.7
16	Brushy Creek Tributary 1	Approximate	Limited Detail	0.7		Brushy_ZnA HEC-RAS v 5.0.7
17	Brushy Creek Tributary 1	Approximate	Detailed	1.1		BrushyCreekTrib1 HEC-RAS v 5.0.7
18	Brushy Creek Tributary 1	Approximate	Detailed	5.1		BrushyCreekTrib1 HEC-RAS v 5.0.7
19	Brushy Creek Tributary 11	Approximate	Limited Detail	0.6		Brushy_ZnA HEC-RAS v 5.0.7
20	Brushy Creek Tributary 11A	Approximate	Detailed	1.1		Brushy_ZnA HEC-RAS v 5.0.7
21	Brushy Creek Tributary 11B	Approximate	Limited Detail	0.1		Brushy_ZnA HEC-RAS v 5.0.7
22	Brushy Creek Tributary 12	Approximate	Limited Detail	1.5		Brushy_ZnA HEC-RAS v 5.0.7
23	Brushy Creek Tributary 13	Approximate	Limited Detail	2.4		Brushy_ZnA HEC-RAS v 5.0.7
24	Brushy Creek Tributary 13A	Approximate	Limited Detail	0.3		Brushy_ZnA HEC-RAS v 5.0.7
25	Brushy Creek Tributary 13B	Approximate	Limited Detail	0.7		Brushy_ZnA HEC-RAS v 5.0.7
26	Brushy Creek Tributary 14	Approximate	Limited Detail	1.1		Brushy_ZnA HEC-RAS v 5.0.7
27	Brushy Creek Tributary 15	Approximate	Limited Detail	0.2		Brushy_ZnA HEC-RAS v 5.0.7
28	Brushy Creek Tributary 16	Approximate	Limited Detail	0.3		Brushy_ZnA HEC-RAS v 5.0.7
29	Brushy Creek Tributary 17	Approximate	Limited Detail	0.3		Brushy_ZnA HEC-RAS v 5.0.7
30	Brushy Creek Tributary 18	Approximate	Limited Detail	0.1		Brushy_ZnA HEC-RAS v 5.0.7
31	Brushy Creek Tributary 1A	Limited Detail	Detailed	1.5		BrushyCreekTrib1A HEC-RAS v 5.0.7
32	Brushy Creek Tributary 2	Approximate	Limited Detail	1.2		Brushy_ZnA HEC-RAS v 5.0.7
33	Brushy Creek Tributary 2A	Approximate	Limited Detail	1.1		Brushy_ZnA HEC-RAS v 5.0.7
34	Brushy Creek Tributary 2B	Approximate	Limited Detail	0.2	PlumCreek HEC-HMS 4.3	Brushy_ZnA HEC-RAS v 5.0.7
35	Brushy Creek Tributary 3	Approximate	Limited Detail	0.5		Brushy_ZnA HEC-RAS v 5.0.7
36	Brushy Creek Tributary 4	Approximate	Limited Detail	0.5		Brushy_ZnA HEC-RAS v 5.0.7
37	Brushy Creek Tributary 5	Approximate	Limited Detail	0.6		Brushy_ZnA HEC-RAS v 5.0.7
38	Brushy Creek Tributary 6	Approximate	Limited Detail	1.0		Brushy_ZnA HEC-RAS v 5.0.7
39	Brushy Creek Tributary 7	Approximate	Limited Detail	1.2		Brushy_ZnA HEC-RAS v 5.0.7
40	Brushy Creek Tributary 8	Approximate	Limited Detail	1.0		Brushy_ZnA HEC-RAS v 5.0.7
41	Brushy Creek Tributary 9	Approximate	Limited Detail	0.6		Brushy_ZnA HEC-RAS v 5.0.7
42	Bunton Branch	Limited Detail	Limited Detail	10.4		BuntonBranch HEC-RAS v 5.0.7
43	Bunton Branch Spillway	Limited Detail	Limited Detail	0.1		BuntonBranch HEC-RAS v 5.0.7
44	Bunton Branch Tributary 1	Approximate	Limited Detail	0.5		UpperPlum_ZnA HEC-RAS v 5.0.7
45	Bunton Branch Tributary 2	Approximate	Limited Detail	1.5		UpperPlum_ZnA HEC-RAS v 5.0.7
46	Bunton Branch Tributary 2	Approximate	Limited Detail	0.2		UpperPlum_ZnA HEC-RAS v 5.0.7
47	Bunton Branch Tributary 3	Approximate	Limited Detail	0.4		UpperPlum_ZnA HEC-RAS v 5.0.7
48	Bunton Branch Tributary 4	Approximate	Limited Detail	1.9		UpperPlum_ZnA HEC-RAS v 5.0.7
49	Bunton Branch Tributary 5	Approximate	Limited Detail	0.2		UpperPlum_ZnA HEC-RAS v 5.0.7
50	Clear Fork Plum	Approximate	Limited Detail	4.2		LowerPlum_ZnA HEC-RAS v 5.0.7
51	Clear Fork Plum Creek	Limited Detail	Limited Detail	5.3		LowerPlum_ZnA HEC-RAS v 5.0.7
52	Clear Fork Plum Tributary 1	Approximate	Limited Detail	0.3		LowerPlum_ZnA HEC-RAS v 5.0.7
53	Clear Fork Plum Tributary 2	Approximate	Limited Detail	0.2		LowerPlum_ZnA HEC-RAS v 5.0.7
54	Clear Fork Plum Tributary 3	Approximate	Limited Detail	1.0		LowerPlum_ZnA HEC-RAS v 5.0.7
55	Cowpen Creek Tributary	Approximate	Limited Detail	0.7		Elm_ZnA HEC-RAS v 5.0.7
56	Elm Creek	Limited Detail	Limited Detail	0.7		ElmCreek HEC-RAS v 5.0.7
57	Elm Creek	Limited Detail	Limited Detail	0.5		ElmCreek HEC-RAS v 5.0.7
58	Elm Creek	Approximate	Limited Detail	5.3		ElmCreek HEC-RAS v 5.0.7
59	Elm Creek	Limited Detail	Limited Detail	9.1		ElmCreek HEC-RAS v 5.0.7
60	Elm Creek End	Approximate	Limited Detail	0.4		Elm_ZnA HEC-RAS v 5.0.7
61	Elm Creek Spillway	Limited Detail	Limited Detail	0.2		ElmCreek HEC-RAS v 5.0.7
62	Elm Creek Tributary 1	Approximate	Limited Detail	1.2		Elm_ZnA HEC-RAS v 5.0.7
63	Elm Creek Tributary 1A	Approximate	Limited Detail	1.5		Elm_ZnA HEC-RAS v 5.0.7
64	Elm Creek Tributary 1B	Approximate	Limited Detail	0.6		Elm_ZnA HEC-RAS v 5.0.7
65	Elm Creek Tributary 2	Approximate	Limited Detail	0.4		Elm_ZnA HEC-RAS v 5.0.7
66	Elm Creek Tributary 3	Approximate	Limited Detail	2.1		Elm_ZnA HEC-RAS v 5.0.7
67	Elm Creek Tributary 3A	Approximate	Limited Detail	0.3		Elm_ZnA HEC-RAS v 5.0.7
68	Elm Creek Tributary 3B	Approximate	Limited Detail	0.4		Elm_ZnA HEC-RAS v 5.0.7

ID	Flooding Source Name	Current Study Method (BLE, Approximate, Detailed)	Proposed Study Method (Approximate, Limited Detail, Detailed)	Total Mileage	Hydrologic Model Proposed	Hydraulic Model Proposed
69	Elm Creek Tributary 4	Approximate	Limited Detail	0.2		Elm_ZnA HEC-RAS v 5.0.7
70	Elm Creek Tributary 5	Approximate	Limited Detail	0.3		Elm_ZnA HEC-RAS v 5.0.7
71	Elm Creek Tributary 6	Approximate	Limited Detail	0.9		Elm_ZnA HEC-RAS v 5.0.7
72	Elm Creek Tributary 7	Approximate	Limited Detail	0.4		Elm_ZnA HEC-RAS v 5.0.7
73	Elm Creek Tributary 8	Approximate	Limited Detail	0.2		Elm_ZnA HEC-RAS v 5.0.7
74	Elm Creek Tributary 9	Approximate	Limited Detail	0.3		Elm_ZnA HEC-RAS v 5.0.7
75	Hemphill Creek	Approximate	Limited Detail	1.5		LowerPlum_ZnA HEC-RAS v 5.0.7
76	Hemphill Creek Tributary 1	Approximate	Limited Detail	0.8		LowerPlum_ZnA HEC-RAS v 5.0.7
77	Hemphill Creek Tributary 1A	Approximate	Limited Detail	0.1		LowerPlum_ZnA HEC-RAS v 5.0.7
78	Lower Plum Creek Tributary 1	Approximate	Limited Detail	1.1		LowerPlum_ZnA HEC-RAS v 5.0.7
79	Lower Plum Creek Tributary 2	Approximate	Limited Detail	0.9		LowerPlum_ZnA HEC-RAS v 5.0.7
80	Lower Plum Creek Tributary 2A	Approximate	Limited Detail	0.3		LowerPlum_ZnA HEC-RAS v 5.0.7
81	Mebane Creek	Limited Detail	Detailed	2.9		MebaneCreek HEC-RAS v 5.0.7
82	NP	Limited Detail	Limited Detail	0.3		LowerPlum_ZnA HEC-RAS v 5.0.7
83	NP	Limited Detail	Limited Detail	0.6		LowerPlum_ZnA HEC-RAS v 5.0.7
84	NP	Limited Detail	Limited Detail	0.6		LowerPlum_ZnA HEC-RAS v 5.0.7
85	NP	Limited Detail	Limited Detail	0.5		LowerPlum_ZnA HEC-RAS v 5.0.7
86	NP	Limited Detail	Limited Detail	1.1		LowerPlum_ZnA HEC-RAS v 5.0.7
87	NP	Limited Detail	Limited Detail	0.3		LowerPlum_ZnA HEC-RAS v 5.0.7
88	NP	Limited Detail	Limited Detail	0.5		LowerPlum_ZnA HEC-RAS v 5.0.7
89	NP	Limited Detail	Limited Detail	0.3		LowerPlum_ZnA HEC-RAS v 5.0.7
90	NP	Limited Detail	Limited Detail	0.5		LowerPlum_ZnA HEC-RAS v 5.0.7
91	Plum Creek	Limited Detail	Limited Detail	1.6		PlumCreek HEC-RAS v 5.0.7
92	Plum Creek	Limited Detail	Limited Detail	0.8		PlumCreek HEC-RAS v 5.0.7
93	Plum Creek	Limited Detail	Limited Detail	0.3		PlumCreek HEC-RAS v 5.0.7
94	Plum Creek	Limited Detail	Limited Detail	0.8		PlumCreek HEC-RAS v 5.0.7
95	Plum Creek	Limited Detail	Limited Detail	0.2		PlumCreek HEC-RAS v 5.0.7
96	Plum Creek	Limited Detail	Limited Detail	0.2		PlumCreek HEC-RAS v 5.0.7
97	Plum Creek	Limited Detail	Limited Detail	42.8		PlumCreek HEC-RAS v 5.0.7
98	Plum Creek	Limited Detail	Detailed	1.7	PlumCreek HEC-HMS 4.3	PlumCreek HEC-RAS v 5.0.7
99	Plum Creek	Limited Detail	Detailed	11.3		PlumCreek HEC-RAS v 5.0.7
100	Plum Creek Spillway	Limited Detail	Detailed	0.3		PlumCreek HEC-RAS v 5.0.7
101	Plum Creek Trib. 2	Limited Detail	Limited Detail	1.5		LowerPlum_ZnA HEC-RAS v 5.0.7
102	Plum Creek Trib. 3	Limited Detail	Limited Detail	1.3		LowerPlum_ZnA HEC-RAS v 5.0.7
103	Plum Creek Tributary 1	Limited Detail	Detailed	2.0		PlumCreekTrib1 HEC-RAS v 5.0.7
104	Plum Creek Tributary 3	Approximate	Limited Detail	1.2		PlumCreekTrib3 HEC-RAS v 5.0.7
105	Plum Creek Tributary 3 Spillway	Approximate	Limited Detail	0.1		PlumCreekTrib3 HEC-RAS v 5.0.7
106	Plum Creek Tributary 4	Detailed	Detailed	3.7		PlumCreekTrib4 HEC-RAS v 5.0.7
107	Plum Creek Tributary 4 Spillway	Approximate	Limited Detail	0.1		PlumCreekTrib4 HEC-RAS v 5.0.7
108	Plum Stream Tributary	Approximate	Limited Detail	0.6		UpperPlum_ZnA HEC-RAS v 5.0.7
109	Porter Creek	Limited Detail	Limited Detail	6.6		AndrewsBranch_PorterCreek HEC-RAS v 5.0.7
110	Porter Creek Spillway	Limited Detail	Limited Detail	0.2		AndrewsBranch_PorterCreek HEC-RAS v 5.0.7
111	Porter Creek Tributary 1	Approximate	Limited Detail	0.5		LowerPlum_ZnA HEC-RAS v 5.0.7
112	Porter Creek Tributary 2	Approximate	Limited Detail	0.4		LowerPlum_ZnA HEC-RAS v 5.0.7
113	Porter Creek Tributary 3	Approximate	Limited Detail	2.4		LowerPlum_ZnA HEC-RAS v 5.0.7
114	Richmond Branch	Approximate	Limited Detail	2.9		LowerPlum_ZnA HEC-RAS v 5.0.7
115	Richmond Branch Tributary 1	Approximate	Limited Detail	0.3		LowerPlum_ZnA HEC-RAS v 5.0.7
116	Richmond Branch Tributary 2	Approximate	Limited Detail	0.2		LowerPlum_ZnA HEC-RAS v 5.0.7
117	Richmond Branch Tributary 3	Approximate	Limited Detail	0.1		LowerPlum_ZnA HEC-RAS v 5.0.7
119	Spring Branch Tributary 1	Approximate	Limited Detail	0.2		LowerPlum_ZnA HEC-RAS v 5.0.7
120	Spring Branch Tributary 2	Approximate	Limited Detail	0.2		LowerPlum_ZnA HEC-RAS v 5.0.7
121	Stream096	Limited Detail	Limited Detail	0.4		LowerPlum_ZnA HEC-RAS v 5.0.7
122	Town Branch	Limited Detail	Detailed	5.1		TownBranch HEC-RAS v 5.0.7
123	Unnamed Tributary 84	Limited Detail	Limited Detail	1.5		UnnamedCreek84 HEC-RAS v 5.0.7
124	Unnamed Tributary 87	Limited Detail	Limited Detail	4.2		UnnamedCreek87 HEC-RAS v 5.0.7
125	Unnamed Tributary 87 Spillway	Limited Detail	Limited Detail	0.4		UnnamedCreek87 HEC-RAS v 5.0.7
126	Upper Plum Creek Tributary 1	Approximate	Limited Detail	0.8		UpperPlum_ZnA HEC-RAS v 5.0.7
127	Upper Plum Creek Tributary 2	Approximate	Limited Detail	0.5		UpperPlum_ZnA HEC-RAS v 5.0.7
128	Upper Plum Creek Tributary 4	Approximate	Limited Detail	0.1		UpperPlum_ZnA HEC-RAS v 5.0.7

Rational for Model Selected	
Hydrologic Analysis	The TWDB will update the available hydrologic models to a consistent analysis: HEC-HMS version 4.3, USACE Snyder's unit hydrograph method with initial and constant loss rate hydrologic simulations. The precipitation data will be updated to Atlas 14, the 2018 National Oceanic and Atmospheric Administration (NOAA) published precipitation-frequency values for Texas. The model parameters will be reviewed in comparison to the newly available 2017 LiDAR and recent aerial photography to conduct updates, as appropriate.
Hydraulic Analysis	The TWDB will update the available detailed and limited detailed hydraulic models to a consistent analysis: HEC-RAS version 5.0.7, one-dimensional, steady-state hydraulic simulations. The models and stream crossings will be reviewed in comparison to the newly available 2017 LiDAR and conduct updates, as appropriate. Floodway analysis will be performed where required along the detailed study reaches using the one-dimensional, steady-state hydraulic simulations.


San Leanna
Austin
Hays
35
RM 967
45
SH 45
Mustang Ridge
130
Buda
FM 1626
Unnamed Tributary 87
Brushy Creek
Brushy Creek Tributary 1
Andrews Branch
Porter Creek
Bunton Branch
Creedmoor
Mountain City
SH 21
FM 812
FM 535
FM 1854
Niederwald
Kyle
Uhland
Elm Creek
Clear Fork Plum
San Marcos
FM 2001
US 183
FM 672
Boggy Creek
Town Branch
Plum Creek
County Road 158
County Road 159
SH 142
Lockhart
Clear Fork Plum Creek
SH 130
FM 713
Martindale
FM 86
FM 621
Staples
SH 80
FM 671
County Road 141
FM 1322
Harwood
FM 20
FM 1386
Gander Slough
US 90
Luling
IH 10
FM 1150
Old Seguin Luling
Texas Water
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