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Imagine the impossible
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PLATEAU REGIONAL WATER PLANNING AREA TECHNICAL MEMORANDUM

Prepared for:

Texas Water Development Board

On behalf of Plateau Region Water Planning Group

October 24, 2018

Prepared by:

WSP USA

1101 S. Capital of Texas Hwy, B-220

Austin, Texas 78746

512-327-9640

INTRODUCTION

The following **Technical Memorandum** is in compliance with Texas Water Development Board (TWDB) Rule 31 TAC §357.12(c) and is required as documented in the Second Amended Guidelines for Regional Water Planning (Exhibit C, Section 13.1.1) (April 2018). The Plateau Region Water Planning Group recognizes that the tables presented in this report contain planning data that currently resides in the TWDB water planning database (DB 22), and that this data is subject to revision prior to submittal of the final 2021 Far West Texas Water Plan. The following memorandum contains the following required documents:

1. TWDB DB22 Population Projection.
2. TWDB DB22 Water Demand Report.
3. TWDB DB22 WUG Category Summary Report.
4. TWDB DB22 Source Water Availability Report.
5. TWDB DB22 Existing Water Supplies Report.
6. TWDB DB22 Identified Water Needs/Surpluses Report.
7. TWDB DB22 Source Water Balance Report.
8. TWDB DB22 WUG Data Comparison to 2016 RWP Report.
9. TWDB DB22 Source Data Comparison to 2016 RWP Report.
10. Approved modifications to reservoir or reservoir system firm yield, reallocated annual MAG volumes, or use of MAG Peak Factors.
11. Process used by the Regional Water Planning Group (RWPG) to identify potentially feasible water management strategies.
12. Potentially feasible water management strategies identified by the RWPG to date.
13. Versions, dates, and electronic files of all WAM models and runs used in determining surface water availability.
14. Methodologies used for RWPG-estimated groundwater availabilities to date.
15. Declaration of whether the RWPG intends to pursue simplified planning for the regional water Planning area.
16. Written Summary of All WAM and GAM models.
17. Public Comments Received on Technical Memorandum.

1. TWDB DB22 Population Projection Report

Region J Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	122	140	150	155	157	158
GUADALUPE BASIN TOTAL	122	140	150	155	157	158
COUNTY-OTHER	1,114	1,282	1,376	1,414	1,438	1,450
NUECES BASIN TOTAL	1,114	1,282	1,376	1,414	1,438	1,450
BANDERA	1,875	2,160	2,316	2,380	2,420	2,442
BANDERA COUNTY FWSD 1	679	781	838	862	876	883
COUNTY-OTHER BANDERA RIVER RANCH 1	929	1,070	1,148	1,180	1,199	1,209
COUNTY-OTHER LAKE MEDINA SHORES	2,415	2,781	2,985	3,068	3,118	3,144
COUNTY-OTHER MEDINA WSC	895	1,031	1,107	1,137	1,156	1,166
COUNTY-OTHER	16,962	19,535	20,961	21,546	21,901	22,085
SAN ANTONIO BASIN TOTAL	23,755	27,358	29,355	30,173	30,670	30,929
BANDERA COUNTY TOTAL	24,991	28,780	30,881	31,742	32,265	32,537
ROCKSPRINGS	844	844	844	844	844	844
COUNTY-OTHER	136	136	136	136	136	136
COLORADO BASIN TOTAL	980	980	980	980	980	980
ROCKSPRINGS	415	415	415	415	415	415
COUNTY-OTHER BARKSDALE WSC	264	264	264	264	264	264
COUNTY-OTHER	391	391	391	391	391	391
NUECES BASIN TOTAL	1,070	1,070	1,070	1,070	1,070	1,070
COUNTY-OTHER	73	73	73	73	73	73
RIO GRANDE BASIN TOTAL	73	73	73	73	73	73
EDWARDS COUNTY TOTAL	2,123	2,123	2,123	2,123	2,123	2,123
COUNTY-OTHER	507	541	562	582	596	607
COLORADO BASIN TOTAL	507	541	562	582	596	607
KERRVILLE	25,658	26,638	27,217	27,792	28,203	28,522
KERRVILLE SOUTH WATER	2,821	2,969	3,057	3,143	3,206	3,254
COUNTY-OTHER CENTER POINT	161	172	178	184	189	192
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	255	272	282	291	298	304
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	530	564	585	605	619	631
COUNTY-OTHER HILLS AND DALES ESTATES	202	216	223	231	237	241
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	200	213	221	229	234	238
COUNTY-OTHER OAK FOREST SOUTH WATER	669	712	738	763	782	796
COUNTY-OTHER PARK PLACE SUBDIVISION	129	138	143	148	151	154
COUNTY-OTHER PECAN VALLEY	123	131	135	140	144	146
COUNTY-OTHER RUSTIC HILLS WATER	80	85	88	91	93	95
COUNTY-OTHER VERDE PARK ESTATES	178	189	196	203	208	211
COUNTY-OTHER WESTWOOD WATER SYSTEM	269	287	297	307	315	320
COUNTY-OTHER	20,583	21,982	22,813	23,636	24,226	24,679
GUADALUPE BASIN TOTAL	51,858	54,568	56,173	57,763	58,905	59,783
COUNTY-OTHER	6	7	7	7	8	8
NUECES BASIN TOTAL	6	7	7	7	8	8

Region J Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	273	291	302	313	321	327
SAN ANTONIO BASIN TOTAL	273	291	302	313	321	327
KERR COUNTY TOTAL	52,644	55,407	57,044	58,665	59,830	60,725
COUNTY-OTHER	81	82	82	82	82	82
NUECES BASIN TOTAL	81	82	82	82	82	82
BRACKETTVILLE	1,958	1,971	1,971	1,971	1,971	1,971
FORT CLARK SPRINGS MUD	1,259	1,267	1,267	1,267	1,267	1,267
COUNTY-OTHER	397	400	400	400	400	400
RIO GRANDE BASIN TOTAL	3,614	3,638	3,638	3,638	3,638	3,638
KINNEY COUNTY TOTAL	3,695	3,720	3,720	3,720	3,720	3,720
COUNTY-OTHER	35	35	35	35	35	35
COLORADO BASIN TOTAL	35	35	35	35	35	35
CAMP WOOD	747	747	747	747	747	747
LEAKEY	1,415	1,415	1,415	1,415	1,415	1,415
COUNTY-OTHER	1,132	1,132	1,132	1,132	1,132	1,132
NUECES BASIN TOTAL	3,294	3,294	3,294	3,294	3,294	3,294
REAL COUNTY TOTAL	3,329	3,329	3,329	3,329	3,329	3,329
DEL RIO UTILITIES COMMISSION	37,775	40,196	42,540	44,948	47,242	49,453
LAUGHLIN AIR FORCE BASE	1,767	1,951	2,129	2,239	2,239	2,239
COUNTY-OTHER	15,152	18,242	21,233	24,379	27,479	30,469
RIO GRANDE BASIN TOTAL	54,694	60,389	65,902	71,566	76,960	82,161
VAL VERDE COUNTY TOTAL	54,694	60,389	65,902	71,566	76,960	82,161
REGION J TOTAL POPULATION	141,476	153,748	162,999	171,145	178,227	184,595

2. TWDB DB22 Water Demand Projection Report

Region J Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	13	14	15	15	15	15
LIVESTOCK	11	11	11	11	11	11
GUADALUPE BASIN TOTAL	24	25	26	26	26	26
COUNTY-OTHER	116	129	136	138	140	141
LIVESTOCK	47	47	47	47	47	47
IRRIGATION	182	182	182	182	182	182
NUECES BASIN TOTAL	345	358	365	367	369	370
BANDERA	342	383	404	413	419	423
BANDERA COUNTY FWSD 1	141	158	167	171	174	175
COUNTY-OTHER BANDERA RIVER RANCH 1	97	108	113	115	117	118
COUNTY-OTHER LAKE MEDINA SHORES	251	280	294	299	303	306
COUNTY-OTHER MEDINA WSC	93	104	109	111	112	113
COUNTY-OTHER	1,765	1,965	2,066	2,102	2,132	2,149
LIVESTOCK	185	185	185	185	185	185
IRRIGATION	764	764	764	764	764	764
SAN ANTONIO BASIN TOTAL	3,638	3,947	4,102	4,160	4,206	4,233
BANDERA COUNTY TOTAL	4,007	4,330	4,493	4,553	4,601	4,629
ROCKSPRINGS	198	194	191	190	190	190
COUNTY-OTHER	15	14	14	14	14	14
MINING	19	19	19	19	19	19
LIVESTOCK	106	106	106	106	106	106
IRRIGATION	66	66	66	66	66	66
COLORADO BASIN TOTAL	404	399	396	395	395	395
ROCKSPRINGS	98	96	94	94	94	94
COUNTY-OTHER BARKSDALE WSC	29	28	27	26	26	26
COUNTY-OTHER	43	41	39	39	39	39
MINING	25	25	25	25	25	25
LIVESTOCK	192	192	192	192	192	192
IRRIGATION	89	89	89	89	89	89
NUECES BASIN TOTAL	476	471	466	465	465	465
COUNTY-OTHER	8	8	7	7	7	7
MINING	45	45	45	45	45	45
LIVESTOCK	99	99	99	99	99	99
IRRIGATION	60	60	60	60	60	60
RIO GRANDE BASIN TOTAL	212	212	211	211	211	211
EDWARDS COUNTY TOTAL	1,092	1,082	1,073	1,071	1,071	1,071
COUNTY-OTHER	43	44	44	44	45	46
MINING	14	15	18	19	20	22
LIVESTOCK	166	166	166	166	166	166
IRRIGATION	61	61	61	61	61	61
COLORADO BASIN TOTAL	284	286	289	290	292	295
KERRVILLE	5,082	5,158	5,178	5,237	5,305	5,364
KERRVILLE SOUTH WATER	341	346	347	352	358	363
COUNTY-OTHER CENTER POINT	14	14	14	14	14	15
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	22	22	22	22	23	23
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	45	45	46	46	47	48
COUNTY-OTHER HILLS AND DALES ESTATES	17	17	17	18	18	18

Region J Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	17	17	17	17	18	18
COUNTY-OTHER OAK FOREST SOUTH WATER	56	57	57	58	59	60
COUNTY-OTHER PARK PLACE SUBDIVISION	11	11	11	11	11	12
COUNTY-OTHER PECAN VALLEY	10	11	11	11	11	11
COUNTY-OTHER RUSTIC HILLS WATER	7	7	7	7	7	7
COUNTY-OTHER VERDE PARK ESTATES	15	15	15	15	16	16
COUNTY-OTHER WESTWOOD WATER SYSTEM	23	23	23	23	24	24
COUNTY-OTHER	1,737	1,769	1,773	1,804	1,842	1,875
MANUFACTURING	20	21	21	21	21	21
MINING	62	65	82	83	91	98
STEAM ELECTRIC POWER	444	444	444	444	444	444
LIVESTOCK	546	546	546	546	546	546
IRRIGATION	1,239	1,239	1,239	1,239	1,239	1,239
GUADALUPE BASIN TOTAL	9,708	9,827	9,870	9,968	10,094	10,202
COUNTY-OTHER	1	1	1	1	1	1
LIVESTOCK	9	9	9	9	9	9
NUECES BASIN TOTAL	10	10	10	10	10	10
COUNTY-OTHER	23	23	24	24	24	25
LIVESTOCK	36	36	36	36	36	36
IRRIGATION	42	42	42	42	42	42
SAN ANTONIO BASIN TOTAL	101	101	102	102	102	103
KERR COUNTY TOTAL	10,103	10,224	10,271	10,370	10,498	10,610
COUNTY-OTHER	11	11	11	11	10	10
LIVESTOCK	100	100	100	100	100	100
IRRIGATION	1,300	1,300	1,300	1,300	1,300	1,300
NUECES BASIN TOTAL	1,411	1,411	1,411	1,411	1,410	1,410
BRACKETTVILLE	608	602	594	593	592	592
FORT CLARK SPRINGS MUD	618	616	612	610	609	609
COUNTY-OTHER	53	52	51	51	51	51
LIVESTOCK	124	124	124	124	124	124
IRRIGATION	2,413	2,413	2,413	2,413	2,413	2,413
RIO GRANDE BASIN TOTAL	3,816	3,807	3,794	3,791	3,789	3,789
KINNEY COUNTY TOTAL	5,227	5,218	5,205	5,202	5,199	5,199
COUNTY-OTHER	4	4	3	3	3	3
LIVESTOCK	13	13	13	13	13	13
IRRIGATION	12	12	12	12	12	12
COLORADO BASIN TOTAL	29	29	28	28	28	28
CAMP WOOD	143	139	136	135	135	135
LEAKEY	193	186	180	178	177	177
COUNTY-OTHER	120	116	113	111	111	111
LIVESTOCK	138	138	138	138	138	138
IRRIGATION	258	258	258	258	258	258
NUECES BASIN TOTAL	852	837	825	820	819	819
REAL COUNTY TOTAL	881	866	853	848	847	847
DEL RIO UTILITIES COMMISSION	10,558	11,053	11,554	12,130	12,733	13,326
LAUGHLIN AIR FORCE BASE	1,018	1,114	1,215	1,277	1,276	1,276
COUNTY-OTHER	1,976	2,307	2,637	3,002	3,376	3,741

Region J Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MINING	190	249	259	223	192	171
LIVESTOCK	410	410	410	410	410	410
IRRIGATION	2,319	2,319	2,319	2,319	2,319	2,319
RIO GRANDE BASIN TOTAL	16,471	17,452	18,394	19,361	20,306	21,243
VAL VERDE COUNTY TOTAL	16,471	17,452	18,394	19,361	20,306	21,243
REGION J TOTAL DEMAND	37,781	39,172	40,289	41,405	42,522	43,599

3. TWDB DB22 Category Summary Report

Region J Water User Group (WUG) Category Summary*

MUNICIPAL	2020	2030	2040	2050	2060	2070
POPULATION	77,213	81,354	84,756	88,023	90,845	93,452
DEMAND (acre-feet per year)	19,340	20,045	20,672	21,380	22,062	22,724
EXISTING SUPPLIES (acre-feet per year)	34,327	34,327	34,327	34,327	34,327	34,327
NEEDS (acre-feet per year)	1,374	1,454	1,472	1,532	1,602	1,662

COUNTY-OTHER	2020	2030	2040	2050	2060	2070
POPULATION	64,263	72,394	78,243	83,122	87,382	91,143
DEMAND (acre-feet per year)	6,635	7,257	7,717	8,159	8,616	9,043
EXISTING SUPPLIES (acre-feet per year)	19,906	19,906	19,906	19,906	19,906	19,906
NEEDS (acre-feet per year)	265	316	341	350	358	365

MANUFACTURING	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	20	21	21	21	21	21
EXISTING SUPPLIES (acre-feet per year)	48	48	48	48	48	48
NEEDS (acre-feet per year)	0	0	0	0	0	0

MINING	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	355	418	448	414	392	380
EXISTING SUPPLIES (acre-feet per year)	194	194	194	194	194	194
NEEDS (acre-feet per year)	221	281	294	259	229	210

STEAM ELECTRIC POWER	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	444	444	444	444	444	444
EXISTING SUPPLIES (acre-feet per year)	0	0	0	0	0	0
NEEDS (acre-feet per year)	444	444	444	444	444	444

LIVESTOCK	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	2,182	2,182	2,182	2,182	2,182	2,182
EXISTING SUPPLIES (acre-feet per year)	2,562	2,562	2,562	2,562	2,562	2,562
NEEDS (acre-feet per year)	357	357	357	357	357	357

IRRIGATION	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	8,805	8,805	8,805	8,805	8,805	8,805
EXISTING SUPPLIES (acre-feet per year)	22,170	22,170	22,170	22,170	22,170	22,170
NEEDS (acre-feet per year)	117	117	117	117	117	117

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Category Summary report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

4. Source Water Availability Report

Region J Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
AUSTIN CHALK AQUIFER	KINNEY	RIO GRANDE	BRACKISH	4,928	4,928	4,928	4,928	4,928	4,928
EDWARDS-BFZ AQUIFER	KINNEY	NUECES	FRESH	6,319	6,319	6,319	6,319	6,319	6,319
EDWARDS-BFZ AQUIFER	KINNEY	RIO GRANDE	FRESH	2	2	2	2	2	2
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	GUADALUPE	FRESH	81	81	81	81	81	81
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	NUECES	FRESH	38	38	38	38	38	38
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	SAN ANTONIO	FRESH	1,890	1,890	1,890	1,890	1,890	1,890
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	COLORADO	FRESH	245	245	245	245	245	245
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	GUADALUPE	FRESH	1,015	1,015	1,015	1,015	1,015	1,015
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	NUECES	FRESH	5	5	5	5	5	5
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	SAN ANTONIO	FRESH	12	12	12	12	12	12
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	COLORADO	FRESH	2,305	2,305	2,305	2,305	2,305	2,305
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	NUECES	FRESH	1,631	1,631	1,631	1,631	1,631	1,631
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	RIO GRANDE	FRESH	1,740	1,740	1,740	1,740	1,740	1,740
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	NUECES	FRESH	12	12	12	12	12	12
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	RIO GRANDE	FRESH	70,329	70,329	70,329	70,329	70,329	70,329
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	COLORADO	FRESH	277	277	277	277	277	277
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	GUADALUPE	FRESH	3	3	3	3	3	3
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	NUECES	FRESH	7,243	7,243	7,243	7,243	7,243	7,243
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	VAL VERDE	RIO GRANDE	FRESH	50,000	50,000	50,000	50,000	50,000	50,000
ELLENBURGER-SAN SABA AQUIFER	KERR	GUADALUPE	FRESH	1,802	1,802	1,802	1,802	1,802	1,802
FRIO RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	2,145	2,145	2,145	2,145	2,145	2,145
HICKORY AQUIFER	KERR	COLORADO	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
NUECES RIVER ALLUVIUM AQUIFER	EDWARDS	NUECES	FRESH	1,787	1,787	1,787	1,787	1,787	1,787
NUECES RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	1,787	1,787	1,787	1,787	1,787	1,787
TRINITY AQUIFER	BANDERA	GUADALUPE	FRESH	76	76	76	76	76	76
TRINITY AQUIFER	BANDERA	NUECES	FRESH/ BRACKISH	903	903	903	903	903	903
TRINITY AQUIFER	BANDERA	SAN ANTONIO	FRESH/ BRACKISH	6,305	6,305	6,305	6,305	6,305	6,305
TRINITY AQUIFER	KERR	COLORADO	FRESH	318	318	318	318	318	318
TRINITY AQUIFER	KERR	GUADALUPE	FRESH/ BRACKISH	14,129	14,056	13,767	13,450	13,434	13,434
TRINITY AQUIFER	KERR	NUECES	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	KERR	SAN ANTONIO	FRESH	471	471	471	471	471	471
TRINITY AQUIFER ASR	KERR	GUADALUPE	FRESH	453	453	453	453	453	453
GROUNDWATER TOTAL SOURCE AVAILABILITY				178,251	178,178	177,889	177,572	177,556	177,556

*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

Region J Source Availability

SURFACE WATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
COLORADO OTHER LOCAL SUPPLY	EDWARDS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	KERR	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	REAL	COLORADO	FRESH	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	EDWARDS	COLORADO	FRESH	32	32	32	32	32	32
GUADALUPE OTHER LOCAL SUPPLY	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	BANDERA	GUADALUPE	FRESH	3	3	3	3	3	3
GUADALUPE RUN-OF-RIVER	KERR	GUADALUPE	FRESH	1,375	1,375	1,375	1,375	1,375	1,375
MEDINA LAKE/RESERVOIR	RESERVOIR	SAN ANTONIO	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	KINNEY	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	BANDERA	NUECES	FRESH	5	5	5	5	5	5
NUECES RUN-OF-RIVER	EDWARDS	NUECES	FRESH	94	94	94	94	94	94
NUECES RUN-OF-RIVER	REAL	NUECES	FRESH	1,751	1,751	1,751	1,751	1,751	1,751
RIO GRANDE LIVESTOCK LOCAL SUPPLY	EDWARDS	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE LIVESTOCK LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	KINNEY	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	KINNEY	RIO GRANDE	FRESH	3,616	3,616	3,616	3,616	3,616	3,616
RIO GRANDE RUN-OF-RIVER	VAL VERDE	RIO GRANDE	FRESH	13,776	13,776	13,776	13,776	13,776	13,776
SAN ANTONIO OTHER LOCAL SUPPLY	BANDERA	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO OTHER LOCAL SUPPLY	KERR	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO RUN-OF-RIVER	BANDERA	SAN ANTONIO	FRESH	2	2	2	2	2	2
SURFACE WATER TOTAL SOURCE AVAILABILITY				20,654	20,654	20,654	20,654	20,654	20,654
REGION J TOTAL SOURCE AVAILABILITY				198,905	198,832	198,543	198,226	198,210	198,210

*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

5. TWDB DB22 Existing Water Supplies Report

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	34	34	34	34	34	34
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	9	9	9	9	9	9
GUADALUPE BASIN TOTAL			43	43	43	43	43	43
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	38	38	38	38	38	38
COUNTY-OTHER	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER	J	TRINITY AQUIFER BANDERA COUNTY	399	399	399	399	399	399
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	0	0	0	0	0	0
LIVESTOCK	J	TRINITY AQUIFER BANDERA COUNTY	44	44	44	44	44	44
IRRIGATION	J	NUECES RUN-OF-RIVER	5	5	5	5	5	5
IRRIGATION	J	TRINITY AQUIFER BANDERA COUNTY	279	279	279	279	279	279
NUECES BASIN TOTAL			765	765	765	765	765	765
BANDERA	J	TRINITY AQUIFER BANDERA COUNTY	534	534	534	534	534	534
BANDERA COUNTY FWSD 1	J	TRINITY AQUIFER BANDERA COUNTY	75	75	75	75	75	75
COUNTY-OTHER BANDERA RIVER RANCH 1	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER BANDERA RIVER RANCH 1	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER BANDERA RIVER RANCH 1	J	TRINITY AQUIFER BANDERA COUNTY	69	69	69	69	69	69
COUNTY-OTHER LAKE MEDINA SHORES	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER LAKE MEDINA SHORES	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER LAKE MEDINA SHORES	J	TRINITY AQUIFER BANDERA COUNTY	55	55	55	55	55	55
COUNTY-OTHER MEDINA WSC	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER MEDINA WSC	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER MEDINA WSC	J	TRINITY AQUIFER BANDERA COUNTY	58	58	58	58	58	58
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	379	379	379	379	379	379
COUNTY-OTHER	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER	J	TRINITY AQUIFER BANDERA COUNTY	4,356	4,356	4,356	4,356	4,356	4,356
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	111	111	111	111	111	111
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	TRINITY AQUIFER BANDERA COUNTY	85	85	85	85	85	85
IRRIGATION	J	GUADALUPE RUN-OF-RIVER	3	3	3	3	3	3
IRRIGATION	J	SAN ANTONIO RUN-OF-RIVER	2	2	2	2	2	2
IRRIGATION	J	TRINITY AQUIFER BANDERA COUNTY	684	684	684	684	684	684
SAN ANTONIO BASIN TOTAL			6,411	6,411	6,411	6,411	6,411	6,411
BANDERA COUNTY TOTAL			7,219	7,219	7,219	7,219	7,219	7,219
ROCKSPRINGS	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	871	871	871	871	871	871
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	57	57	57	57	57	57
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	7	7	7	7	7	7
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	471	471	471	471	471	471
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	COLORADO RUN-OF-RIVER	32	32	32	32	32	32

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	REGION		2020	2030	2040	2050	2060	2070
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	78	78	78	78	78	78
COLORADO BASIN TOTAL			1,516	1,516	1,516	1,516	1,516	1,516
ROCKSPRINGS		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
COUNTY-OTHER BARKSDALE WSC	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	110	110	110	110	110	110
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	155	155	155	155	155	155
COUNTY-OTHER	J	NUECES RIVER ALLUVIUM AQUIFER EDWARDS COUNTY	8	8	8	8	8	8
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	9	9	9	9	9	9
MINING	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	206	206	206	206	206	206
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	109	109	109	109	109	109
IRRIGATION	J	NUECES RUN-OF-RIVER	94	94	94	94	94	94
NUECES BASIN TOTAL			691	691	691	691	691	691
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	30	30	30	30	30	30
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	14	14	14	14	14	14
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	110	110	110	110	110	110
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	70	70	70	70	70	70
RIO GRANDE BASIN TOTAL			224	224	224	224	224	224
EDWARDS COUNTY TOTAL			2,431	2,431	2,431	2,431	2,431	2,431
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	64	64	64	64	64	64
MINING	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	3	3	3	3	3	3
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	47	47	47	47	47	47
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	92	92	92	92	92	92
IRRIGATION	J	TRINITY AQUIFER KERR COUNTY	0	0	0	0	0	0
COLORADO BASIN TOTAL			206	206	206	206	206	206
KERRVILLE	J	GUADALUPE RUN-OF-RIVER	150	150	150	150	150	150
KERRVILLE	J	TRINITY AQUIFER KERR COUNTY	3,605	3,605	3,605	3,605	3,605	3,605
KERRVILLE	J	TRINITY AQUIFER ASR KERR COUNTY	453	453	453	453	453	453
KERRVILLE SOUTH WATER	J	TRINITY AQUIFER KERR COUNTY	387	387	387	387	387	387
COUNTY-OTHER CENTER POINT	J	TRINITY AQUIFER KERR COUNTY	11	11	11	11	11	11
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	J	TRINITY AQUIFER KERR COUNTY	23	23	23	23	23	23
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	J	TRINITY AQUIFER KERR COUNTY	43	43	43	43	43	43
COUNTY-OTHER HILLS AND DALES ESTATES	J	TRINITY AQUIFER KERR COUNTY	18	18	18	18	18	18
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	J	TRINITY AQUIFER KERR COUNTY	22	22	22	22	22	22
COUNTY-OTHER OAK FOREST SOUTH WATER	J	TRINITY AQUIFER KERR COUNTY	80	80	80	80	80	80
COUNTY-OTHER PARK PLACE SUBDIVISION	J	TRINITY AQUIFER KERR COUNTY	14	14	14	14	14	14

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER PECAN VALLEY	J	TRINITY AQUIFER KERR COUNTY	12	12	12	12	12	12
COUNTY-OTHER RUSTIC HILLS WATER	J	TRINITY AQUIFER KERR COUNTY	9	9	9	9	9	9
COUNTY-OTHER VERDE PARK ESTATES	J	TRINITY AQUIFER KERR COUNTY	16	16	16	16	16	16
COUNTY-OTHER WESTWOOD WATER SYSTEM	J	TRINITY AQUIFER KERR COUNTY	28	28	28	28	28	28
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	616	616	616	616	616	616
COUNTY-OTHER	J	GUADALUPE RUN-OF-RIVER	10	10	10	10	10	10
COUNTY-OTHER	J	TRINITY AQUIFER KERR COUNTY	7,636	7,636	7,636	7,636	7,636	7,636
MANUFACTURING	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	20	20	20	20	20	20
MANUFACTURING	J	GUADALUPE RUN-OF-RIVER	11	11	11	11	11	11
MANUFACTURING	J	TRINITY AQUIFER KERR COUNTY	17	17	17	17	17	17
MINING	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	14	14	14	14	14	14
MINING	J	GUADALUPE RUN-OF-RIVER	77	77	77	77	77	77
MINING	J	TRINITY AQUIFER KERR COUNTY	31	31	31	31	31	31
STEAM ELECTRIC POWER		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	230	230	230	230	230	230
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	TRINITY AQUIFER KERR COUNTY	143	143	143	143	143	143
IRRIGATION	J	GUADALUPE RUN-OF-RIVER	1,127	1,127	1,127	1,127	1,127	1,127
IRRIGATION	J	TRINITY AQUIFER KERR COUNTY	533	533	533	533	533	533
GUADALUPE BASIN TOTAL			15,336	15,336	15,336	15,336	15,336	15,336
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	3	3	3	3	3	3
NUECES BASIN TOTAL			3	3	3	3	3	3
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	3	3	3	3	3	3
COUNTY-OTHER	J	TRINITY AQUIFER KERR COUNTY	258	258	258	258	258	258
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	9	9	9	9	9	9
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	0	0	0	0	0	0
IRRIGATION	J	TRINITY AQUIFER KERR COUNTY	0	0	0	0	0	0
SAN ANTONIO BASIN TOTAL			270	270	270	270	270	270
KERR COUNTY TOTAL			15,815	15,815	15,815	15,815	15,815	15,815
COUNTY-OTHER	J	EDWARDS-BFZ AQUIFER KINNEY COUNTY	29	29	29	29	29	29
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	5	5	5	5	5	5
LIVESTOCK	J	EDWARDS-BFZ AQUIFER KINNEY COUNTY	66	66	66	66	66	66
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	7	7	7	7	7	7
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-BFZ AQUIFER KINNEY COUNTY	2,357	2,357	2,357	2,357	2,357	2,357
NUECES BASIN TOTAL			2,464	2,464	2,464	2,464	2,464	2,464
BRACKETTVILLE	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	645	645	645	645	645	645
BRACKETTVILLE	J	RIO GRANDE RUN-OF-RIVER	0	0	0	0	0	0
FORT CLARK SPRINGS MUD	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	1,371	1,371	1,371	1,371	1,371	1,371
COUNTY-OTHER	J	AUSTIN CHALK AQUIFER KINNEY COUNTY	80	80	80	80	80	80

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	85	85	85	85	85	85
LIVESTOCK	J	AUSTIN CHALK AQUIFER KINNEY COUNTY	226	226	226	226	226	226
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	95	95	95	95	95	95
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	AUSTIN CHALK AQUIFER KINNEY COUNTY	952	952	952	952	952	952
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	3,425	3,425	3,425	3,425	3,425	3,425
IRRIGATION	J	RIO GRANDE RUN-OF-RIVER	3,616	3,616	3,616	3,616	3,616	3,616
RIO GRANDE BASIN TOTAL			10,495	10,495	10,495	10,495	10,495	10,495
KINNEY COUNTY TOTAL			12,959	12,959	12,959	12,959	12,959	12,959
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	15	15	15	15	15	15
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	18	18	18	18	18	18
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	188	188	188	188	188	188
COLORADO BASIN TOTAL			221	221	221	221	221	221
CAMP WOOD	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LEAKEY		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	156	156	156	156	156	156
COUNTY-OTHER	J	FRIO RIVER ALLUVIUM AQUIFER REAL COUNTY	311	311	311	311	311	311
COUNTY-OTHER	J	NUECES RIVER ALLUVIUM AQUIFER REAL COUNTY	5	5	5	5	5	5
COUNTY-OTHER	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	176	176	176	176	176	176
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	187	187	187	187	187	187
IRRIGATION	J	NUECES RUN-OF-RIVER	1,751	1,751	1,751	1,751	1,751	1,751
NUECES BASIN TOTAL			2,586	2,586	2,586	2,586	2,586	2,586
REAL COUNTY TOTAL			2,807	2,807	2,807	2,807	2,807	2,807
DEL RIO UTILITIES COMMISSION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	16,532	16,532	16,532	16,532	16,532	16,532
DEL RIO UTILITIES COMMISSION	J	RIO GRANDE RUN-OF-RIVER	7,466	7,466	7,466	7,466	7,466	7,466
LAUGHLIN AIR FORCE BASE	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	2,238	2,238	2,238	2,238	2,238	2,238
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	4,609	4,609	4,609	4,609	4,609	4,609
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	39	39	39	39	39	39
MINING	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	506	506	506	506	506	506
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	276	276	276	276	276	276
IRRIGATION	J	RIO GRANDE RUN-OF-RIVER	6,310	6,310	6,310	6,310	6,310	6,310
RIO GRANDE BASIN TOTAL			37,976	37,976	37,976	37,976	37,976	37,976

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
VAL VERDE COUNTY TOTAL			37,976	37,976	37,976	37,976	37,976	37,976
REGION J TOTAL EXISTING WATER SUPPLY			79,207	79,207	79,207	79,207	79,207	79,207

6. TWDB DB22 Identified Water Needs/Surpluses Report

Region J Water User Group (WUG) Needs/Surplus*

	(NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BANDERA COUNTY - GUADALUPE BASIN						
COUNTY-OTHER	21	20	19	19	19	19
LIVESTOCK	(2)	(2)	(2)	(2)	(2)	(2)
BANDERA COUNTY - NUECES BASIN						
COUNTY-OTHER	321	308	301	299	297	296
LIVESTOCK	(3)	(3)	(3)	(3)	(3)	(3)
IRRIGATION	102	102	102	102	102	102
BANDERA COUNTY - SAN ANTONIO BASIN						
BANDERA	192	151	130	121	115	111
BANDERA COUNTY FWSD 1	(66)	(83)	(92)	(96)	(99)	(100)
COUNTY-OTHER BANDERA RIVER RANCH 1	(28)	(39)	(44)	(46)	(48)	(49)
COUNTY-OTHER LAKE MEDINA SHORES	(196)	(225)	(239)	(244)	(248)	(251)
COUNTY-OTHER MEDINA WSC	(35)	(46)	(51)	(53)	(54)	(55)
COUNTY-OTHER	2,970	2,770	2,669	2,633	2,603	2,586
LIVESTOCK	11	11	11	11	11	11
IRRIGATION	(75)	(75)	(75)	(75)	(75)	(75)
EDWARDS COUNTY - COLORADO BASIN						
ROCKSPRINGS	673	677	680	681	681	681
COUNTY-OTHER	42	43	43	43	43	43
MINING	(12)	(12)	(12)	(12)	(12)	(12)
LIVESTOCK	365	365	365	365	365	365
IRRIGATION	44	44	44	44	44	44
EDWARDS COUNTY - NUECES BASIN						
ROCKSPRINGS	(98)	(96)	(94)	(94)	(94)	(94)
COUNTY-OTHER BARKSDALE WSC	81	82	83	84	84	84
COUNTY-OTHER	120	122	124	124	124	124
MINING	(16)	(16)	(16)	(16)	(16)	(16)
LIVESTOCK	14	14	14	14	14	14
IRRIGATION	114	114	114	114	114	114
EDWARDS COUNTY - RIO GRANDE BASIN						
COUNTY-OTHER	22	22	23	23	23	23
MINING	(31)	(31)	(31)	(31)	(31)	(31)
LIVESTOCK	11	11	11	11	11	11
IRRIGATION	10	10	10	10	10	10
KERR COUNTY - COLORADO BASIN						
COUNTY-OTHER	21	20	20	20	19	18
MINING	(11)	(12)	(15)	(16)	(17)	(19)
LIVESTOCK	(119)	(119)	(119)	(119)	(119)	(119)
IRRIGATION	31	31	31	31	31	31
KERR COUNTY - GUADALUPE BASIN						
KERRVILLE	(874)	(950)	(970)	(1,029)	(1,097)	(1,156)
KERRVILLE SOUTH WATER	46	41	40	35	29	24
COUNTY-OTHER CENTER POINT	(3)	(3)	(3)	(3)	(3)	(4)
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	1	1	1	1	0	0
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	(2)	(2)	(3)	(3)	(4)	(5)

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

Region J Water User Group (WUG) Needs/Surplus*

COUNTY-OTHER HILLS AND DALES ESTATES	1	1	1	0	0	0
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	5	5	5	5	4	4
COUNTY-OTHER OAK FOREST SOUTH WATER	24	23	23	22	21	20
COUNTY-OTHER PARK PLACE SUBDIVISION	3	3	3	3	3	2
COUNTY-OTHER PECAN VALLEY	2	1	1	1	1	1
COUNTY-OTHER RUSTIC HILLS WATER	2	2	2	2	2	2
COUNTY-OTHER VERDE PARK ESTATES	1	1	1	1	0	0
COUNTY-OTHER WESTWOOD WATER SYSTEM	5	5	5	5	4	4
COUNTY-OTHER	6,525	6,493	6,489	6,458	6,420	6,387
MANUFACTURING	28	27	27	27	27	27
MINING	60	57	40	39	31	24
STEAM ELECTRIC POWER	(444)	(444)	(444)	(444)	(444)	(444)
LIVESTOCK	(173)	(173)	(173)	(173)	(173)	(173)
IRRIGATION	421	421	421	421	421	421
KERR COUNTY - NUECES BASIN						
COUNTY-OTHER	(1)	(1)	(1)	(1)	(1)	(1)
LIVESTOCK	(6)	(6)	(6)	(6)	(6)	(6)
KERR COUNTY - SAN ANTONIO BASIN						
COUNTY-OTHER	238	238	237	237	237	236
LIVESTOCK	(27)	(27)	(27)	(27)	(27)	(27)
IRRIGATION	(42)	(42)	(42)	(42)	(42)	(42)
KINNEY COUNTY - NUECES BASIN						
COUNTY-OTHER	23	23	23	23	24	24
LIVESTOCK	(27)	(27)	(27)	(27)	(27)	(27)
IRRIGATION	1,057	1,057	1,057	1,057	1,057	1,057
KINNEY COUNTY - RIO GRANDE BASIN						
BRACKETTVILLE	37	43	51	52	53	53
FORT CLARK SPRINGS MUD	753	755	759	761	762	762
COUNTY-OTHER	112	113	114	114	114	114
LIVESTOCK	197	197	197	197	197	197
IRRIGATION	5,580	5,580	5,580	5,580	5,580	5,580
REAL COUNTY - COLORADO BASIN						
COUNTY-OTHER	11	11	12	12	12	12
LIVESTOCK	5	5	5	5	5	5
IRRIGATION	176	176	176	176	176	176
REAL COUNTY - NUECES BASIN						
CAMP WOOD	(143)	(139)	(136)	(135)	(135)	(135)
LEAKEY	(193)	(186)	(180)	(178)	(177)	(177)
COUNTY-OTHER	352	356	359	361	361	361
LIVESTOCK	38	38	38	38	38	38
IRRIGATION	1,680	1,680	1,680	1,680	1,680	1,680
VAL VERDE COUNTY - RIO GRANDE BASIN						
DEL RIO UTILITIES COMMISSION	13,440	12,945	12,444	11,868	11,265	10,672
LAUGHLIN AIR FORCE BASE	1,220	1,124	1,023	961	962	962
COUNTY-OTHER	2,633	2,302	1,972	1,607	1,233	868
MINING	(151)	(210)	(220)	(184)	(153)	(132)
LIVESTOCK	96	96	96	96	96	96

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

Region J Water User Group (WUG) Needs/Surplus*

IRRIGATION	4,267	4,267	4,267	4,267	4,267	4,267
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*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

7. TWDB DB22 Source Water Balance Report

Region J Source Water Balance (Availability - WUG Supply)

GROUNDWATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
AUSTIN CHALK AQUIFER	KINNEY	RIO GRANDE	BRACKISH	3,670	3,670	3,670	3,670	3,670	3,670
EDWARDS-BFZ AQUIFER	KINNEY	NUECES	FRESH	3,867	3,867	3,867	3,867	3,867	3,867
EDWARDS-BFZ AQUIFER	KINNEY	RIO GRANDE	FRESH	2	2	2	2	2	2
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	GUADALUPE	FRESH	38	38	38	38	38	38
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	NUECES	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	SAN ANTONIO	FRESH	1,400	1,400	1,400	1,400	1,400	1,400
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	COLORADO	FRESH	39	39	39	39	39	39
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	GUADALUPE	FRESH	135	135	135	135	135	135
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	NUECES	FRESH	2	2	2	2	2	2
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	SAN ANTONIO	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	COLORADO	FRESH	821	821	821	821	821	821
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	NUECES	FRESH	1,042	1,042	1,042	1,042	1,042	1,042
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	RIO GRANDE	FRESH	1,516	1,516	1,516	1,516	1,516	1,516
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	NUECES	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	RIO GRANDE	FRESH	64,708	64,708	64,708	64,708	64,708	64,708
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	COLORADO	FRESH	56	56	56	56	56	56
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	GUADALUPE	FRESH	3	3	3	3	3	3
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	NUECES	FRESH	6,724	6,724	6,724	6,724	6,724	6,724
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	VAL VERDE	RIO GRANDE	FRESH	25,800	25,800	25,800	25,800	25,800	25,800
ELLENBURGER-SAN SABA AQUIFER	KERR	GUADALUPE	FRESH	1,802	1,802	1,802	1,802	1,802	1,802
FRIO RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	1,834	1,834	1,834	1,834	1,834	1,834
HICKORY AQUIFER	KERR	COLORADO	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
NUECES RIVER ALLUVIUM AQUIFER	EDWARDS	NUECES	FRESH	1,779	1,779	1,779	1,779	1,779	1,779
NUECES RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	1,782	1,782	1,782	1,782	1,782	1,782
TRINITY AQUIFER	BANDERA	GUADALUPE	FRESH	76	76	76	76	76	76
TRINITY AQUIFER	BANDERA	NUECES	FRESH/ BRACKISH	181	181	181	181	181	181
TRINITY AQUIFER	BANDERA	SAN ANTONIO	FRESH/ BRACKISH	389	389	389	389	389	389
TRINITY AQUIFER	KERR	COLORADO	FRESH	318	318	318	318	318	318
TRINITY AQUIFER	KERR	GUADALUPE	FRESH/ BRACKISH	1,501	1,428	1,139	822	806	806
TRINITY AQUIFER	KERR	NUECES	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	KERR	SAN ANTONIO	FRESH	150	150	150	150	150	150
TRINITY AQUIFER ASR	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
GROUNDWATER TOTAL SOURCE WATER BALANCE				119,635	119,562	119,273	118,956	118,940	118,940

*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

Region J Source Water Balance (Availability - WUG Supply)

SURFACE WATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
COLORADO OTHER LOCAL SUPPLY	EDWARDS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	KERR	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	REAL	COLORADO	FRESH	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	EDWARDS	COLORADO	FRESH	0	0	0	0	0	0
GUADALUPE OTHER LOCAL SUPPLY	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	BANDERA	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
MEDINA LAKE/RESERVOIR	RESERVOIR	SAN ANTONIO	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	KINNEY	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	BANDERA	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	REAL	NUECES	FRESH	0	0	0	0	0	0
RIO GRANDE LIVESTOCK LOCAL SUPPLY	EDWARDS	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE LIVESTOCK LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	KINNEY	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	KINNEY	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
SAN ANTONIO OTHER LOCAL SUPPLY	BANDERA	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO OTHER LOCAL SUPPLY	KERR	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO RUN-OF-RIVER	BANDERA	SAN ANTONIO	FRESH	0	0	0	0	0	0
SURFACE WATER TOTAL SOURCE WATER BALANCE				0	0	0	0	0	0

REGION J TOTAL SOURCE WATER BALANCE	119,635	119,562	119,273	118,956	118,940	118,940
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*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

8. TWDB DB22 WUG Data Comparison to 2016 RWP Report

Region J Water User Group (WUG) Data Comparison to 2016 Regional Water Plan (RWP)*

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
BANDERA COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,541	5,388	112.0%	2,541	5,388	112.0%
PROJECTED DEMAND TOTAL	2,493	2,335	-6.3%	3,033	2,842	-6.3%
WATER SUPPLY NEEDS TOTAL	0	259	100.0%	493	355	-28.0%
BANDERA COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	703	973	38.4%	703	973	38.4%
PROJECTED DEMAND TOTAL	432	946	119.0%	432	946	119.0%
WATER SUPPLY NEEDS TOTAL	129	75	-41.9%	129	75	-41.9%
BANDERA COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	298	249	-16.4%	298	249	-16.4%
PROJECTED DEMAND TOTAL	297	243	-18.2%	297	243	-18.2%
WATER SUPPLY NEEDS TOTAL	13	5	-61.5%	13	5	-61.5%
BANDERA COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	660	609	-7.7%	660	609	-7.7%
PROJECTED DEMAND TOTAL	191	483	152.9%	236	598	153.4%
WATER SUPPLY NEEDS TOTAL	0	66	100.0%	0	100	100.0%
EDWARDS COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	362	360	-0.6%	362	360	-0.6%
PROJECTED DEMAND TOTAL	96	95	-1.0%	87	86	-1.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
EDWARDS COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	443	383	-13.5%	443	383	-13.5%
PROJECTED DEMAND TOTAL	227	215	-5.3%	184	215	16.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
EDWARDS COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	523	787	50.5%	523	787	50.5%
PROJECTED DEMAND TOTAL	523	397	-24.1%	523	397	-24.1%
WATER SUPPLY NEEDS TOTAL	16	0	-100.0%	16	0	-100.0%
EDWARDS COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	89	30	-66.3%	89	30	-66.3%
PROJECTED DEMAND TOTAL	89	89	0.0%	89	89	0.0%
WATER SUPPLY NEEDS TOTAL	22	59	168.2%	22	59	168.2%
EDWARDS COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	919	871	-5.2%	919	871	-5.2%
PROJECTED DEMAND TOTAL	295	296	0.3%	283	284	0.4%
WATER SUPPLY NEEDS TOTAL	98	98	0.0%	94	94	0.0%
KERR COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	5,349	8,863	65.7%	5,349	8,863	65.7%
PROJECTED DEMAND TOTAL	2,029	2,041	0.6%	2,196	2,199	0.1%
WATER SUPPLY NEEDS TOTAL	6	6	0.0%	8	10	25.0%
KERR COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,405	1,752	24.7%	1,405	1,752	24.7%
PROJECTED DEMAND TOTAL	842	1,342	59.4%	719	1,342	86.6%

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Region J Water User Group (WUG) Data Comparison to 2016 Regional Water Plan (RWP)*

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
WATER SUPPLY NEEDS TOTAL	14	42	200.0%	12	42	250.0%
KERR COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	891	432	-51.5%	891	432	-51.5%
PROJECTED DEMAND TOTAL	890	757	-14.9%	890	757	-14.9%
WATER SUPPLY NEEDS TOTAL	130	325	150.0%	130	325	150.0%
KERR COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	34	48	41.2%	34	48	41.2%
PROJECTED DEMAND TOTAL	25	20	-20.0%	34	21	-38.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
KERR COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	106	125	17.9%	106	125	17.9%
PROJECTED DEMAND TOTAL	76	76	0.0%	120	120	0.0%
WATER SUPPLY NEEDS TOTAL	12	11	-8.3%	21	19	-9.5%
KERR COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,364	4,595	94.4%	2,364	4,595	94.4%
PROJECTED DEMAND TOTAL	5,201	5,423	4.3%	5,474	5,727	4.6%
WATER SUPPLY NEEDS TOTAL	3,224	874	-72.9%	3,507	1,156	-67.0%
KERR COUNTY STEAM ELECTRIC POWER WUG TYPE						
PROJECTED DEMAND TOTAL	0	444	100.0%	0	444	100.0%
WATER SUPPLY NEEDS TOTAL	0	444	100.0%	0	444	100.0%
KINNEY COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	291	199	-31.6%	291	199	-31.6%
PROJECTED DEMAND TOTAL	95	64	-32.6%	90	61	-32.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
KINNEY COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	7,833	10,350	32.1%	7,833	10,350	32.1%
PROJECTED DEMAND TOTAL	6,730	3,713	-44.8%	6,730	3,713	-44.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
KINNEY COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	422	394	-6.6%	422	394	-6.6%
PROJECTED DEMAND TOTAL	422	224	-46.9%	422	224	-46.9%
WATER SUPPLY NEEDS TOTAL	22	27	22.7%	22	27	22.7%
KINNEY COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,016	2,016	0.0%	2,016	2,016	0.0%
PROJECTED DEMAND TOTAL	1,159	1,226	5.8%	1,136	1,201	5.7%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
REAL COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,108	487	-56.0%	1,108	487	-56.0%
PROJECTED DEMAND TOTAL	280	124	-55.7%	257	114	-55.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
REAL COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,365	2,126	-10.1%	2,365	2,126	-10.1%
PROJECTED DEMAND TOTAL	238	270	13.4%	191	270	41.4%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Data Comparison to 2016 RWP report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

Region J Water User Group (WUG) Data Comparison to 2016 Regional Water Plan (RWP)*

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
REAL COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	261	194	-25.7%	261	194	-25.7%
PROJECTED DEMAND TOTAL	261	151	-42.1%	261	151	-42.1%
WATER SUPPLY NEEDS TOTAL	33	0	-100.0%	33	0	-100.0%
REAL COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	0	0	0.0%	0	0	0.0%
PROJECTED DEMAND TOTAL	134	336	150.7%	126	312	147.6%
WATER SUPPLY NEEDS TOTAL	134	336	150.7%	126	312	147.6%
VAL VERDE COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	4,513	4,609	2.1%	4,513	4,609	2.1%
PROJECTED DEMAND TOTAL	1,937	1,976	2.0%	3,694	3,741	1.3%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
VAL VERDE COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,795	6,586	135.6%	2,795	6,586	135.6%
PROJECTED DEMAND TOTAL	2,460	2,319	-5.7%	2,026	2,319	14.5%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
VAL VERDE COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	533	506	-5.1%	533	506	-5.1%
PROJECTED DEMAND TOTAL	533	410	-23.1%	533	410	-23.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
VAL VERDE COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	186	39	-79.0%	186	39	-79.0%
PROJECTED DEMAND TOTAL	190	190	0.0%	171	171	0.0%
WATER SUPPLY NEEDS TOTAL	4	151	3675.0%	0	132	100.0%
VAL VERDE COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	29,199	26,236	-10.1%	29,199	26,236	-10.1%
PROJECTED DEMAND TOTAL	11,657	11,576	-0.7%	14,703	14,602	-0.7%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
REGION J						
EXISTING WUG SUPPLY TOTAL	68,209	79,207	16.1%	68,209	79,207	16.1%
PROJECTED DEMAND TOTAL	39,802	37,781	-5.1%	44,937	43,599	-3.0%
WATER SUPPLY NEEDS TOTAL	3,857	2,778	-28.0%	4,626	3,155	-31.8%

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Data Comparison to 2016 RWP report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

9. TWDB DB22 Source Data Comparison to 2016 RWP Report

Region J Source Data Comparison to 2016 Regional Water Plan (RWP)

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
BANDERA COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	7,967	9,293	16.6%	7,967	9,293	16.6%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	104	10	-90.4%	104	10	-90.4%
EDWARDS COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	7,425	7,463	0.5%	7,425	7,463	0.5%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	304	126	-58.6%	304	126	-58.6%
KERR COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	16,576	18,450	11.3%	15,881	17,755	11.8%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	1,683	1,375	-18.3%	1,683	1,375	-18.3%
KINNEY COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	81,587	81,590	0.0%	81,587	81,590	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	1,187	3,616	204.6%	1,187	3,616	204.6%
REAL COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	11,461	11,455	-0.1%	11,461	11,455	-0.1%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	2,215	1,751	-20.9%	2,215	1,751	-20.9%
VAL VERDE COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	24,988	50,000	100.1%	24,988	50,000	100.1%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	14,111	13,776	-2.4%	14,111	13,776	-2.4%
REGION J						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	150,004	178,251	18.8%	149,309	177,556	18.9%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	19,604	20,654	5.4%	19,604	20,654	5.4%

10. Approved Modifications to Reservoir or Reservoir System Firm Yield, Reallocated Annual MAG Volumes, or Use of MAG Peak Factors

The following hydrologic variances to the Plateau Region's portions of the Rio Grande, Nueces, Colorado, and Guadalupe/San Antonio River Basins WAM were requested by the Planning Group in a letter to the TWDB dated February 15, 2018, and were reviewed and approved by the TWDB in a letter dated April 30, 2018. No other modifications to reservoir or reservoir system firm yield, reallocated annual MAG volumes, or use of MAG Peak Factors are considered in this Plan.

February 15, 2018

Jeff Walker
Texas Water Development Board
1700 North Congress
Austin, Texas 78711-3231

Subject: Procedures for Determining Water Availability and Water Supplies for the 2021 Plateau Regional Water Plan

Dear Mr. Walker:

The Plateau Region Water Planning Group (Region J) met on February 15, 2018 and discussed the process to determine the amount of surface water available from existing and future water management strategies using the guidance provided by the Texas Water Development Board (TWDB) in the base scope of work for the present cycle of Regional Water Planning. During this meeting, Region J discussed specific deviations from, or clarifications of, the standard TWDB guidance that will be employed to develop the 2021 Plateau Region Water Plan consisting of specific items that are either not specified in the TWDB rules, or deviations from the standard TWDB methodologies.

By this letter, the Plateau Region requests that the TWDB allow the Region to use these alternative assumptions outlined in the following paragraphs throughout the regional planning process for analyses that determine surface water availability to existing rights, and also for analyses to determine the potential supplies available from new water management strategies.

Surface Water Supplies

In its guidelines for Regional Water Planning, the TWDB requires that water availability be based on results derived from the official Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAMs). The TCEQ WAMs, which have been developed for all river basins in Texas, simulate the management and use of streamflow and reservoirs over a historical period of record, adhering to the prior appropriation doctrine, which governs the State of Texas water right priority system. The TCEQ WAMs are the fundamental tools used to determine surface water availability for water rights permitting, and contain information about water rights in each respective river basin.

The Plateau Region planning area includes the Rio Grande, Nueces, San Antonio, Colorado, and Guadalupe river basins. For planning purposes, adjustments to these official WAMs are allowable to better reflect current and future surface water conditions in the Region. Such adjustments, as proposed herein, require the approval of the TWDB in order to be incorporated into the Texas Commission on Environmental Quality (TCEQ) Rio Grande River Basin, Nueces River Basin, Colorado River Basin, and Guadalupe/San Antonio River Basin Water Availability Models (WAMs).

The aforementioned TCEQ WAMs for these Plateau Region river basins contain information on all water rights in these basins. Embedded within the models are certain assumptions that the TCEQ specifies when analyzing water right reliabilities. Water supply availability under drought-of-record conditions is considered in the planning process to insure that water demands can be met under the critical circumstances. For surface water supplies, drought-of-record conditions relate to the quantity of water available to meet existing permits from the Rio Grande, Nueces, Colorado, Guadalupe, and San Antonio rivers and their tributaries as estimated by Run 3 of the official TCEQ WAMs. There are several versions of each of these WAMs, and the TWDB guidance stipulates that regional water planning groups use the version that TCEQ uses to analyze applications for perpetual water rights. This scenario is often referred to as the

WAM "Run 3". The full appropriation assumptions in the TCEQ WAM Run 3 scenario are conservatively modeled for permitting purposes, but may not necessarily be the most appropriate to apply to the regional water planning process. Such assumptions can be changed by modifying model parameters when the model is used for regional water planning purposes.

The Plateau Region Water Planning Group requests that the TWDB approve the following assumptions and approaches for use in characterizing and representing existing and potential future surface water supplies in the 2021 Plateau Region Water Plan. The WAMs containing the necessary modifications to the official TCEQ WAM that incorporate these assumptions will be referred to as the "Region J WAMs." A detailed breakdown of the models to be employed for the evaluation of existing water supply and water management strategies (WMS's) is provided in Table 1.

Table 1 - Base Hydrologic Models

MODEL	USE FOR EXISTING SUPPLIES	USE FOR WATER MANAGEMENT STRATEGIES
<u>Surface Water – Rio Grande River Basin</u>		
<ul style="list-style-type: none"> Rio Grande River Basin Water Availability Model (RIO GRANDE WAM) (TCEQ) 	✓	✓
<u>Surface Water – Nueces River Basin</u>		
<ul style="list-style-type: none"> Nueces River Basin Water Availability Model (NUECES WAM) (TCEQ) 	✓	✓
<u>Surface Water – Colorado River Basin</u>		
<ul style="list-style-type: none"> Colorado River Basin Water Availability Model (COLORADO WAM) (TCEQ) 	✓	✓
<u>Surface Water – Guadalupe & San Antonio River Basins</u>		
<ul style="list-style-type: none"> Guadalupe and San Antonio River Basin Water Availability Model (GUADALUPE/SAN ANTONIO WAM) 	✓	✓

The proposed assumptions to be utilized by the Plateau Region Water Planning Group include the following items:

GENERAL

- The most recent available versions of the TCEQ WAMs for the Rio Grande, Nueces, Colorado, and Guadalupe/San Antonio River basins will be obtained from TCEQ. It is anticipated that each WAM will contain the latest approved water rights. This is to ensure that the latest official versions of these WAMs will formulate the basis of subsequent Plateau Region analyses.

- These WAMs will include the official TCEQ assumption of full consumption of existing water rights with no (zero) return flows. This assumption is consistent with surface water permitting and is conservative in the context of evaluations in future water availability.
- Evaluations of reuse, when/if applicable, will be performed consistently with TCEQ evaluations, incorporating appropriate documented minimum and permitted return flows for technical considerations. Evaluations of reuse as a WMS may also include consideration of those return flows identified in the most recently available, official TCEQ WAM reflecting recent return flow conditions (WAM Run 8).
- Channel losses employed in the determination of water availability will be based on channel loss factors employed within the official State WAMs.
- Evaluations of Aquifer Storage and Recovery will consider surface water availability as determined by the WAM compared to demand, with the firm supply being the maximum demand that could be met assuming a repetition of the period of record drought.
- Environmental flow standards have been adopted by the TCEQ for all of the Plateau Region's river basins. These standards are incorporated into the applicable official TCEQ WAMs, and will be reflected in evaluations of all Plateau Region water supplies as represented in the WAM.
- Subordination of water rights will be modeled in a manner consistent with modeled subordination within the official TCEQ WAMs.
- Water supply determination for municipal and industrial users will be calculated using the results from the WAMs in the following ways:
 - o Run of the river rights will be determined in accordance with TWDB guidelines which state that the use-appropriate monthly percentage of the annual firm diversion must be satisfied in each and every month of the simulation period for all surface water diversions.
 - o Reservoirs will use firm yield unless a change is specifically requested by a reservoir owner and approved by the RWPG and TWDB, as appropriate per TWDB guidelines.
 - o The calculated source availabilities will be compared against existing legal and infrastructure constraints (water treatment plants, pipelines, intakes, etc.) and will be constrained if the existing infrastructure or legal capability is not sufficient to facilitate full utilization of the source. The most constrained amount will be used as the firm supply.
- Water supply for irrigation rights will be determined using firm reliability (100%). Per TWDB guidance, in the absence of any supply information or justification of reliable supplies available in a drought of record, supply values will be set equal to zero.
- Per TWDB guidance, in the absence of any supply information or justification of reliable supplies available in a drought of record, livestock supply values will be set equal to zero.

Specifics regarding surface water availability modeling of each river basin are presented by basin below. Considerations regarding the simulation of reservoir conditions (i.e., sedimentation effects) are then discussed.

RIO GRANDE RIVER BASIN (INCLUDING THE PECOS AND DEVILS RIVER)

Portions of the Rio Grande River Basin, including its tributaries, are located in Val Verde, Edwards, and Kinney Counties in the Plateau Region. The Pecos River forms a portion of the boundary between Terrell County in the Far West Texas Region and Crockett County in Region F before reaching Langtry in Val Verde County in the Plateau Region. The Devils River originates in Sutton County and proceeds generally southward through Val Verde County before reaching Amistad International Reservoir. There are no surface-water rights on the Pecos and Devils Rivers within the Plateau Region. Amistad International Reservoir is located in the Rio Grande River Basin on the border between the United States and Mexico near the City of Del Rio, and was constructed jointly by the two nations. It was completed in 1968, with a maximum capacity of 5.25 million acre-feet, with approximately 3.5 million acre-feet of storage used for conservation. Lake Amistad is not a present source of supply for the Plateau Region, as the City of Del Rio and downstream irrigators in Val Verde County obtain their supply primarily from San Felipe Springs and Creek.

For the Rio Grande River Basin, the most recently available official TCEQ WAM Run 3 (ver. Feb. 1, 2018) will be employed. This updated WAM reflects TCEQ's latest updates and corrections, representing a hydrologic period from 1940-2000.

NUECES RIVER BASIN

Portions of the Nueces River Basin, including its tributaries, are located within Edwards, Kinney, Real, Kerr, and Bandera Counties within the Plateau Region, with the main stem Nueces forming a portion of the border between Real and Edwards Counties. Headwater tributaries of the Nueces River located in the Plateau Region include the Sabinal River and Hondo Creek in Bandera County, the West Nueces River in Edwards and Kinney Counties, and the Frio, East Frio, and Dry Frio Rivers in Real County.

For the Nueces River Basin, the most recently available official TCEQ WAM Run 3 (ver. Jan. 7, 2013) will be employed for all availability analyses in the Nueces River Basin. The hydrologic period represented in this WAM is 1934-1996.

COLORADO RIVER BASIN

The headwaters of the South Llano River, a tributary of the Colorado River, lie within Edwards County, while other tributaries are within Kerr County and Real County. For the Colorado River Basin, the most recently available official TCEQ WAM Run 3 (ver. Feb. 1, 2018) will be employed for all availability analyses in the basin. The hydrologic period represented in this WAM is 1940-2013.

SAN ANTONIO RIVER BASIN

The headwaters of the San Antonio River are within Bandera County. Medina Lake, located within the San Antonio River Basin, was constructed in 1911 to provide irrigation water for farmers to the southwest of San Antonio. Although commonly referred to as Medina Lake, the lake is actually a system consisting of Medina Lake and Diversion Lake (the latter being where diversions from this dual-lake system are authorized). Diversion Lake was impounded in 1913, and is located approximately 4 miles downstream of Medina Lake.

For the San Antonio River Basin, the most recently available official TCEQ Guadalupe/San Antonio WAM Run 3 (ver. Oct. 17, 2014) will be employed for all availability analyses in the basin. The hydrologic period represented in this WAM is 1934-1989.

GUADALUPE RIVER BASIN

The portion of the Guadalupe River Basin within the Plateau Region lies almost entirely within Kerr County. Three tributaries (Johnson Creek, North Fork, and South Fork) converge west of the City of Kerrville, forming the Guadalupe River course. Three recreational reservoirs permitted for non-consumptive, recreational uses are located in the basin near Kerrville. As noted in the 2016 Plateau Regional Water Plan, "pursuant to a Memorandum of Understanding (MOU) between the Guadalupe-Blanco River Authority (GBRA) and the Commissioner's Court of Kerr County, the South Central Texas Water Planning Group (Region L) recognized a potential commitment of approximately 6,000 acre-feet/year from the firm yield of Canyon Reservoir for the calendar years 2021 through 2050."

For the Guadalupe River Basin, the most recently available official TCEQ Guadalupe/San Antonio WAM Run 3 (ver. Oct. 17, 2014) will be employed for all availability analyses in the basin - the same as that employed for the San Antonio River Basin. The hydrologic period represented in this WAM is 1934-1989.

SIMULATION OF RESERVOIR CONDITIONS (SEDIMENTATION)

As mentioned previously, the two reservoirs located within the Plateau Region are Amistad Reservoir (located in the Rio Grande River Basin) and Medina Lake (San Antonio River Basin). Canyon Reservoir (located in the Guadalupe River Basin) is located within Region L; and as mentioned above has been recognized in previous planning as a potential supply for Kerr County in the Plateau Region. Although these reservoirs do not presently provide supply to the Region, each could do so in the future pending availability of firm supplies.

In the consideration of available firm supplies under existing and future conditions, reservoir sedimentation can reduce the storage capacity of a reservoir, impacting the beneficial uses of reservoirs such as water supply, flood control, hydropower, navigation, and recreation. Surveys of volumetric storage in a reservoir allow for the derivation of rates and loadings of sediment to the reservoir. The annual loading can then be distributed to determine a revised elevation-area-capacity curve which models the distribution of the total volume of sediment accumulated at the end of an analysis period. The resultant area-capacity relationship is then incorporated into the applicable WAM for the given reservoir.

For those reservoirs lacking volumetric surveys, original area-capacity relations employed within WAM Run 3 will be assumed constant. If a reservoir (or reservoir system) is calculated to have no firm yield, that result will be assumed for all decades in the 2020-2070 planning horizon. For reservoirs with available volumetric survey information, an annual sediment rate will be calculated, and loadings calculated for Year 2020 and Year 2070. Sediment distribution within the reservoir will be calculated, and resultant 2020 and 2070 area-capacity curves will be developed and employed within the applicable WAM to calculate 2020 and 2070 firm yields. The intervening decadal firm yields will then be linearly interpolated.

INTERREGIONAL COORDINATION

Major downstream water rights include those in Region L supplied by the Guadalupe-Blanco River Authority out of Canyon Lake and by the Bexar-Medina-Atascosa WCID#1 out of the Medina/Diversion system. The firm yields of Canyon and Medina can limit the amount of water available for appropriation in both the Plateau Region and Region L. Major downstream water rights in Region M (i.e., cities and irrigators on the Rio Grande downstream from Amistad Reservoir) do not limit the amount of water available for appropriation in the Plateau Region because currently the Plateau Region does not depend on the Falcon-Amistad system. TCEQ's Lower Rio Grande Watermaster allocates

Mr. Lann Bookout
Texas Water Development Board
February 15, 2018

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water rights on the Rio Grande according to the supply in the Amistad Reservoir and in accordance with the 1944 International Treaty with Mexico.

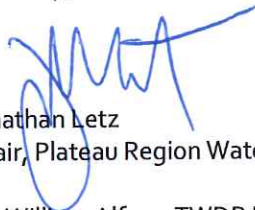
For those instances where modeled surface water supply results can inform upon or impact determinations of surface water availability in the Plateau Region or other regions, modeled results and approaches will be shared and coordinated to ensure consistency between regions, in a manner consistent with TWDB guidelines and the assumptions described herein.

CONCLUSION

These assumptions are recommended to be used throughout the regional planning process for analyses that determine water availability for existing supplies, and also for analyses to determine the potential supplies available from new water management strategies. The assumptions described herein require the approval of the TWDB in order to be incorporated into the Plateau Region's analyses.

If you have any questions regarding this request, please contact me at your convenience. We appreciate the TWDB's consideration of this request.

Sincerely,



Jonathan Letz
Chair, Plateau Region Water Planning Group

cc: William Alfaro, TWDB Project Manager
Raymond Buck, UGRA General Manager
Jennifer Herrera, WSP (formerly LBG-Guyton) Technical Consultant
John Ashworth, WSP (formerly LBG-Guyton) Technical Consultant
Tony Smith, Carollo Engineers, Inc., Technical Consultant

11. Process Used by the Regional Water Planning Group to Identify Potentially Feasible Water Management Strategies

1. Review and consider recommended water management strategies adopted by the Plateau Region Water Planning Group for the 2016 Plateau Region Water Plan.
2. Review and consider any issues identified in the most current TWDB Water Loss Audit Report, including leak detection and supply side analysis.
3. Solicit current water planning information, including specific water management strategies of interest from WUGs and WWP with identified needs.
4. Review and consider the most recent Water Supply Management, Water Conservation, and/or Drought Contingency Plans, where available, from WUGs and WWP with identified needs.
5. As required by TWC §16.053(e)(3), and 31 TAC §357.34(c) the RWPGs shall consider, **but not be limited to considering**, the following types of water management strategies for all identified water needs:
 - Conservation
 - Drought management
 - Reuse
 - Management of existing water supplies
 - Conjunctive use
 - Acquisition of available existing water supplies
 - Development of new water supplies
 - Developing regional water supply facilities or providing regional management of water supply facilities
 - Developing large-scale desalination facilities for seawater or brackish groundwater that serve local or regional brackish groundwater production zones identified and designated under TWC §16.060(b)(5)34
 - Developing large-scale desalination facilities for marine seawater that serve local or regional entities
 - Voluntary transfer of water within the region using, but not limited to, contracts, water marketing, regional water banks, sales, leases, options, subordination agreements, and financing agreements
 - Emergency transfer of water under TWC §11.139
 - Interbasin transfers of surface water
 - System optimization
 - Reallocation of reservoir storage to new uses
 - Enhancements of yields
 - Improvements to water quality
 - New surface water supply
 - New groundwater supply

- Brush control
 - Precipitation enhancement
 - Aquifer storage and recovery
 - Cancellation of water rights
 - Rainwater harvesting
6. Consider other potentially feasible water management strategies suggested by planning group members, stakeholders, and the public.
 7. Based on the above reviews and considerations, establish a preliminary list of potentially feasible water management strategies. At a discussion level, consider the following feasibility concerns for each strategy:
 - Water supply source availability during drought-of-record conditions
 - Cost/benefit
 - Water quality
 - Threats to agriculture and natural resources
 - Impacts to the environment, other water resources, and basin transfers
 - Socio-economic impacts
 8. Based on the above discussion level analysis, select a final list of potentially feasible water management strategies for further technical evaluation using detailed analysis criteria.

12. Potentially Feasible Water Management Strategies Identified by the RWPG to Date

County	WUGs and WWP Entities Potentially Served by WMSs	Source Basin	Water Management Strategy Title	
Bandera	City of Bandera	San Antonio	Reuse treated wastewater effluent for irrigation use	
			Promote, design & install rainwater harvesting systems	
			Additional Lower Trinity well and lay necessary pipeline	
			Additional Middle Trinity wells within City water infrastructure	
	*Bandera County Other	San Antonio	Water loss audit and main-line repair for Bandera County FWSD #1	
			Water loss audit and main-line repair for Bandera River Ranch #1	
			Water loss audit and main-line repair for Medina WSC	
			**Vegetative Management	
			Drought Management (BCRAGD)	
			Additional well for Pebble Beach Subdivision	
			Additional wells to provide emergency supply to VFD	
Additional well for Town of Median				
*Bandera County Irrigation	San Antonio	Additional groundwater wells		
		*Bandera County Livestock		
Edwards	*City of Rocksprings	Colorado	Water loss audit and main-line repair	
		Nueces	Additional groundwater well	
	Edwards County Other	Nueces	Water loss audit and main-line repair for Barksdale WSC	
			Additional well in the Nueces River Alluvium Aquifer	
			**Vegetative Management	
	*Edwards County Mining	Colorado	Additional groundwater wells	
		Nueces	Additional groundwater wells	
		Rio Grande	Additional groundwater wells	
	Kerr	*City of Kerrville	Guadalupe	Increase wastewater reuse
				Water loss audit and main-line repair
				Purchase water from UGRA
Increased water treatment and ASR capacity				
*Loma Vista WS		Guadalupe	Conservation: Public information	
			Additional groundwater well	
*Kerr County Other		Guadalupe	Water loss audit and main-line repair for Center Point WWW	
			Water loss audit and main-line repair for Hills & Dales WWW	
			Water loss audit and main-line repair for Rustic Hills Water	
			Water loss audit and main-line repair for Verde Park Estates WWW	
			Conservation: Public information	
		Colorado	Conservation: Public information – Water shortage met with J-32	
		Nueces	Conservation: Public information – Water shortage met with J-32	
		Guadalupe	** Vegetative management - UGRA	
			UGRA Acquisition of surface water rights ² (EKCRWSP)	
			KCCC Acquisition of surface water rights ² (EKCRWSP)	
			Construction of surface water treatment facilities and transmission lines ² (EKCRWSP)	
Construction of ASR facility ² (EKCRWSP)				
Construction of well field for dense, rural areas ² (EKCRWSP)				
Construction of desalination plan ² (EKCRWSP)				
Construction of Ellenburger Aquifer water supply well ² (EKCRWSP)				
*Kerr County Irrigation	San Antonio	Additional groundwater well		
*Kerr County Livestock	Colorado	Additional groundwater wells		
*Kerr County Livestock	Guadalupe	Additional groundwater wells		
*Kerr County Livestock	San Antonio	Additional groundwater well		
*Kerr County Mining	Colorado	Additional groundwater well		
	Guadalupe	Additional groundwater well		

County	WUGs and WWP Entities Potentially Served by WMSs	Source Basin	Water Management Strategy Title
Kinney	City of Brackettville	Rio Grande	Water loss audit and main-line repair
			Increase supply to Spoford with new water line
			Increase storage facility.
	Fort Clark Springs MUD	Rio Grande	Increase storage facility.
	Kinney County Other	Rio Grande	**Vegetative Management
*Kinney County Livestock	Rio Grande	Additional groundwater wells	
Real	*City of Leakey	Nueces	Water loss audit and main-line repair
			Additional groundwater well
			Develop interconnections between wells within the City
	* City of Camp Wood	Nueces	Conservation: Public information
			Additional groundwater wells
	Real County Other	Nueces	Water loss audit and main-line repair for Real WSC
			**Vegetative Management
*Real County Livestock	Nueces	Additional well for Oakmont Saddle WSC	
Val Verde	City of Del Rio	Rio Grande	Water loss audit and main-line repair
			Develop a wastewater reuse program
			Water treatment plant expansion
			Drill and equip new wells and connect to distribution system.
	Val Verde County Other		**Vegetative Management
*Val Verde Mining		Additional groundwater well	

²Eastern Kerr County Regional Water Supply Project

*WUGs with a projected future supply deficit in 2016 Plan

13. Versions, Dates, and Electronic Files of all WAM Models and Runs Used in Determining Surface Water Availability

Basin	Model Name	Version Date	File Name	Modification	Purpose	Model Run By	Model Run Date
Colorado	Colorado WAM Full Authorization Scenario 3	1-Feb-18	C3_RegJFYs-BASE.dat	No modification	Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	9-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-BASE.dat		Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	27-Jun-18
Guadalupe and San Antonio	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1932_2.DAT		Determine the firm yield of impoundment associated with 18-1932 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1943_1.DAT		Determine the firm yield of impoundment associated with 18-1943 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1947_2.DAT		Determine the firm yield of impoundment associated with 18-1947 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1961_1.DAT		Determine the firm yield of impoundment associated with 18-1961 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1970_2.DAT		Determine the firm yield of impoundment associated with 18-1970 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1996_1.DAT	No modification	Determine the firm yield of impoundment associated with 18-1996 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2008_1.DAT		Determine the firm yield of impoundment associated with 18-2008 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2122_1.DAT		Determine the firm yield of impoundment associated with 19-2122 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2130.DAT		Determine the firm yield of impoundment associated with 19-2130 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2445_1.DAT		Determine the firm yield of impoundment associated with 18-2445 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2447_2.DAT		Determine the firm yield of impoundment associated with 18-2447 for all decades	Carollo	16-May-18

Basin	Model Name	Version Date	File Name	Modification	Purpose	Model Run By	Model Run Date
Guadalupe and San Antonio	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-P3769_1.DAT	No modification	Determine the firm yield of impoundment associated with Application 18-3769 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-P5331_2.DAT		Determine the firm yield of impoundment associated with 18-5331 for all decades		
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-P5394.DAT		Determine the firm yield of impoundment associated with 18-5394 for all decades		
Nueces	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-BASE.DAT	No modification	Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	16-May-18
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-C3176_1.DAT		Determine the firm yield of impoundment associated with 21-3176 for all decades		
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-C3177_1.DAT		Determine the firm yield of impoundment associated with 21-3177 for all decades		
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-P4169_2.DAT		Determine the firm yield of impoundment associated with 21-4169 for all decades		
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-P4405_1.DAT		Determine the firm yield of impoundment associated with 21-4405 for all decades		
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-P5305_1.DAT		Determine the firm yield of impoundment associated with 21-5305 for all decades		
Rio Grande	Rio Grande WAM Full Authorization Scenario 3	1-Feb-18	RG3_RegJFYs-BASE.dat	No modification	Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	18-May-18
	Rio Grande WAM Full Authorization Scenario 3	1-Feb-18	RG3_RegJFYs-2672.DAT		Determine the firm yield of impoundment associated with 23-2672 for all decades		
	Rio Grande WAM Full Authorization Scenario 3	1-Feb-18	RG3_RegJFYs-62302679001.DAT		Determine the firm yield of impoundment associated with 23-2679 for all decades		

Note: Electronic files are attached separately

14. Groundwater Availability Methodology

Source Supply	County	Basin	Methodology
Austin Chalk Aquifer	Kinney	Rio Grande	0.6% of average annual rainfall over the outcrop as recharge.
Nueces River Alluvium Aquifer	Edwards	Nueces	Recharge plus 0.1 volume of water in storage. See process documentation in Appendix 3B of the 2011 Plateau Region Water Plan.
	Real	Nueces	
Frio River Alluvium Aquifer	Real	Nueces	
Ellenburger/San Saba Aquifer	Kerr	Colorado	Hydraulic conductivity of 0.007 acre-feet/acre/year over 286,000 acres of prime production zone in eastern Kerr County.
		Guadalupe	
Edwards-BFZ Aquifer	Kinney	Nueces	GMA10 MAG
		Rio Grande	
Edwards Group of the Edwards-Trinity (Plateau) Aquifer	Kerr	Colorado	GMA9 Non-Relevant, TWDB modeled
		Guadalupe	
		Nueces	
		San Antonio	
	Bandera	Guadalupe	GMA9 MAG
		Nueces	
San Antonio			
Edwards-Trinity (Plateau) Pecos Valley, Trinity Aquifer	Edwards	Colorado	GMA7 MAG
		Nueces	
		Rio Grande	
	Kinney	Nueces	
		Rio Grande	
	Real	Colorado	
		Nueces	
	Val Verde	Rio Grande	
Trinity Aquifer	Bandera	Guadalupe	GMA9 MAG
		Nueces	
		San Antonio	
	Kerr	Colorado	
		Guadalupe	
		Nueces	
		San Antonio	

15. Declaration of Whether the RWPG Intends to Pursue Simplified Planning for the Regional Water Planning Area

The option to implement *simplified planning* was presented at a public meeting of the Plateau Region Water Planning Group on October 24, 2018 as Agenda Item 12.

12. *Consider, discuss and take appropriate action to pursue or not pursue Simplified Planning for the Plateau Region Water Plan.*

Following consideration and discussion, the Plateau Region Water Planning Group voted unanimously to not pursue *simplified planning* and instructed the Planning Group consultants to continue forward in completing the 2021 Plateau Region Water Plan.

16. Written Summary of All WAM and GAM Models

Summary information is previously provided in Sections 10 and 13.

17. Public Comments Received on Technical Memorandum

Following a 14-day public notice period, the Chairman of the Plateau Region Water Planning Group at a Planning Group public meeting on October 24, 2018 in Leakey Texas called for public comments on the proposed Plateau Region Technical Memorandum. No comments were presented by the public in attendance. Also, no written comments from the public were received prior to the meeting. Following the public Planning Group meeting, an additional 14-day period was observed to receive public comments. At the close of this period no further public comments were received.