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# FAR WEST TEXAS WATER PLANNING REGION TECHNICAL MEMORANDUM

Prepared for:

Texas Water Development Board

On behalf of Far West Texas Water Planning Group

August 14, 2018

Prepared by:

WSP USA

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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 Far West Texas 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 E Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
ALPINE	6,066	6,185	6,231	6,265	6,283	6,293
LAJITAS MUNICIPAL SERVICES	542	561	568	575	579	579
MARATHON WATER SUPPLY & SEWER SERVICE	444	460	466	471	474	475
COUNTY-OTHER	2,675	2,885	2,965	3,023	3,051	3,070
<b>RIO GRANDE BASIN TOTAL</b>	<b>9,727</b>	<b>10,091</b>	<b>10,230</b>	<b>10,334</b>	<b>10,387</b>	<b>10,417</b>
<b>BREWSTER COUNTY TOTAL</b>	<b>9,727</b>	<b>10,091</b>	<b>10,230</b>	<b>10,334</b>	<b>10,387</b>	<b>10,417</b>
VAN HORN	2,319	2,542	2,641	2,730	2,782	2,815
COUNTY-OTHER	376	412	428	443	451	457
<b>RIO GRANDE BASIN TOTAL</b>	<b>2,695</b>	<b>2,954</b>	<b>3,069</b>	<b>3,173</b>	<b>3,233</b>	<b>3,272</b>
<b>CULBERSON COUNTY TOTAL</b>	<b>2,695</b>	<b>2,954</b>	<b>3,069</b>	<b>3,173</b>	<b>3,233</b>	<b>3,272</b>
ANTHONY	4,206	5,053	5,840	6,620	7,358	8,052
EAST BIGGS WATER SYSTEM	11,870	11,870	11,870	11,870	11,870	11,870
EAST MONTANA WATER SYSTEM	6,599	7,529	8,391	9,247	10,057	10,818
EL PASO COUNTY TORNILLO WID	3,202	3,215	3,229	3,242	3,254	3,266
EL PASO COUNTY WCID 4	8,858	9,131	9,385	9,636	9,874	10,098
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD	734,031	822,625	904,900	986,455	1,063,672	1,136,275
FEDERAL CORRECTIONAL INSTITUTION LA TUNA	1,668	1,668	1,668	1,668	1,668	1,668
FORT BLISS WATER SERVICES	26,453	27,499	28,471	29,434	30,343	31,200
HACIENDAS DEL NORTE WID	1,218	1,389	1,548	1,706	1,855	1,996
HORIZON REGIONAL MUD	52,993	74,830	95,108	115,207	134,239	152,133
LOWER VALLEY WATER DISTRICT	53,059	63,682	73,546	83,325	92,582	101,287
PASEO DEL ESTE MUD 1	8,116	9,260	10,320	11,372	12,369	13,304
COUNTY-OTHER   VINTON HILLS ESTATES	370	505	631	756	874	985
COUNTY-OTHER   VINTON HILLS SUBDIVISION	861	1,176	1,469	1,759	2,034	2,292
COUNTY-OTHER	12,061	16,471	20,569	24,630	28,478	32,096
<b>RIO GRANDE BASIN TOTAL</b>	<b>925,565</b>	<b>1,055,903</b>	<b>1,176,945</b>	<b>1,296,927</b>	<b>1,410,527</b>	<b>1,517,340</b>
<b>EL PASO COUNTY TOTAL</b>	<b>925,565</b>	<b>1,055,903</b>	<b>1,176,945</b>	<b>1,296,927</b>	<b>1,410,527</b>	<b>1,517,340</b>
ESPERANZA WATER SERVICE	905	996	1,023	1,043	1,053	1,058
HUDSPETH COUNTY WCID 1	952	1,044	1,073	1,095	1,105	1,112
COUNTY-OTHER   DELL CITY	424	467	480	489	494	496
COUNTY-OTHER   FORT HANCOCK WCID	1,079	1,188	1,222	1,246	1,258	1,263
COUNTY-OTHER	553	609	626	638	643	646
<b>RIO GRANDE BASIN TOTAL</b>	<b>3,913</b>	<b>4,304</b>	<b>4,424</b>	<b>4,511</b>	<b>4,553</b>	<b>4,575</b>
<b>HUDSPETH COUNTY TOTAL</b>	<b>3,913</b>	<b>4,304</b>	<b>4,424</b>	<b>4,511</b>	<b>4,553</b>	<b>4,575</b>
FORT DAVIS WSC	1,361	1,361	1,361	1,361	1,361	1,361
COUNTY-OTHER   CITY OF VALENTINE	198	198	198	198	198	198
COUNTY-OTHER	839	839	839	839	839	839
<b>RIO GRANDE BASIN TOTAL</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>
<b>JEFF DAVIS COUNTY TOTAL</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>	<b>2,398</b>
MARFA	2,583	2,807	3,022	3,261	3,473	3,674

### Region E Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
PRESIDIO	5,458	5,884	6,297	6,749	7,153	7,538
COUNTY-OTHER	651	754	855	962	1,062	1,155
<b>RIO GRANDE BASIN TOTAL</b>	<b>8,692</b>	<b>9,445</b>	<b>10,174</b>	<b>10,972</b>	<b>11,688</b>	<b>12,367</b>
<b>PRESIDIO COUNTY TOTAL</b>	<b>8,692</b>	<b>9,445</b>	<b>10,174</b>	<b>10,972</b>	<b>11,688</b>	<b>12,367</b>
TERRELL COUNTY WCID 1	870	890	890	890	890	890
COUNTY-OTHER	175	179	179	179	179	179
<b>RIO GRANDE BASIN TOTAL</b>	<b>1,045</b>	<b>1,069</b>	<b>1,069</b>	<b>1,069</b>	<b>1,069</b>	<b>1,069</b>
<b>TERRELL COUNTY TOTAL</b>	<b>1,045</b>	<b>1,069</b>	<b>1,069</b>	<b>1,069</b>	<b>1,069</b>	<b>1,069</b>
<b>REGION E TOTAL POPULATION</b>	<b>954,035</b>	<b>1,086,164</b>	<b>1,208,309</b>	<b>1,329,384</b>	<b>1,443,855</b>	<b>1,551,438</b>

## **2. TWDB DB22 Water Demand Projection Report**

### Region E Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
ALPINE	1,934	1,944	1,935	1,933	1,937	1,940
LAJITAS MUNICIPAL SERVICES	103	104	103	103	104	104
MARATHON WATER SUPPLY & SEWER SERVICE	124	126	126	127	127	127
COUNTY-OTHER	411	431	433	436	439	442
LIVESTOCK	347	347	347	347	347	347
IRRIGATION	2,006	2,006	2,006	2,006	2,006	2,006
<b>RIO GRANDE BASIN TOTAL</b>	<b>4,925</b>	<b>4,958</b>	<b>4,950</b>	<b>4,952</b>	<b>4,960</b>	<b>4,966</b>
<b>BREWSTER COUNTY TOTAL</b>	<b>4,925</b>	<b>4,958</b>	<b>4,950</b>	<b>4,952</b>	<b>4,960</b>	<b>4,966</b>
VAN HORN	662	711	737	760	774	783
COUNTY-OTHER	65	69	71	73	74	75
MANUFACTURING	5	6	6	6	6	6
MINING	2,119	2,853	3,006	2,723	2,456	2,253
LIVESTOCK	270	270	270	270	270	270
IRRIGATION	37,863	37,863	37,863	37,863	37,863	37,863
<b>RIO GRANDE BASIN TOTAL</b>	<b>40,984</b>	<b>41,772</b>	<b>41,953</b>	<b>41,695</b>	<b>41,443</b>	<b>41,250</b>
<b>CULBERSON COUNTY TOTAL</b>	<b>40,984</b>	<b>41,772</b>	<b>41,953</b>	<b>41,695</b>	<b>41,443</b>	<b>41,250</b>
ANTHONY	770	905	1,033	1,163	1,291	1,412
EAST BIGGS WATER SYSTEM	798	798	798	798	798	798
EAST MONTANA WATER SYSTEM	806	891	974	1,064	1,155	1,241
EL PASO COUNTY TORNILLO WID	320	312	306	303	303	304
EL PASO COUNTY WCID 4	810	793	781	783	798	816
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD	110,572	120,315	129,713	139,978	150,601	160,792
FEDERAL CORRECTIONAL INSTITUTION LA TUNA	352	345	342	340	339	339
FORT BLISS WATER SERVICES	4,881	4,921	5,024	5,182	5,331	5,481
HACIENDAS DEL NORTE WID	196	218	240	262	285	306
HORIZON REGIONAL MUD	7,936	11,043	13,962	16,868	19,630	22,235
LOWER VALLEY WATER DISTRICT	5,714	6,563	7,398	8,290	9,189	10,045
PASEO DEL ESTE MUD 1	1,054	1,167	1,278	1,397	1,515	1,629
COUNTY-OTHER   VINTON HILLS ESTATES	64	85	104	124	144	162
COUNTY-OTHER   VINTON HILLS SUBDIVISION	149	197	242	290	334	376
COUNTY-OTHER	2,086	2,758	3,395	4,055	4,680	5,272
MANUFACTURING	7,028	8,157	8,157	8,157	8,157	8,157
MINING	4,008	4,626	5,262	5,948	6,693	7,539
STEAM ELECTRIC POWER	10,545	10,545	10,545	10,545	10,545	10,545
LIVESTOCK	171	171	171	171	171	171
IRRIGATION	149,570	149,570	149,570	149,570	149,570	149,570
<b>RIO GRANDE BASIN TOTAL</b>	<b>307,830</b>	<b>324,380</b>	<b>339,295</b>	<b>355,288</b>	<b>371,529</b>	<b>387,190</b>
<b>EL PASO COUNTY TOTAL</b>	<b>307,830</b>	<b>324,380</b>	<b>339,295</b>	<b>355,288</b>	<b>371,529</b>	<b>387,190</b>
ESPERANZA WATER SERVICE	142	152	153	154	155	156
HUDSPETH COUNTY WCID 1	142	151	152	153	154	155
COUNTY-OTHER   DELL CITY	45	47	47	47	47	47
COUNTY-OTHER   FORT HANCOCK WCID	114	119	119	119	120	121
COUNTY-OTHER	58	61	61	61	61	62
MINING	479	451	468	483	492	502
LIVESTOCK	437	437	437	437	437	437

### Region E Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
IRRIGATION	115,542	115,542	115,542	115,542	115,542	115,542
<b>RIO GRANDE BASIN TOTAL</b>	<b>116,959</b>	<b>116,960</b>	<b>116,979</b>	<b>116,996</b>	<b>117,008</b>	<b>117,022</b>
<b>HUDSPETH COUNTY TOTAL</b>	<b>116,959</b>	<b>116,960</b>	<b>116,979</b>	<b>116,996</b>	<b>117,008</b>	<b>117,022</b>
FORT DAVIS WSC	319	314	309	307	307	307
COUNTY-OTHER   CITY OF VALENTINE	29	28	28	27	27	27
COUNTY-OTHER	124	120	117	115	115	115
MINING	153	153	153	153	153	153
LIVESTOCK	397	397	397	397	397	397
IRRIGATION	665	665	665	665	665	665
<b>RIO GRANDE BASIN TOTAL</b>	<b>1,687</b>	<b>1,677</b>	<b>1,669</b>	<b>1,664</b>	<b>1,664</b>	<b>1,664</b>
<b>JEFF DAVIS COUNTY TOTAL</b>	<b>1,687</b>	<b>1,677</b>	<b>1,669</b>	<b>1,664</b>	<b>1,664</b>	<b>1,664</b>
MARFA	690	735	781	841	895	947
PRESIDIO	738	772	808	856	905	953
COUNTY-OTHER	100	112	123	139	153	166
MINING	403	0	0	0	0	0
LIVESTOCK	328	328	328	328	328	328
IRRIGATION	4,006	4,006	4,006	4,006	4,006	4,006
<b>RIO GRANDE BASIN TOTAL</b>	<b>6,265</b>	<b>5,953</b>	<b>6,046</b>	<b>6,170</b>	<b>6,287</b>	<b>6,400</b>
<b>PRESIDIO COUNTY TOTAL</b>	<b>6,265</b>	<b>5,953</b>	<b>6,046</b>	<b>6,170</b>	<b>6,287</b>	<b>6,400</b>
TERRELL COUNTY WCID 1	178	178	178	177	177	177
COUNTY-OTHER	21	21	20	20	20	20
MINING	673	776	740	606	483	385
LIVESTOCK	151	151	151	151	151	151
IRRIGATION	751	751	751	751	751	751
<b>RIO GRANDE BASIN TOTAL</b>	<b>1,774</b>	<b>1,877</b>	<b>1,840</b>	<b>1,705</b>	<b>1,582</b>	<b>1,484</b>
<b>TERRELL COUNTY TOTAL</b>	<b>1,774</b>	<b>1,877</b>	<b>1,840</b>	<b>1,705</b>	<b>1,582</b>	<b>1,484</b>
<b>REGION E TOTAL DEMAND</b>	<b>480,424</b>	<b>497,577</b>	<b>512,732</b>	<b>528,470</b>	<b>544,473</b>	<b>559,976</b>

### **3. TWDB DB22 Category Summary Report**

### Region E Water User Group (WUG) Category Summary\*

<b>MUNICIPAL</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
POPULATION	933,773	1,060,481	1,177,848	1,294,222	1,404,294	1,507,762
DEMAND (acre-feet per year)	139,241	153,458	167,131	181,839	196,770	211,047
EXISTING SUPPLIES (acre-feet per year)	186,240	186,240	186,240	186,240	186,240	186,240
NEEDS (acre-feet per year)	2,709	5,816	8,735	20,564	34,426	48,078

<b>COUNTY-OTHER</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
POPULATION	20,262	25,683	30,461	35,162	39,561	43,676
DEMAND (acre-feet per year)	3,266	4,048	4,760	5,506	6,214	6,885
EXISTING SUPPLIES (acre-feet per year)	15,463	15,463	15,463	15,463	15,463	15,463
NEEDS (acre-feet per year)	35	38	38	38	38	39

<b>MANUFACTURING</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
DEMAND (acre-feet per year)	7,033	8,163	8,163	8,163	8,163	8,163
EXISTING SUPPLIES (acre-feet per year)	14,600	14,600	14,600	14,600	14,600	14,600
NEEDS (acre-feet per year)	0	0	0	0	0	0

<b>MINING</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
DEMAND (acre-feet per year)	7,835	8,859	9,629	9,913	10,277	10,832
EXISTING SUPPLIES (acre-feet per year)	7,911	7,911	7,911	7,911	7,911	7,911
NEEDS (acre-feet per year)	1,850	2,543	3,160	3,727	4,358	5,116

<b>STEAM ELECTRIC POWER</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
DEMAND (acre-feet per year)	10,545	10,545	10,545	10,545	10,545	10,545
EXISTING SUPPLIES (acre-feet per year)	5,833	5,833	5,833	5,833	5,833	5,833
NEEDS (acre-feet per year)	4,712	4,712	4,712	4,712	4,712	4,712

<b>LIVESTOCK</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
DEMAND (acre-feet per year)	2,101	2,101	2,101	2,101	2,101	2,101
EXISTING SUPPLIES (acre-feet per year)	2,391	2,391	2,391	2,391	2,391	2,391
NEEDS (acre-feet per year)	0	0	0	0	0	0

<b>IRRIGATION</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
DEMAND (acre-feet per year)	310,403	310,403	310,403	310,403	310,403	310,403
EXISTING SUPPLIES (acre-feet per year)	307,644	309,581	311,441	313,564	314,339	314,339
NEEDS (acre-feet per year)	20,311	18,374	16,514	14,391	13,616	13,616

\*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 E Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
BONE SPRING-VICTORIO PEAK AQUIFER	HUDSPETH	RIO GRANDE	FRESH/ BRACKISH	101,400	101,400	101,400	101,400	101,400	101,400
CAPITAN REEF COMPLEX AQUIFER	BREWSTER	RIO GRANDE	FRESH/ BRACKISH	583	583	583	583	583	583
CAPITAN REEF COMPLEX AQUIFER	CULBERSON	RIO GRANDE	FRESH/ BRACKISH	7,580	7,580	7,580	7,580	7,580	7,580
CAPITAN REEF COMPLEX AQUIFER	HUDSPETH	RIO GRANDE	FRESH/ BRACKISH	4,220	4,220	4,220	4,220	4,220	4,220
CAPITAN REEF COMPLEX AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU AQUIFER	BREWSTER	RIO GRANDE	FRESH/ BRACKISH	1,394	1,394	1,394	1,394	1,394	1,394
EDWARDS-TRINITY-PLATEAU AQUIFER	CULBERSON	RIO GRANDE	FRESH	399	399	399	399	399	399
EDWARDS-TRINITY-PLATEAU AQUIFER	TERRELL	RIO GRANDE	FRESH	1,421	1,421	1,421	1,421	1,421	1,421
HUECO-MESILLA BOLSON AQUIFER	EL PASO	RIO GRANDE	FRESH/ BRACKISH	435,000	435,000	435,000	435,000	435,000	435,000
HUECO-MESILLA BOLSON AQUIFER	HUDSPETH	RIO GRANDE	FRESH/ BRACKISH	45,000	45,000	45,000	45,000	45,000	45,000
IGNEOUS AQUIFER	BREWSTER	RIO GRANDE	FRESH	2,586	2,586	2,585	2,583	2,583	2,582
IGNEOUS AQUIFER	CULBERSON	RIO GRANDE	FRESH	99	99	99	99	99	99
IGNEOUS AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	4,584	4,584	4,584	4,584	4,584	4,584
IGNEOUS AQUIFER	PRESIDIO	RIO GRANDE	FRESH	4,064	4,064	4,064	4,063	4,063	4,063
MARATHON AQUIFER	BREWSTER	RIO GRANDE	FRESH	7,327	7,327	7,327	7,327	7,327	7,327
OTHER AQUIFER	BREWSTER	RIO GRANDE	FRESH	1,896	1,896	1,896	1,896	1,896	1,896
OTHER AQUIFER	EL PASO	RIO GRANDE	BRACKISH	57,922	57,922	57,922	57,922	57,922	57,922
OTHER AQUIFER	HUDSPETH	RIO GRANDE	FRESH	26,400	26,400	26,400	26,400	26,400	26,400
OTHER AQUIFER	HUDSPETH	RIO GRANDE	BRACKISH	52,478	52,478	52,478	52,478	52,478	52,478
OTHER AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	69	69	69	69	69	69
PECOS VALLEY/EDWARDS-TRINITY (PLATEAU) AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	138	138	138	138	138	138
RUSTLER AQUIFER	BREWSTER	RIO GRANDE	BRACKISH/SALI NE	0	0	0	0	0	0
RUSTLER AQUIFER	CULBERSON	RIO GRANDE	BRACKISH/SALI NE	53	53	53	53	53	53
RUSTLER AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	0	0	0	0	0	0
WEST TEXAS BOLSONS AQUIFER	CULBERSON	RIO GRANDE	BRACKISH	16,851	16,851	16,851	16,851	16,851	16,851
WEST TEXAS BOLSONS AQUIFER	CULBERSON	RIO GRANDE	FRESH/ BRACKISH	35,749	35,678	35,601	35,550	35,476	35,409
WEST TEXAS BOLSONS AQUIFER	HUDSPETH	RIO GRANDE	BRACKISH	210	210	210	210	210	210
WEST TEXAS BOLSONS AQUIFER	HUDSPETH	RIO GRANDE	FRESH/ BRACKISH	4,582	4,582	4,582	4,582	4,582	4,582
WEST TEXAS BOLSONS AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH/ BRACKISH	6,324	6,324	6,258	6,229	6,196	6,161
WEST TEXAS BOLSONS AQUIFER	PRESIDIO	RIO GRANDE	FRESH/ BRACKISH	7,743	7,743	7,743	7,743	7,743	7,743
WEST TEXAS BOLSONS AQUIFER	PRESIDIO	RIO GRANDE	FRESH	9,112	8,982	8,834	8,710	8,571	8,436
<b>GROUNDWATER TOTAL SOURCE AVAILABILITY</b>				<b>835,184</b>	<b>834,983</b>	<b>834,691</b>	<b>834,484</b>	<b>834,238</b>	<b>834,000</b>

\*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 E Source Availability**

REUSE SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
DIRECT REUSE	EL PASO	RIO GRANDE	FRESH	6,000	6,000	6,000	6,000	6,000	6,000
INDIRECT REUSE	EL PASO	RIO GRANDE	FRESH	31,002	32,939	34,799	36,922	39,105	41,102
INDIRECT REUSE	HUDSPETH	RIO GRANDE	FRESH	334	334	334	334	334	334
<b>REUSE TOTAL SOURCE AVAILABILITY</b>				<b>37,336</b>	<b>39,273</b>	<b>41,133</b>	<b>43,256</b>	<b>45,439</b>	<b>47,436</b>

SURFACE WATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
RIO GRANDE RUN-OF-RIVER	BREWSTER	RIO GRANDE	FRESH	7,774	7,774	7,774	7,774	7,774	7,774
RIO GRANDE RUN-OF-RIVER	EL PASO	RIO GRANDE	FRESH	46,419	46,419	46,419	46,419	46,419	46,419
RIO GRANDE RUN-OF-RIVER	HUDSPETH	RIO GRANDE	FRESH	624	624	624	624	624	624
RIO GRANDE RUN-OF-RIVER	PRESIDIO	RIO GRANDE	FRESH	10,218	10,218	10,218	10,218	10,218	10,218
RIO GRANDE RUN-OF-RIVER	TERRELL	RIO GRANDE	FRESH	441	441	441	441	441	441
<b>SURFACE WATER TOTAL SOURCE AVAILABILITY</b>				<b>65,476</b>	<b>65,476</b>	<b>65,476</b>	<b>65,476</b>	<b>65,476</b>	<b>65,476</b>

<b>REGION E TOTAL SOURCE AVAILABILITY</b>				<b>937,996</b>	<b>939,732</b>	<b>941,300</b>	<b>943,216</b>	<b>945,153</b>	<b>946,912</b>
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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.

## **5. TWDB DB22 Existing Water Supplies Report**

### Region E 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
ALPINE	E	IGNEOUS AQUIFER   BREWSTER COUNTY	1,238	1,238	1,238	1,238	1,238	1,238
ALPINE	E	IGNEOUS AQUIFER   JEFF DAVIS COUNTY	1,234	1,234	1,234	1,234	1,234	1,234
LAJITAS MUNICIPAL SERVICES	E	OTHER AQUIFER   BREWSTER COUNTY	331	331	331	331	331	331
MARATHON WATER SUPPLY & SEWER SERVICE	E	MARATHON AQUIFER   BREWSTER COUNTY	242	242	242	242	242	242
COUNTY-OTHER	E	EDWARDS-TRINITY-PLATEAU AQUIFER   BREWSTER COUNTY	23	23	23	23	23	23
COUNTY-OTHER	E	IGNEOUS AQUIFER   BREWSTER COUNTY	446	446	446	446	446	446
COUNTY-OTHER	E	OTHER AQUIFER   BREWSTER COUNTY	217	217	217	217	217	217
LIVESTOCK	E	CAPITAN REEF COMPLEX AQUIFER   BREWSTER COUNTY	30	30	30	30	30	30
LIVESTOCK	E	EDWARDS-TRINITY-PLATEAU AQUIFER   BREWSTER COUNTY	97	97	97	97	97	97
LIVESTOCK	E	IGNEOUS AQUIFER   BREWSTER COUNTY	112	112	112	112	112	112
LIVESTOCK	E	MARATHON AQUIFER   BREWSTER COUNTY	15	15	15	15	15	15
LIVESTOCK	E	OTHER AQUIFER   BREWSTER COUNTY	112	112	112	112	112	112
IRRIGATION	E	IGNEOUS AQUIFER   BREWSTER COUNTY	291	291	291	291	291	291
IRRIGATION	E	MARATHON AQUIFER   BREWSTER COUNTY	309	309	309	309	309	309
IRRIGATION	E	OTHER AQUIFER   BREWSTER COUNTY	1,236	1,236	1,236	1,236	1,236	1,236
IRRIGATION	E	RIO GRANDE RUN-OF-RIVER	1,551	1,551	1,551	1,551	1,551	1,551
<b>RIO GRANDE BASIN TOTAL</b>			<b>7,484</b>	<b>7,484</b>	<b>7,484</b>	<b>7,484</b>	<b>7,484</b>	<b>7,484</b>
<b>BREWSTER COUNTY TOTAL</b>			<b>7,484</b>	<b>7,484</b>	<b>7,484</b>	<b>7,484</b>	<b>7,484</b>	<b>7,484</b>
VAN HORN	E	WEST TEXAS BOLSONS AQUIFER   CULBERSON COUNTY	1,016	1,016	1,016	1,016	1,016	1,016
COUNTY-OTHER	E	EDWARDS-TRINITY-PLATEAU AQUIFER   CULBERSON COUNTY	3	3	3	3	3	3
COUNTY-OTHER	E	RUSTLER AQUIFER   CULBERSON COUNTY	2	2	2	2	2	2
COUNTY-OTHER	E	WEST TEXAS BOLSONS AQUIFER   CULBERSON COUNTY	152	152	152	152	152	152
MANUFACTURING	E	WEST TEXAS BOLSONS AQUIFER   CULBERSON COUNTY	6	6	6	6	6	6
MINING	E	CAPITAN REEF COMPLEX AQUIFER   CULBERSON COUNTY	2,000	2,000	2,000	2,000	2,000	2,000
MINING	E	RUSTLER AQUIFER   CULBERSON COUNTY	0	0	0	0	0	0
MINING	E	WEST TEXAS BOLSONS AQUIFER   CULBERSON COUNTY	2,045	2,045	2,045	2,045	2,045	2,045
LIVESTOCK	E	CAPITAN REEF COMPLEX AQUIFER   CULBERSON COUNTY	55	55	55	55	55	55
LIVESTOCK	E	EDWARDS-TRINITY-PLATEAU AQUIFER   CULBERSON COUNTY	20	20	20	20	20	20
LIVESTOCK	E	IGNEOUS AQUIFER   CULBERSON COUNTY	15	15	15	15	15	15
LIVESTOCK	E	RUSTLER AQUIFER   CULBERSON COUNTY	31	31	31	31	31	31
LIVESTOCK	E	WEST TEXAS BOLSONS AQUIFER   CULBERSON COUNTY	164	164	164	164	164	164
IRRIGATION	E	CAPITAN REEF COMPLEX AQUIFER   CULBERSON COUNTY	5,525	5,525	5,525	5,525	5,525	5,525
IRRIGATION	E	WEST TEXAS BOLSONS AQUIFER   CULBERSON COUNTY	32,005	32,005	32,005	32,005	32,005	32,005
<b>RIO GRANDE BASIN TOTAL</b>			<b>43,039</b>	<b>43,039</b>	<b>43,039</b>	<b>43,039</b>	<b>43,039</b>	<b>43,039</b>
<b>CULBERSON COUNTY TOTAL</b>			<b>43,039</b>	<b>43,039</b>	<b>43,039</b>	<b>43,039</b>	<b>43,039</b>	<b>43,039</b>
ANTHONY	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	1,532	1,532	1,532	1,532	1,532	1,532
EAST BIGGS WATER SYSTEM	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	2,484	2,484	2,484	2,484	2,484	2,484
EAST MONTANA WATER SYSTEM	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	2,482	2,482	2,482	2,482	2,482	2,482
EL PASO COUNTY TORNILLO WID	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	807	807	807	807	807	807
EL PASO COUNTY WCID 4	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	1,855	1,855	1,855	1,855	1,855	1,855
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD	E	DIRECT REUSE	6,000	6,000	6,000	6,000	6,000	6,000

### Region E 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
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	115,000	115,000	115,000	115,000	115,000	115,000
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD	E	RIO GRANDE RUN-OF-RIVER	10,055	10,055	10,055	10,055	10,055	10,055
FEDERAL CORRECTIONAL INSTITUTION LA TUNA	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	2,016	2,016	2,016	2,016	2,016	2,016
FORT BLISS WATER SERVICES	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	14,316	14,316	14,316	14,316	14,316	14,316
HACIENDAS DEL NORTE WID	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	612	612	612	612	612	612
HORIZON REGIONAL MUD	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	3,649	3,649	3,649	3,649	3,649	3,649
HORIZON REGIONAL MUD	E	OTHER AQUIFER   EL PASO COUNTY	1,578	1,578	1,578	1,578	1,578	1,578
LOWER VALLEY WATER DISTRICT	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	8,712	8,712	8,712	8,712	8,712	8,712
PASEO DEL ESTE MUD 1	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	3,258	3,258	3,258	3,258	3,258	3,258
COUNTY-OTHER   VINTON HILLS ESTATES	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	240	240	240	240	240	240
COUNTY-OTHER   VINTON HILLS ESTATES	E	RIO GRANDE RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER   VINTON HILLS SUBDIVISION	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	560	560	560	560	560	560
COUNTY-OTHER   VINTON HILLS SUBDIVISION	E	RIO GRANDE RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	12,556	12,556	12,556	12,556	12,556	12,556
MANUFACTURING	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	14,594	14,594	14,594	14,594	14,594	14,594
MINING	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	1,360	1,360	1,360	1,360	1,360	1,360
MINING	E	OTHER AQUIFER   EL PASO COUNTY	1,477	1,477	1,477	1,477	1,477	1,477
STEAM ELECTRIC POWER	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	5,833	5,833	5,833	5,833	5,833	5,833
LIVESTOCK	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	205	205	205	205	205	205
LIVESTOCK	E	OTHER AQUIFER   EL PASO COUNTY	33	33	33	33	33	33
IRRIGATION	E	HUECO-MESILLA BOLSON AQUIFER   EL PASO COUNTY	7,392	7,392	7,392	7,392	7,392	7,392
IRRIGATION	E	OTHER AQUIFER   EL PASO COUNTY	54,834	54,834	54,834	54,834	54,834	54,834
IRRIGATION	E	RIO GRANDE INDIRECT REUSE	31,002	32,939	34,799	36,922	37,697	37,697
IRRIGATION	E	RIO GRANDE RUN-OF-RIVER	36,364	36,364	36,364	36,364	36,364	36,364
<b>RIO GRANDE BASIN TOTAL</b>			<b>340,806</b>	<b>342,743</b>	<b>344,603</b>	<b>346,726</b>	<b>347,501</b>	<b>347,501</b>
<b>EL PASO COUNTY TOTAL</b>			<b>340,806</b>	<b>342,743</b>	<b>344,603</b>	<b>346,726</b>	<b>347,501</b>	<b>347,501</b>
ESPERANZA WATER SERVICE	E	HUECO-MESILLA BOLSON AQUIFER   HUDSPETH COUNTY	484	484	484	484	484	484
HUDSPETH COUNTY WCID 1	E	WEST TEXAS BOLSONS AQUIFER   CULBERSON COUNTY	532	532	532	532	532	532
COUNTY-OTHER   DELL CITY	E	BONE SPRING-VICTORIO PEAK AQUIFER   HUDSPETH COUNTY	63	63	63	63	63	63
COUNTY-OTHER   FORT HANCOCK WCID	E	OTHER AQUIFER   HUDSPETH COUNTY	270	270	270	270	270	270
COUNTY-OTHER	E	HUECO-MESILLA BOLSON AQUIFER   HUDSPETH COUNTY	23	23	23	23	23	23
MINING	E	HUECO-MESILLA BOLSON AQUIFER   HUDSPETH COUNTY	52	52	52	52	52	52
MINING	E	OTHER AQUIFER   HUDSPETH COUNTY	21	21	21	21	21	21
MINING	E	WEST TEXAS BOLSONS AQUIFER   HUDSPETH COUNTY	210	210	210	210	210	210
LIVESTOCK	E	BONE SPRING-VICTORIO PEAK AQUIFER   HUDSPETH COUNTY	84	84	84	84	84	84
LIVESTOCK	E	CAPITAN REEF COMPLEX AQUIFER   HUDSPETH COUNTY	7	7	7	7	7	7
LIVESTOCK	E	HUECO-MESILLA BOLSON AQUIFER   HUDSPETH COUNTY	11	11	11	11	11	11
LIVESTOCK	E	OTHER AQUIFER   HUDSPETH COUNTY	281	281	281	281	281	281
LIVESTOCK	E	WEST TEXAS BOLSONS AQUIFER   HUDSPETH COUNTY	77	77	77	77	77	77
IRRIGATION	E	BONE SPRING-VICTORIO PEAK AQUIFER   HUDSPETH COUNTY	68,495	68,495	68,495	68,495	68,495	68,495

### Region E 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
IRRIGATION	E	CAPITAN REEF COMPLEX AQUIFER   HUDSPETH COUNTY	4,213	4,213	4,213	4,213	4,213	4,213
IRRIGATION	E	OTHER AQUIFER   HUDSPETH COUNTY	52,187	52,187	52,187	52,187	52,187	52,187
IRRIGATION	E	RIO GRANDE INDIRECT REUSE	334	334	334	334	334	334
IRRIGATION	E	RIO GRANDE RUN-OF-RIVER	624	624	624	624	624	624
<b>RIO GRANDE BASIN TOTAL</b>			<b>127,968</b>	<b>127,968</b>	<b>127,968</b>	<b>127,968</b>	<b>127,968</b>	<b>127,968</b>
<b>HUDSPETH COUNTY TOTAL</b>			<b>127,968</b>	<b>127,968</b>	<b>127,968</b>	<b>127,968</b>	<b>127,968</b>	<b>127,968</b>
FORT DAVIS WSC	E	IGNEOUS AQUIFER   JEFF DAVIS COUNTY	468	468	468	468	468	468
COUNTY-OTHER   CITY OF VALENTINE	E	WEST TEXAS BOLSONS AQUIFER   JEFF DAVIS COUNTY	29	29	29	29	29	29
COUNTY-OTHER	E	IGNEOUS AQUIFER   JEFF DAVIS COUNTY	315	315	315	315	315	315
COUNTY-OTHER	E	OTHER AQUIFER   JEFF DAVIS COUNTY	0	0	0	0	0	0
COUNTY-OTHER	E	PECOS VALLEY/EDWARDS-TRINITY (PLATEAU) AQUIFER   JEFF DAVIS COUNTY	7	7	7	7	7	7
MINING	E	IGNEOUS AQUIFER   JEFF DAVIS COUNTY	153	153	153	153	153	153
LIVESTOCK	E	IGNEOUS AQUIFER   JEFF DAVIS COUNTY	299	299	299	299	299	299
LIVESTOCK	E	OTHER AQUIFER   JEFF DAVIS COUNTY	69	69	69	69	69	69
LIVESTOCK	E	PECOS VALLEY/EDWARDS-TRINITY (PLATEAU) AQUIFER   JEFF DAVIS COUNTY	39	39	39	39	39	39
LIVESTOCK	E	WEST TEXAS BOLSONS AQUIFER   JEFF DAVIS COUNTY	63	63	63	63	63	63
IRRIGATION	E	IGNEOUS AQUIFER   JEFF DAVIS COUNTY	735	735	735	735	735	735
IRRIGATION	E	PECOS VALLEY/EDWARDS-TRINITY (PLATEAU) AQUIFER   JEFF DAVIS COUNTY	70	70	70	70	70	70
IRRIGATION	E	WEST TEXAS BOLSONS AQUIFER   JEFF DAVIS COUNTY	561	561	561	561	561	561
<b>RIO GRANDE BASIN TOTAL</b>			<b>2,808</b>	<b>2,808</b>	<b>2,808</b>	<b>2,808</b>	<b>2,808</b>	<b>2,808</b>
<b>JEFF DAVIS COUNTY TOTAL</b>			<b>2,808</b>	<b>2,808</b>	<b>2,808</b>	<b>2,808</b>	<b>2,808</b>	<b>2,808</b>
MARFA	E	IGNEOUS AQUIFER   PRESIDIO COUNTY	2,097	2,097	2,097	2,097	2,097	2,097
PRESIDIO	E	WEST TEXAS BOLSONS AQUIFER   PRESIDIO COUNTY	3,766	3,766	3,766	3,766	3,766	3,766
COUNTY-OTHER	E	IGNEOUS AQUIFER   PRESIDIO COUNTY	289	289	289	289	289	289
COUNTY-OTHER	E	WEST TEXAS BOLSONS AQUIFER   PRESIDIO COUNTY	193	193	193	193	193	193
MINING	E	WEST TEXAS BOLSONS AQUIFER   PRESIDIO COUNTY	403	403	403	403	403	403
LIVESTOCK	E	IGNEOUS AQUIFER   PRESIDIO COUNTY	224	224	224	224	224	224
LIVESTOCK	E	WEST TEXAS BOLSONS AQUIFER   PRESIDIO COUNTY	142	142	142	142	142	142
IRRIGATION	E	IGNEOUS AQUIFER   PRESIDIO COUNTY	605	605	605	605	605	605
IRRIGATION	E	RIO GRANDE RUN-OF-RIVER	6,140	6,140	6,140	6,140	6,140	6,140
IRRIGATION	E	WEST TEXAS BOLSONS AQUIFER   PRESIDIO COUNTY	2,256	2,256	2,256	2,256	2,256	2,256
<b>RIO GRANDE BASIN TOTAL</b>			<b>16,115</b>	<b>16,115</b>	<b>16,115</b>	<b>16,115</b>	<b>16,115</b>	<b>16,115</b>
<b>PRESIDIO COUNTY TOTAL</b>			<b>16,115</b>	<b>16,115</b>	<b>16,115</b>	<b>16,115</b>	<b>16,115</b>	<b>16,115</b>
TERRELL COUNTY WCID 1	E	EDWARDS-TRINITY-PLATEAU AQUIFER   TERRELL COUNTY	476	476	476	476	476	476
COUNTY-OTHER	E	EDWARDS-TRINITY-PLATEAU AQUIFER   TERRELL COUNTY	75	75	75	75	75	75
MINING	E	EDWARDS-TRINITY-PLATEAU AQUIFER   TERRELL COUNTY	190	190	190	190	190	190
LIVESTOCK	E	EDWARDS-TRINITY-PLATEAU AQUIFER   TERRELL COUNTY	206	206	206	206	206	206
IRRIGATION	E	EDWARDS-TRINITY-PLATEAU AQUIFER   TERRELL COUNTY	474	474	474	474	474	474
IRRIGATION	E	RIO GRANDE RUN-OF-RIVER	441	441	441	441	441	441
<b>RIO GRANDE BASIN TOTAL</b>			<b>1,862</b>	<b>1,862</b>	<b>1,862</b>	<b>1,862</b>	<b>1,862</b>	<b>1,862</b>
<b>TERRELL COUNTY TOTAL</b>			<b>1,862</b>	<b>1,862</b>	<b>1,862</b>	<b>1,862</b>	<b>1,862</b>	<b>1,862</b>
<b>REGION E TOTAL EXISTING WATER SUPPLY</b>			<b>540,082</b>	<b>542,019</b>	<b>543,879</b>	<b>546,002</b>	<b>546,777</b>	<b>546,777</b>

**6. TWDB DB22 Identified Water Needs/Surpluses Report**

**Region E Water User Group (WUG) Needs/Surplus\***

	(NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>BREWSTER COUNTY - RIO GRANDE BASIN</b>						
ALPINE	538	528	537	539	535	532
LAJITAS MUNICIPAL SERVICES	228	227	228	228	227	227
MARATHON WATER SUPPLY & SEWER SERVICE	118	116	116	115	115	115
COUNTY-OTHER	275	255	253	250	247	244
LIVESTOCK	19	19	19	19	19	19
IRRIGATION	1,381	1,381	1,381	1,381	1,381	1,381
<b>CULBERSON COUNTY - RIO GRANDE BASIN</b>						
VAN HORN	354	305	279	256	242	233
COUNTY-OTHER	92	88	86	84	83	82
MANUFACTURING	1	0	0	0	0	0
MINING	1,926	1,192	1,039	1,322	1,589	1,792
LIVESTOCK	15	15	15	15	15	15
IRRIGATION	(333)	(333)	(333)	(333)	(333)	(333)
<b>EL PASO COUNTY - RIO GRANDE BASIN</b>						
ANTHONY	762	627	499	369	241	120
EAST BIGGS WATER SYSTEM	1,686	1,686	1,686	1,686	1,686	1,686
EAST MONTANA WATER SYSTEM	1,676	1,591	1,508	1,418	1,327	1,241
EL PASO COUNTY TORNILLO WID	487	495	501	504	504	503
EL PASO COUNTY WCID 4	1,045	1,062	1,074	1,072	1,057	1,039
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD	20,483	10,740	1,342	(8,923)	(19,546)	(29,737)
FEDERAL CORRECTIONAL INSTITUTION LA TUNA	1,664	1,671	1,674	1,676	1,677	1,677
FORT BLISS WATER SERVICES	9,435	9,395	9,292	9,134	8,985	8,835
HACIENDAS DEL NORTE WID	416	394	372	350	327	306
HORIZON REGIONAL MUD	(2,709)	(5,816)	(8,735)	(11,641)	(14,403)	(17,008)
LOWER VALLEY WATER DISTRICT	2,998	2,149	1,314	422	(477)	(1,333)
PASEO DEL ESTE MUD 1	2,204	2,091	1,980	1,861	1,743	1,629
COUNTY-OTHER   VINTON HILLS ESTATES	176	155	136	116	96	78
COUNTY-OTHER   VINTON HILLS SUBDIVISION	411	363	318	270	226	184
COUNTY-OTHER	10,470	9,798	9,161	8,501	7,876	7,284
MANUFACTURING	7,566	6,437	6,437	6,437	6,437	6,437
MINING	(1,171)	(1,789)	(2,425)	(3,111)	(3,856)	(4,702)
STEAM ELECTRIC POWER	(4,712)	(4,712)	(4,712)	(4,712)	(4,712)	(4,712)
LIVESTOCK	67	67	67	67	67	67
IRRIGATION	(19,978)	(18,041)	(16,181)	(14,058)	(13,283)	(13,283)
<b>HUDSPETH COUNTY - RIO GRANDE BASIN</b>						
ESPERANZA WATER SERVICE	342	332	331	330	329	328
HUDSPETH COUNTY WCID 1	390	381	380	379	378	377
COUNTY-OTHER   DELL CITY	18	16	16	16	16	16
COUNTY-OTHER   FORT HANCOCK WCID	156	151	151	151	150	149
COUNTY-OTHER	(35)	(38)	(38)	(38)	(38)	(39)
MINING	(196)	(168)	(185)	(200)	(209)	(219)
LIVESTOCK	23	23	23	23	23	23
IRRIGATION	10,311	10,311	10,311	10,311	10,311	10,311

\*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 E Water User Group (WUG) Needs/Surplus\***

<b>JEFF DAVIS COUNTY - RIO GRANDE BASIN</b>						
FORT DAVIS WSC	149	154	159	161	161	161
COUNTY-OTHER   CITY OF VALENTINE	0	1	1	2	2	2
COUNTY-OTHER	198	202	205	207	207	207
MINING	0	0	0	0	0	0
LIVESTOCK	73	73	73	73	73	73
IRRIGATION	701	701	701	701	701	701
<b>PRESIDIO COUNTY - RIO GRANDE BASIN</b>						
MARFA	1,407	1,362	1,316	1,256	1,202	1,150
PRESIDIO	3,028	2,994	2,958	2,910	2,861	2,813
COUNTY-OTHER	382	370	359	343	329	316
MINING	0	403	403	403	403	403
LIVESTOCK	38	38	38	38	38	38
IRRIGATION	4,995	4,995	4,995	4,995	4,995	4,995
<b>TERRELL COUNTY - RIO GRANDE BASIN</b>						
TERRELL COUNTY WCID 1	298	298	298	299	299	299
COUNTY-OTHER	54	54	55	55	55	55
MINING	(483)	(586)	(550)	(416)	(293)	(195)
LIVESTOCK	55	55	55	55	55	55
IRRIGATION	164	164	164	164	164	164

\*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 E 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
BONE SPRING-VICTORIO PEAK AQUIFER	HUDSPETH	RIO GRANDE	FRESH/BRACKISH	32,758	32,758	32,758	32,758	32,758	32,758
CAPITAN REEF COMPLEX AQUIFER	BREWSTER	RIO GRANDE	FRESH/BRACKISH	553	553	553	553	553	553
CAPITAN REEF COMPLEX AQUIFER	CULBERSON	RIO GRANDE	FRESH/BRACKISH	0	0	0	0	0	0
CAPITAN REEF COMPLEX AQUIFER	HUDSPETH	RIO GRANDE	FRESH/BRACKISH	0	0	0	0	0	0
CAPITAN REEF COMPLEX AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU AQUIFER	BREWSTER	RIO GRANDE	FRESH/BRACKISH	1,274	1,274	1,274	1,274	1,274	1,274
EDWARDS-TRINITY-PLATEAU AQUIFER	CULBERSON	RIO GRANDE	FRESH	376	376	376	376	376	376
EDWARDS-TRINITY-PLATEAU AQUIFER	TERRELL	RIO GRANDE	FRESH	0	0	0	0	0	0
HUECO-MESILLA BOLSON AQUIFER	EL PASO	RIO GRANDE	FRESH/BRACKISH	235,065	235,065	235,065	235,065	235,065	235,065
HUECO-MESILLA BOLSON AQUIFER	HUDSPETH	RIO GRANDE	FRESH/BRACKISH	44,430	44,430	44,430	44,430	44,430	44,430
IGNEOUS AQUIFER	BREWSTER	RIO GRANDE	FRESH	499	499	498	496	496	495
IGNEOUS AQUIFER	CULBERSON	RIO GRANDE	FRESH	84	84	84	84	84	84
IGNEOUS AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	644	644	644	644	644	644
IGNEOUS AQUIFER	PRESIDIO	RIO GRANDE	FRESH	849	849	849	848	848	848
MARATHON AQUIFER	BREWSTER	RIO GRANDE	FRESH	6,761	6,761	6,761	6,761	6,761	6,761
OTHER AQUIFER	BREWSTER	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER	EL PASO	RIO GRANDE	BRACKISH	0	0	0	0	0	0
OTHER AQUIFER	HUDSPETH	RIO GRANDE	BRACKISH	0	0	0	0	0	0
OTHER AQUIFER	HUDSPETH	RIO GRANDE	FRESH	26,119	26,119	26,119	26,119	26,119	26,119
OTHER AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	0	0	0	0	0	0
PECOS VALLEY/EDWARDS-TRINITY (PLATEAU) AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	22	22	22	22	22	22
RUSTLER AQUIFER	BREWSTER	RIO GRANDE	BRACKISH/SALINE	0	0	0	0	0	0
RUSTLER AQUIFER	CULBERSON	RIO GRANDE	BRACKISH/SALINE	20	20	20	20	20	20
RUSTLER AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH	0	0	0	0	0	0
WEST TEXAS BOLSONS AQUIFER	CULBERSON	RIO GRANDE	FRESH/BRACKISH	340	269	192	141	67	0
WEST TEXAS BOLSONS AQUIFER	CULBERSON	RIO GRANDE	BRACKISH	16,340	16,340	16,340	16,340	16,340	16,340
WEST TEXAS BOLSONS AQUIFER	HUDSPETH	RIO GRANDE	BRACKISH	0	0	0	0	0	0
WEST TEXAS BOLSONS AQUIFER	HUDSPETH	RIO GRANDE	FRESH/BRACKISH	4,505	4,505	4,505	4,505	4,505	4,505
WEST TEXAS BOLSONS AQUIFER	JEFF DAVIS	RIO GRANDE	FRESH/BRACKISH	5,671	5,671	5,605	5,576	5,543	5,508
WEST TEXAS BOLSONS AQUIFER	PRESIDIO	RIO GRANDE	FRESH/BRACKISH	2,208	2,208	2,208	2,208	2,208	2,208
WEST TEXAS BOLSONS AQUIFER	PRESIDIO	RIO GRANDE	FRESH	7,887	7,757	7,609	7,485	7,346	7,211
<b>GROUNDWATER TOTAL SOURCE WATER BALANCE</b>				<b>386,405</b>	<b>386,204</b>	<b>385,912</b>	<b>385,705</b>	<b>385,459</b>	<b>385,221</b>

REUSE SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
DIRECT REUSE	EL PASO	RIO GRANDE	FRESH	0	0	0	0	0	0

\*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 E Source Water Balance (Availability - WUG Supply)**

REUSE SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
INDIRECT REUSE	EL PASO	RIO GRANDE	FRESH	0	0	0	0	1,408	3,405
INDIRECT REUSE	HUDSPETH	RIO GRANDE	FRESH	0	0	0	0	0	0
<b>REUSE TOTAL SOURCE WATER BALANCE</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,408</b>	<b>3,405</b>

SURFACE WATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
RIO GRANDE RUN-OF-RIVER	BREWSTER	RIO GRANDE	FRESH	6,223	6,223	6,223	6,223	6,223	6,223
RIO GRANDE RUN-OF-RIVER	EL PASO	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	HUDSPETH	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	PRESIDIO	RIO GRANDE	FRESH	4,078	4,078	4,078	4,078	4,078	4,078
RIO GRANDE RUN-OF-RIVER	TERRELL	RIO GRANDE	FRESH	0	0	0	0	0	0
<b>SURFACE WATER TOTAL SOURCE WATER BALANCE</b>				<b>10,301</b>	<b>10,301</b>	<b>10,301</b>	<b>10,301</b>	<b>10,301</b>	<b>10,301</b>

<b>REGION E TOTAL SOURCE WATER BALANCE</b>				<b>396,706</b>	<b>396,505</b>	<b>396,213</b>	<b>396,006</b>	<b>397,168</b>	<b>398,927</b>
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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 E 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 (%)
<b>BREWSTER COUNTY   COUNTY-OTHER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	1,066	686	-35.6%	1,066	686	-35.6%
PROJECTED DEMAND TOTAL	563	411	-27.0%	594	442	-25.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>BREWSTER COUNTY   IRRIGATION WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	3,272	3,387	3.5%	3,272	3,387	3.5%
PROJECTED DEMAND TOTAL	2,304	2,006	-12.9%	2,247	2,006	-10.7%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>BREWSTER COUNTY   LIVESTOCK WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	386	366	-5.2%	386	366	-5.2%
PROJECTED DEMAND TOTAL	386	347	-10.1%	386	347	-10.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>BREWSTER COUNTY   MANUFACTURING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	4	0	-100.0%	4	0	-100.0%
PROJECTED DEMAND TOTAL	4	0	-100.0%	4	0	-100.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>BREWSTER COUNTY   MUNICIPAL WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	2,166	3,045	40.6%	2,166	3,045	40.6%
PROJECTED DEMAND TOTAL	1,935	2,161	11.7%	1,940	2,171	11.9%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>CULBERSON COUNTY   COUNTY-OTHER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	140	157	12.1%	140	157	12.1%
PROJECTED DEMAND TOTAL	65	65	0.0%	75	75	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>CULBERSON COUNTY   IRRIGATION WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	39,985	37,530	-6.1%	39,985	37,530	-6.1%
PROJECTED DEMAND TOTAL	39,928	37,863	-5.2%	35,835	37,863	5.7%
WATER SUPPLY NEEDS TOTAL	0	333	100.0%	0	333	100.0%
<b>CULBERSON COUNTY   LIVESTOCK WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	300	285	-5.0%	300	285	-5.0%
PROJECTED DEMAND TOTAL	300	270	-10.0%	300	270	-10.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>CULBERSON COUNTY   MANUFACTURING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	0	6	100.0%	0	6	100.0%
PROJECTED DEMAND TOTAL	0	5	100.0%	0	6	100.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>CULBERSON COUNTY   MINING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	215	4,045	1781.4%	215	4,045	1781.4%
PROJECTED DEMAND TOTAL	506	2,119	318.8%	640	2,253	252.0%
WATER SUPPLY NEEDS TOTAL	291	0	-100.0%	425	0	-100.0%
<b>CULBERSON COUNTY   MUNICIPAL WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	1,351	1,016	-24.8%	1,351	1,016	-24.8%
PROJECTED DEMAND TOTAL	662	662	0.0%	784	783	-0.1%

\*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 E 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	0	0	0.0%	0	0	0.0%
<b>EL PASO COUNTY   COUNTY-OTHER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	6,278	13,356	112.7%	6,278	13,356	112.7%
PROJECTED DEMAND TOTAL	6,646	2,299	-65.4%	9,023	5,810	-35.6%
WATER SUPPLY NEEDS TOTAL	368	0	-100.0%	2,745	0	-100.0%
<b>EL PASO COUNTY   IRRIGATION WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	167,633	129,592	-22.7%	174,328	136,287	-21.8%
PROJECTED DEMAND TOTAL	242,798	149,570	-38.4%	221,162	149,570	-32.4%
WATER SUPPLY NEEDS TOTAL	75,165	19,978	-73.4%	46,834	13,283	-71.6%
<b>EL PASO COUNTY   LIVESTOCK WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	629	238	-62.2%	629	238	-62.2%
PROJECTED DEMAND TOTAL	629	171	-72.8%	629	171	-72.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>EL PASO COUNTY   MANUFACTURING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	7,297	14,594	100.0%	7,297	14,594	100.0%
PROJECTED DEMAND TOTAL	16,138	7,028	-56.5%	22,347	8,157	-63.5%
WATER SUPPLY NEEDS TOTAL	8,841	0	-100.0%	15,050	0	-100.0%
<b>EL PASO COUNTY   MINING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	5,706	2,837	-50.3%	5,706	2,837	-50.3%
PROJECTED DEMAND TOTAL	4,008	4,008	0.0%	7,539	7,539	0.0%
WATER SUPPLY NEEDS TOTAL	0	1,171	100.0%	1,833	4,702	156.5%
<b>EL PASO COUNTY   MUNICIPAL WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	145,803	174,356	19.6%	145,803	174,356	19.6%
PROJECTED DEMAND TOTAL	129,266	134,209	3.8%	200,292	205,398	2.5%
WATER SUPPLY NEEDS TOTAL	5,255	2,709	-48.4%	55,266	48,078	-13.0%
<b>EL PASO COUNTY   STEAM ELECTRIC POWER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	3,286	5,833	77.5%	3,286	5,833	77.5%
PROJECTED DEMAND TOTAL	6,937	10,545	52.0%	15,937	10,545	-33.8%
WATER SUPPLY NEEDS TOTAL	3,651	4,712	29.1%	12,651	4,712	-62.8%
<b>HUDSPETH COUNTY   COUNTY-OTHER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	916	356	-61.1%	916	356	-61.1%
PROJECTED DEMAND TOTAL	347	217	-37.5%	368	230	-37.5%
WATER SUPPLY NEEDS TOTAL	0	35	100.0%	0	39	100.0%
<b>HUDSPETH COUNTY   IRRIGATION WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	83,993	125,853	49.8%	83,993	125,853	49.8%
PROJECTED DEMAND TOTAL	178,840	115,542	-35.4%	161,053	115,542	-28.3%
WATER SUPPLY NEEDS TOTAL	94,847	0	-100.0%	77,060	0	-100.0%
<b>HUDSPETH COUNTY   LIVESTOCK WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	541	460	-15.0%	541	460	-15.0%
PROJECTED DEMAND TOTAL	541	437	-19.2%	541	437	-19.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>HUDSPETH COUNTY   MANUFACTURING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	10	0	-100.0%	10	0	-100.0%
PROJECTED DEMAND TOTAL	2	0	-100.0%	2	0	-100.0%

\*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 E 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	0	0	0.0%	0	0	0.0%
<b>HUDSPETH COUNTY   MINING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	481	283	-41.2%	481	283	-41.2%
PROJECTED DEMAND TOTAL	479	479	0.0%	502	502	0.0%
WATER SUPPLY NEEDS TOTAL	0	196	100.0%	21	219	942.9%
<b>HUDSPETH COUNTY   MUNICIPAL WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	842	1,016	20.7%	842	1,016	20.7%
PROJECTED DEMAND TOTAL	151	284	88.1%	169	311	84.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>JEFF DAVIS COUNTY   COUNTY-OTHER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	672	351	-47.8%	672	351	-47.8%
PROJECTED DEMAND TOTAL	168	153	-8.9%	155	142	-8.4%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>JEFF DAVIS COUNTY   IRRIGATION WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	3,357	1,366	-59.3%	3,357	1,366	-59.3%
PROJECTED DEMAND TOTAL	2,560	665	-74.0%	2,490	665	-73.3%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>JEFF DAVIS COUNTY   LIVESTOCK WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	495	470	-5.1%	495	470	-5.1%
PROJECTED DEMAND TOTAL	495	397	-19.8%	495	397	-19.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>JEFF DAVIS COUNTY   MINING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	0	153	100.0%	0	153	100.0%
PROJECTED DEMAND TOTAL	0	153	100.0%	0	153	100.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>JEFF DAVIS COUNTY   MUNICIPAL WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	343	468	36.4%	343	468	36.4%
PROJECTED DEMAND TOTAL	297	319	7.4%	285	307	7.7%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>PRESIDIO COUNTY   COUNTY-OTHER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	588	482	-18.0%	588	482	-18.0%
PROJECTED DEMAND TOTAL	249	100	-59.8%	361	166	-54.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>PRESIDIO COUNTY   IRRIGATION WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	9,001	9,001	0.0%	9,001	9,001	0.0%
PROJECTED DEMAND TOTAL	4,630	4,006	-13.5%	4,197	4,006	-4.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>PRESIDIO COUNTY   LIVESTOCK WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	408	366	-10.3%	408	366	-10.3%
PROJECTED DEMAND TOTAL	408	328	-19.6%	408	328	-19.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>PRESIDIO COUNTY   MINING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	403	403	0.0%	403	403	0.0%
PROJECTED DEMAND TOTAL	403	403	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 E 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	0	0	0.0%	0	0	0.0%
<b>PRESIDIO COUNTY   MUNICIPAL WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	5,363	5,863	9.3%	5,363	5,863	9.3%
PROJECTED DEMAND TOTAL	1,248	1,428	14.4%	1,659	1,900	14.5%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>TERRELL COUNTY   COUNTY-OTHER WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	61	75	23.0%	61	75	23.0%
PROJECTED DEMAND TOTAL	19	21	10.5%	19	20	5.3%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>TERRELL COUNTY   IRRIGATION WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	1,091	915	-16.1%	1,091	915	-16.1%
PROJECTED DEMAND TOTAL	379	751	98.2%	337	751	122.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>TERRELL COUNTY   LIVESTOCK WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	238	206	-13.4%	238	206	-13.4%
PROJECTED DEMAND TOTAL	238	151	-36.6%	238	151	-36.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>TERRELL COUNTY   MINING WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	224	190	-15.2%	224	190	-15.2%
PROJECTED DEMAND TOTAL	673	673	0.0%	385	385	0.0%
WATER SUPPLY NEEDS TOTAL	449	483	7.6%	161	195	21.1%
<b>TERRELL COUNTY   MUNICIPAL WUG TYPE</b>						
EXISTING WUG SUPPLY TOTAL	527	476	-9.7%	527	476	-9.7%
PROJECTED DEMAND TOTAL	202	178	-11.9%	199	177	-11.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
<b>REGION E</b>						
EXISTING WUG SUPPLY TOTAL	495,071	540,082	9.1%	501,766	546,777	9.0%
PROJECTED DEMAND TOTAL	645,404	480,424	-25.6%	693,597	559,976	-19.3%
WATER SUPPLY NEEDS TOTAL	188,867	29,617	-84.3%	212,046	71,561	-66.3%

\*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 E 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 (%)
<b>BREWSTER COUNTY</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	16,207	13,786	-14.9%	16,202	13,782	-14.9%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	8,101	7,774	-4.0%	8,101	7,774	-4.0%
<b>CULBERSON COUNTY</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	63,433	60,731	-4.3%	63,193	60,391	-4.4%
<b>EL PASO COUNTY</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	610,380	492,922	-19.2%	610,380	492,922	-19.2%
REUSE AVAILABILITY TOTAL (acre-feet per year)	37,002	37,002	0.0%	47,102	47,102	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	69,683	46,419	-33.4%	69,683	46,419	-33.4%
<b>HUDSPETH COUNTY</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	168,761	234,290	38.8%	168,761	234,290	38.8%
REUSE AVAILABILITY TOTAL (acre-feet per year)	334	334	0.0%	334	334	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	1,471	624	-57.6%	1,471	624	-57.6%
<b>JEFF DAVIS COUNTY</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	20,509	11,115	-45.8%	20,396	10,952	-46.3%
<b>PRESIDIO COUNTY</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	20,540	20,919	1.8%	20,067	20,242	0.9%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	10,894	10,218	-6.2%	10,894	10,218	-6.2%
<b>TERRELL COUNTY</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	1,421	1,421	0.0%	1,421	1,421	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	720	441	-38.8%	720	441	-38.8%
<b>REGION E</b>						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	901,251	835,184	-7.3%	900,420	834,000	-7.4%
REUSE AVAILABILITY TOTAL (acre-feet per year)	37,336	37,336	0.0%	47,436	47,436	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	90,869	65,476	-27.9%	90,869	65,476	-27.9%

## **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 Rio Grande WAM were requested by the Planning Group in a letter to the TWDB dated February 22, 2018, and were reviewed and approved by the TWDB in a letter dated April 18, 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.

*In accordance with regional planning rules and guidelines, the Far West Texas Region intends to use the Full Authorization Run (Run 3) of the TCEQ-approved WAM for determining surface water availability in the Region. However, to most accurately reflect the current conditions and operations of the Region, the following variances are requested. Please note that most of the requested variances are identical to the assumptions used in previous Region E water plans.*

### **Far West Texas (Region E) Variance Requests**

1. *The supply from the Bureau of Reclamation’s Rio Grande Project, which includes releases from Elephant Butte and Caballo Reservoirs, as well as run-of-the-river flows entering Texas from New Mexico, will be based on the lowest annual historical allotment delivered and available to these entities. Please note that this does not include return flows, which will be evaluated separately. Entities include El Paso Water and El Paso County Water Improvement District #1.*
2. *The demand pattern for irrigation rights above Fort Quitman will be modified so that diversions only occur from March through September. This change is to be consistent with actual operation of the Rio Grande Project.*
3. *The 2018 Rio Grande WAM has not been updated to reflect adjudicated water rights above Fort Quitman. As a result, some claims and permits that were abandoned or cancelled in the adjudication process are still in the WAM. All cancelled or abandoned claims and permits will be removed from the WAM. At this time, we are verifying with TCEQ which water rights should be taken out of the WAM or modified to reflect adjudicated amounts. We do not anticipate any water rights will be added to the WAM.*

*Also, the Far West Texas Region proposes including variances and error corrections proposed by Region F in the Balmorhea area in Reeves County in the Pecos Basin. These changes are related to San Solomon Springs and Giffin Springs flows, which in the current TCEQ WAM are currently being passed downstream instead of being used by the water rights dependent on those springs. Correcting this error could potentially impact the available supplies in Terrell County in Region E. These changes have not been included in previous water plans for the Far West Texas Region.*

The table below summarizes the water supply sources discussed.

<b>Water Supply Source</b>	<b>County</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>	<b>Comments</b>
Rio Grande River	Brewster	7,774	7,774	7,774	7,774	7,774	7,774	WAM3 with no return flows.
Rio Grande River <sup>1</sup>	El Paso	46,605	46,605	46,605	46,605	46,605	46,605	Historical minimum from the Rio Grande Project (year 2013)

<b>Water Supply Source</b>	<b>County</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>	<b>Comments</b>
Rio Grande River <sup>1</sup>	Hudspeth - Above Fort Quitman	438	438	438	438	438	438	Historical minimum from the Rio Grande Project (year 2013)
Rio Grande River	Hudspeth - Below Fort Quitman	287	287	287	287	287	287	WAM3 with no return flows
Rio Grande River	Presidio	10,218	10,218	10,218	10,218	10,218	10,218	WAM3 with no return flows.
Rio Grande River	Terrell	152	152	152	152	152	152	WAM3 with no return flows.
Pecos River	Terrell	289	289	289	289	289	289	WAM3 with no return flows.

<sup>1</sup> This supply comes from the Rio Grande Project, which consists of supplies from Elephant Butte and Caballo Reservoirs in New Mexico, as well as intervening flows entering the Rio Grande below the reservoirs. The Rio Grande Project is not operated on a firm yield basis. Supplies are governed by operating agreements with the Federal government and compacts between the states of New Mexico and Texas, as well as agreements between the U.S. and Mexico. For this plan, the Region E Water Planning Group has elected to base availability from the Rio Grande Project on the minimum diversion in the historical record, which occurred in 2013. According to the unmodified WAM Run 3, this source can supply 66,673 acre-feet per year to El Paso County and 914 acre-feet per year to Hudspeth County, which is significantly more than the historical minimum shown in this table.

## **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 water planning group for the 2016 Far West Texas 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

### POTENTIALLY FEASIBLE WATER MANAGEMENT STRATEGIES

(All strategies are in the Rio Grande River Basin)

County	Water User Group	Potentially Feasible Strategy
Brewster	Marathon WS&S Service	Water loss audit and main-line repair
	Brewster County Other (Rio Grande Village BBNP)	Water loss audit and main-line repair
	Brewster County Other (Panther Junction BBNP)	Water loss audit and main-line repair
Culberson	City of Van Horn	Water loss audit and main-line repair
	*Culberson County Mining	Additional groundwater wells
		Additional groundwater well
El Paso	*Town of Anthony	Water loss audit and main-line repair
		Arsenic treatment facility
		Additional groundwater well
	*El Paso Water	Municipal conservation programs
		Advanced purified water at the Haskell WWTPs
		Advanced purified water at the Bustamante WWTP
		Expansion of current Hueco Aquifer ASR with treated surface water from Jonathan Rogers Plant
		Treatment & reuse of agricultural drain water (Alternate)
		Expansion of Canutillo well field
		RO treatment of brackish groundwater at Lower Valley facility
		Expansion of the Kay Bailey Hutchison Desal Plant
		Groundwater from Hueco Ranch (Alternate)
		Groundwater from Southern Hudspeth County (Alternate)
		Expansion of the Jonathan Rogers WTP
		Riverside Regulating Reservoir
		Upper Valley effluent trade
	Groundwater development from Dell City area (multi-phased)	
	*Lower Valley Water District	Public conservation education
		Purchased water from EPWU
		Surface water treatment plant & transmission line
Groundwater from proposed Well field (Rio Grande Alluvium Aquifer)		
Groundwater from proposed Well field (Hueco Bolson Aquifer)		
Wastewater treatment facility and ASR		

## POTENTIALLY FEASIBLE WATER MANAGEMENT STRATEGIES

(All strategies are in the Rio Grande River Basin)

County	Water User Group	Potentially Feasible Strategy
El Paso	*Lower Valley Water District (City of Socorro)	Public conservation education
		Purchased water from LVWD
	*Horizon Regional MUD	Public conservation education
		Additional wells & expansion of desal plant
	*Fort Bliss	Public conservation education
		Purchased water from EPW
	El Paso County Tornillo WID	Additional groundwater well & transmission line
		Arsenic treatment facility
	City of Vinton	High capacity water lines for improved distribution of water from EPW
	*El Paso County Other	Public conservation education
		Purchased water from EPW
	*El Paso County Irrigation (EPCWID #1)	Irrigation scheduling
Tailwater reuse		
Improvements to water district delivery system		
*El Paso County Manufacturing	Purchased water from EPW	
*El Paso County Mining	Additional groundwater wells	
*El Paso County Steam Electric Power	Purchased water from EPW	
Hudspeth	Hudspeth County Other (Dell City)	Water loss audit and main-line repair
		Brackish groundwater desal facility
	Hudspeth County Other (Fort Hancock WCID)	Water loss audit and main-line repair
		Additional well & RO treatment facility
	Hudspeth County WCID#1 (Sierra Blanca)	Additional transmission line to supply connections outside of the District
	*Hudspeth Irrigation (HCCRD #1)	Additional groundwater wells
Hudspeth Irrigation (HCUWCD #1)	Irrigation scheduling	
	Tailwater reuse	
*Hudspeth County Mining	Additional groundwater well	
Jeff Davis	Fort Davis WSC	Additional groundwater well
		Additional transmission line to connect Fort Davis WSC to Fort Davis Estates
	Jeff Davis County Other (Town of Valentine)	Additional groundwater well
Presidio	City of Presidio	Water loss audit and main-line repair
		Additional groundwater well
Terrell	*Terrell County Mining	Additional groundwater wells

\* WUGs that had a water supply need in the 2016 Far West Texas Water Plan

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

Name of Model	Summary of Modifications	Entity That Performed the Model Run	Date of Model Run
TCEQ Rio Grande WAM Run 3 – downloaded from TCEQ website on February 1, 2018	See No. 10 above for letter to TWDB dated February 22, 2018	Freese and Nichols, Inc.	May 21, 2018

Note: Electronic files are attached separately

## 14. GROUNDWATER AVAILABILITY METHODOLOGY

Water Supply Source	County	Methodology
Hueco-Mesilla Bolson Aquifer	El Paso	No MAG - 90% of Hueco total from Hutchison model plus 25,000 Mesilla
	Hudspeth	No MAG - 10% of Hueco total from Hutchison model
Edwards-Trinity (Plateau) Aquifer	Brewster	MAG
	Culberson	GCD (non-relevant) TWDB modeled
	Jeff Davis	GCD (non-relevant) TWDB modeled
	Terrell	2016 MAG (Waiting GMA7 new MAG)
Bone Spring - Victorio Peak Aquifer	Hudspeth	MAG
Capitan Reef Complex Aquifer	Brewster	MAG
	Culberson	MAG
	Jeff Davis (new source)	GCD Non-Relevant TWDB-Null
	Hudspeth	GCD Non-Relevant (TWDB-Null). Max 8-year historical annual use.
Igneous Aquifer	Brewster	MAG
	Culberson	MAG
	Jeff Davis	MAG
	Presidio	MAG
Marathon Aquifer	Brewster	MAG
Rustler Aquifer	Brewster	GCD Non-Relevant (TWDB modeled)
	Culberson	GCD Non-Relevant (TWDB modeled)
	Jeff Davis (new source)	GCD Non-Relevant (TWDB modeled)
West Texas Bolson (Red Light Draw) Aquifer	Hudspeth	GAM recharge. TWDB Contract Report (June 2004)
West Texas Bolson (Eagle Flat) Aquifer	Hudspeth	GAM recharge. TWDB Contract Report (June 2004)
West Texas Bolson (Green River Valley) Aquifer	Hudspeth	GAM recharge. TWDB Contract Report (June 2004)
West Texas Bolson (Green River Valley) Aquifer	Jeff Davis	GAM recharge. TWDB Contract Report (June 2004)
West Texas Bolson (Green River Valley) Aquifer	Presidio	GAM recharge. TWDB Contract Report (June 2004)
West Texas Bolson (Presidio-Redford) Aquifer	Presidio	MAG
West Texas Bolson (Upper Salt Basin) Aquifer	Hudspeth	GCD Non-Relevant. Max 8-year historical annual use.
	Culberson	Report AA 10-38 MAG
West Texas Bolson (Wild Horse, Michigan and Lobo) Aquifer	Culberson	MAG
	Jeff Davis	GCD Non-Relevant. Max 8-year historical annual use.

## GROUNDWATER AVAILABILITY METHODOLOGY

Water Supply Source	County	Methodology
West Texas Bolsons (Ryan) Aquifer	Jeff Davis	MAG
	Presidio	MAG
Other Aquifer (Brewster Cretaceous)	Brewster	RWPG Assigned. Max 8-year historical annual use.
Other Aquifer (Diablo Plateau)	Hudspeth	Recharge rate of 3% of average rainfall (11 inches/Yr.) over 1,500 square miles of outcrop
Other Aquifer (Balmorhea Alluvium)	Jeff Davis	RWPG Assigned. Max 8-year historical annual use.
Other Aquifer (Rio Grande Alluvium)	El Paso	RWPG Assigned. Max 8-year historical annual use.
	Hudspeth	RWPG Assigned. Max 8-year historical annual use.

## **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 Far West Texas Water Planning Group on August 14, 2018 as Agenda Item 5.

5. *Consider, discuss and take appropriate action to pursue or not pursue Simplified Planning for the Far West Texas water planning region.*

Following consideration and discussion, the Far West Texas Water Planning Group voted unanimously to not pursue *simplified planning* and instructed the Planning Group consultants to continue forward in completing the 2021 Far West Texas 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 Far West Texas Water Planning Group at a Planning Group public meeting on August 14, 2018 in Alpine, Texas called for public comments on the proposed Far West Texas 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.