Appendix F-1 | F-1.1

Table 19 – FMS, FMP, FME Funding Survey

Entities Responding to Survey Denoted in **Bold**

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
						Non-construction costs	Construction-related costs	Total estimated cost	Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
									ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Clay	FME	Clay County FIS	011000002	2034	$ 1,169,000	$ -	$ 1,169,000	Other	0%	100%	100%
1	Foard	FME	Foard County FIS	011000003	2034	$ 749,000	$ -	$ 749,000	Other	0%	100%	100%
1	Cottle	FME	Cottle County FIS	011000004	2034	$ 926,000	$ -	$ 926,000	Other	0%	100%	100%
1	Motley	FME	Motley County FIS	011000005	2034	$ 974,000	$ -	$ 974,000	Other	0%	100%	100%
1	Floyd	FME	Floyd County FIS	011000006	2034	$ 1,115,000	$ -	$ 1,115,000	Other	0%	100%	100%
1	Wilbarger	FME	Wilbarger County FIS	011000007	2034	$ 983,000	$ -	$ 983,000	Other	0%	100%	100%
1	Hardeman	FME	Hardeman County FIS	011000008	2034	$ 678,000	$ -	$ 678,000	Other	0%	100%	100%
1	Knox	FME	Knox County FIS	011000009	2034	$ 873,000	$ -	$ 873,000	Other	0%	100%	100%
1	King	FME	King County FIS	011000010	2034	$ 955,000	$ -	$ 955,000	Other	0%	100%	100%
1	Dickens	FME	Dickens County FIS	011000011	2034	$ 920,000	$ -	$ 920,000	Other	0%	100%	100%
1	Baylor	FME	Baylor County FIS	011000012	2034	$ 912,000	$ -	$ 912,000	Other	0%	100%	100%
1	Carson	FME	Carson County FIS	011000013	2034	$ 826,000	$ -	$ 826,000	Other	0%	100%	100%
1	Oldham	FME	Oldham County FIS	011000014	2034	$ 1,447,000	$ -	$ 1,447,000	Other	0%	100%	100%
1	Hemphill	FME	Hemphill County FIS	011000015	2034	$ 887,000	$ -	$ 887,000	Other	0%	100%	100%
1	Roberts	FME	Roberts County FIS	011000016	2034	$ 870,000	$ -	$ 870,000	Other	0%	100%	100%
1	Hutchinson	FME	Hutchinson County FIS	011000017	2034	$ 895,000	$ -	$ 895,000	Other	0%	100%	100%
1	Moore	FME	Moore County FIS	011000018	2034	$ 835,000	$ -	$ 835,000	Other	0%	100%	100%
1	Hartley	FME	Hartley County FIS	011000019	2034	$ 1,361,000	$ -	$ 1,361,000	Other	0%	100%	100%
1	Childress	FME	Childress County FIS	011000020	2034	$ 711,000	$ -	$ 711,000	Other	0%	100%	100%
1	**Hall**	**FME**	**Hall County FIS**	**011000021**	**2034**	**$ 892,000**	**$ -**	**$ 892,000**	**Other**	**0%**	**100%**	**100%**
1	Briscoe	FME	Briscoe County FIS	011000022	2034	$ 902,000	$ -	$ 902,000	Other	0%	100%	100%
1	Swisher	FME	Swisher County FIS	011000023	2034	$ 929,000	$ -	$ 929,000	Other	0%	100%	100%
1	Castro	FME	Castro County FIS	011000024	2034	$ 873,000	$ -	$ 873,000	Other	0%	100%	100%
1	**Parmer**	**FME**	**Parmer County FIS**	**011000025**	**2034**	**$ 789,000**	**$ -**	**$ 789,000**	**Other**	**0%**	**100%**	**100%**
1	Collingsworth	FME	Collingsworth County FIS	011000026	2034	$ 909,000	$ -	$ 909,000	Other	0%	100%	100%
1	Donley	FME	Donley County FIS	011000027	2034	$ 957,000	$ -	$ 957,000	Other	0%	100%	100%
1	Armstrong	FME	Armstrong County FIS	011000028	2034	$ 863,000	$ -	$ 863,000	Other	0%	100%	100%
1	Deaf Smith	FME	Deaf Smith County FIS	011000029	2034	$ 1,283,000	$ -	$ 1,283,000	Other	0%	100%	100%
1	Wheeler	FME	Wheeler County FIS	011000030	2034	$ 892,000	$ -	$ 892,000	Other	0%	100%	100%
1	**Sherman**	**FME**	**Sherman County FIS**	**011000031**	**2034**	**$ 838,000**	**$ -**	**$ 838,000**	**Other**	**0%**	**100%**	**100%**
1	Dallam	FME	Dallam County FIS	011000032	2034	$ 1,297,000	$ -	$ 1,297,000	Other	0%	100%	100%
1	Lipscomb	FME	Lipscomb County FIS	011000033	2034	$ 924,000	$ -	$ 924,000	Other	0%	100%	100%
1	Ochiltree	FME	Ochiltree County FIS	011000034	2034	$ 859,000	$ -	$ 859,000	Other	0%	100%	100%
1	Hansford	FME	Hansford County FIS	011000035	2034	$ 841,000	$ -	$ 841,000	Other	0%	100%	100%
1	Cooke	FME	Cooke County FIS	011000036	2034	$ 917,000	$ -	$ 917,000	Other	0%	100%	100%
1	Montague	FME	Montague County FIS	011000037	2034	$ 981,000	$ -	$ 981,000	Other	0%	100%	100%
1	Wichita	FME	Wichita County FIS	011000038	2034	$ 643,000	$ -	$ 643,000	Other	0%	100%	100%
1	Hale	FME	Hale County FIS	011000039	2034	$ 1,076,000	$ -	$ 1,076,000	Other	0%	100%	100%
1	Potter	FME	Potter County FIS	011000040	2034	$ 929,000	$ -	$ 929,000	Other	0%	100%	100%

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Randall	FME	Randall County FIS	011000041	2034	$ 872,000	$ -	$ 872,000	Other	0%	100%	100%
1	Gray	FME	Gray County FIS	011000042	2034	$ 908,000	$ -	$ 908,000	Other	0%	100%	100%
1	Cooke	FME	Cooke County Drainage Master Plan	011000043	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Montague	FME	Montague County Drainage Master Plan	011000044	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Floyd	FME	Floyd County Drainage Master Plan	011000045	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Wilbarger	FME	Wilbarger County Drainage Master Plan	011000046	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Dickens	FME	Dickens County Drainage Master Plan	011000047	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Archer	FME	Archer County Drainage Master Plan	011000048	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Carson	FME	Carson County Drainage Master Plan	011000049	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Potter	FME	Potter County Drainage Master Plan	011000050	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Roberts	FME	Roberts County Drainage Master Plan	011000051	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Hutchinson	FME	Hutchinson County Drainage Master Plan	011000052	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Hartley	FME	Hartley County Drainage Master Plan	011000053	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Childress	FME	Childress County Drainage Master Plan	011000054	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	**Hall**	**FME**	**Hall County Drainage Master Plan**	**011000055**	**2034**	**$ 500,000**	**$ -**	**$ 500,000**	**Other**	**0%**	**100%**	**100%**
1	Swisher	FME	Swisher County Drainage Master Plan	011000056	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Randall	FME	Randall County Drainage Master Plan	011000057	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Wheeler	FME	Wheeler County Drainage Master Plan	011000058	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Dallam	FME	Dallam County Drainage Master Plan	011000059	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Lipscomb	FME	Lipscomb County Drainage Master Plan	011000060	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Ochiltree	FME	Ochiltree County Drainage Master Plan	011000061	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%

Entities Responding to Survey Denoted in **Bold**

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
						Non-construction costs	Construction-related costs	Total estimated cost	Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
									ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Quitaque	FME	Quitaque City Drainage Master Plan	011000062	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Jolly	FME	Jolly City Drainage Master Plan	011000063	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Clarendon	FME	Clarendon City Drainage Master Plan	011000064	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Randall, Lake Tanglewood	FME	Lake Tanglewood City Drainage Master Plan	011000065	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	**Randall, Palisades**	**FME**	**Palisades City Drainage Master Plan**	**011000066**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Other**	**0%**	**100%**	**100%**
1	Lakeview	FME	Lakeview City Drainage Master Plan	011000067	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Windthorst	FME	Windthorst City Drainage Master Plan	011000068	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Petrolia	FME	Petrolia City Drainage Master Plan	011000069	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Cashion Community	FME	Cashion City Drainage Master Plan	011000070	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Canadian	FME	Canadian City Drainage Master Plan	011000071	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Pampa	FME	Pampa City Drainage Master Plan	011000072	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Pleasant Valley	FME	Pleasant Valley City Drainage Master Plan	011000073	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Tulia	FME	Tulia City Drainage Master Plan	011000074	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Shamrock	FME	Shamrock City Drainage Master Plan	011000075	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Holliday	FME	Holliday City Drainage Master Plan	011000076	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Silverton	FME	Silverton City Drainage Master Plan	011000077	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Hereford	FME	Hereford City Drainage Master Plan	011000078	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Scotland	FME	Scotland City Drainage Master Plan	011000079	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Lefors	FME	Lefors City Drainage Master Plan	011000080	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Burkburnett	FME	Burkburnett City Drainage Master Plan	011000081	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Nocona	FME	Nocona City Drainage Master Plan	011000083	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Vega	FME	Vega City Drainage Master Plan	011000084	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Seymour	FME	Seymour City Drainage Master Plan	011000085	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Darrouzett	FME	Darrouzett City Drainage Master Plan	011000086	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Spearman	FME	Spearman City Drainage Master Plan	011000087	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Vernon	FME	Vernon City Drainage Master Plan	011000088	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	**Iowa Park**	**FME**	**Iowa Park City Drainage Master Pan**	**011000089**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	Childress	FME	Childress City Drainage Master Plan	011000090	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Perryton	FME	Perryton City Drainage Master Plan	011000091	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Megargel	FME	Megargel City Drainage Master Plan	011000092	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Groom	FME	Groom City Drainage Master Plan	011000093	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	White Deer	FME	White Deer City Drainage Master Plan	011000094	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	**Randall, Timbercreek Canyon**	**FME**	**Timbercreek Canyon City Drainage Master Plan**	**011000095**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**General Revenue**	**15%**	**85%**	**100%**
1	Electra	FME	Electra City Drainage Master Plan	011000096	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	**Lakeside City**	**FME**	**Lakeside City City Drainage Master Plan**	**011000097**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Other**	**0%**	**100%**	**100%**
1	**Wichita Falls**	**FME**	**Wichita Falls City Drainage Master Plan**	**011000098**	**2034**	**$ 1,000,000**	**$ -**	**$ 1,000,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	Dalhart	FME	Dalhart City Drainage Master Plan	011000099	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Skellytown	FME	Skellytown City Drainage Master Plan	011000100	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%
1	Panhandle	FME	Panhandle City Drainage Master Plan	011000101	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Clarendon	FME	City of Clarendon GIS Development	011000102	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	**Randall, Palisades**	**FME**	**City of Palisades GIS Development**	**011000103**	**2034**	**$ 50,000**	**$ -**	**$ 50,000**	**Other**	**0%**	**100%**	**100%**
1	Shamrock	FME	City of Shamrock GIS Development	011000104	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Silverton	FME	City of Silverton GIS Development	011000105	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Lefors	FME	City of Lefors GIS Development	011000106	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	**Fritch**	**FME**	**City of Fritch GIS Development**	**011000107**	**2034**	**$ 50,000**	**$ -**	**$ 50,000**	**Other**	**0%**	**100%**	**100%**
1	Seymour	FME	City of Seymour GIS Development	011000108	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Spearman	FME	City of Spearman GIS Development	011000109	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Perryton	FME	City of Perryton GIS Development	011000110	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Dalhart	FME	City of Dalhart GIS Development	011000111	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Panhandle	FME	City of Panhandle GIS Development	011000112	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Potter	FME	Potter County GIS Development	011000113	2034	$ 50,000	$ -	$ 50,000	Other	0%	100%	100%
1	Panhandle Regional Planning Commission	FME	Region-Wide Dam Safety	011000114	2034	$ 1,718,000	$ -	$ 1,718,000	Other	0%	100%	100%
1	Farmers Creek Watershed Authority	FME	Farmers Creek Watershed Authority Dam Evaluation	011000115	2034	$ 517,000	$ -	$ 517,000	Other	0%	100%	100%
1	**Randall, Amarillo**	**FME**	**Amarillo City Drainage Master Plan**	**011000082**	**2034**	**$ 1,000,000**	**$ -**	**$ 1,000,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Amarillo**	**FME**	**East Amarillo Creek Project Planning - St. Francis Ave. Tributary Channel Reach (City of Amarillo)**	**011000116**	**2034**	**$ 250,000**	**$ 87,500**	**$ 337,500**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**

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									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Amarillo	FME	East Amarillo Creek Project Planning - Echo Street Tributary Channel Reach (City of Amarillo)	011000117	2034	$ 250,000	$ 200,000	$ 450,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Comanche Drainage Channel (City of Amarillo)	011000118	2034	$ 250,000	$ 186,000	$ 436,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Culverts: Various Locations (City of Amarillo)	011000119	2034	$ 250,000	$ 2,223,000	$ 2,473,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	West Amarillo Creek Project Planning - Amarillo Country Club Channel Reach (City of Amarillo)	011000120	2034	$ 250,000	$ 314,000	$ 564,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	West Amarillo Creek Project Planning - Partridge/Cloud Crest Channel Reach (City of Amarillo)	011000121	2034	$ 250,000	$ 321,000	$ 571,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Quail Creek Channel from Plum Creek Storm Channel Reach (City of Amarillo)	011000122	2034	$ 250,000	$ 100,000	$ 350,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	East Amarillo Creek Project Planning - Lower East Amarillo Creek Channel Reach (City of Amarillo)	011000123	2034	$ 250,000	$ 1,334,000	$ 1,584,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	East Amarillo Creek Project Planning - Hastings Ave. to River Road Channel Reach (City of Amarillo)	011000124	2034	$ 250,000	$ 2,102,000	$ 2,352,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	East Amarillo Creek Project Planning - Valley Park Tributary Channel Reach (City of Amarillo)	011000125	2034	$ 250,000	$ 556,000	$ 806,000	Dedicated Revenue Incl. Fees	25%	75%	100%

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									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Randall, Amarillo	FME	SE 34th/ Grand at Comanche Golf Course Channel (City of Amarillo)	011000126	2034	$ 250,000	$ 411,000	$ 661,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	West Amarillo Creek Project Planning - Westcliff Channel Reach (City of Amarillo)	011000127	2034	$ 250,000	$ 45,000	$ 295,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	West Amarillo Creek Project Planning - Wolfin Avenue Channel Reach (City of Amarillo)	011000128	2034	$ 250,000	$ 2,060,000	$ 2,310,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	West Amarillo Creek Project Planning - Tascosa/Westwood Channel Reach (City of Amarillo)	011000129	2034	$ 250,000	$ 392,000	$ 642,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	East Amarillo Creek Project Planning - Ross Rogers Tributary Channel Reach (City of Amarillo)	011000130	2034	$ 250,000	$ 267,000	$ 517,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa No. 14 Project Planning - Diamond Horseshoe Lake (City of Amarillo)	011000131	2034	$ 250,000	$ 297,000	$ 547,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa No. 7 Project Planning (City of Amarillo)	011000132	2034	$ 250,000	$ 741,000	$ 991,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McCarty Lake Project Planning (City of Amarillo)	011000133	2034	$ 382,000	$ 7,647,000	$ 8,029,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Willow Grove Project Planning (City of Amarillo)	011000134	2034	$ 250,000	$ 684,000	$ 934,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Bennett Lake Project Planning (City of Amarillo)	011000135	2034	$ 556,000	$ 11,115,000	$ 11,671,000	Dedicated Revenue Incl. Fees	25%	75%	100%

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RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
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1	Amarillo	FME	Lawrence Lake Project Planning (City of Amarillo)	011000136	2034	$ 250,000	$ 2,326,000	$ 2,576,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa No. 34 Project Planning (City of Amarillo)	011000137	2034	$ 250,000	$ 223,000	$ 473,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Wild Horse Lake Project Planning (City of Amarillo)	011000138	2034	$ 250,000	$ 149,000	$ 399,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	West Amarillo Creek Project Planning - AISD/B I-40/MediPark (City of Amarillo)	011000139	2034	$ 250,000	$ 1,283,000	$ 1,533,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	East Amarillo Creek Project Planning - North Bolton St. Storm Sewer (City of Amarillo)	011000140	2034	$ 250,000	$ 415,000	$ 665,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McCarty Lake Project Planning - Fulton/ Hampton Storm Sewer (City of Amarillo)	011000141	2034	$ 250,000	$ 2,394,000	$ 2,644,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa No. 4 Outfall (City of Amarillo)	011000142	2034	$ 250,000	$ 1,853,000	$ 2,103,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McDonald Lake Project Planning - Wesley, Tripp/Van Winkle Storm Sewer (City of Amarillo)	011000143	2034	$ 250,000	$ 321,000	$ 571,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McDonald Lake Project Planning - Walmart/ Lowes Storm Sewer (City of Amarillo)	011000144	2034	$ 250,000	$ 713,000	$ 963,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Lawrence Lake Outfall (City of Amarillo)	011000145	2034	$ 250,000	$ 575,000	$ 825,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa No. 7 Coulter/Loop 335 Storm Sewer (City of Amarillo)	011000146	2034	$ 250,000	$ 1,642,000	$ 1,892,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McCarty Lake Project Planning - Downstream I-27 (City of Amarillo)	011000147	2034	$ 383,000	$ 7,661,000	$ 8,044,000	Dedicated Revenue Incl. Fees	25%	75%	100%

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1	Randall, Amarillo	FME	McCarty Lake Project Planning - Hillside/Hampton Storm Sewer (1B) (City of Amarillo)	011000148	2034	$ 250,000	$ 3,828,000	$ 4,078,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Willow Grove Project Planning - Rushmore/Hayden Storm Sewer (City of Amarillo)	011000149	2034	$ 250,000	$ 727,000	$ 977,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Gooch Lake Project Planning - 27th Ave/RR Storm Sewer (City of Amarillo)	011000150	2034	$ 250,000	$ 89,000	$ 339,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Wild Horse Lake Project Planning - ONG/Lipscomb Storm Sewer (City of Amarillo)	011000151	2034	$ 250,000	$ 2,772,000	$ 3,022,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McDonald Lake Project Planning - Coulter Street Storm Sewer (City of Amarillo)	011000152	2034	$ 250,000	$ 1,283,000	$ 1,533,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Lawrence Lake Project Planning - Dilday Draw Storm Sewer (City of Amarillo)	011000153	2034	$ 250,000	$ 534,000	$ 784,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Lawrence Lake Project Planning - Fleetwood Drive Storm Sewer (City of Amarillo)	011000154	2034	$ 250,000	$ 2,107,000	$ 2,357,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Lawrence Lake Project Planning - Julian Blvd. Storm Sewer (City of Amarillo)	011000155	2034	$ 250,000	$ 623,000	$ 873,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Lawrence Lake Project Planning - Olsen/Emil Storm Sewer (City of Amarillo)	011000156	2034	$ 250,000	$ 2,016,000	$ 2,266,000	Dedicated Revenue Incl. Fees	25%	75%	100%

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1	Randall, Amarillo	FME	Lawrence Lake Project Planning - SW 26th Avenue Storm Sewer (City of Amarillo)	011000157	2034	$ 250,000	$ 1,425,000	$ 1,675,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Amarillo	FME	Wild Horse Lake Improvement (City of Amarillo)	011000158	2034	$ 250,000	$ 156,000	$ 406,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McCarty Lake Project Planning - Hillside/Hampton Storm Sewer (2A) (City of Amarillo)	011000159	2034	$ 250,000	$ 3,269,000	$ 3,519,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McCarty Lake Project Planning - Hillside/Hampton Storm Sewer (2B) (City of Amarillo)	011000160	2034	$ 250,000	$ 1,437,000	$ 1,687,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa 4 Watershed Study (City of Amarillo)	011000161	2034	$ 431,000	$ -	$ 431,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McDonald Lake Watershed Study (City of Amarillo)	011000162	2034	$ 282,000	$ -	$ 282,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa 8 Watershed Study (City of Amarillo)	011000163	2034	$ 284,000	$ -	$ 284,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Lawrence Lake Watershed Study (City of Amarillo)	011000164	2034	$ 1,000,000	$ -	$ 1,000,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Bennett Lake Watershed Study (City of Amarillo)	011000165	2034	$ 195,000	$ -	$ 195,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Playa 11 Watershed Study (City of Amarillo)	011000166	2034	$ 424,000	$ -	$ 424,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	Diamond Horseshoe Lake Watershed Study (City of Amarillo)	011000167	2034	$ 247,000	$ -	$ 247,000	Dedicated Revenue Incl. Fees	25%	75%	100%
1	Randall, Amarillo	FME	McCarty Lake Watershed Study (City of Amarillo)	011000168	2034	$ 923,000	$ -	$ 923,000	Dedicated Revenue Incl. Fees	25%	75%	100%

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1	**Randall, Amarillo**	**FME**	**Willow Grove Lake Watershed Study (City of Amarillo)**	**011000169**	**2034**	**$ 246,000**	**$ -**	**$ 246,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Amarillo**	**FME**	**Playa 35 Watershed Study (City of Amarillo)**	**011000170**	**2034**	**$ 420,000**	**$ -**	**$ 420,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Randall, Canyon**	**FME**	**Pump Station Rehab (City of Amarillo)**	**011000172**	**2034**	**$ 125,000**	**$ -**	**$ 125,000**	**Other**	**0%**	**100%**	**100%**
1	**Amarillo**	**FME**	**Wild Horse Lake Watershed Study (City of Amarillo)**	**011000171**	**2034**	**$ 548,000**	**$ -**	**$ 548,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Randall, Amarillo**	**FME**	**Convert Playa ASAPP Models into ICPR (City of Amarillo)**	**011000173**	**2034**	**$ 500,000**	**$ -**	**$ 500,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Potter, Randall, Canyon**	**FME**	**Spring Draw Watershed Study**	**011000175**	**2034**	**$ 499,000**	**$ -**	**$ 499,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Randall, Amarillo**	**FME**	**Bivins Lake Dam Evaluation (City of Amarillo)**	**011000174**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Randall, Canyon**	**FME**	**Canyon Drainage Master Plan**	**011000177**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**General Revenue**	**25%**	**75%**	**100%**
1	**Randall, Canyon**	**FME**	**Improve Storm Water Drainage and Control Systems (City of Canyon)**	**011000178**	**2034**	**$ 50,000**	**$ -**	**$ 50,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Wichita Falls**	**FME**	**Detailed Hydrologic and Hydraulic Study of the Wichita River**	**011000179**	**2034**	**$ 528,000**	**$ -**	**$ 528,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	**Randall, Canyon**	**FME**	**Improve Creek Crossing (City of Palisades)**	**011000180**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Other**	**0%**	**100%**	**100%**
1	Clay	FME	Clay County Drainage Master Plan	011000181	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Baylor	FME	Baylor County Drainage Master Plan	011000182	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	**Randall, Amarillo**	**FME**	**Tributary to West Amarillo Creek Watershed Study (City of Amarillo)**	**011000176**	**2034**	**$ 1,000,000**	**$ -**	**$ 1,000,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	Wichita	FME	Wichita County Drainage Master Plan	011000189	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%

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1	Quitaque	FMS	Quitaque NFIP Involvement	012000002	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Dean	FMS	Dean NFIP Involvement	012000003	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Jolly	FMS	Jolly NFIP Involvement	012000004	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Mobeetie	FMS	Mobeetie NFIP Involvement	012000005	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Hedley	FMS	Hedley NFIP Involvement	012000006	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Nazareth	FMS	Nazareth NFIP Involvement	012000007	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Texhoma	FMS	Texhoma NFIP Involvement	012000008	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Lakeview	FMS	Lakeview NFIP Involvement	012000009	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Estelline	FMS	Estelline NFIP Involvement	012000010	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Stratford	FMS	Stratford NFIP Involvement	012000011	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Windthorst	FMS	Windthorst NFIP Involvement	012000012	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Bellevue	FMS	Bellevue NFIP Involvement	012000013	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Adrian	FMS	Adrian NFIP Involvement	012000014	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Cashion Community	FMS	Cashion NFIP Involvement	012000015	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Dodson	FMS	Dodson NFIP Involvement	012000016	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Silverton	FMS	Silverton NFIP Involvement	012000017	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Lockney	FMS	Lockney NFIP Involvement	012000018	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Chillicothe	FMS	Chillicothe NFIP Involvement	012000019	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Vega	FMS	Vega NFIP Involvement	012000020	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	McLean	FMS	McLean NFIP Involvement	012000021	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Stinnett	FMS	Stinnett NFIP Involvement	012000022	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%

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1	Sanford	FMS	Sanford NFIP Involvement	012000023	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Perryton	FMS	Perryton NFIP Involvement	012000025	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Miami	FMS	Miami NFIP Involvement	012000026	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Skellytown	FMS	Skellytown NFIP Involvement	012000027	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Claude	FMS	Claude NFIP Involvement	012000028	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Matador	FMS	Matador NFIP Involvement	012000029	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Cottle	FMS	Cottle County NFIP Involvement	012000030	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Hardeman	FMS	Hardeman County NFIP Involvement	012000031	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Knox	FMS	Knox County NFIP Involvement	012000032	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Carson	FMS	Carson County NFIP Involvement	012000033	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Hemphill	FMS	Hemphill County NFIP Involvement	012000034	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Roberts	FMS	Roberts County NFIP Involvement	012000035	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Hutchinson	FMS	Hutchinson County NFIP Involvement	012000036	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Moore	FMS	Moore County NFIP Involvement	012000037	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Hartley	FMS	Hartley County NFIP Involvement	012000038	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Briscoe	FMS	Briscoe County NFIP Involvement	012000039	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Donley	FMS	Donley County NFIP Involvement	012000040	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Armstrong	FMS	Armstrong County NFIP Involvement	012000041	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Deaf Smith	FMS	Deaf Smith County NFIP Involvement	012000042	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Wheeler	FMS	Wheeler County NFIP Involvement	012000043	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%

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1	**Sherman**	**FMS**	**Sherman County NFIP Involvement**	**012000044**	**2034**	**$ 100,000**	**$ -**	**$ 100,000**	**Other**	**0%**	**100%**	**100%**
1	Dallam	FMS	Dallam County NFIP Involvement	012000045	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Lipscomb	FMS	Lipscomb County NFIP Involvement	012000046	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Ochiltree	FMS	Ochiltree County NFIP Involvement	012000047	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Panhandle Regional Planning Commission	FMS	Region-Wide Turn Around/Don't Drown	012000048	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Panhandle Regional Planning Commission	FMS	Region-Wide Public Awareness	012000049	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	**Amarillo**	**FME**	**Culverts: Various Locations (City of Amarillo)**	**011000183**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Randall, Amarillo**	**FMS**	**City of Amarillo Update Stormwater Criteria**	**012000050**	**2034**	**$ 100,000**	**$ -**	**$ 100,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Randall, Amarillo**	**FMS**	**City of Amarillo Develop Criteria for Playa Development**	**012000051**	**2034**	**$ 100,000**	**$ -**	**$ 100,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Randall, Amarillo**	**FMS**	**City of Amarillo Gages for Playas**	**012000052**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	**Randall, Canyon**	**FMS**	**City of Canyon Establish Stormwater Utility Fee**	**012000054**	**2034**	**$ 200,000**	**$ -**	**$ 200,000**	**General Revenue**	**25%**	**75%**	**100%**
1	**Randall, Canyon**	**FMS**	**City of Canyon Acquire, Buyout, and Flood-Proofing Program**	**012000055**	**2034**	**$ 6,000,000**	**$ -**	**$ 6,000,000**	**Other**	**0%**	**100%**	**100%**
1	**Randall, Canyon**	**FMS**	**City of Canyon Flood Warning Gages**	**012000056**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**General Revenue**	**5%**	**95%**	**100%**
1	**Randall, Canyon**	**FMS**	**City of Canyon Stream and Culvert Maintenance**	**012000057**	**2034**	**$ 100,000**	**$ -**	**$ 100,000**	**General Revenue**	**15%**	**85%**	**100%**
1	**Randall, Canyon**	**FMS**	**City of Canyon Floodplain Regulation and Higher Standards (CRS)**	**012000058**	**2034**	**$ 100,000**	**$ -**	**$ 100,000**	**Other**	**0%**	**100%**	**100%**
1	**Randall, Canyon**	**FMS**	**City of Canyon Installation of LWC Gates on Flood-Prone Roadways**	**012000059**	**2034**	**$ 1,000,000**	**$ -**	**$ 1,000,000**	**General Revenue**	**10%**	**90%**	**100%**

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Wichita	FMS	Wichita County Ordinance Development	012000060	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	**Randall, Amarillo**	**FMS**	**City of Amarillo Flood Warning System**	**012000053**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Dedicated Revenue Incl. Fees**	**25%**	**75%**	**100%**
1	Channing	FMS	Channing NFIP Involvement	012000062	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	Panhandle Regional Planning Commission	FMS	Region-Wide Initiative to Increase Communities with Dedicated Funding Sources for Operations & Maintenance of Storm Drainage System	012000063	2034	$ 100,000	$ -	$ 100,000	Other	0%	100%	100%
1	**Amarillo**	**FMP**	**T-Anchor Lake Drainage Improvements**	**013000001**	**2034**	**$ -**	**$ 31,300,000**	**$ 31,300,000**	**Dedicated Revenue Incl. Fees**	**30%**	**70%**	**100%**
1	**Wichita Falls**	**FMP**	**Rhea Road Drainage Project**	**013000002**	**2034**	**$ -**	**$ 2,995,000**	**$ 2,995,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	**Wichita Falls**	**FMP**	**Brenda Hursh Enhancement Project**	**013000003**	**2034**	**$ -**	**$ 4,151,000**	**$ 4,151,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	**Canyon**	**FMP**	**City of Canyon Flood Mitigation Project**	**013000012**	**2034**	**$ -**	**$ 37,238,000**	**$ 37,238,000**	**Other**	**0%**	**100%**	**100%**
1	**Wichita Falls**	**FMP**	**Wichita Gardens Drainage Improvements**	**013000013**	**2034**	**$ -**	**$ 10,008,000**	**$ 10,008,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	**Wichita Falls**	**FMP**	**Echo/Neta Lane Drainage Project (City of Wichita Falls)**	**013000015**	**2034**	**$ -**	**$ 2,853,000**	**$ 2,853,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	**Wichita Falls**	**FMP**	**Hirschi - Huskie Drainage Project (City of Wichita Falls)**	**013000016**	**2034**	**$ -**	**$ 632,000**	**$ 632,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	**Wichita Falls**	**FMP**	**Landon, Duty, and Sunset Street and Drainage Project (City of Wichita Falls)**	**013000017**	**2034**	**$ -**	**$ 2,120,000**	**$ 2,120,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	**Wichita Falls**	**FMP**	**Spanish Trace Drainage Project (City of Wichita Falls)**	**013000018**	**2034**	**$ -**	**$ 1,043,000**	**$ 1,043,000**	**Dedicated Revenue Incl. Fees**	**100%**	**0%**	**100%**
1	Chillicothe	FME	Chillicothe City Drainage Master Plan	011000191	2034	$ 250,000	$ -	$ 250,000	Other	0%	100%	100%

Entities Responding to Survey Denoted in **Bold**

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	**Henrietta**	**FME**	**Henrietta City Drainage Master Plan**	**011000192**	**2034**	**$ 250,000**	**$ -**	**$ 250,000**	**Other**	**0%**	**100%**	**100%**
1	**Borger**	**FME**	**Hazelwood SD/Stephens SD/Sterling St Culvert**	**011000193**	**2034**	**$ 250,000**	**$ 2,789,000**	**$ 3,039,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Borger**	**FME**	**Haggard SD/Finger SD/11th St Culvert**	**011000194**	**2034**	**$ 250,000**	**$ 1,704,000**	**$ 1,954,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Borger**	**FME**	**Turner SD**	**011000195**	**2034**	**$ 250,000**	**$ 2,186,000**	**$ 2,436,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Borger**	**FME**	**Garrett SD/Peiffer SD/Teague SD**	**011000196**	**2034**	**$ 250,000**	**$ 1,870,000**	**$ 2,120,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Borger**	**FME**	**Monroe Basin**	**011000197**	**2034**	**$ 250,000**	**$ 691,000**	**$ 941,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Borger**	**FME**	**1st St - Main to Hedgecoke**	**011000198**	**2034**	**$ 250,000**	**$ 586,000**	**$ 836,000**	**General Revenue**	**10%**	**90%**	**100%**
1	**Borger**	**FME**	**2nd St - Hedgecoke to Bryan**	**011000199**	**2034**	**$ 250,000**	**$ 538,000**	**$ 788,000**	**General Revenue**	**10%**	**90%**	**100%**
1	Tulia	FME	Tule Dams	011000200	2034	$ 58,000	$ -	$ 58,000	Other	0%	100%	100%
1	Amarillo	FME	Palo Duro Dams (South)	011000201	2034	$ 58,000	$ -	$ 58,000	Other	0%	100%	100%
1	Childress, Darrouzet	FME	Lower Prairie Dog Town Fork Red Dams	011000203	2034	$ 277,000	$ -	$ 277,000	Other	0%	100%	100%
1	Ochiltree	FME	Upper Wolf Dams	011000204	2034	$ 58,000	$ -	$ 58,000	Other	0%	100%	100%
1	Electra	FME	Southern Beaver Dams	011000205	2034	$ 58,000	$ -	$ 58,000	Other	0%	100%	100%
1	Donley County SWCD, Hall Childress SWCD	FME	Upper Prairie Dog Town Fork Red Dams	011000206	2034	$ 189,000	$ -	$ 189,000	Other	0%	100%	100%
1	Wichita Falls, Petrolia, Iowa Park, Byers	FME	Wichita Dams	011000207	2034	$ 189,000	$ -	$ 189,000	Other	0%	100%	100%
1	Donley County SWCD	FME	Middle Canadian-Spring Dams	011000208	2034	$ 102,000	$ -	$ 102,000	Other	0%	100%	100%
1	Gray County SWCD	FME	Upper North Fork Red Dams	011000209	2034	$ 277,000	$ -	$ 277,000	Other	0%	100%	100%
1	Dalhart	FME	Rita Blanca Dams	011000210	2034	$ 58,000	$ -	$ 58,000	Other	0%	100%	100%
1	Archer City, Wichita Falls, Windthorst WSC	FME	Little Wichita Dams	011000211	2034	$ 145,000	$ -	$ 145,000	Other	0%	100%	100%
1	Greenbelt Municipal & Industrial Water Authority	FME	Upper Salt Fork Red Dams	011000212	2034	$ 58,000	$ -	$ 58,000	Other	0%	100%	100%
1	Palo Duro River Authority	FME	Palo Duro Dams (North)	011000213	2034	$ 58,000	$ -	$ 58,000	Other	0%	100%	100%
1	**Gainesville, Nocona, Denison, Upper Elm-Red SWCD**	**FME**	**Farmers-Mud Dams**	**011000214**	**2034**	**$ 321,000**	**$ -**	**$ 321,000**	**Other**	**10%**	**90%**	**100%**

Entities Responding to Survey Denoted in **Bold**

RFPG #	Sponsor Entity Name	FMS or FMP or FME	FMS FMP FME - Name	Regional plan's unique FMS/FMP/FME identification number	Target year of full implementation	Estimated costs in plan			Estimated percent (share) of total FMS, FMP, or FME estimated cost			
									Sponsor Funding		Other Funding Needed (including state, federal and/ or other funding)	TOTAL (auto) sum must = 100%
						Non-construction costs	Construction-related costs	Total estimated cost	ANTICIPATED SOURCE of Sponsor funding (e.g., taxes; general revenue; dedicated revenue incl. fees)	FUNDING TO BE FINANCED BY SPONSOR (incl. those local, county, or regional mechanisms available but not yet fully utilized)		
1	Wichita	FME	Wichita County Streams Evaluation	011000215	2034	$ 500,000	$ -	$ 500,000	Other	0%	100%	100%
1	Wichita	FMP	China Creek	013000019	2034	$ -	$ 455,000	$ 455,000	Other	0%	100%	100%
1	Burkburnett	FMP	Wild Horse Creek	013000020	2034	$ -	$ 3,411,000	$ 3,411,000	Other	0%	100%	100%
1	Iowa Park	FMP	Buffalo Creek	013000021	2034	$ -	$ 686,000	$ 686,000	Other	0%	100%	100%
1	Burkburnett, Wichita	FMP	Gilbert Creek	013000022	2034	$ -	$ 11,783,000	$ 11,783,000	Other	0%	100%	100%
1	**Randall**	**FMP**	**Site 01-Rockwell & Soncy**	**013000023**	**2034**	**$ -**	**$ 713,000**	**$ 713,000**	**General Funds**	**10%**	**90%**	**100%**
1	**Randall**	**FMP**	**Site 02-Happy West & Bell**	**013000024**	**2034**	**$ -**	**$ 1,225,000**	**$ 1,225,000**	**General Funds**	**10%**	**90%**	**100%**
1	**Randall**	**FMP**	**Site 03-Hix & FM 217**	**013000025**	**2034**	**$ -**	**$ 1,216,000**	**$ 1,216,000**	**General Funds**	**10%**	**90%**	**100%**
1	**Randall**	**FMP**	**Site 04-Country Club**	**013000026**	**2034**	**$ -**	**$ 1,243,000**	**$ 1,243,000**	**General Funds**	**10%**	**90%**	**100%**
1	**Randall**	**FMP**	**Site 08-Running Water & FM 1714**	**013000027**	**2034**	**$ -**	**$ 471,000**	**$ 471,000**	**General Funds**	**10%**	**90%**	**100%**
1	**Randall**	**FMP**	**Site 09-Hill & 46th**	**013000028**	**2034**	**$ -**	**$ 2,373,000**	**$ 2,373,000**	**General Funds**	**10%**	**90%**	**100%**
1	**Randall**	**FMP**	**Site 11-Gordon-Cummings**	**013000029**	**2034**	**$ -**	**$ 1,181,000**	**$ 1,181,000**	**General Funds**	**10%**	**90%**	**100%**
1	**Randall**	**FMP**	**Site 12-Tradewinds & Farmers**	**013000030**	**2034**	**$ -**	**$ 3,885,000**	**$ 3,885,000**	**General Funds**	**10%**	**90%**	**100%**

Appendix G-1

Response to Comments on Draft Regional Flood Plan

RESPONSE LOG TO COMMENTS
DRAFT REGIONAL FLOOD PLAN

Innovative approaches
Practical results
Outstanding service

Client: Canadian - Upper Red RFPG (Sponsor: PRPC)
Project: Region 1: Canadian - Upper Red RFP
Document: Draft RFP

Comments Received: 9/26/22, 10/10/22, 10/21/22
Discipline: Stormwater
Comments Provided by: USACE, TPWD, TWDB

Comment Response Log

Reviewer					***Technical Consultant***				
						Resolution		Backchecked & Approved	
Comment #	Category	Classification	Comment Reference	Review Comment/Questions	Resolution/ Response	Date	Name	Date	Name
1	TWDB - Level 1	Action Required	General Comments	1. Please ensure that all "Submittal Requirements" identified in each of the Exhibit C Guidance document sections are submitted in the final flood plan.	FNI utilized checklist provided by TWDB to ensure a complete submittal.	1/3/2023	Ella Pettichord (FNI)	1/10/2023	Wylie Gorup (FNI)
2	TWDB - Level 1	Action Required	Executive Summary	2. Please correct the total anticipated cost amount in Table ES-11, the table currently shows a total of $191.2 M instead of what should appear to be $262.1 M (page ES-20).	Amounts have been corrected and replaced based on Chapter 5/9 tables.	11/1/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
3	TWDB - Level 1	Action Required	SOW Task 1	1. Watershed, GIS Feature Class, Watersheds: Please ensure that the watersheds referenced in FMEs are included in the Watersheds feature class. For example, watersheds applicable to FME_IDs 011000117, 011000165, and 011000171 do not appear to be listed in the Watersheds feature class. Please review and revise as appropriate as described in Exhibit D 3.2.	Watersheds have been updated where appropriate.	10/31/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
4	TWDB - Level 1	Action Required	SOW Task 1	2. Existing Flood Infrastructure, (Exhibit C Table 1): There appears to be a discrepancy between the total number of Low Water Crossings in Table 1 (1,245 entries) and the ExFldInfraPt feature class (1,249 entries). Please review and revise as appropriate as described in Exhibit D 3.3 [31 TAC §361.31].	Reviewed data to confirm feature counts; four additional LWC were identified in Hutchinson County. It is possible that features were added after creation of Table 1. Table was updated to match feature class.	10/25/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
5	TWDB - Level 1	No Action Needed	SOW Task 2A	3. Existing Condition Flood Risk Analyses, Text: Please include a reference to Exhibit C Table 3 in the text as per guidance document (page 27): Once Task 2A Existing Condition Flood Risk Analyses is complete, RFPGs must include a summary table with findings summarizing flood risk by county (Exhibit C Table 3).	Table 3 is referenced in the second paragraph of Chapter 2: "TWDB-required Tables 3 and 5 summarize the quantitative results of this analysis by county and are included in Appendix B-2."	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
6	TWDB - Level 1	Action Required	SOW Task 2A	4. Existing Condition Flood Hazard GIS Feature Class, ExFldHazard: The 'Total Hazard Area' shown in Table 3 does not appear to match the total land area of the ExFldHazard feature class for 1% and 0.2% annual chance flood hazard extents. Please review and revise as appropriate. [31 TAC §361.33(b)].	Rounding difference betwen GIS and Table created small differences in totals. Table 3 has been manually modified to match GIS. In R01_Exhibit_C_Tables, existing and future flood risk values were swapped. This has been corrected.	12/5/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
7	TWDB - Level 1	Action Required	SOW Task 2A	5. Existing Condition Flood Map Gaps GIS Feature Class, Ex_Map_Gaps: Please use the required format for all ID fields, such as 'WS_ID'. Leave these NULL or "999999" if there is no data. For example, EXGAPS_ID 01000875 contains a '-' for 'WS_ID'. Please review and reconcile [31 TAC §361.33(b)(5)].	Updated to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter. EXGAPS_ID 01000875 WS_ID and HUC12 corrected from - to null. All layers checked for '-' and 999999 in HUCs, Counties, and fields using Entity IDs and changed to NULL.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
8	TWDB - Level 1	Action Required	SOW Task 2A	6. Existing Condition Flood Exposure (Exhibit C Table 3): a. Please ensure that the population count in Table 3 is the maximum of day and night population. "Population (daytime)" and "Population (nighttime)" columns may be added to the left of "Population" in Table 3 to facilitate this check. [31 TAC §361.33 & Exhibit C 2.2.A.3]	Population counts have been changed from max per building to max per county in day vs night in Tables 3 and 5.	11/1/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)

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Discipline: Stormwater
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Reviewer					***Technical Consultant***				
						Resolution		Backchecked & Approved	
Comment #	Category	Classification	Comment Reference	Review Comment/Questions	Resolution/ Response	Date	Name	Date	Name
9	TWDB - Level 1	Action Required	SOW Task 2A	6. Existing Condition Flood Exposure (Exhibit C Table 3): b. Please ensure that the values for day and night populations in Table 3 are consistent with the ExFldExpAll feature class. For example, the feature class includes day and night population counts by region, but Table 3 population counts are zero. Please review and revise as appropriate. [31 TAC §361.33 & Exhibit C 2.2.A.3].	Three counties have 0 population: Crosby, Hale, and Young. Crosby has no features in ExFldExpAll. Hale has 30 features in ExFldExpAll, all of which are agricultural land or roadway segements with 0 population. Young has 2 features in ExFldExpAll, both are agricultural land with 0 population. Therefore, we believe no changes are needed. Populations in flood prone areas were corrected by resolving comment 11.	10/25/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
10	TWDB - Level 1	Action Required	SOW Task 2A	6. Existing Condition Flood Exposure (Exhibit C Table 3): c. The Hazard area in Table 3 does not appear to match the ExFldExpAll feature class. Please review and reconcile [31 TAC §361.33 & Exhibit C 2.2.A.3].	Comment meant to refer to ExFldHazard, not ExFldExpAll per conversation with TWDB. Values have been modified to match between Table 3 and ExFldHazard. In R01_Exhibit_C_Tables, existing and future flood risk values were swapped. This has been corrected.	12/5/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
11	TWDB - Level 1	Action Required	SOW Task 2A	6. Existing Condition Flood Exposure (Exhibit C Table 3): d. Please ensure that the total counts in Table 3 for both Residential Buildings and Structures are consistent with the counts in the ExFldExpAll feature class [31 TAC §361.33 & Exhibit C 2.2.A.3].	Vlookup issue has been corrected for all flood prone area columns, which impacted agricultural areas, roadway segments, and population as well.	10/26/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
12	TWDB - Level 1	Action Required	SOW Task 2A	7. Existing Condition Flood Exposure GIS Feature Class, ExFldExpPol: There appears to be an approximately 44 square mile rectangular area missing from the ExFldExpPol feature class near the Cottle County area. This same area is not missing for Cottle County in Map 6. Please check the feature class for consistency with static maps and ensure that no data is missing [31 TAC §361.33(c) & Exhibit C 2.2.A.2].	This area is a nature preserve, so while there are areas of flood hazard, there is no flood exposure because there are no agricultural areas or built infrastructure. A label has been added to the maps indicating the 44 square-mile nature preserve.	12/2/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
13	TWDB - Level 1	No Action Needed	SOW Task 2B	8. Future Condition Flood Risk Analyses, Text: Please include a reference to Exhibit C Table 5 in the text as per guidance document (page 35): Once Task 2B Future Condition Flood Risk Analyses is complete, RFPGs must include a summary table with findings summarizing flood risk by county (Exhibit C Table 5).	Table 5 is referenced in the second paragraph of Chapter 2: "TWDB-required Tables 3 and 5 summarize the quantitative results of this analysis by county and are included in Appendix B-2."	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
14	TWDB - Level 1	Action Required	SOW Task 2B	9. Future Condition Flood Hazard GIS Feature Class, Fut_Map_Gaps: a.It appears that some fields are missing entries, including 'COUNTY' and 'HUC8'. Please complete all required fields with valid entries. Please note that the required fields for this feature class will be the same as Exhibit D Table 10, Fld_Map_Gaps feature class [31 TAC §361.34(b)(6)].	Updated to the latest acceptable data format from the "Accomodations for Draft Comments" guidelines.	11/2/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
15	TWDB - Level 1	Action Required	SOW Task 2B	9. Future Condition Flood Hazard GIS Feature Class, Fut_Map_Gaps: b.Please use the specified format for all ID fields such as 'WS_ID'. Leave these Null or "999999" if there is no data.	Updated to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter. HUC12 and WS_ID null for both features, FUTGAPS_ID 01000001 spatial fields all null.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)

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Reviewer					*Technical Consultant*				
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Comment #	Category	Classification	Comment Reference	Review Comment/Questions	Resolution/ Response	Date	Name	Date	Name
16	TWDB - Level 1	Action Required	SOW Task 2B	10. Future Condition Flood Vulnerability, (Exhibit C Map 12): There is no legend on the index maps and upon review it appears to reference the wrong data set. Please review and revise as appropriate per [31 TAC §361.34(d) & Exhibit C 2.2.B.2].	A legend was added. Confirmed the correct dataset is being mapped.	11/15/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
17	TWDB - Level 1	Action Required	SOW Task 3A	11. Existing Floodplain Management Practices, Text: Values shown in Table 3-1 does not appear to be consistent with text in section 3A.1.3. Please review and revise as appropriate per [31 TAC §361.35 (d), Exhibit C 2.3.A].	Updated the text of 3A.1.3 to reflect the correct number of cities and counties with higher standards adopted.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
18	TWDB - Level 1	Action Required	SOW Task 4B	12. Flood Mitigation Projects GIS Feature Class, FMP: Please refrain from using numeric placeholders (such as ”999999”) in numeric fields such as ‘REMSTRUC500’ as this causes errors in calculations. Please leave NULL when the field is not applicable or unknown. Please ensure valid entries for all required fields per Exhibit D Table 24 [31 TAC §361. 38(c- e)].	Updated to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter. All 999999 values were replaced with NULL.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
19	TWDB - Level 1	Action Required	SOW Task 4B	13. Flood Management Strategies GIS Feature Class, FMS: Several required fields contain NULL values. For example, ‘REDSTRUCT100’, ‘REMPOP’, and ‘NRNC_COST’. Please ensure valid entries for all required fields per Exhibit D Table 24 [31 TAC §361. 38(d)].	Updated to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter. All fields with - replaced with NULL. REDSTRUCT100, REMPOP, and NRNC_COST are all 0, not null.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
20	TWDB - Level 1	Action Required	SOW Task 5	14. Flood Mitigation Project Recommendations, GIS Feature Class, FMP: a. Please refrain from using numeric placeholders (such as ”999999”) in numeric fields such as ‘BC_RATIO’, ‘REMSTRC100’ and ‘REMSTRC500’ as this causes errors in calculations. Please leave NULL when the field is not applicable or unknown. Please ensure valid entries for all required fields per Exhibit D Table 24 [31 TAC §361. 39].	Updated to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter. All 999999 values were replaced with NULL.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
21	TWDB - Level 1	Action Required	SOW Task 5	14. Flood Mitigation Project Recommendations, GIS Feature Class, FMP: b. There are some fields that contain invalid entries, including ‘NEG_IMPACT’. Please complete all required fields with valid entries per Exhibit D Table 24.	Updated to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter. All 999999 values were replaced with NULL.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
22	TWDB - Level 1	Action Required	SOW Task 5	14. Flood Mitigation Project Recommendations, GIS Feature Class, FMP: c. Several required fields contain NULL values. For example, ‘REDSTRUCT100’, ‘REMPOP’, and ‘NRNC_COST’. Please ensure valid entries for all required fields per Exhibit D Table 24 [31 TAC §361. 39].	Updated to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter. All 999999 values were replaced with NULL. No NRNC_Cost field in FMPs.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
23	TWDB - Level 2	Action Required	General Comments	15. To help align with TWDB’s preferred, standard nomenclature, please use “Cursory Floodplain Data” instead of “Fathom” or Cursory Fathom Data” throughout the regional flood plan.	Updated language throughout report to align with TWDB's preferred nomenclature and remove subsequent references to Fathom.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
24	TWDB - Level 2	Action Required	General Comments	16. Please consider clarifying who, more specifically, if possible, is meant to be indicated when referring to the “State” on page 8-6.	Replaced "the State" with the appropriate state agencies and organizations (TxDOT, TWDB, and TFMA).	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

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Comment #	Category	Classification	Comment Reference	Review Comment/Questions	Resolution/ Response	Date	Name	Date	Name
25	TWDB - Level 2	Action Required	SOW Task 1	17. Planning Area Description, Text: Please consider reviewing and revising language for consistency. For example, 'food mitigation' is used instead of "flood mitigation" on pages ES- 1 and 1-1.	Final report was reviewed for spelling, grammar and clarity. Non-substantive changes were made to correct errors and promote consistency.	1/3/2023	Ella Pettichord (FNI)	1/10/2023	Wylie Gorup (FNI)
26	TWDB - Level 2	No Action Needed	SOW Task 1	18. Existing Flood Infrastructure, Text: Please consider providing a description of how Low Water Crossings were identified within the text of Chapter 1.	This text is included in Section 1.2.2.3 which discusses two sources: the TWDB low water crossing dataset and low water crossings generated based on historical flood data from TxDOT.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
27	TWDB - Level 2	Action Required	SOW Task 1	19. Existing Flood Infrastructure, GIS Feature Class, ExFldInfraLn: Please consider including more descriptive language, if available, in the required field 'DESCR' for some of the entries.	More descriptive language has been added where appprpriate.	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
28	TWDB - Level 2	Action Required	SOW Task 2A	20. Existing Condition Flood Hazard Map (Exhibit C Map 5): Please consider adding a title to the map.	Map title added.	12/13/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
29	TWDB - Level 2	Action Required	SOW Task 2A	21. Existing Condition Flood Exposure, GIS Feature Class, ExFldExpLn: Please consider evaluating the potential flood risks associated with electric power transmission and/or natural gas pipelines. Relevant datasets can be found on the Flood Planning Data Hub for potential incorporation with the ExFldExpLn feature class.	Added language to Chapter 2A.2.3 to discuss flood risks associated with power transmission and gas pipelines and to describe expected losses of function. These features were not included in the flood exposure database at this time but may be considered for inclusion in future cycles.	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
30	TWDB - Level 2	Action Required	SOW Task 2A	22. Existing Condition Flood Exposure, GIS Feature Class, ExFldExpPt: There are several power generating facilities that appear to be within the ExFldHazard feature class extent, but not identified in the ExFldExpPt feature class. Please consider evaluating the potential flood risks associated with electric power generating facilities. Relevant datasets can be found on the Flood Planning Data Hub for potential incorporation with the ExFldExpPt feature class.	Added language to Chapter 2A.2.3 to discuss flood risks associated with power transmission and gas pipelines and to describe expected losses of function. These features were not included in the flood exposure database at this time but may be considered for inclusion in future cycles.	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
31	TWDB - Level 2	Action Required	SOW Task 2A	23. Existing Condition Flood Exposure (Exhibit C Map 6): Several maps appear to be missing road labels and labels appear over the legend and inset map. For example, Map 6 # 14 of 44. Please consider reviewing and modifying as appropriate.	Labeling conflicts were addressed.	12/13/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
32	TWDB - Level 2	Action Required	SOW Task 2A	24. Existing Condition Flood Vulnerability (Exhibit C Map 7): a. Map 7 # 1 of 17 appears to have two titles on top of one another. Please consider revising.	Title has been corrected.	12/13/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
33	TWDB - Level 2	Action Required	SOW Task 2A	24. Existing Condition Flood Vulnerability (Exhibit C Map 7): b. Some maps include waterway titles that appear to be covering the legend. For example, see Map 7 # 3 of 17 - Moore County. Please consider revising.	Labeling conflicts were addressed.	12/13/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
34	TWDB - Level 2	Action Required	SOW Task 2A	24. Existing Condition Flood Vulnerability (Exhibit C Map 7): c. Some maps appear to be incorrectly labeled as "Existing Exposure". For example, please see Map 7 #1 of 17. Please ensure the correct map title and data are included.	Title has been corrected.	12/13/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)

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35	TWDB - Level 2	No Action Needed	SOW Task 2B	25. Existing Condition Flood Hazard GIS Feature Class, ExFldHazard: Please verify that the lake, reservoir, and riverbank extents are appropriately represented in the floodplain boundary utilizing the USGS National Hydrography Dataset. For example, the hazard levels for Lake Meredith appear to be incorrect. Please review and revise as appropriate.	This comment introduced a new data source to the flood hazard layer that was not discussed in Section 3.3.D of Exhibit C. Therefore, this change was not implemented. If TWDB would like this data to be considered when developing flood hazard information, we recommend noting NHD as a valid data source for flood hazard area in Exhibit C and/or providing source data through the Data Hub .	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
36	TWDB - Level 2	Action Required	SOW Task 2B	26. Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: a. EXEXPALL_ID 010024116 has "No" listed in the 'CRITICAL' column, but this appears to be the Hardeman County Memorial Hospital (Hospital Layer - ID 0043779252). Please review critical infrastructure layers to ensure that the critical structures in the ExFldExpAll feature class are properly identified.	Hardeman County hospital was marked as critical in the ExFldExpAll feature class.	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
37	TWDB - Level 2	Action Required	SOW Task 2B	26. Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: b. The agricultural coverage layers appear to have irregular missing rectangular features that may be a result of the conversion of a raster to polygon. Please review and revise, as appropriate.	Missing rectangular features were filled in.	11/8/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
38	TWDB - Level 2	No Action Needed	SOW Task 2B	26. Existing Condition Flood Exposure GIS Feature Class, ExFldExpAll: c. The ExFldExpAll feature class does not appear to account for all ExFldExpLn segments. For example, EXEXPLN_ID 01002068Ln does not appear to be accounted for. Please review all existing exposure features and be sure to include them in the ExFldExpAll feature class.	Feature counts were reviewed and confirmed to match.	10/27/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
39	TWDB - Level 2	Action Required	SOW Task 2B	27. Future Condition Flood Hazard Map (Exhibit C Map 8): Map 8 #s 2 and 6 of 44 are missing road numbering information with empty white circles displayed. Some maps include waterway and other titles covering the legend for example please see Map # 3 of 44.	Labeling conflicts were addressed.	12/13/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
40	TWDB - Level 2	Action Required	SOW Task 2B	28. Future Condition Flood Exposure Vulnerability, Text: Consider providing more details on the vulnerabilities of critical facilities to flooding by looking at factors such as proximity to a floodplain, proximity to other bodies of water, past flooding issues, emergency management plans, and location of critical systems like primary and back-up power.	This analysis only identified critical facilities within known flood hazard areas. A paragraph was added to Section 2.A.2.2 (Critical Facilities) discussing the vulnerabilities of critical facilities that are not captured by this analysis.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

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41	TWDB - Level 2	Action Required	SOW Task 2B	29. Future Condition Flood Hazard GIS Feature Class, FutFldExpPol: a. There are several power generating facilities that appear to be within the FutFldHazard feature class extent, but not identified in the FutFldExpPt feature class. Please consider evaluating the potential flood risks associated with electric power generating facilities. Relevant datasets can be found on the Flood Planning Data Hub for potential incorporation with the FutFldExpPt feature class.	Added language to Chapter 2A.2.3 to discuss flood risks associated with power transmission and gas pipelines and to describe expected losses of function. These features were not included in the flood exposure database at this time but may be considered for inclusion in future cycles.	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
42	TWDB - Level 2	Action Required	SOW Task 2B	29. Future Condition Flood Hazard GIS Feature Class, FutFldExpPol: b. There appears to be an approximately 44 square mile rectangular area missing from the FutFldExpPol feature class near the Cottle County area. This same area is not missing for Cottle County in Map 11. Please check feature class for consistency with static maps and ensure that no data is missing.	This area is a nature preserve, so while there are areas of flood hazard, there is no flood exposure because there are no agricultural areas or built infrastructure. A label has been added to the maps indicating the 44 square-mile nature preserve.	12/2/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
43	TWDB - Level 2	No Action Needed	SOW Task 2B	30. Future Condition Flood Hazard GIS Feature Class, FutFldExpLn: Please consider evaluating the potential flood risks associated with electric power transmission and/or natural gas pipelines. Relevant datasets can be found on the Flood Planning Data Hub for potential incorporation with the FutFldExpLn feature class.	Added language to Chapter 2A.2.3 to discuss flood risks associated with power transmission and gas pipelines and to describe expected losses of function. These features were not included in the flood exposure database at this time but may be considered for inclusion in future cycles.	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
44	TWDB - Level 2	Action Required	SOW Task 2B	31. Future Condition Flood Vulnerability GIS Feature Class, FutFldExpAll: The agricultural coverage layers appear to have irregular missing rectangular features that may be a result of the conversion of a raster to polygon. Please review and revise as appropriate.	Missing rectangular features were filled in.	11/8/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
45	TWDB - Level 2	No Action Needed	SOW Task 2B	32. Future Condition Flood Hazard GIS Feature Class, FutFldHazard: Please verify that the lake, reservoir and riverbank extents are appropriately represented in the floodplain boundary utilizing the USGS National Hydrography Dataset. For example, the hazard levels for Lake Meredith appear to be incorrect . Please review and revise as appropriate.	This comment introduced a new data source to the flood hazard layer that was not discussed in Section 3.3.D of Exhibit C. Therefore, this change was not implemented. If TWDB would like this data to be considered when developing flood hazard information, we recommend noting NHD as a valid data source for flood hazard area in Exhibit C and/or providing source data through the Data Hub .	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
46	TWDB - Level 2	Action Required	SOW Task 4A	33. Greatest Gaps Map (Exhibit C Map 14): Please consider updating the legend to provide greater details on HUC level shown, adding what values are associated with the “Lowest” and “Highest” colors, and including water bodies.	The legend was updated.	12/2/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
47	TWDB - Level 2	Action Required	SOW Task 4A	34. Greatest Risks Map (Exhibit C Map 15): Please consider updating the legend to provide greater details on HUC level shown, adding what values are associated with the “Lowest” and “Highest” colors, and including water bodies.	The legend was updated.	12/2/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)

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48	TWDB - Level 2	Action Required	SOW Task 4B	35. Flood Management Evaluation GIS Feature Class, FME: Please consider including information from completed FEMA BLE studies (https://webapps.usgs.gov/infrm/estbfe/) in Region 1 for the 'HYDRO_DATE' and 'HYDRA_DATE' fields.	Archer County and Farmers-Mud BLE added to FMEs.	11/3/2022	Ella Pettichord (FNI)	12/14/2022	Wylie Gorup (FNI)
49	TWDB - Level 2	Action Required	SOW Task 4B	36. Flood Management Strategies, (Exhibit C Table 14): a. Please consider if FMS_IDs 012000057 and 012000059, which included infrastructure and elevation should be an FMP instead of an FMS. If not, please provide brief additional description. Please review and revise accordingly.	These actions are not defined in sufficient level of detail for inclusion as FMP and were thus listed as FMSs. Additional description was added to Section 4B.4.2.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
50	TWDB - Level 2	Action Required	SOW Task 4B	36. Flood Management Strategies, (Exhibit C Table 14): b. Please review and consider if FMS_IDs 012000052 & 012000053, which includes installation of a flood warning system should be an FMP. If not, please provide brief additional description for clarification. Please review and revise accordingly.	These actions are not defined in sufficient level of detail for inclusion as FMP and were thus listed as FMSs. Additional description was added to Section 4B.4.2.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
51	TWDB - Level 2	No Action Needed	SOW Task 4B	37. Flood Management Strategies (Exhibit C Map 18): This map does not appear to match the FMS feature class. Please confirm if the region-wide feature exists, otherwise revise map and or feature class accordingly.	Confirmed correct feature class was being mapped.	12/2/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
52	TWDB - Level 2	Action Required	SOW Task 5	38. Flood Mitigation Project Recommendations (Exhibit C Map 20): Please review the table included within the map. Based on Table 16 there are 9 FMPs recommended in the plan, however, the table included in this map appears to show that only 5 FMPs are recommended.	Map and table were updated.	12/2/2022	Bryce Hamelwright (FNI)	12/13/2022	Robert Wood (FNI)
53	TWDB - Level 2	Action Required	SOW Task 5	39. Flood Mitigation Project Details, FMP_Details Table: Please consider using the specified format for all ID fields, such as 'SOURCE_ID' and 'WMS_ID'. For example, "N/A" should not be used. These fields should be NULL or "999999" if there is no data.	Update to latest acceptible data format. See "Accomodations for Draft Comments" attachment included w/Comment letter.	11/3/2022	Robert Wood (FNI)	12/13/2022	Robert Wood (FNI)
54	Public - USACE	No Action Needed	Table 8.1	Non regulatory regional flood control or drainage districts should be established and funded for rapidly growing urban areas such as DFW, Houston, San Antonio, etc. Responsibility would be to provide consistency, technical resources, funding and reviews in support of FME's, FMS's. These organizations would also implement or support implementation of FMP's. These organizations would augment communities and counties that just don't have the resources and expertise to manage flooding. Rapidly developing areas surrounding larger urban centers are at greater risk of having runoff patterns increasing because of development. These urban areas are comprised of many communities and unincorporated county areas. Many of the smaller communities are not funded or resourced to deal with the complexities of floodplain management and therefore there is a lack of or inconsistencies in floodplain management practices.	Region 1 does not contain any "rapidly growing urban areas" and the referenced cities are outside of Region 1. Four river and watershed authorities exist in Region 1 and serve this purpose.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

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55	Public - USACE	Action Required	Table 8.1	Clarify the early 2000's state legislation that provide counties the authority to regulate floodplains to explicitly allow and encorage activiites associated with floodplain management such as development of land use plans, regulatory authorites, e.g. permitting. Although state legislation was passed in the early 2000's which gave counties the ability to regulate floodplains, interpretation of these regulations varies widely from county to county. The legislate bill lacks implementation guidance in the form of administrative rules. If development is occuring in unincorporated areas, this development can dynamically impact flood risk.	Added additional explanation under recommendation 8.2.14 to note variability in interpretation of regulatory authority and the need for additional clarification from the State Legislature.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
56	Public - USACE	Action Required	Table 8.2	Require the use of n-values and channel conditions which would likely result if the channel or project were not maintained. Exceptions would be golf courses or other areas where an organization exists which would maintain the channel in perpetuity. Disallow maintence by marginal organizations such as home owners associations to justify acceptance of lower n-values as this is an unrealistic expectation. When channels are constructed, most often channel bed, banks and overbanks are cleared; however; with many miles of these channels, it is often difficult for communities to maintain those beds, banks and overbanks at their design conditions. Generally, there is a lack of channel maintenance to ensure flood conveyance areas, established as part of a development or improvement projects, to retain their design level n-values. This results in unexpected changes in channel conveyance and increased flooding. Channel maintenance is very expensive activity that can trigger environmental permitting requirements.	The RFP is not intended to provide technical modeling recommendations. It is ultimately the responsibility of the engineer to select appropriate roughness coefficients for project design and to the facilities operator to maintain appropriate use of the facility. The recommendation for establishing freeboard is consistent with accounting for changes in conveyance and debris blockages. An additional paragraph was added to Section 3A.1.5 noting unmaintained facilities as a known risk to future population and property.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

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57	Public - USACE	Action Required	Table 8.2	No loss of valley storage to the 500-year level. Communities could allow redistribution of valley storage to allow interactions with natural areas but no loss of storage. Land development in upstream areas increases runoff in downstream areas. This happens because of increased impervious cover and decreased tree cover, and therefore less ability to absorb rainfall. Additionally, development, in most communities, encroaches into riparian areas and decreases the amount of storage available to accommodate flood waters. Just the main thread of the Trinity River though DFW stores more flood waters during of flood than any three of the USACE reservoirs that provide flood protection for DFW. The many other stream provide even more storage than the main stem. There is limited capacity in rivers and streams to convey floodwaters. This means that all areas above any given conveyance point have to store flood water until sufficient time has laps to pass the water away from the impacted area. The streams are where this water is stored and depleting these storage areas will impact DS areas.	The RFPG voted to recommend a No Adverse Impact standard for development. Communities may decide the threshold for what constitutes an adverse impact. Language for Section 3A.2 (Recommendation 1) was updated to reflect that this standard can apply to flood storage as well as peak flows, velocities, and runoff volume.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
58	Public - USACE	Action Required	Table 8.2	Establish future land use plans for unincorporated areas associated with rapidly growing urban areas.	Future land use data was developed at a regional scale to assess development trends and flood risks for the 30-year planning horizon. Region 1 is still expected to be over 92% rural in 2053. Communities, rather than the RFPG, are ultimately responsible for creating and enforcing future land use plans to regulate development. However, discussion of future land use data for developing areas was added to Section 3A.1.5.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
59	Public - USACE	No Action Needed	Table 8.2	Use of ultimate development land use conditions in the development of future flows. Require use of future flows for regulation of floodplains and development of FMP's.	The authority to require the use of ultimate development land use conditions is a policy decision to be made by entities with flood-related authority. The national governing body for floodplain management (FEMA) does not regulate floodplains based on ultimate conditions. The RFPG chose to recommend a no adverse impacts standard to mitigate increases in flood flows, rather than recommend regulating based on ultimate conditions.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
60	Public - USACE	No Action Needed	Table 8.3	None	This comment does not apply; there is no Table 8-3 in the Region 1 RFP.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
61	Public - USACE	No Action Needed	Table 8.3	Potential FMS	This comment does not apply; there is no Table 8-3 in the Region 1 RFP.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

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						Resolution		Backchecked & Approved	
Comment #	Category	Classification	Comment Reference	Review Comment/Questions	Resolution/ Response	Date	Name	Date	Name
62	Public - USACE	Action Required	Table 8.3	Encorage storm shifting to validate 100-yr estimates and to provide a broader understanding of communities actual flood risk. Storms identified and cataloged as part of the GLO funded USACE led Texas Storm Study could be the primary source of storms to be shifted. Great deal of uncertainty in 100-yr estimates. Use of observed storms that approximately match depth duration data from NOAA Atlas 14 or other precipitation frequency sources validates 100-yr estimates. Additionally wet, dry and average conditions as well as conditions at the time the storm occured can be presented. Additionally, communities have and can experience storms that exceed the 100-yr. While not regulatory, this information will provide additional hazard mitigation data so communities can address critical infrastructure impacts and be better prepared.	The RFP is not intended to provide technical modeling recommendations. However, discussion of these technical sources to better estimate precipitation depths was added to Section 3A.1.4.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
63	Public - USACE	No Action Needed	Table 8.3	Add detail to Watershed Hydrology Assessments (WHA) for communities within basins with completed WHA's. The WHA for the Trinity has been completed. The WHA's, funded by FEMA, are considered the best available flood flow frequency estimates, e.g. 100-yr. These estimates consider the latest precipitation frequencies, the variations in watershed response and determine critical flood drivers by employing a wide range of sensitivity analysis for each computation point.	WHAs have been completed for the Trinity, Neches, and Guadalupe River basins and are underway in the Brazos, Lower Colorado and Nueces basins. A WHA has not been completed in the Canadian or Upper Red River basins.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
64	Public - USACE	No Action Needed	Table 8.3	Update WHA's when future precipitation frequency estimates become available. Efforts to develop future precipitation frequency estimates for Texas are starting.	WHAs have been completed for the Trinity, Neches, and Guadalupe River basins and are underway in the Brazos, Lower Colorado and Nueces basins. A WHA has not been completed in the Canadian or Upper Red River basins.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
65	Public - USACE	Action Required	Table 8.3	Establish regional efforts, for large urban centers to develop future land use data for all developing areas, not just incorporated areas, for use in developing future flood flow frequency estimates and future 100-yr (and other recurrence interval) hazard boundaries.	Future land use data was developed at a regional scale for the 30-year planning horizon. Region 1 is still expected to be over 92% rural in 2053. However, discussion of future land use data for developing areas was added to Section 3A.1.5.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

RESPONSE LOG TO COMMENTS
DRAFT REGIONAL FLOOD PLAN

FREESE AND NICHOLS

Innovative approaches
Practical results
Outstanding service

Client: Canadian - Upper Red RFPG (Sponsor: PRPC)
Project: Region 1: Canadian - Upper Red RFP
Document: Draft RFP

Comments Received: 9/26/22, 10/10/22, 10/21/22
Discipline: Stormwater
Comments Provided by: USACE, TPWD, TWDB

Comment Response Log

Reviewer					*Technical Consultant*				
						Resolution		Backchecked & Approved	
Comment #	Category	Classification	Comment Reference	Review Comment/Questions	Resolution/ Response	Date	Name	Date	Name
66	Public - TPWD	Action Required	N/A	Texas Conservation Action Plan (TCAP) is a guiding document for conservation in the state of Texas, with the goals of realizing conservation benefits, preventing species listings, and preserving our natural heritage for future generations. Species of Greatest Conservation Needs (SGCN) include numerous aquatic species such as fish, freshwater mussels, and salamanders. The TCAP handbook includes six types of priority habitats, three of which are aquatic: water resources; riparian and floodplains; and caves and karst. Issues affecting these environments include environmental flows, impoundments and dam operations, and water quality issues (including stormwater runoff). TPWD appreciates and supports the use of the best available science and most relevant data in developing RFPs and encourages RFPGs to take this into consideration.	Reference to the TCAP and expanded discussion of negative impacts on natural resources has been added to Section 1.1.8.3.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
67	Public - TPWD	Action Required	N/A	The goals of the Draft RFP include public education and outreach, improving flood warning and readiness, property acquisition, infrastructure projects to address flood mitigation and floodplain management goals. TPWD encorages the inclusion of ecological and societal benefits of flooding in any education program and appreciates the repeated mention of nature-based solutions and projects in the RFP.	Discussion of the natural flooding process is included in Section 1.1.2. Additional text regarding the focus on the negative impacts of flooding on the built environment rather than the positive impacts of this natural process was added in Section 1.1.8.3. Additionally, Section 4B.4.2 was updated to note that public education and outreach FMSs about flooding should also include components on its ecological and societal benefits.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
68	Public - TPWD	No Action Needed	N/A	The RFP identified 18 FMPs while recommending 9 potentially feasible FMPs, 184 ptoentially feasible FMEs, and 62 potentially feasbile FMSs. It appears that most of the recommended FMPs are infrastructure-based with only one nature-based solution being put forward. TPWD appreciates that the Draft RFP acknowledges the gap in flood risk and mitigation in relation to nature-based infrastructure in the region. TPWD understands that the goal of the RFP is to mitigate floods to reduce risk to life and property but would like to encourage the use of nature-based solutions where possible. The Draft RFP states that none of the projects or strategies are anticipated to have negative effects.	The FMPs in Region 1 for the first round of flood planning were compiled from existing sources. Unfortunately, no existing nature based solutions were identified in Region 1. An adopted goal in the Region is to consider and incorporate nature-based practices in 50% of recommended FMPs and FMSs within 10-years. As FMEs are performed and new FMPs are developed in future cycles, we expect a greater emphasis on nature-based solutions in support of this goal.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

RESPONSE LOG TO COMMENTS
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Comment Response Log

Reviewer					***Technical Consultant***				
Comment #	Category	Classification	Comment Reference	Review Comment/Questions	Resolution/ Response	Resolution		Backchecked & Approved	
						Date	Name	Date	Name
69	Public - TPWD	No Action Needed	N/A	TPWD would like to encourage all the FMX proponents to consider any stream crossing designs to allow for sediment transport and passage of aquatic organisms and do not impound water. Basically, designs that are invisible to the creek. This includes bridges that span the creek where possible or culverted crossings designed with the culvert(s) in the active channel area lower than those in the floodplain benches so that the flow in the channel is not overly spread out. The central/low-flow culvert(s) should be large enough to handle the 1.5-year flow without backing up water. The bottoms of these lower culverts should be set at least a foot below grade (i.e., recessed) to allow natural substrate to cover the culvert bottom and to allow for aqualtic organism passage. These lower, recessed culverts should be installed in the thalweg or deepest part of the channel and be aligned with the low flow channel.	The RFP does not provide specific design recommendations for FMPs. However, environmental impacts (benefits and adverse impacts) and permitting are considered within project recommendations and will ultimately be considered by TWDB in project scoring. Crossing designs that promote sediment transport and aquatic passage can be seen as providing environmental benefits.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)
70	Public - TPWD	Action Required	N/A	Lastly, TWPD appreciates the value and role of playas that is mentioned numerous times throughout the RFP. Playas play an important role in the Ogallala aquifer recharge and should be considered as part of the nature-based flood mitigation strategies as warranted.	Comment noted. The role of playas is discussed in Section 1.2.1.4. As nature-based solutions are developed in future cycles, the role of playas will be considered. Impacts on water supply are considered as part of Task 6, and coordination with Regional Water Planning Groups will be undertaken as necessary. A sentence was added under Section 6B.1 to specifically mention the role of playas in groundwater recharge.	12/14/2022	Wylie Gorup (FNI)	12/21/2022	Morgan White (FNI)

Appendix H-1

Making Connections with Rural Areas of RFPG Region 1 for Flood Planning Projects

Texas Water Development Board

Making Connections with Rural Areas of RFPG Region 1 for Flood Planning Projects

FINAL DELIVERABLE

PREPARED FOR FRESE AND NICHOLS AND REGIONAL FLOOD PLANNING GROUP 1

MAKING CONNECTIONS WITH RURAL AREAS OF RFPG REGION 1 FOR FLOOD PLANNING PROJECTS

This Plan was prepared for Region 1 Canadian-Upper Red

PREPARED FOR:

Frese and Nichols (FNI) and Regional Flood Planning Group 1 (RFPG1)

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Figure 18. Overview of public response to the question requesting the top 3 priorities for the Regional Flood Planning Group (RFPG) should include in the establishment of regional goals.

Figure 19. Map of Flood Planning Group Region 1 and location of data acquired by West Texas A&M and Midwestern State Universities. Data are coded to locality.

EXECUTIVE SUMMARY

As an outcome of Texas' response to the consequences of Hurricane Harvey, the State was divided into fifteen separate flood planning groups. Region 1, known as The Canadian – Upper Red River Basin Regional Flood Planning Area, is a sparsely populated region. Within an area close to 40,000 mi^2, the area's largest communities, Amarillo and Wichita Falls, serve as population hubs to the Region's 600,000 people. The members of this Region greatly contribute to the state and nation by its involvement in the energy and agriculture/ranching sectors. Geographically the Region is situated within both the Texas Panhandle and the Upper Red River region where precipitation varies across the area.

Because of its meteorological diversity and sparse population, the flood planning group representing the Region recently has expressed a strong interest in understanding contemporary and historical flooding events. The general perception could be that citizens residing in the drier and sparsely populated Region 1 would have fewer flooding experiences in comparison to other cities in the state such as Houston. As a result, the flood planning group tasked a research group consisting of 18 undergraduate and graduate students and 3 full-time faculty from West Texas A&M University and Midwestern State University to participate in a region-wide outreach activity during the months of January-May. The objective was for the group to engage in-person with community members, particularly those that reside in rural incorporated communities, by requesting them to complete– 1) an online questionnaire describing major events of flooding; 2) an interactive digital map in which participants geographically identified locations of flooding in their communities. Students and faculty were encouraged to canvass local businesses such as restaurants, diners, and feed stores. The group employed was to obtain 90 contacts, with at least two contacts from each county in Region 1.

The research group solicited rural inhabitants of Region 1 using a variety of methods to recruit respondents–1) media communication (television, radio, podcast, press releases, and print news); 2) cold calls and interviews; 3) visits to local business and government agencies; 4) referrals from university students and faculty. Through the aforementioned methods, the research group obtained a total of 185 total web map and online survey responses with 70 completed online questionnaires. Key responses from the survey included the entities impacted by flooding, the frequency of flooding, and the causes of flooding. First, nearly 2/3rds of those surveyed expressed that roadways were impacted the most by flooding. This was followed by buildings, natural areas, agriculture, and critical facilities. Second, most (83% of those surveyed) responded that their region flooded either every couple of months (44%) or once a year (39%). Third, the three most common responses to the causes of flooding include rainfall intensity (36 %), undersized/lack of drainage (28 %), and the site is too low or flat (26%).

Respondents were also asked questions associated with expressing ways to best resolve the issues associated with the problems of flooding in their communities. Citizens preferred to have flood risk management standards (73%) ***"recommended"*** instead of enforced; 63% requested to ***"adopt"*** minimum flood management standards. Respondents also commented that better drainage systems, flood response and warning systems, flood preparedness training, better road planning, improved cleared drainage systems would be beneficial to help mitigate flooding within their communities.

The number of responses and the prevalence of media coverage can be attributed to the strong ties that both faculty, staff, and students have to members within Region 1. In particular, a large portion of the 70 completed questionnaires were collected because several students recruited knowledgeable relatives and colleagues to complete the survey and web map. It was also found that whenever students did interact with members of the community during visits to local businesses, community members engaged well with university students. The group hypothesizes that university students are considered a non-threat when completing cold calls and interviews. This could be attributed to them being ambassadors to the universities that reside within the communities, and the fact that university students are laypersons without the outward appearance of being tied to any policy maker.

The lessons learned from this particular study include 1.) beginning the study earlier to allow time for students to complete the on-boarding process, 2.) schedule interviews with participants instead of canvassing at various local businesses or only use canvassing events as a way to request a respondent to simply identify a location on a map, and 3.) ask university personnel, faculty, and students to provide a list of contacts that would be willing to conduct an interview. This outreach activity was new to Region 1 and the outcomes not only exceeded the expectations of the State Flood Planning Group for Region 1, but also the data will provide key information to members on how to assist citizens in the Region.

BACKGROUND

Overview of the Establishing Act

In Texas, the billion dollar disaster is becoming a regular occurrence. Between 2015 and 2017, flooding alone caused nearly $5 billion in damages to Texas communities. When considered in conjunction with the impact of Hurricane Harvey, the total cost in 2017 approached $200 billion in financial losses (NOAA 2022) and nearly 100 deaths. As the state grappled with how to better manage flood risk and reduce loss of life and property from future disasters, the Texas Water Development Board (TWDB) prepared the first ever statewide flood assessment, which described Texas' flood risks, provided an overview of roles and responsibilities, and included an estimate of potential flood mitigation costs and a summary of stakeholder views on the future of flood planning.

This assessment was prepared because:

- Flood risks, impacts and mitigation costs had never been assessed at a statewide level
- Flood risks pose a serious threat to lives and livelihoods
- Much of the flood risk in Texas is unmapped, or is based on out-of-date maps (Lake 2019)

The TWDB presented its findings to the 86th Texas legislative session in 2019. Later that year, the Legislature adopted changes to Texas Water Code §16.061 which established a regional and state flood planning process led by the TWDB. The legislation provided funding to improve the State's floodplain mapping efforts and to develop regional plans to mitigate the impact of future flooding. Regional flood plans for each of the State's 15 major river basins must be submitted to the TWDB by January 10, 2023. An updated version of the regional flood plans will be due every five years thereafter. (Texas Water Development Board N.D.a)

Overview of the Planning Process

The Canadian – Upper Red River Basin Regional Flood Planning Area (also known as Region 1) is one of fifteen (15) Texas river basins preparing a flood plan. Given the diverse geography, culture and population of the state, the planning effort is being carried out at a regional level in each of the State's major river basins. When complete, the TWDB will compile these regional plans into a single statewide flood plan and will present it to the Legislature in 2024. Regional flood plans are required to be based on the best available science, data, models, and flood risk mapping. The legislature allocated funding to be distributed by the TWDB for the procurement of technical assistance to develop the regional flood plans. Freese and Nichols (FNI) was selected as the technical consultant to prepare the plan for the Canadian – Upper Red River Basin.

Roles and Responsibilities

The TWDB has appointed Regional Flood Planning Groups (RFPG) for each region and has provided them with funding to prepare their plans. The TWDB administers the regional planning process through a contract with the planning group's sponsor, who is selected by the RFPG. The sponsor's role is to provide support for meetings and communications and to manage the technical consultant contract.

The RFPG's responsibilities include directing the work of their technical consultant, soliciting and considering public input, identifying specific flood risks and identifying and recommending flood management evaluations, strategies and projects to

reduce risk in their regions. To ensure a diversity of perspectives are included, members represent a wide variety of stakeholders potentially affected by flooding, including:

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

When complete, the plans will focus both on reducing existing risk to life and property and on floodplain management to avoid increasing flood risk in the future by redirecting population growth away from flood prone areas.

Funding Sources

To fund projects identified by these plans, the Legislature created a new flood financial assistance fund (FIF) and charged the TWDB with administering the fund. The Texas Infrastructure Resiliency Fund, as approved by Texas voters in November 2019, is being used to finance the preparation of these plans, and will also be used to finance flood-related projects. Entities with identified flood mitigation solutions may be eligible for future financial assistance in the form of grants and/or loans from the TWDB.

Purposes of our study

The purpose of our study was to conduct a rural flood outreach survey and research project across the State Flood Planning Group Region 1 Canadian-Upper Red River basin. The primary goal of this research was to help understand the nature of flooding in rural areas and the barriers that people may face in obtaining solutions to flooding problems. The purpose of the State Flood Plan is to increase the resiliency of communities to floods as to avoid catastrophic consequences and to be proactive towards flood risk. Communities of any size and population density, if they can be sufficiently prepared for floods, can mitigate or eliminate the worst consequences from floods. These consequences include loss of life, damage to property, disruption of business, degradation of natural resources, missed opportunity to use rain and stormwater, and environmental damages.

The focus of the public outreach conducted during this study was on reaching rural communities using a variety of mechanisms to obtain grassroot level feedback. These rural areas in Texas all experience flood and flood risk to greater or lesser degrees. Through public outreach, we can identify some of the locations and people impacted by flooding in rural areas of Region 1, such as occurrences of flooding of roadways and overwhelming of private levies, flood inundation and subsequent economic/environmental damage to crop- and rangelands, and damage to life and property in rural homes and businesses.

Specifically, the purpose of this study is to help the State Flood Planning Group Region 1 to determine a path forward for many of these communities through determining:

1. **How residents Region 1 rural communities view flooding in general, and their specific flood problems** – As part of this study, we canvassed rural areas and solicited local knowledge of flooding, through interviews and engagement of the local rural community members, identifying areas and rural property owners that have had problems connected to actual flooding which has occurred or perceived flood risk. We have identified many of those areas in this study, and have documented the flood challenges they have.

   The purposes of these activities were (a) to ascertain where particular rural communities flood “problem areas” are located and (b) to examine themes in these types of communities. Presenting commonalities for flood

outsiders will be of benefit to many places in Texas and outside of Texas. The challenges of aiding flood mitigation outsiders may not look the same in all of Texas, but the issue is present in many places.

2. **Providing data that will help establish a model for connection of rural residents to Regional Flood Planning and sponsorship** – By knowing better where and why flood risk exists in these rural communities, we can provide data that can be used to examine the obstacles facing these communities regarding their inclusion in a Flood Plan. Obstacles could come in many forms as listed previously. Not every obstacle we listed may be a problem for each community, and there are potentially obstacles that we did not list simply due to our lack of local experience. The lack of local experience is a major driving force for the research project. The aim in this activity is similar to aim 1. We need to determine how to connect particular communities meaningfully and competitively into flood planning.

Consequently, we need to operationalize the experiences of these particular communities. In what ways do these communities present a flood problem they had and make it part of a flood plan that ultimately leads to a flood mitigation project? The presentation of their stories will generally encourage flood outsiders to participate and seek out flood planning. Additionally, we can provide outsider communities with a course of action and expectations to access state flood help. Any way that we can standardize and operationalize an otherwise complex and uncertain process will increase the chances that a community will invest their time and resources into flood project definition (writing it up with documentation) and sponsorship (aligning their need with the appropriate sponsor and finding advocates).

DESCRIPTION AND METHODS

Location Description

The Canadian – Upper Red Regional Flood Planning Area (Region 1) encompasses a wide variety of landscapes and communities and includes a number of major river systems within the Canadian and Red River basins (*Fig. 1*). All part of the greater Arkansas-White-Red system as defined by the U.S. Geological Survey (Seaber et al. 1987).

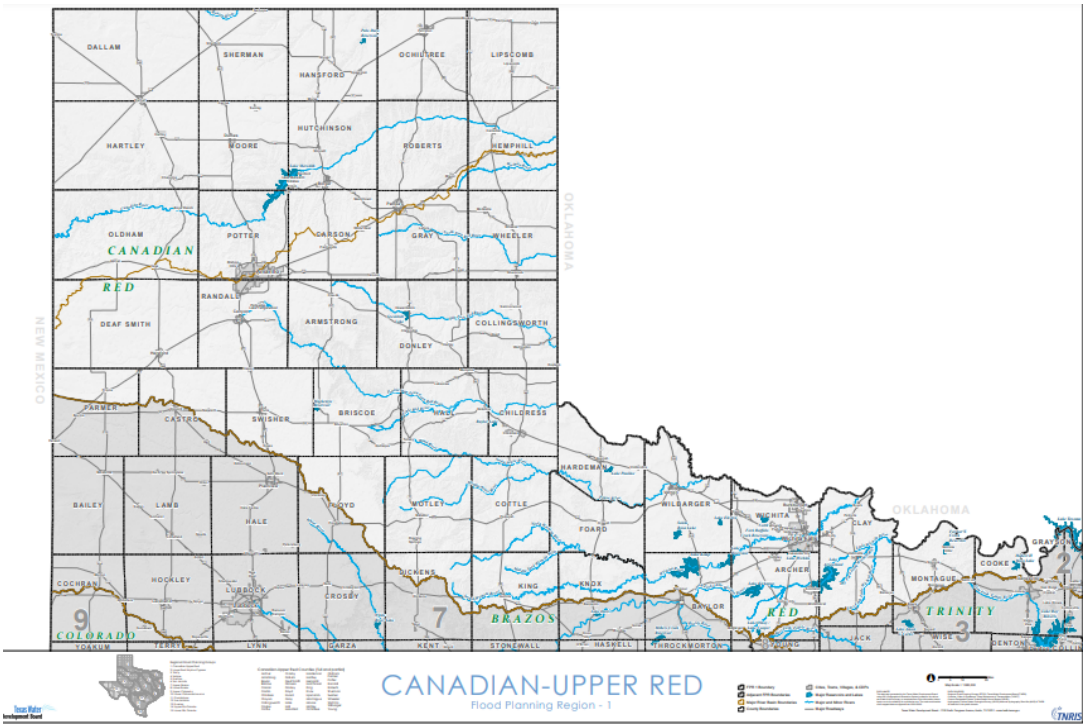

Figure 1. Map of the Canadian-Upper Red Flood Planning Region 1 with counties and major rivers and drainages denoted.

Precipitation across Region 1 ranges from 14-24 inches (*Fig*. 2), generally increasing from west to east. Precipitation falls mainly during intense spring and summer thunderstorms that can often result in flash flooding of low-lying and poorly draining areas.

The major river drainages in Region 1 flow from west to east as the high plains to the west slowly descend toward lower elevations to the east and south. The flow in the rivers of this semi-arid region vary greatly, ranging from almost no flow (in even the major streams) during dry periods to large volumes of water during floods. For example, between 1938 and 2020, the average monthly flow on the Canadian River near Amarillo, Texas ranged from 0 to nearly 250 cubic meters per second (Wurbs 2021).

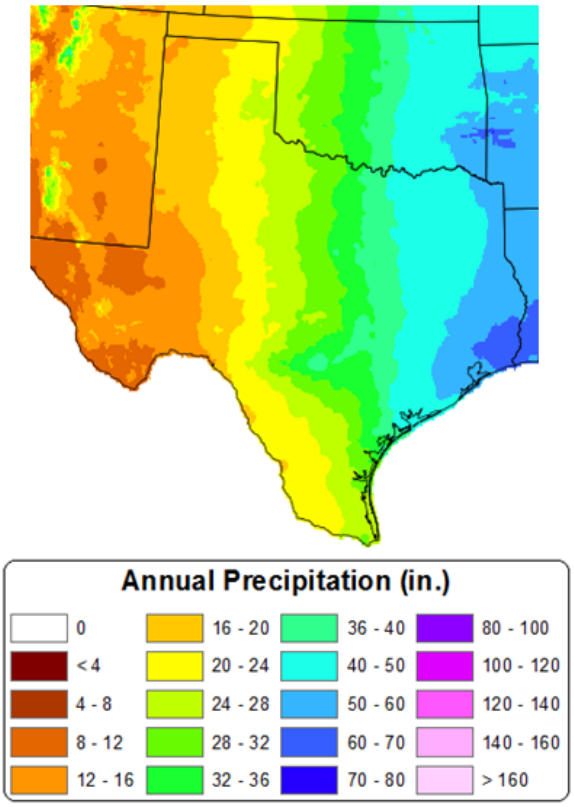

Figure 2. Average annual precipitation (in inches) for the state of Texas from 1991-2020 (PRISM Climate Group 2022).

The flood risks faced by communities and landowners vary across the region. To better understand the nature of that flood risk, the following section discusses the people, type and location of development, economic activities and sectors at greatest risk of flood impacts.

Social Characteristics of the Canadian Upper Red River Basin

Population and Future Growth

Current Conditions

Region 1 encompasses all of the Texas Panhandle (34,616 mi^2) as well as portions of north central Texas, making it one of the largest basins by area in all of the fifteen Texas state flood planning groups. Alternatively, Region 1 is one of the

State's least populated flood planning areas, with an estimated 603,648 people, or 2% of Texas residents, living in the area (Texas Water Development Board, N.D.b). The two largest cities, Amarillo and Wichita Falls, have 2020 census population estimates of only ~200,000 and 104,000 people, respectively. The region covers 44 counties or portions of counties, containing numerous incorporated and unincorporated communities, most with populations less than ~1,000 inhabitants. Table 1 describes a list of counties and incorporated communities.

Table 1. Listing of Counties and Unincorporated and Incorporated communities (not an exhaustive list)

County	Unincorporated communities to potentially survey	Incorporated rural communities to potentially survey
Armstrong	Washburn, Goodnight, Wayside	Claude
Archer (partial)	Dundee, Huff, Mankins	Archer City, Holiday, Scotland, Lakeside City, Megargel, Windthorst
Baylor (partial)	Mabelle, Red Springs, Bomarton	Seymour
Briscoe	None listed	Silverton, Quitaque
Carson	Conway	Groom, Panhandle, Skellytown, White Deer
Castro (partial)	Hilburn, Summerfield, Sunnyside	Dimmitt, Hart, Nazareth
Clay (partial)	Bluegrove, Buffalo Springs, Charlier, Halsell, Hurnville, Joy, Shannon, Stanfield	Bellevue, Byers, Dean, Henrietta, Jolly, Petrolia
Cooke (partial)	Bulcher, Era, Lake Kiowa, Marysville, Myra, Rosston	Callisburg, Gainesville, Lindsay, Muenster, Valley View, Oak Ridge, Road Runner
Crosby (partial)	Cone, Kalgary	Crosbyton, Lorenzo, Ralls
Childress	Carey, Tell	Childress
Collingsworth	Dozier, Quail, Samnorwood	Wellington, Dodson
Cottle	Cee Vee, Narcisso, Chalk, Hackberry	Paducah
Dallam	Kerrick,Conlen	Dalhart, Coldwater, Texline
Dickens (partial)	Afton, McAdoo	Dickens, Spur
Deaf Smith	Bootleg, Dawn, Glenrio, New Mexico	Hereford
Donley	Lelia Lake	Clarendon, Hedley, Howardwick
Floyd (partial)	South Plains, Dougherty, McCoy, Aiken, Barwise	Floydada, Lockney
Foard	Thalia	Crowell
Gray	Alanreed, Back, Hoover	Pampa, Lefors, McLean
Hall	None	Memphis, Turkey, Estelline, Lakeview
Hale (partial)	Cotton Center, Hale	Hale Center, Petersburg, Plainview, Edmonson
Hansford	Morse	Gruver, Spearman
Hardeman	Goodlett	Chillicothe, Quanah
Hartley	Hartley	Channing, Dalhart
Hemphill	Glazier	Canadian
Hutchinson	Lake Meredith Estates, Phillips, Plemons, Pringle, Whittenburg, Spring Creek, Texroy	Borger, Fritch, Stinnett, Sanford
King (partial)	Dumont, Finney, Grow, Guthrie	None
Knox (partial)	Rhineland, Truscott, Vera	Benjamin, Goree, Munday, Knox City
Lipscomb	Lipscomb	Higgins, Booker, Darrouzett, Follett
Moore	Masterson	Cactus, Dumas, Sunray

Table 1. Continued

County	Unincorporated communities to potentially survey	Incorporated rural communities to potentially survey
Montague (partial)	Belcherville, Bonita, Capps Corner, Forestburg, Illinois Bend, Montague, Nocona Hills, Red River Station, Ringgold, Spanish Fort, Stoneburg, Sunset	Bowie, Nocona, St. Jo
Motley	Flomot, Northfield, Tee Pee City	Matador, Roaring Springs
Ochiltree	Farnsworth, Waka	Perryton, Booker
Oldham	Boise, Boys Ranch, Gruhlkey, Herring, Landergin, Magenta, Tascosa, Trujillo, Wildorado	Adrian, Vega
Potter	Bushland	Amarillo
Parmer (partial)	Black, Lazbuddie	Bovina, Farwell, Friona
Randall	Umbarger	Canyon, Happy, Lake Tanglewood
Roberts	Wayside	Miami
Sherman	None	Stratford, Texhoma
Swisher (partial)	Vigo Park, Love	Kress, Tulia, Happy
Wheeler	Allison, Briscoe, Kelton, Lela, Twitty	Mobeetie, Shamrock, Wheeler
Wichita	Bacon, Haynesville, Kamay, Valley View	Cashion Community, Burkburnett, Electra, Iowa Park, Wichita Falls, Pleasant Valley
Wilbarger	Harrold, Odell, Oklaunion	Vernon, Harrold, Lockett, Oklaunion
Young (partial)	Eliasville, Loving, South Bend, Murray	Graham, Newcastle, Olney

Urbanized Areas

The region contains two census-designated urbanized areas, Amarillo and Wichita Falls, which are home to an estimated 302,709 residents (*Table 2*), or roughly 50% of the region's population. Table 2 lists the cities with populations greater than 10,000, and includes the two urbanized areas, and six other communities.

The northern Texas High Plains preserves evidence of near continuous human activity back to the Clovis peoples of 9500 BCE, and includes structures from the 12th century Antelope Creek culture (Plain Villagers of the Texas Panhandle Main 2004). Nomadic bison-hunting tribes of the Apache and then Comanche dominated the region until the degradation of the bison herds in the 1870's (U.S. National Park Service N.D.). During cross-panhandle construction of the Fort Worth and Denver Railroad, a group of Colorado City merchants selected a site to establish stores near Amarillo or Wild Horse Playa in April, 1887. The newly platted town became the county seat of Potter County later that year (Texas State Historical Association 2019a). Amarillo quickly established itself as a cattle marketing center for the entire region. The city remains a hub for ranching and other agriculture, but is also home to over 10,000 businesses, with industries that include aerospace, bioscience, food processing, and professional services (Amarillo Economic Development Corporation 2022). Higher education facilities in and near Amarillo include West Texas A&M (in Canyon), Texas Tech University Health Sciences Center, Amarillo College, and a satellite campus of Wayland Baptist University. Amarillo College is an associate- and certificate-degree granting institution. West Texas A&M is the region's premiere four-year institution, with roughly 9,500 students, granting both undergraduate and graduate degrees. Wayland Baptist University maintains an office to facilitate some of the degrees offered by their Plainview campus (Wayland Baptist University N.D.). Texas Tech University Health Sciences Center is the home of their School of Health Professions Physical Therapy program, and branch campuses for medicine and pharmacy science (Amarillo Economic Development Corporation 2022).

The area of Wichita Falls lies on the traditional territories of the Lipan Apache and Comanche tribes, and also settled by the Caddoan peoples of the Wichitas and Taovayas in the mid-eighteenth century. Federal troops relocated these peoples north of the Red River in the 1850s, expediting Anglo-American settlement (Texas State Historical Association 2019c). Platted in 1876, the city was permanently settled and its post office established in 1879. Growth accelerated following the arrival of the Fort Worth and Denver Railroad in 1882, Wichita Falls became the county seat in 1883, with official city incorporation following in 1889 (Texas State Historical Association 2019c). Oil and gas exploration and production has been its primary economic base since 1911; other industries include aerospace, glass, and plastic manufacturing. The city is home to Sheppard Air Force Base, the station for the 82nd Training Wing and the 80th Flying Training Wing, which includes the Euro-NATO Joint Jet Pilot Training Program (United States Air Force N.D.). Wichita Falls has two higher- educational facilities: Midwestern State University, an undergraduate-, masters-, and doctoral-degree institute of approximately 6,000 students, that serves as Texas' public liberal arts institution (MSU N.D.a), and Vernon College, Century City Center, an associate-degree granting satellite campus of the institution in Vernon, Texas (Vernon College N.D.). As in Amarillo, Wayland Baptist University maintains an office to facilitate some of their degree programs (Wayland Baptist University N.D.).

Wichita Falls sits on the northern edge of the North-Central Plains (University of Texas at Austin, Bureau of Economic Geology and Wermund 1996). Local topography is dominated by rolling-hills topped with grassland prairie, with substantial stream incisement from streams. The city straddles the Wichita River southwest of its terminus with the Red River. Locally, the Wichita River is a meandering channel within a well-established flood plain. The city name eponymizes the crossing of a resistive sandstone ledge that once formed a now-breached waterfall. Three impoundments are upstream of Wichita Falls: Truscott Brine Lake, Lake Kemp, and Lake Diversion. Of these, only Lake Kemp and Lake Diversion are used for municipal water supply (City of Wichita Falls N.D.).

Table 2. Cities in Region 1 with >10,000 persons

City	Population (2020 Census)*
Amarillo	200,393
Borger	12,551
Canyon	14,836
Dumas	14,501
Hereford	14,972
Pampa	16,867
Wichita Falls	102,316
Vernon	10,078

*(U.S. Census Bureau N.D.)

Rural and Agricultural Areas

As shown in Figure 3, Region 1 is almost entirely encapsulated by the Texas 13th U.S. Congressional District (Texas Tribune N.D.). The data below uses the 2010 district boundaries (PLANC2100) (Redistricting Home N.D.). The district

covers Archer, Armstrong, Baylor, Briscoe, Carson, Childress, Clay, Collingsworth, Cooke, Cottle, Dallam, Deaf Smith, Dickens, Donley, Foard, Gray, Hall, Hansford, Hardeman, Hartley, Hemphill, Hutchinson, Jack, King, Knox, Lipscomb, Montague, Moore, Motley, Ochiltree, Oldham, Potter, Randall, Roberts, Sherman, Swisher, Wheeler, Wichita, and Wilbarger Counties in their entirety, and parts of Floyd and Wise Counties. The district produces 35% of Texas' agricultural sales (USDA-NASS 2017). Over 34,827 square miles (22,289,498 acres) of rural and agricultural land are contained in the Texas 13th U.S. Congressional district, making the area 99.4% rural by land area (USDA -NASS 2017).

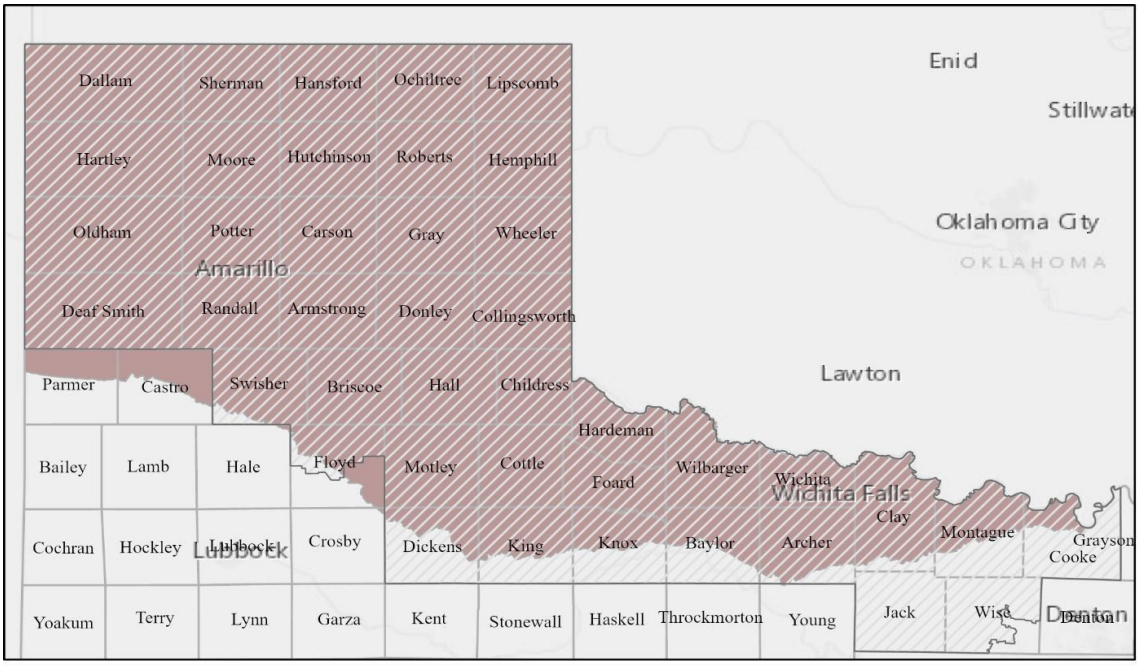

Figure 3. Map showing the extent of the Texas 13th U.S. Congressional District with Flood Planning Group Region 1.Data for the Texas 13th is presented here as representative of that with Region 1.

Projected Growth Within the Region

Urbanized Areas

Amarillo has seen continued population growth over the last 20 years, with an estimated annual growth rate of 0.2% (U.S. Census Bureau N.D.). It seems poised for additional growth tied to its continued position as a cross-roads for Texas, Oklahoma, Colorado, and New Mexico. Continued economic development has positioned the city well for future growth (Cuviello 2022).

Wichita Falls saw a slight decline in population over the last decade possibly attributable to losses in retaining younger job seekers. The city's location along the US 287 corridor makes it a likely target for future spill-over from the rapidly growing, greater Dallas-Fort Worth Metroplex (Walker 2021). The city's overall economic picture has

remained stable despite the pandemic; economic development revenues remain a critical part of future substantial growth (Martinez and Choudhury 2022).

Rural and Agricultural Areas

The rural regions of the High Plains and the North-Central Plains also saw population decreases in the last decade. Continued population loss seems likely into the foreseeable future (Walker 2021).

Economic Activity

Agricultural/Ranching

The Texas Panhandle is an extremely productive agricultural region with a rich farming and ranching heritage. Although fewer people are exposed to flood hazards in rural areas, the impact of flooding on agriculture and ranching can be severe. Floods can delay planting season, as they soak the fields and make them impassable for heavy equipment. This can lead to reduced crop size, lower yields and reduced profits. As crops mature in the fields, floods may destroy a whole season's work and investment. Floods at harvest time can make it impossible for farmers to harvest mature crops and get them to market. Livestock may drown in floodwaters if there is no high ground for them to escape. Even if the animals are safe, damage may occur to barns and other structures, and cleanup of muck and debris can affect their feeding grounds (Warner 2017).

District 13 contains roughly 4,903,700 acres of farmland. The major crops are wheat (1,246,494 acres), cotton (1,009,853 acres), hay (519,356 acres), corn (500,213 acres) and sorghum (283,720 acres). The Texas 13th U.S. Congressional District, which encapsulates most of Region 1, has roughly 14,711,100 acres of pastureland, making cattle the dominant agricultural product of the region. Cattle and calf population was 3,713,997 head in 2017. In 2017, the Texas 13th U.S. Congressional District also raised 4,881 pullets. 35,596 egg-layers, and 18,454 broilers and other meat-type chickens. Farm inventory also held 22,206 goats, 938,270 hogs and pigs, 17,686 sheep and lambs, and 347 turkeys. There were 30,630 horses and ponies (USDA – NASS 2017).

Energy

Oil and gas exploration and production endeavors are a significant part of North Central Texas. Region 1 covers major oilfields that include those of the Electra, Red River Arch, Knox-Baylor Basin, Hardeman Basin, and Granite Wash plays. In February of 2022, Region 1 produced 22,146,971 thousand cubic feet (MCF) of natural gas, 1,106,106 barrels (BBL) of crude oil, and 243,096 BBL of condensate oil from gas (*Table 3*). Of the counties covered in Region 1, data from February 2002 show that only Armstrong, Briscoe, Castro, Dallam, Deaf Smith, Floyd, Hall, Parmer, Randall, and Swisher Counties did not produce petroleum products (Texas Railroad Commission 2022).

Economic Status of Population

Texas U.S. Congressional 13th has a per capita income of $27,826 compared to the Texas' per capita of $32,177. The median household income of its 259,825 households is $54,433, about 80% of the amount in Texas of $63,826. It matches Texas' below-poverty-line level of 14.5%. About 8.7% of the population is a veteran of a foreign war, 1.3 times the rate across Texas (US Census Bureau 2020).

Natural Features of the region

The North Central Plains in Region 1 are largely underlain Permian fluvial sedimentary rock, covered in part by a Pleistocene alluvia. The Permian substrate tends towards rolling topography, interrupted by the relative planar surface of the Pleistocene. The Llano Escarpment marks the boundary with the High Plains, in places marked by canyon topography through largely Triassic fluvial sediments. The High Plains are underlain by Neogene and younger sediments. These are dominated by the thick sand, gravel, and silt of the Ogallala Formation, a unit topped with caliche that forms the caprock at the Llano Escarpment. Away from the escarpment, the geology promotes the flat, low relief surface that dominates much of the Texas Panhandle (Ewing 2016).

Stream morphology in the North Central Plains is largely meandering channels within defined flood plains, becoming bifurcated channel systems to the west as one approaches the Llano Estacado. The Pleistocene surface differs; the well-drained interior promotes little channelization or ponding, and the latter is manifested as few isolated playa lakes. Likewise, the well-drained nature of the High Plains also reduces channelization, and the region is marked by abundant playa lakes. The smaller North Canadian River's main channel is largely in the Oklahoma Panhandle, but tributaries, like Palo Duro Creek, drain the northeast Texas Panhandle (USGS 2020).

Table 3. Oil and Gas Production in Region 1, February 2022*

County	Total Gas Production (MCF)	Crude Oil Production (BBL)	Condensate Production (BBL)
Archer	13,483	46,506	6
Armstrong	0	0	0
Baylor	0	3,627	0
Briscoe	0	0	0
Carson	446,767	3,637	3,500
Castro	0	0	0
Childress	0	214	0
Clay	46,082	21,554	1,181
Collingsworth	55,334	0	0
Cooke	794,534	63,460	5,801
Cottle	116,314	8,907	964
Crosby	0	32,384	0
Dallam	0	0	0
Deaf Smith	0	0	0
Dickens	1,583	25,510	0
Donley	684	0	40
Floyd	0	0	0
Foard	6,150	5,975	0
Gray	430,465	48,872	518
Hale	73,907	73,719	0
Hall	0	0	0
Hansford	649,382	9,333	1,175
Hardeman	19,722	35,100	0
Hartley	55,619	16,272	0
Hemphill	4,512,301	13,232	72,960
Hutchinson	343,823	17,039	6,018
King	13,335	110,130	0
Knox	10,049	12,344	0
Lipscomb	2,224,175	36,527	50,821
Montague	2,938,228	55,767	16,552
Moore	1,518,191	10,930	603
Motley	181	1,756	0
Ochiltree	1,556,370	180,098	7,492
Oldham	37,718	17,589	0

Table 3. Continued

County	Total Gas Production (MCF)	Crude Oil Production (BBL)	Condensate Production (BBL)
Parmer	0	0	0
Potter	666,669	19,338	3,327
Randall	0	0	0
Roberts	1,710,455	50,740	17,364
Sherman	863,910	5,534	252
Swisher	0	0	0
Wheeler	2,903,450	36,432	53,490
Wichita	14,033	56,713	0
Wilbarger	6,399	45,623	0
Young	117,658	41,244	1,032
Total	22,146,971	1,106,106	243,096
*(Texas Railroad Commission 2022)			

Elevated wind speeds and sustained air movement make Region 1 one of the most productive areas for U.S. onshore wind-power generation. The wind turbine database (Hoen et al. 2018) currently lists over 4,100 turbines within Region 1 (Fig. 4), with a reported maximum capacity of 8,255,409 kwH. Region 1 is also home to several planned solar-power generation sites (Chermac Energy Corporation N.D.).

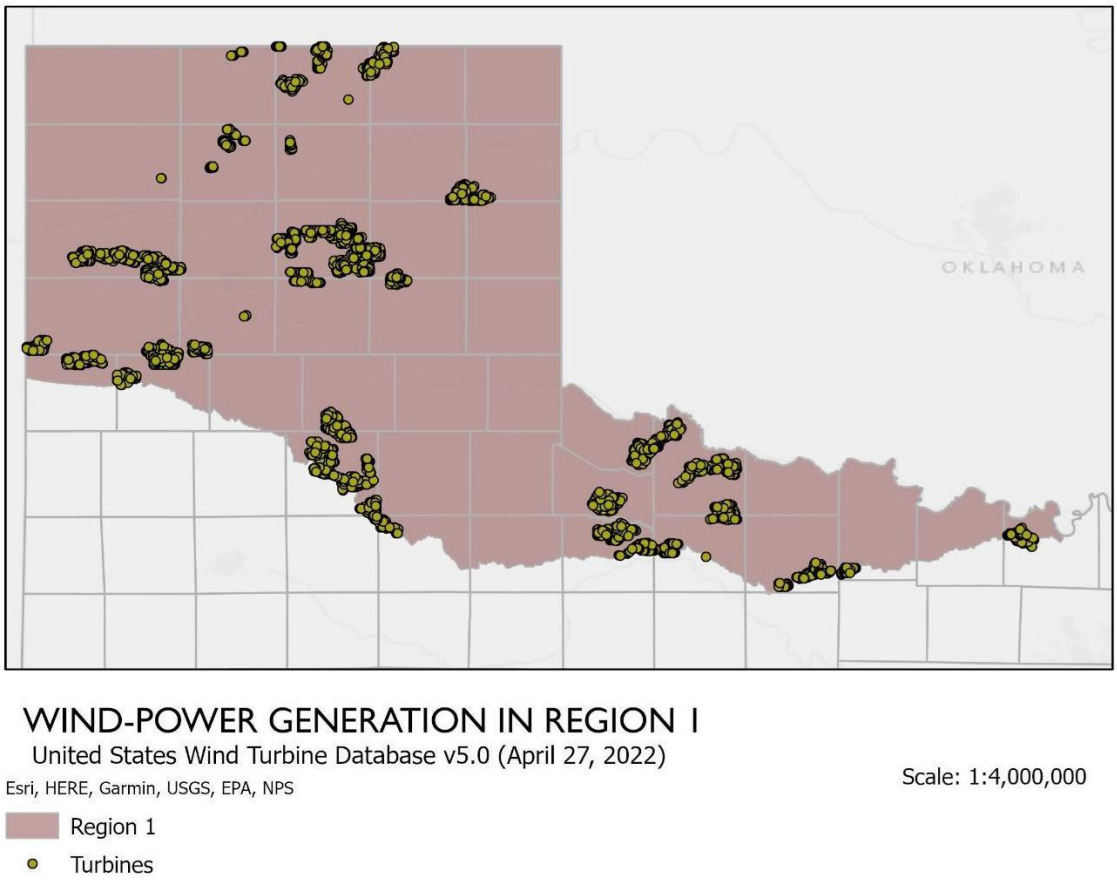

Figure 4. Wind-power turbines in Region 1, as reported to the wind turbine database (Hoen et al. 2018).

Although playa accumulation dominates the High Plains, two fluvial systems have incised the area covered by Region 1. The Prairie Dog Fork of the Red River cuts into the plains at Canyon, Texas. The Canadian River completely cuts the post-

Permian, forming a 1,500 foot gorge that separates the Southern from the Central High Plains. The Canadian drains the eastern edge of the Sangre de Christos in New Mexico. The Rita Blanca is a prominent incised tributary that cuts northward past Dalhart, TX.

All told, Region 1 covers 36 8-digit Hydrological Unit Codes (HUC) or watershed subbasins (*Fig. 5*), within HUC 4-digit 1108-1110 (Canadian) and 1112-1113 (Red), all part of the greater Region 11 Arkansas-White-Red (Seaber et al., 1987). The northernmost panhandle is captured in the Beaver, Wolf, Coldwater, and Palo Duro Creek (Oklahoma) systems that feed into the North Canadian River (1110). The central panhandle is dominated by the Canadian system (1108-1109), and includes the Punta de Agua, Rita Blanca, and Carrizo creek systems to the northwest. The remainder is drained by the Red system (1112-1113), including the Tierra Blanca, Palo Duro (Texas), Prairie Dog Town Fork Red, Tule, Salt Fork Red, North Fork Red, Elm Fork Red, Groesbeck-Sandy Blue-China, Pease, Farmers-Mud, Wichita, Southern Beaver, Little Wichita, and Washita systems. Some example photos of the Red RIver and tributaries are shown in FIgure 6.

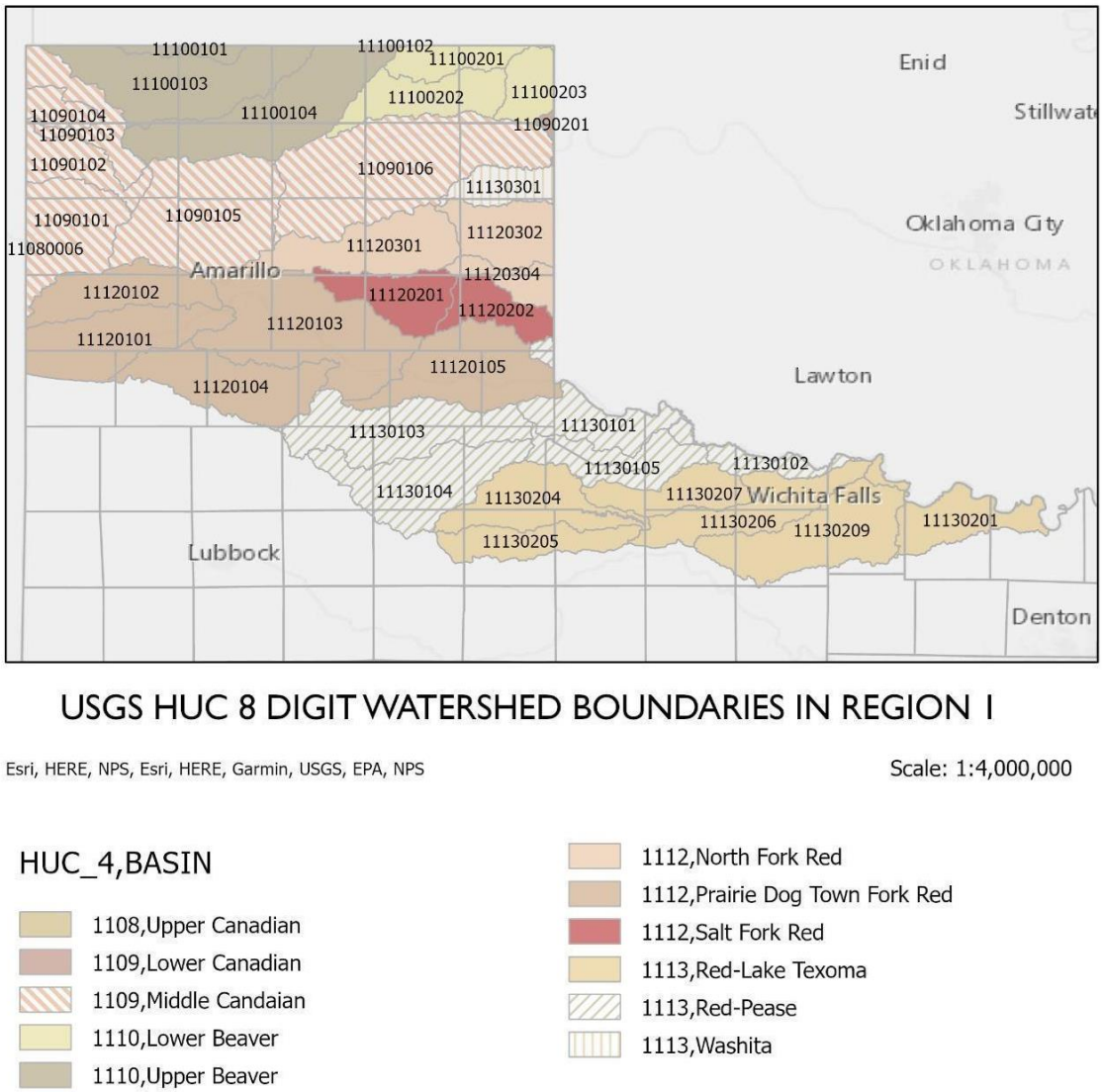

Figure 5. Map of the HUC 8-digit watersheds within region 1. Each Basin is colored independently. The northern Panhandle drains into the diminutive North Canadian River (Oklahoma), whereas the central and western

Panhandle are cut by the Canadian River. The southern Panhandle and North Central Plains are drained by the Red.

Table 4. Major Rivers and Streams in the Flood Planning Group Region 1		
Canadian River	(North) Pease River	(North/South) Wichita River
Holliday Creek	North Fork of the Red River	Salt Fork of the Red River
Prairie Dog Town Fork of the Red River	Washita River	Red River

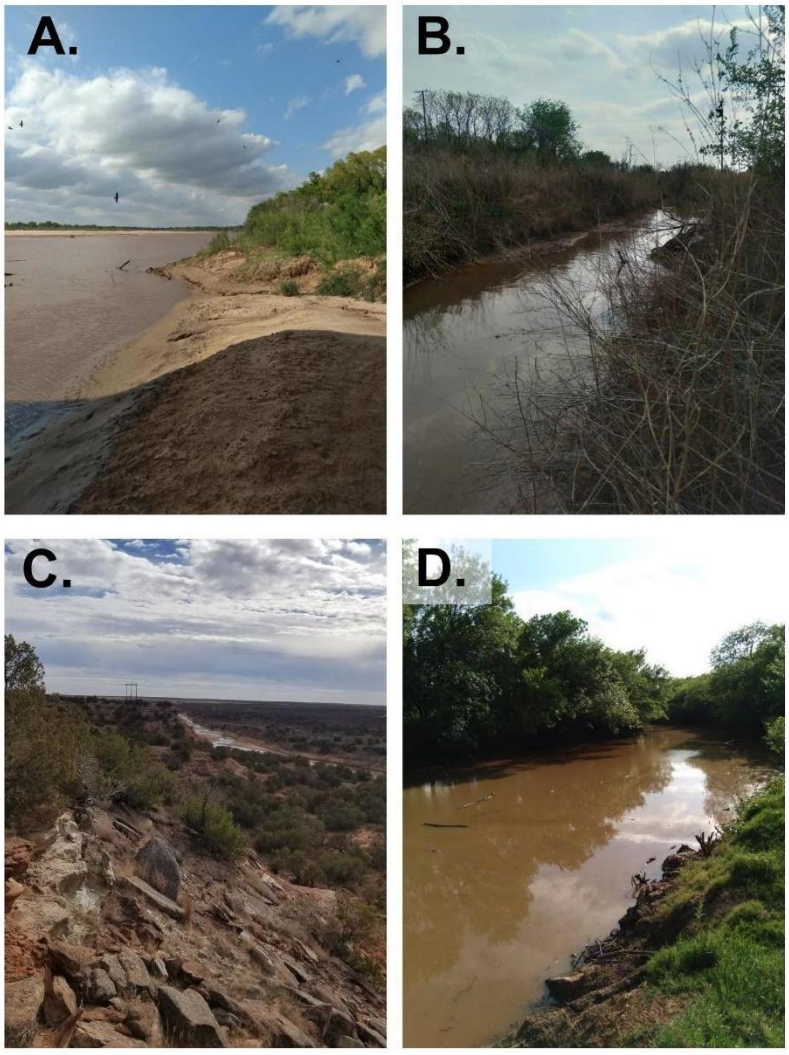

Figure 6. the Red River in Region 1 and some of its tributaries. A. Red River, U.S. Highway 79, north side of channel. B. Wichita River, Texas State Highway 25, between Electra and Kamay. C. Pease River as seen from the bluff within Copper Breaks State Park. D. Little Wichita River, at FM 1197 bridge north of Henrietta.

The relatively low topography and watershed catchment rates precludes extensive development of impoundments. The TWDB recognizes 21 major impoundments, those with over 5,000 acre-feet of storage capacity at its normal operating level, in Region 1 (Texas Water Development Board N.D.c). These are shown in Figure 7. The bulk are in the North Central Plains.

These are the Truscott Brine Lake, and Lake Kemp and Diversion Reservoir on the Wichita River, Baylor Lake on the Prairie Dog Fork of the Red River Lake Pauline, an impoundment of Wanderers Creek, Santa Rosa Lake and Lake Electra on Beaver Creek, North Fork Buffalo Creek Reservoir, Lake Wichita on Holliday Creek, Lakes Kickapoo and Arrowhead on the Little Wichita River, Lake Olney/Lake Cooper on Mesquite Creek, Farmer's Creek Reservoir (Lake Nocona), Hubert H Moss Lake that impounds Fish Creek, Greenbelt Reservoir on the Salt Fork of the Red River and McKenzie Reservoir on Tule Creek are on the edge of the High Plains. Impounds within the High Plains, Lake Rita Blanca, Bivins Lake on Palo Duro Creek, and Palo Duro Reservoir on a tributary of the North Canadian River. Lake Meredith is in the Canadian River Gorge. Buffalo Lake holds the retention of Umbarger Dam on Tierra Blanca Creek, a tributary to the Prairie Dog Fork of the Red River.

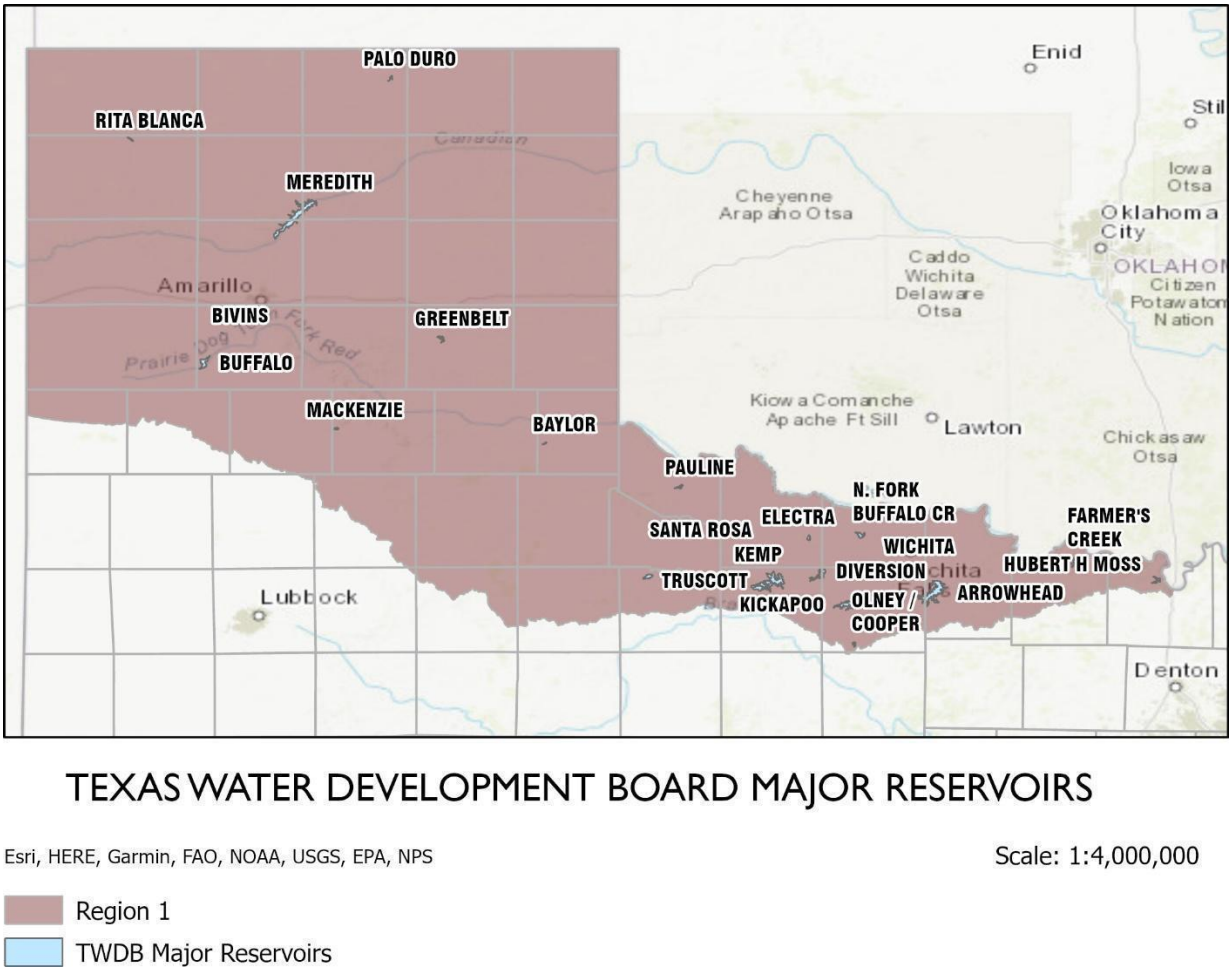

Figure 7. Map of major reservoirs within Region 1.

Methods

Inquiry format: design and practice

By design, the surveys employed by the universities had two components: 1). An augmented version of the materials constructed by FNI and 2). a series of research questions for further studies at the universities. Part 1 was further reduced into 1a). a map location questionnaire (https://fni.maps.arcgis.com/apps/CrowdsourceReporter/index.html?appid=5e1be02cb83545468a6d8a9d09bace32) and 1b). an interactive survey (https://freese.mysocialpinpoint.com/canadian-upper-red-regional-flood-plan/canadian-upper-red-regional-flood-plan-take-the-survey). Questions in part 2 included limited personal information to be retained by the universities, requiring participant informed consent. Both universities received approval by their respective Independent review boards (IRBs) for use of human participants in research. Only the first component as part of the deliverable for FNI is described in this report.

Field survey teams solicited participation through pre-trip (personal contacts and cold calls) and on-site outreach. In practice, component 1 produced three levels of participation, each with increasing involvement: 1a'). locating flood-prone areas on a map without any ancillary data, 1a). completing the map questionnaire in addition to the flood map locations, and 1b). completing the interactive public survey. For part 1b, various amounts of the questions were left blank, resulting in uneven numbers of responses to the public survey questions.

Component 1a' was completed by all participants. A number of participants concluded their interactions with this step. Generally, this provided geolocations for flooded areas, and one or two of the details for the questionnaire.

Participants who stopped after 1a' largely did not leave a name or email. Many then continued to complete portion 1a by providing required answers to the map questionnaire.

- What is impacted by the flooding?
- How often does the location flood?
- What level of storm intensity causes the area to flood?
- What appears to be the main cause of the flooding at each location?
- Email

Although data for component 1 was designed to be collected through the above web portals, answers were typically recorded on paper during field surveys. Designed to mitigate the likely absence of internet connectivity in remote rural areas of Region 1, participants largely required paper maps and printed atlas (DeLorme 2017) to locate areas prone to flooding, easing further analog interactions. Data was then entered by an independent team within a week of data return to the university.

Component 2 required more involvement. Full participation garnered answers to four questions—

1. Considering the area where you live and work, what flooding or flood risk concerns do you have?
2. What help would you want (if any) from state, county, or local governments of any kind to address the flooding challenges you perceive if such help were available?
3. How much or how little do you perceive that those outside of your community understand or support flood-related issues that concern you?
4. Is there anything related to flooding that you wish others outside of your immediate context would understand better?

Surveys recorded audio in the field for some (but not all surveys). These were transcribed to paper by a separate team within a week of data return to the university. The process used a speech-to-text program to capture the bulk of the audio, the content of which was then edited to correct any digital transcription errors.

Recruitment of Students and Interviewees

Description of Students Conducting Interviews

There were 18 students (8 from MSU and 10 from WTAMU) and 3 faculty involved in this flood outreach study. The students were both graduate and undergraduate students with diverse backgrounds. A number of students grew up in and have extensive family ties within Region 1, and these relationships were used to improve the quality and depth of the interview responses. The students were hired in early March 2022, and worked on the project to varying degrees (up to 19 hours per week, the maximum allowed by the WTAMU and MSU) through 6 May, 2022.

Students (and faculty overseeing the students) were divided into two groups. At WTAMU, completion of tasks were more fluid as some students participated in the activities of both groups. The following table (*Table 5*) provides a summary of tasks for each student group.

Table 5. Tasks of each student group

Group Name	Task
1	Travels and completes interviews in-person or by phone
	Conducts interviews by asking questions from FNI survey and web map
	Documents responses on a paper version of the survey, web map
2	Uploads completed paper survey data into Microsoft Teams page
	Enters survey data into online FNI survey/web map
	Completes checklist to confirm completion of web survey
	Has another student/faculty from the group check entered data and sign the checklist

Outreach Campaigns to Attract Potential Participants

This outreach received significant coverage from different forms of media (i.e. online, newspaper, radio, and television). With the assistance of Mr. Chip Chandler, Senior Communication Specialist in the Office of Communication and Marketing at West Texas A&M University and Andrew Newberry, Public Relations Specialist, in Marketing and Public Information,from MSU, we were able to conduct a variety of outreach activities. Table 6 summarizes the various media stories. While no official documentation on the effects of the rigorous press efforts on study outcomes and participation rates, we believe that a number of interviewees reached out to us after these news stories.

Table 6. Summary of various media news stories			
Name of Media Agency	**Title of News Story**	**Date of News Story**	**Link to News Story (if available)**
West Texas A&M University Press Release	Rural Panhandle Residents Sought for WT-Led Study into Flood Preparation, Mitigation	11th March 2022	https://www.wtamu.edu/news/2022/03/rural-panhandle-residents-sought-for-wt-led-study-into-flood-preparation-mitigation.html
Midwestern State University Press Release	Texas student surveyors to help RFPG with research	22nd March-2022	https://news.msutexas.edu/2022/03/unique-opportunity-to-help-communities.php
Myhighplains.com	WT leading new study into flood preparation and mitigation	11th March 2022	https://www.myhighplains.com/news/local-news/wt-leading-new-study-into-flood-preparation-and-mitigation/
www.newschannel10.com	WT students, faculty seeking rural Texans who suffered from damaging floods for study	11th March 2022	https://www.newschannel10.com/2022/03/11/wt-students-faculty-seeking-rural-texans-who-suffered-damaging-floods-study/
www.kgncnewsnow.com	Students and faculty from WT searching for flood information	11th March 2022	https://www.kgncnewsnow.com/students-and-faculty-from-wt-searching-for-flood-information/
www.timesrecordnews.com	MSU students help massive flood relief project	23rd -Mar -2022	https://www.timesrecordnews.com/story/news/2022/03/23/msu-students-help-massive-flood-relief-project/7141724001/
WTAMU Buff Brief Newsletter	Texas Rural Flood Survey Participants Needed	4th -April 20-22	https://myemail.constantcontact.com/Buff-Brief-Volume-10--Number-12.html?soid=1133441016292&aid=3u-VuFBOlno
abc7amarillo.com	Research project-studying impacts from flooding	15th April 2022	https://abc7amarillo.com/news/panhandle-living/research-project-studying-impacts-from-flooding

Process by Which Surveyed Participants Were Identified and Interviewed

Survey participants were identified through 3 different mechanisms:

(1) Cold calling

(2) Cold interviewing

(3) Student social networks

We describe each of these mechanisms for participant identification below.

For cold calling, the students would meet in a group or work remotely alone and search for phone numbers of any community contacts that might know of rural residents that have observed flooding. These included, but were not limited to, farm supply stores, banks and realty agencies, federal and state agencies with rural ties (e.g. USDA, water agencies), post offices, city halls, churches, libraries, ranches, restaurants, chamber of commerce, local historical museums. The students would then "cold call" (callers have no previous knowledge of our calling them ahead of time). This technique, while very thorough in reaching a wide and diverse audience, has a low success rate (less than 15% of cold call recipients agreed to give an interview). Once a participant agreed to be interviewed, then an in-person interview was generally scheduled (except at the end of the study, when a few people who could not be reached in person opted for phone interviews only). Two students (for student safety at least 2 students were present for all interviews) would then meet a number of scheduled interviewees at a public location in a rural community near where the rural interviewee resides (e.g., library, restaurant).

For cold interviewing, students traveled to a rural community location where residents may be found that had observed flooding. It was the hope that interviewees would be willing to answer the flood survey. The same wide spectrum of locations used in the cold calling campaign were employed, including but not limited to: farm supply stores, banks and realty agencies, federal and state agencies with rural ties (e.g. USDA, water agencies), post offices, city halls, churches, libraries, ranches, restaurants, chamber of commerces, and local historical museums. It was challenging to find locations that were welcoming to cold interviewing, particularly for the full public flood survey. For the map survey only (Component 1a – asking public to show the location of flooding they have observed on a map), there was more success using the cold interviewing process than for the full survey, which had some success, but not as much as cold calling before going out and then meeting those who had agreed over the phone to do the full survey (Component 1a and 1b).

In addition to cold calling and interviewing, local student social networks were also employed. We define the local student social network as the use of current professional and personal relationships of students within our cohort such as family members, friends, and co-workers, to collect survey and web map responses. While all students within our cohort would indeed have relational ties, it was determined that all potential interview candidates ***should*** have or currently live/own property in Region 1. There was also an implication that the candidates should have some specific knowledge of flooding the region, although this was not clearly specified in the screening of potential interviewees. The advantage of soliciting interviewees from this method is that it increases the likelihood of securing interviewees and increases the quality of response since there is already a prior established trustworthiness between the student and interviewee. Also given the influx of new people into Region 1, utilizing existing social networks also increases the likelihood that the selected interviewees have lived more than 10 years in Region 1 and have observed multiple flooding events.

RESULTS AND DISCUSSION

Results

Overview of Geographic Distribution of Survey Results

Number and Location of Public Survey Responses

There were approximately 185 total web map (Component 1a) and online survey responses, including 70 full complete public survey responses from over 30 different rural communities (and nearby ranches) across Region 1 as a part of this outreach study from late March through late May 2022. Figure 8 shows the location of public flood reports collected as part of this study by the end of May 2022 across Region 1 on behalf of the Canadian-Upper Red Regional Flood Planning Group as reported on the FNI "Canadian Upper Red Regional Flood Plan Comment Map."

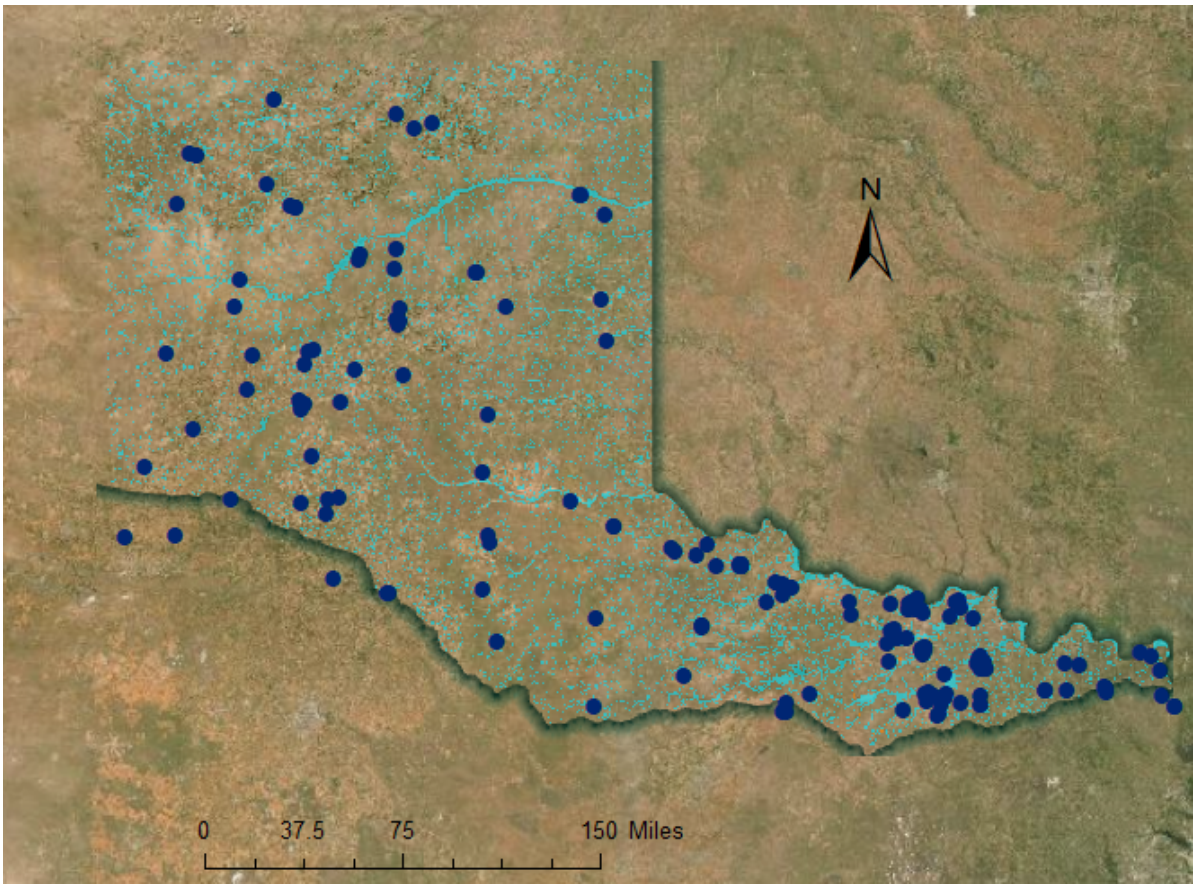

Figure 8. Locations of the 185 public responses to locations of flooding during the flood outreach study. The map shows flood reports collected as of the end of May 2022 across Region 1 on behalf of the Canadian-Upper Red Regional Flood Planning Group as reported on the FNI "Canadian Upper Red Regional Flood Plan Comment Map."

Overview of Flood Reports from Public Survey Responses

We outline in this report major take-aways from the two month public survey efforts led by WTAMU and MSU students across Region 1. These results are presented in the following order: (1) results from the web map survey questions (Component 1a) followed by (2) results from the full public survey (Component 1b).

Results from Web Map Survey Questions

There were a total of 185 public responses to the web map survey received. When asked "what is impacted by the flooding?", most respondents chose roadways (119), followed by buildings (29), natural areas (15), agriculture (13), and critical facilities (9). Figure 9 illustrates these responses graphically, while Figure 10 shows geographically the location of road, building, agricultural, and critical infrastructure reports as reported on the online survey web map.

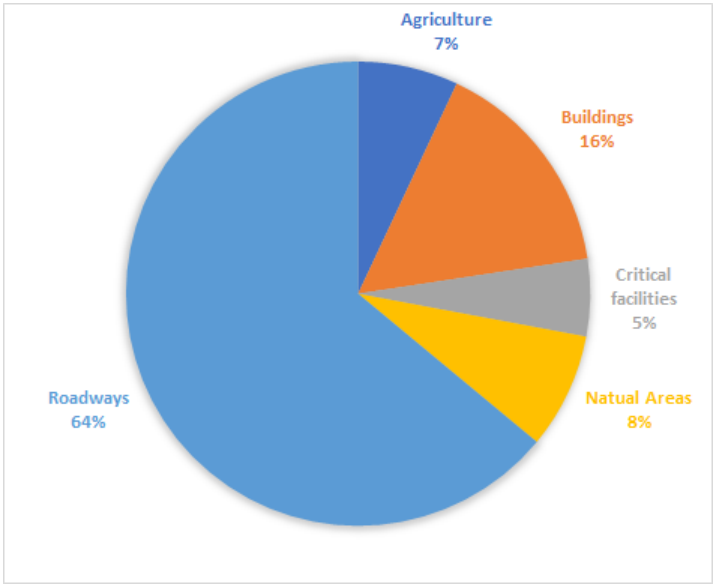

Figure 9. Pie chart with public responses to web map survey question "what is impacted by the flooding?" on behalf of the Canadian-Upper Red Regional Flood Planning Group Region 1 as reported on the FNI "Canadian Upper Red Regional Flood Plan Comment Map."

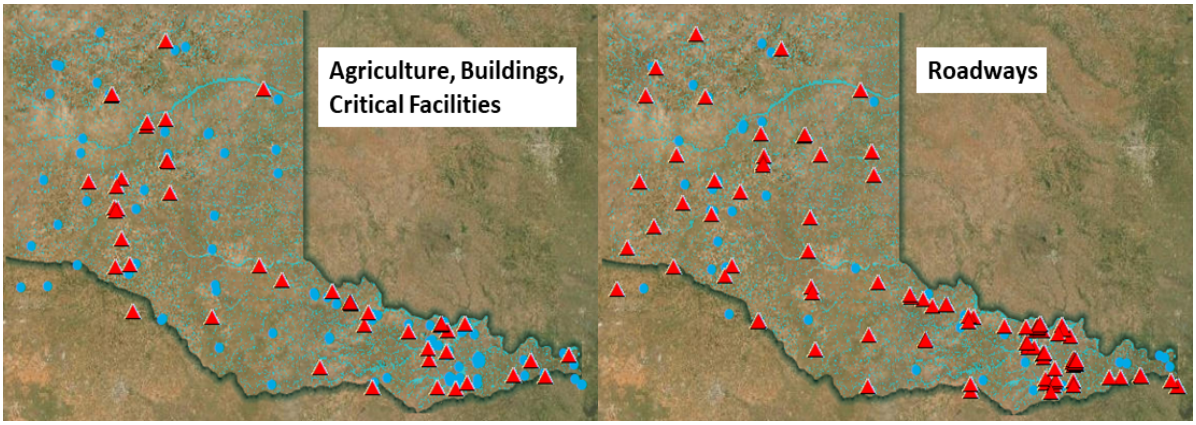

Figure 10. Locations of public responses to locations of flooding during the flood outreach study. (left) Red triangle markers denote the locations of agriculture, buildings and critical facilities. (right) Red triangle markers denote the locations of road flooding reports.

When asked "how often does the location flood?", there was a bimodal distribution of responses, with about half of the respondents choosing once a year (68) or twice a year (19) and the other half of respondents choosing every month (11) or every couple of months (76). Figure 11 illustrates these responses in a pie chart. Figure 12 shows geographically the location of public flood report frequency of once or twice a year (left panel) versus once or twice a month (right panel). Consistent with the increased rainfall over the eastern portion of Region 1, the region of more frequent flood reports are mostly confined to the wetter eastern half of Region 1 (*Fig. 12*).

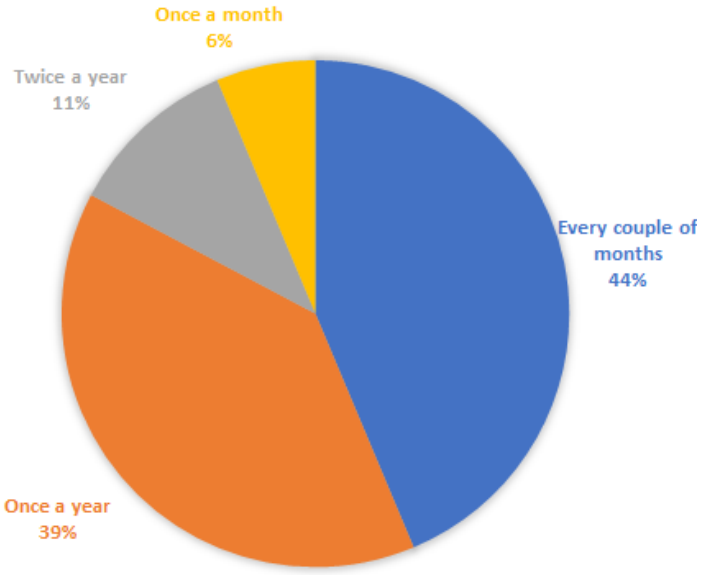

Figure 11. Pie chart with public responses to web map survey question "how often does the location flood?" on behalf of the Canadian-Upper Red Regional Flood Planning Group Region 1 as reported on the FNI arcGIS "Canadian Upper Red Regional Flood Plan Comment Map."

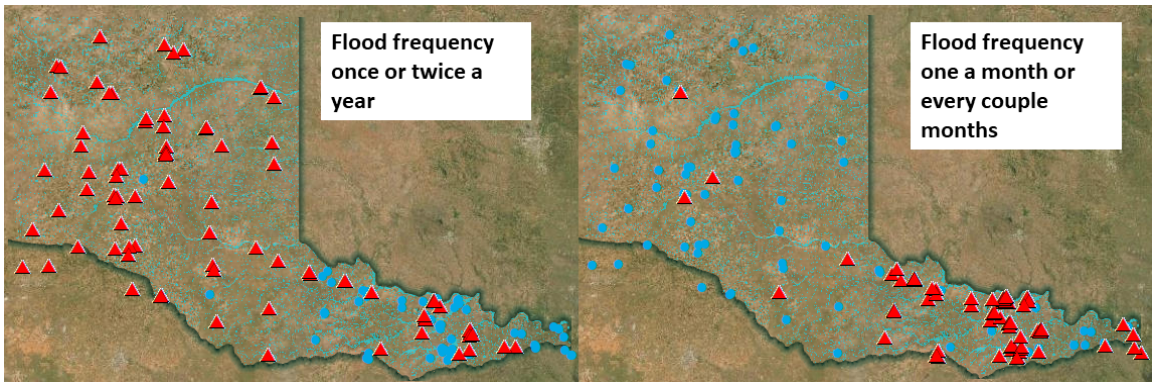

Figure 12. Locations of public responses to "how often does the location flood?" during the flood outreach study. (left) Red triangle markers denote the locations of flood frequency once or twice a year. (right) Red triangle markers denote the locations of flood frequency once a month or every couple of months.

When asked "what level of storm intensity causes the area to flood?", most map survey respondents chose "heavy or prolonged rain events (112), followed by "every time it rains (45), and "only during flash floods" (28).

The interviewees were also asked "what appears to be the main cause of flooding?" at the location they were reporting flooding. Of the 7 choices provided, rainfall intensity had the most responses (61), followed by an undersized or lack of drainage system (48), site is too low or too flat (44), unmaintained drainage system, upstream issue directs water to location (8), downstream issue backs up water (6), and other (5). Figure 13 illustrates these responses graphically, while Figure 14 shows geographically the location of road, building, agricultural, and critical infrastructure reports as reported on the online survey web map.

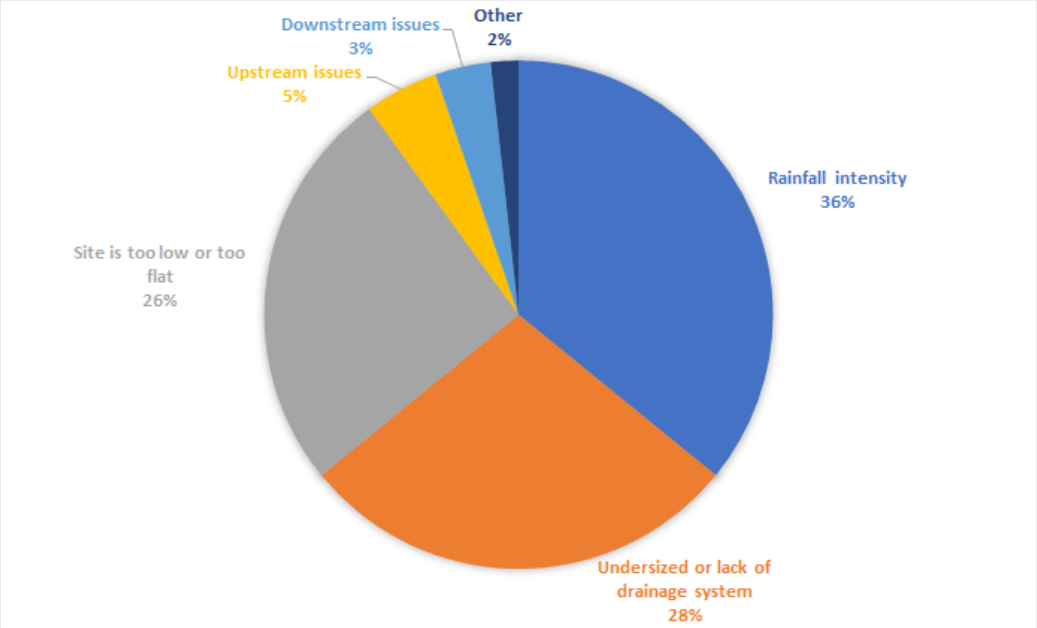

Figure 13. Pie chart with public responses to web map survey question "what appears to be the main cause of flooding?" on behalf of the Canadian-Upper Red Regional Flood Planning Group Region 1 as reported on the FNI "Canadian Upper Red Regional Flood Plan Comment Map."

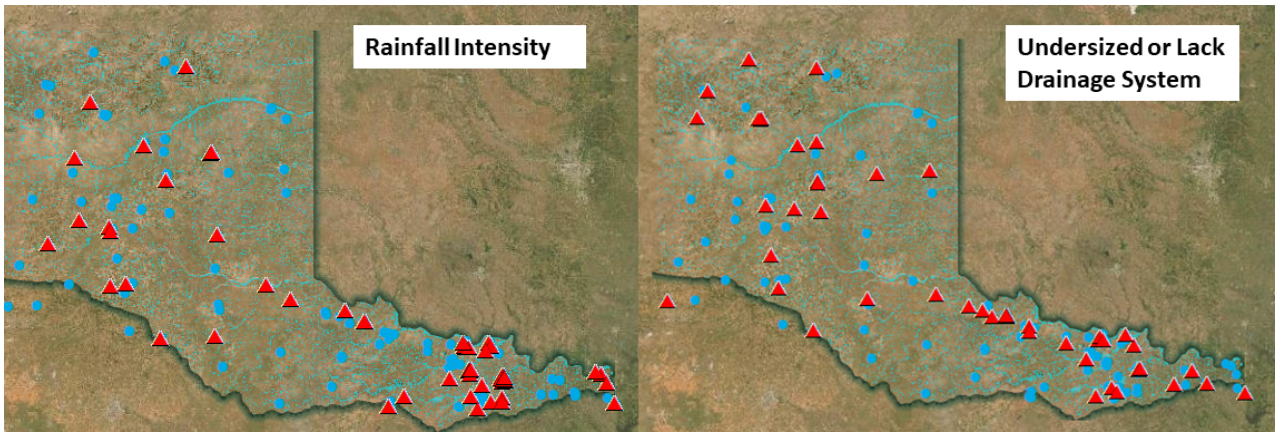

Figure 14. Locations of public responses to two of the 7 choices for the map survey question "what appears to be the main cause of flooding?" during the flood outreach study. (left) Red triangle markers denote the locations of flood reports where rainfall intensity was chosen as the primary cause of flooding. (right) Red triangle markers denote locations where undersized or lack of drainage system was chosen as the primary cause of flooding.

Full Public Survey Responses Results

There were approximately 70 full complete public survey responses completed during this study. In this section we summarize the results of these complete survey responses in sequential order from the beginning to the end of the survey.

Flood Jurisdiction Survey Question

The following question was included in the public survey: "Are you aware of any other jurisdiction beyond cities and counties with flood-related responsibilities in your area, such as a drainage district, levee district, flood control district, etc.?" The respondents were overwhelmingly not aware of any additional jurisdictions (58 respondents, 98% (*Fig. 15*). Of the 5 respondents who were aware of additional jurisdictions, they stated city officials, the Texas Department of Transportation, Federal Emergency Management Agency (FEMA), and Burlington Northern Railroad.

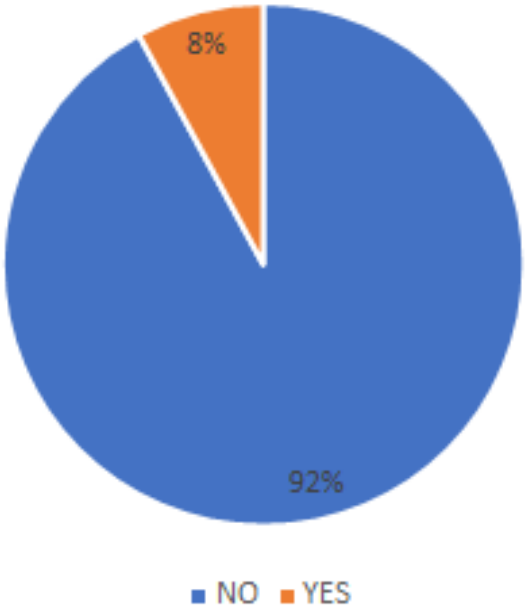

Figure 15. Public responses to the RFPG survey question: Are you aware of any other jurisdiction beyond cities and counties with flood-related responsibilities in your area, such as a drainage district, levee district, flood control district, etc.? (Yes or No). 92% (58 respondents) were not aware of any other jurisdictions with flood-related responsibilities, while 8% (5 respondents) were aware of other potential jurisdictions.

Locations of Flooding (Historical) Survey Question

Almost all survey respondents identified areas in their rural region where flooding had occurred, either recently or in the past. Please see the map showing flooding locations reported on the map survey across Region 1 earlier in this report (*Fig.* 8). Here we summarize a few of the major flooding reports provided as well as a few example photographs of historical flooding received from the public (*Fig.* 16). A full summary of all the flooding reports and discussion from the surveys is not possible to be included in this short report. However, we summarize in the bullet points below, the recurring and impactful flooding reports received in the surveys. They included:

- Numerous reports of poor drainage and poor drainage infrastructure of rural communities that affected both roadways and homes.
- Numerous reports of street flooding in almost all rural communities in Region 1.
- A number of reports of playa lakes flooding, impacting roadways, communities and buildings and infrastructure. Playa lakes are the cause of many of the "low spots" that are problematic with flooding.

- Numerous reports of streams, drainages, and rivers "flash flooding" across Region 1, which impacted natural areas, roadways, and in some cases agriculture and rural communities.
- Reports of poor drainage during heavy rains resulting in homes flooding. The worst home and property flooding that was reported was in Canyon, Texas (in 1978), as well in recent years in several areas of Amarillo, Pampa, Clarendon, Panhandle, Tulia, Dumas, and Borger.

Floodplain Management Questions

A series of questions were included in the full public survey relating to recommending or adopting flood risk management standards. The questions asked whether the "Regional Flood Planning Group (RFPG) should either "recommend" or "adopt" consistent minimum flood risk management standards across the entire Region." After each question (yes or no) on whether to adopt or recommend, a list of flood risk management standards to adopt were chosen (*Table 6*). Of the full public survey participants, the overwhelming majority of interviewees chose "recommend" versus "adopt" for minimum flood risk management standards across the entire Region (*Fig. 17*). For those that chose to "recommend" consistent minimum flood risk management standards across the entire Region, the preferred public choices for minimum flood risk management standards the Regional Flood Planning Group (RFPG) should consider recommending were establish infrastructure protection standards, establish higher standards, and then regulate development in the FEMA floodplain, and participate in the NFIP (*Table 7*). A similar breakdown of responses occurred for the respondents who chose "adopting" minimum flood risk management standards.

Table 7. Pubic responses in support of either "recommending" or "adopting" various proposed minimum flood risk management standards

Minimum flood risk management standards the Regional Flood Planning Group (RFPG) should consider recommending/adopting.	**Total Public Votes (number "recommend" / number "adopt")**
Participation in the NFIP or equivalent standards.	**10/9**
Regulate development in the FEMA floodplain or other floodplain designation identified by the RFPG.	**13/8**
Establish higher standards for development or freeboard (additional feet above) known floodplain.	**16/12**
Establish infrastructure protection standards, Minimum design criteria for Buildings, critical facilities, roadways, drainage infrastructure, property acquisition, and open space	**28/17**
Other	**4/6**

Figure 16. Example public provided photos of historical flooding in Region 1. Top left: Private rural property flooding near Clarendon, Texas in July 2021. Lower left: Flooding on the Canadian River on 2 July 2014. Top right: Flooding on Tascosa Creek on 14 August 2017. Lower right: Flooding on a private ranch on Sweetwater Creek in 1993.

Top Priorities for Regional Flood Planning Group Question

The following question was included in the public survey: "What are the top 3 priorities the Regional Flood Planning Group (RFPG) should include in the establishment of regional goals?" The respondents ranked the options for top three priorities in the following order (*Fig. 18*): Restore failing/aging infrastructure (28%), identify and communicate flood risk (25%), Implement flood warning and response mechanisms (16%), implement protective standards and policies (13%), quantify potential reduction in risk to life and property (13%), provide or enhance inter-jurisdictional cooperation (6%), or other (2%).

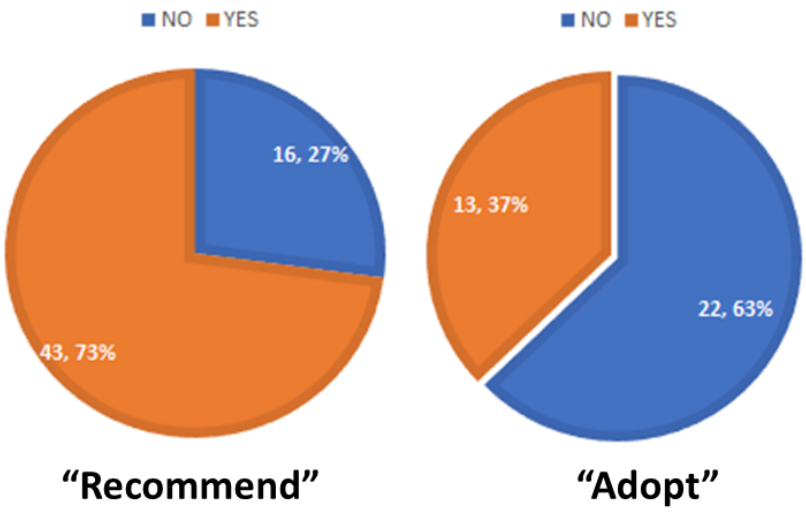

Figure 17. Public responses to the RFPG survey questions (left): Should the Regional Flood Planning Group (RFPG) "recommend" consistent minimum flood risk management standards across the entire Region? (right): Should the Regional Flood Planning Group (RFPG) "adopt" consistent minimum flood risk management standards across the entire Region?

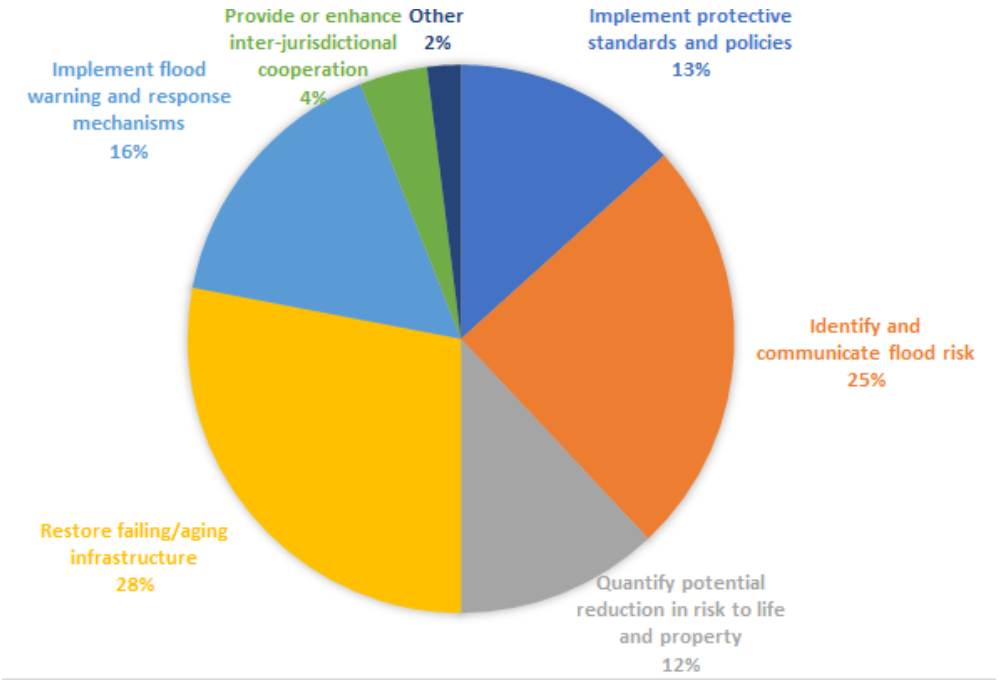

Figure 18. Overview of public response to the question regarding the top three priorities for the Regional Flood Planning Group (RFPG) to be included in the establishment of regional goals.

Unique Circumstances that Warrant Sub-Regional Goals Question

The following question was included in the public survey: Are there certain areas within the region that have especially unique circumstances that warrant their own sub-regional goals? The respondents in general did believe that there were especially unique circumstances that warranted regional goals (29, yes; 8, no and the remaining respondents did not answer this question). Among the respondents who did believe that certain areas within the region that have especially unique circumstances that warrant their own sub-regional goals, there was a wide variety of opinions about what sub-regional goals were needed. These included responses that sub-regional goals were needed to address playa regions, rural dirt roads, urban and rural areas, and river bottoms, as well as specific communities (*Table 8*).

Table 8. Public responses to the survey questions asking about if there are certain areas within the region that have especially unique circumstances that warrant their own sub-regional goals (Yes = 29; No= 8)
Noted specific regions that require their own sub-regional goals: Hunsley Hills, North side of Panhandle. Tule Draw region. Lake Tanglewood. South Soncy Amarillo. Dumas. Clarendon.
Playa lake regions
County and dirt roads
Urban versus rural/agricultural
River bottom areas

Suggestions to Improve Flood Response Question

The following final question was included at the end of the public survey: "Are there any suggestions/recommendations to improve flood response?" Some suggestions to improve flood response include better drainage systems (many respondents), as well as flood response and warning systems, flood preparedness training, rescue helicopters, flood response teams, disaster relief training. A major issue that many respondents noted is that they cannot get flood insurance outside of floodplains, despite those regions being at risk of flash flood or floods in low-lying playa basins. Better road planning and improved and cleared drainage systems including new culverts were also a notable response category from the survey. A few survey respondents mentioned the need to provide vouchers or some financial help to rural residents to purchase pumps for flooding for their homes and property, as well as assistance to ranchers for rebuilding barbed-wire fences which are frequently washed away by flooding.

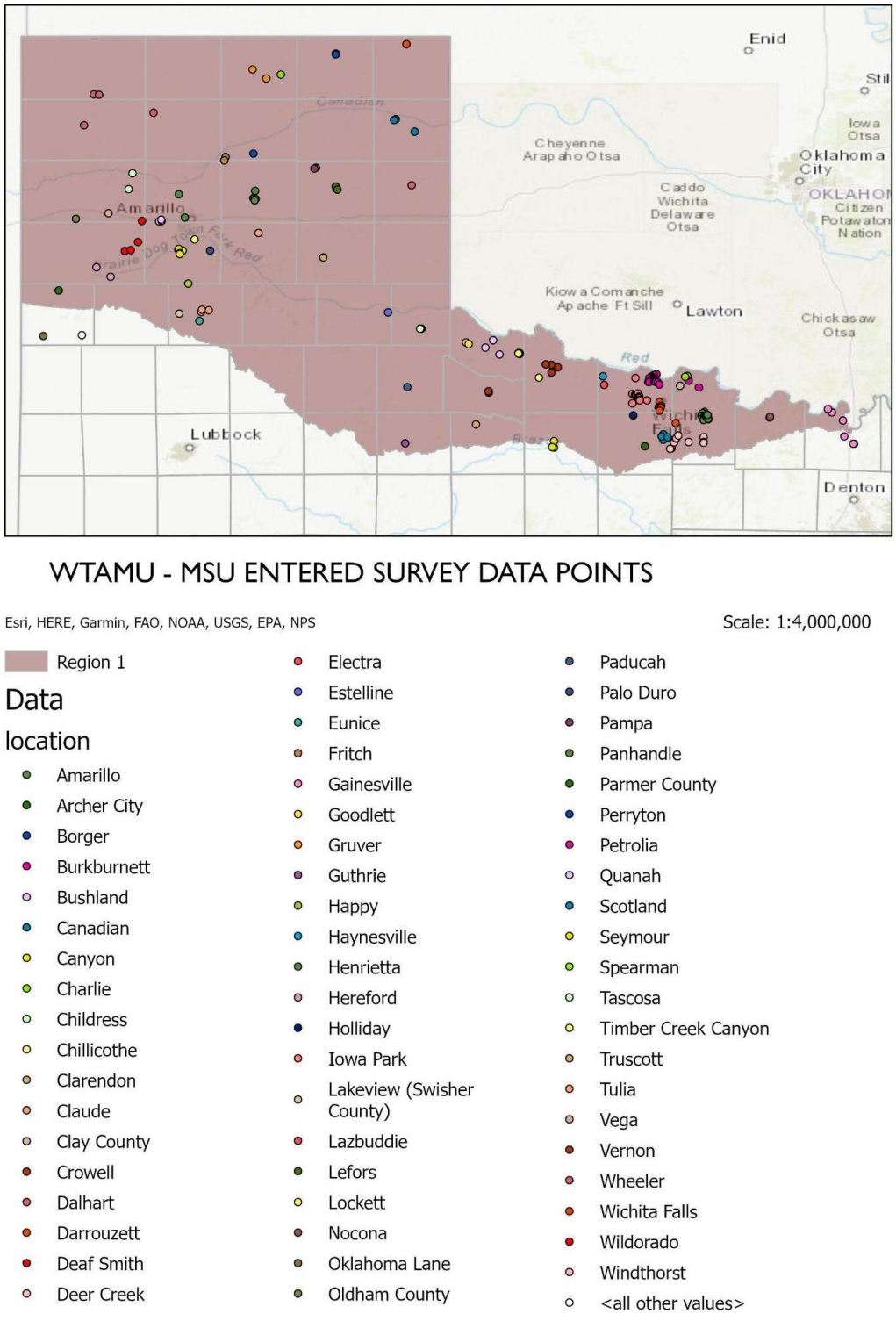

Figure 19. Map of Flood Planning Group Region 1 and location of data acquired by West Texas A&M and Midwestern State Universities. Data are coded to locality.

Discussion

Impacts of Methods Employed in Texas Panhandle and Central Plains on Quantity and Quantity of Responses

The history of the Universities (WTAMU and MSU) and their connections to rural Texas and the population therein was important for the success of this study. WTAMU was founded in 1910, and MSU in 1922, so each university has over 100 years of history in the region. For example, WTAMU has an established history in the fabric of the Texas Panhandle and has plans to continue establishing its name as a regional institution serving the Panhandle residents into the future (i.e. the WTAMU Mission Statement from the regional outreach plan, WT125 specifically targets the plans of WTAMU to serve the Texas Panhandle). Thus, these well-respected institutions likely played a role in shaping outreach response. For example, when making cold calls, Dr. Crosman noted that several respondents immediately hung up when simply stating that he was a professor looking to interview people. However, when he instead started the phone call with information providing that he was from WTAMU, the response was more favorable (no one hung up when that information was shared first). In addition, interviewees (either in person or through phone calls) appear to also be more willing to assist students with their research than help non-students. We believe that the students shrink the chasm between the government entity and the resident and make the rural interviewees more likely to not "tune out" our requests to connect with them and learn about their experiences. Thus, successful outreach in Region 1, which generally tends to have a population who prefers less government, regulations, and outside influence on their decisions, appears to be bolstered by students from respected local universities looking for help on obtaining research data than would occur from, for example, an out of state entity hired to conduct surveys within this region.

Role of Institutional Support on Quality and Quantity of Responses

Brand recognition has been the fabric of American enterprise. From McDonald's to Coca-Cola and Apple, the brands for consumer goods and services not only elicit emotional connections and responses, but also perceptions of quality. This might be a reason as to why an individual will pay over $1000 for an Apple iPhone instead of a few hundred dollars for a "lesser" known brand. In the same way, the strong relationship between a university woven into the fabric of the community should not be diminished. As stated in the vision statement for WTAMU— "our distinctive focus on the people and places of the ***Panhandle region*** will be acknowledged throughout Texas, across the country, and around the world" (WTAMU Mission Statement), it is evident that regional institutions such as WTAMU have a strong commitment to serving their region. With this being said, we found that sending students as ambassadors for the university leads to a plethora of positive outcomes. For one thing, the people in universities have prior relationships with other individuals in the community which further bolsters the perception of quality of the university brand and a higher likelihood of success for receiving responses to survey and web map questions.

For example, one of the student workers hired to help facilitate this study has numerous personal ties to individuals in Region 1 communities. By enabling her to use her contacts, we had access to individuals that might have been more challenging to obtain from a simple cold call or interview. We can surmise a large consortium of students that attend regional institutions have similar stories (80% of WTAMU students, 82% of MSU students are Texans) (West Texas A&M University N.D.; MSU N.D.b). Other contacts that we received were also family members and friends of students at the university. This means that the students alone have the potential to provide another pool of possible interviewees just by naming friends, family members, and colleagues. The same can be said for faculty and staff that are originally from the region and have connections with folks from the region (WTAMU's marketing director has strong ties with media members in the Panhandle; his growing-up and working in local media for many years fostered the many marketing pieces). In summary, from our experiences (not through a social science study or literature survey), it is the relationships (student-to-faculty, faculty-to-faculty, student-to-friend, student-to-relative, staff-to-former colleague, etc.) that made a large difference in our ability obtain responses. It is also the brand of the regional institution, specifically student recommendations, that helped connect us to individuals to interview that we may have not had access to otherwise.

Suggestions on Strategies to Improve

From our observation, we noted that there are two major categories of lessons from this research project. This can be parlayed into lessons learned on outreach (engaging the community) and in student participation (execution of hiring students).

Lessons Learned on Outreach

- The effectiveness of cold calling and interviewing was limited to only requesting an interviewee to point to a location on the map. We found that quite often community members were reluctant to speak with our students because of the lack of time and also knowledge. The more-effective approach was to set up pre-determined interviews with community members beforehand.
- Public office visits (i.e. city hall) are very effective. We found this to be particularly encouraging in the Upper Red region of our study area as students were able to find individuals in these offices to speak with. This was also tenable in the Texas Panhandle as well.
- Local student social networks are important to recruit potential interviewees. This is because students have established prior relationships, thereby making recruitment much easier.

Lessons Learned in Student Participation

- Active student participation is limited to a small window of time. It is important to remember that many students work part-time/full-time jobs, generally take two to five courses, and have other personal responsibilities. Therefore, one should complete most of the outreach activities during the time in the semester when responsibilities during the semester are low. This ideal time would be before midterms in fall, before spring break in spring, and any time during the summer. While FNI was able to ensure that we started after spring break, we found that it would be more ideal to hire students at the beginning of the semester. This is because some universities may require student workers to complete multiple training modules and other onboarding activities (i.e. WTAMU requires its students to complete greater than 15) before working. In our study, some students were unable to participate in a lot of outreach activities since most of their limited amount of time was spent completing onboarding assignments.
- We hired a total of eighteen different students to participate in this study. We were thinking that having a large cohort would allow us to be able to have a larger number of responses from the community. However, we found that out of that large group, a smaller subset of students were most integral in collecting interview responses and collating data into a presentable format. While some of the reasons for this might have something to do with what mentioned in our previous point on availability, it is also important to note that a smaller number of individuals within a group will complete the majority of the tasks requested of the group. This is typical in most collegiate group work. In the future, we recommend hiring fewer students, or giving time for a selection process to occur wherein the most productive students can be identified for the study. This will not only make management of students easier, but it might expedite the hiring process.
- In general, we have found that hiring college students is relatively inexpensive despite being highly effective for conducting public outreach. For this study, we hired eighteen students at $15/hr. These students worked a total of approximately 630 total hours (equivalent of about four months). Without taking into account fringe and benefits, we were able to spend less than $10,000 on student workers to conduct about a month's worth of work. Compare this with the much costs to hire one full-time engineer working for four months. Please note that this number includes hours entered for training activities as well. Students also did not incur a lot of travel expenses, as most opted not to eat out at a restaurant and did not need hotel accommodations. In all, one can hire a large group of students without spending an exorbitant amount of money.
- Finally, we observed that interviewees are more open to divulge information to students. We postulate that this is true for several reasons—1) students are less threatening and thereby more approachable; 2) students are less likely to have any direct correlation to the challenges being faced by the community members (they are just "the messengers"); 3) students are also ambassadors of the universities they attend, which means that any strong relationships that community members have a positive experience with the university brand.

Key Vignettes from Residents

Some of the key takeaways from the survey results:

- Flash flooding and street flooding in rural communities were the most reported flooding events. The rapid intensity of the intense rains observed in Region 1 that make their way into drainages that funnel into communities, as well as old, inadequate infrastructure for drainage were common survey responses.
- Low areas, such as playa lakes, which fill up to overtop roads, or in some cases homes, were also a common flooding problem experienced by rural residents identified through the survey in Region 1.
- Rural dirt roads can become easily muddy and impassable for weeks, affecting mail carriers and farmers reaching their ranches. Fences getting washed out are a common occurrence for rural farmers.
- Rural residents overwhelmingly chose that rural communities "recommend" rather than "adopt" new flood plans, although they generally agreed that an improved flood plan was needed.
- Rural residents were mostly unaware of any agencies that oversee flooding issues in Region 1.
- In some rural communities, "flooding" is not seen as that big of an issue, whereas in others the residents were very concerned about flooding in their communities.

CONCLUSION

In the Spring of 2022, a successful public outreach study was conducted on rural flooding for The Canadian – Upper Red River Basin Regional Flood Planning Area (Region 1). A total response of approximately ~185 individuals, spread across more than 35 counties and dozens of communities was obtained as part of the public outreach effort. The outcomes from this study allowed us to gather valuable information on both the location and types of flooding observed across Region 1, as well as the opinions and needs of its residents with respect to flooding. Through the identification of flood locations, types of flood damage and problems, and the digitally recorded surveys of rural residents on questions regarding future flood management and mitigation, valuable information on what next steps should be taken to address future flooding concerns in Region 1 can be obtained from the detailed map flood reports and public survey responses. Some preliminary take-away conclusions from this study are discussed below.

Flash flooding and street flooding are persistent problems that need to be addressed in Region 1 rural communities. Old inadequate infrastructure, clogged drainage systems, and the infrequent nature of the flooding are often contributing factors to the flooding issues. Playa lakes also dot the landscape and may fill and flood during heavy rain events, flooding surrounding infrastructure that is not included in typical floodplain designations and is therefore usually ineligible for flood insurance. Rural Region 1 residents had a wide range of suggestions for tackling flooding concerns, which included needed infrastructure improvements and financial support for residents (for example funds for pumps and barbed wire fence replacement).

The success of the project was contingent on multiple factors, including extensive media outreach, phone and in-person contacts, and many hours of interviews conducted both in-person and over the phone by the 18 students and three faculty members at West Texas A&M University (WTAMU) and Midwestern State University (MSU) conducting the study. The pre-existing map location questionnaire and public flood survey designed by FNI facilitated a robust and timely recording of all public outreach responses.

The success of the study also was likely supported by the role of institutional "brand recognition" and respect across the region for the participating institutions, WTAMU and MSU. Many of the student researchers involved in the study were from Region 1, and had pre-existing social networks from which to obtain successful survey responses. Thus, the relationships with the local community (student-to-faculty, faculty-to-faculty, student-to-friend, student-to-relative, staff-to-former colleague, etc.) were found to make a large difference in our ability to obtain meaningful responses.

Subsequently, the successes and challenges of this study can be used to inform future flood outreach research and public engagement activities in Region 1. Certainly utilizing local universities with strong brand recognition, respectable standing in

the community, and students and staff with roots in the region are highly recommended. Many people are more open and willing to talk to students than to professors or other trained staff, so the use of students in conducting this type of research is recommended. Some of the challenges that need to be addressed in future studies include the scheduling adequate time for training, media outreach, and canvassing the remote and sparsely populated rural regions. A hybrid approach utilizing all possible avenues (social media, radio stations, phone calling campaigns, community announcement venues, word-of-mouth contacts and in-person canvassing of rural communities) is recommended to create as diverse of an interviewee pool as possible.

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Appendix I-1

Response to Request for Information

Region 1 Canadian Upper Red Regional Flood Plan

Comment No.	SOW Task No.	Task Name	Item Type	Ex C Item	Ex D Table No.	Ex D feature class	Level 1	Level 2	RFPG Response
1	1	Existing Infrastructure	GIS feature class		7	ExFldInfraPt	The entries for EXINFPT_ID do not appear to match the required format of 2-digit region number plus 10 additional digits, and appear to be missing a leading 0. Please use the specified format for all ID fields.		Updated field to correct missing leading 0s. Per posted guidance in Exhibit D, Summary of Updates to Exhibit D, and Regional Flood Planning Geodatabase Tables (webpage), EXINFPT_IDs should be RR + 6 digits. IDs were not updated to 10 digit format noted in comment.
2	2A	Existing Exposure + Vulnerability	GIS feature class		14	ExFldExpAll	It appears that some entries for CRIT_TYPE are using the invalid entry of "Emergency". Please use the updated CRIT_TYPE valid entry list: "Medical, Police, Fire, EMS, Shelter, School, Infrastructure, Water Treatment, Wastewater Treatment, Power Generation, Other".		Updated field to reflect latest valid entry list for CRIT_TYPE.
3	2A	Model Coverage	GIS feature class		N/A	ModelCoverage	Multiple models have the same Model ID (010000000006). Please use unique IDs for each model.		Unique MODEL_IDs provided for individual hydrologic and hydraulic models. Corrected associated MODEL_ID fields in FME, FMP, and FMS feature classes. Updated MODEL_IDs will be incorporated when making final uploads to TDIS with the Amended Plan.
4	2A	Model Coverage	GIS feature class		N/A	ModelCoverage		Two models have mismatched names between TDIS and ModelCoverage feature class (010000000006, 010000000005).	*AMENDED PLAN ACTION: Corrected MODEL_IDs will be incorporated when making final uploads to TDIS with the Amended Plan.*
5	2A	Model Coverage	GIS feature class		N/A	ModelCoverage		The spatial area of all models uploaded to TDIS are encompassed within models in the ModelCoverage feature class, but are not congruent. The ModelCoverage boundary includes a much larger area than the boundary uploaded to TDIS MS2. Please reconcile.	Discrepencies in spatial areas between the ModelCoverage feature class and the elements uploaded to TDIS were rectified to better reflect the individual modeled areas.
6	2B	Future Exposure + Vulnerability	GIS feature class		19	FutFldExpAll	It appears that some entries for CRIT_TYPE are using the invalid entry of "Emergency". Please use the updated CRIT_TYPE valid entry list: "Medical, Police, Fire, EMS, Shelter, School, Infrastructure, Water Treatment, Wastewater Treatment, Power Generation, Other".		Updated field to reflect latest valid entry list for CRIT_TYPE.
7	4B	FME	Table	Table 12			In the FME feature class, 107 FMEs appear to have a higher total population than the max of day and night populations. Please reconcile.		The total population (POP100) field in the FME feature class was set to be the highest of the reported day or night populations. FMP and FMS feature classes were also checked and updated as necessary. These values were corrected in reported Tables 12, 13, and 14.
8	4B	FME	GIS feature class		23	FME	In the FME feature class, 107 FMEs appear to have a higher total population than the max of day and night populations. Please reconcile.		The total population (POP100) field in the FME feature class was set to be the highest of the reported day or night populations. FMP and FMS feature classes were also checked and updated as necessary. These values were corrected in reported Tables 12, 13, and 14.
9	4B	FMP	GIS feature class		25	FMP_HazPost	The entries for POSTHAZ_ID do not appear to match the required format of 2-digit region number plus 6 additional digits. Please use the specified format for all ID fields.		Updated POSTHAZ_ID to match required 01 + 6 digit format. IDs follow a 01 (Region)+3 (FMP)+100/500 (storm event) + last 2 digits of associated FMP format. ASSCPOSTHZ field in FMP feature class was updated with new POSTHAZ_IDs.
10	5	FMP Recs	GIS feature class		24	FMP	The sum of Project Cost is $92,340,000 in FMP feature class as opposed to $111,343,000 in FMP_Details. Please reconcile.		Revised the FMP_COST field in FMP_Details geodatabase table for the Landon, Duty, Sunset project to reflect correct $2.1M value, rather than $21M; Cost in FMP feature class is correct. Updated FMP Details Spreadsheet in the Final RFP Appendix and the Excel spreadsheet.
11	5	FMP Recs	Table				Table 5-2 has an asterisk on the field "FMP Meets All No Negative Impacts Requirements*". Please add a note to explain the asterisk.		This asterisk was an artifact and was removed from the printed text; all projects meet no adverse impacts requirements.
12	5	FMP Recs	Table				Please correct the FMP ID for 'Brenda Hursh Enhancement Project' in Table 5-2.		Matched FMP ID in Table 5-2 to FMP_ID field in the FMP feature class.
13	5	FMS Recs	Table	Table 17			Cumulative Estimated Population at 100-year flood risk is 205,448 in the geodatabase as opposed to 133,743 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Estimated Population at 100-year flood risk from the geodatabase (137,125).
14	5	FMS Recs	Table	Table 17			Cumulative Number of structures removed from 100yr (1% annual chance) Flood risk is 24 in the geodatabase as opposed to 0 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Number of structures removed from 100-year flood risk from the geodatabase (24).

*** Level 1 comment(s) that had been made during the TWDB review of draft regional flood plans that do not appear to have been fully addressed in the final plan.

Region 1 Canadian Upper Red Regional Flood Plan

Comment No.	SOW Task No.	Task Name	Item Type	Ex C Item	Ex D Table No.	Ex D feature class	Level 1	Level 2	RFPG Response
15	5	FMS Recs	Table	Table 17			Cumulative Residential structures removed from 100yr (1% annual chance) Flood risk is 24 in the geodatabase as opposed to 0 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Residential structures removed from 100-year flood risk from the geodatabase (24).
16	5	FMS Recs	Table	Table 17			Cumulative Estimated Population removed from 100yr (1% annual chance) Flood risk is 72 in the geodatabase as opposed to 0 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Estimated Population removed from 100-year flood risk from the geodatabase (72).
17	5	FMS Recs	GIS feature class		26	FMS	Cumulative Estimated Population at 100-year flood risk is 205,448 in the geodatabase as opposed to 133,743 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Estimated Population at 100-year flood risk from the geodatabase (137,125).
18	5	FMS Recs	GIS feature class		26	FMS	Cumulative Number of structures removed from 100yr (1% annual chance) Flood risk is 24 in the geodatabase as opposed to 0 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Number of structures removed from 100-year flood risk from the geodatabase (24).
19	5	FMS Recs	GIS feature class		26	FMS	Cumulative Residential structures removed from 100yr (1% annual chance) Flood risk is 24 in the geodatabase as opposed to 0 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Residential structures removed from 100-year flood risk from the geodatabase (24).
20	5	FMS Recs	GIS feature class		26	FMS	Cumulative Estimated Population removed from 100yr (1% annual chance) Flood risk is 72 in the geodatabase as opposed to 0 in the Exhibit C Table 17. Please reconcile.		Table 17 does not include specified field. Table 14 was updated to reflect Cumulative Estimated Population removed from 100-year flood risk from the geodatabase (72).
21	All	Accessibility			Section 2.2			Figures alternative text and other elements alternative text failed in accessibility check. Please consider adding alternative text as appropriate.	*AMENDED PLAN ACTION: Enhanced alternative text elements will be incorporated with the Amended Plan.*
22	All	Accessibility			Section 2.2		We noted 7 failures when reviewing the PDF submittal with the Adobe Acrobat accessibility full check. At a minimum, please ensure that the following document properties are satisfied. PDF documents must have a very good document title, the primary language must be set to English, and the primary view must be set to document title. PDFs must also be tagged documents.		Recompiled Final RFP report including a new Summary of Revisions page. Reran accessibility checks; failures identified and noted in the Accessibility Report provided by TWDB were addressed.

*** Level 1 comment(s) that had been made during the TWDB review of draft regional flood plans that do not appear to have been fully addressed in the final plan.