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May 1, 2024

Mr. Bryan McMath  
Executive Administrator  
Texas Water Development Board  
1700 N. Congress Ave.  
Austin, TX 78711-32331

Subject: Technical Memorandum for the 2026 Far West Texas (Region E) Water Plan

Dear Mr. Walker:

Carollo Engineers, Inc., is pleased to submit this Technical Memorandum on behalf of the Far West Texas Water Planning Group (FWTWPG) - Region E, in order to meet the contractual and TWDB requirements specified in the Scope of Work Task 4C, as referenced in Section 2.12.1 of the Second Amended General Guidelines for Development of the 2026 Regional Water Plans (September 2023). This Technical Memorandum was authorized for submittal by the FWTWPG at the April 23, 2024, meeting of the FWTWPG in El Paso, Texas.

The attached reports comprising the main body of this submittal are the preliminary output of Region E analyses from the Regional Water Planning Application (DB27), as prepared by the Region E technical consultants. Ongoing work and revisions by the consultants, and by the other regional water planning groups, will likely necessitate further modifications to the amounts reflected herein.

If any additional information is necessary, please feel free to reach out at your convenience. Thank you again for the opportunity to participate in this important process for the Far West Texas Regional Water Planning Area.

Sincerely,

CAROLLO ENGINEERS, INC.

Jennifer Jackson  
*Technical Consultant Project Manager*  
Carollo Engineers, Inc.

A handwritten signature in black ink that reads "Jennifer K. Jackson". The signature is written in a cursive style with a large, looping 'J' and 'K'.

Enclosures: Appendices

cc: Mr. Scott Reinert  
Ms. Annette Gutierrez  
Ms. Peggy O'Brien  
Ms. Kristal Williams  
Mr. Jon Albright



Provided herein are descriptions of the reports and information comprising the contractually required content submitted by the FWTWPG. The TWDB has provided a "checklist" identifying those required elements, and this memorandum presents those elements identified in the checklist.

### [TWDB DB27 Reports](#)

The TWDB has developed and utilizes the 2027 State Water Planning Database (DB27) as a tool that "will synthesize regions' data and provide data reports that must be incorporated into each Technical Memorandum and referenced by hyperlink in each Initially Prepared Plan (IPP) and final adopted Regional Water Plan (RWP)". The TWDB guidance document further states that RWPGs will complete and submit, via the DB27 interface, all data generated or updated during the current cycle of planning to the TWDB in accordance with TWDB specifications prior to submitting Technical Memorandums and IPPs.

The following TWDB DB27 reports required for the Technical Memorandum are presented in Appendices, as shown below:

- TWDB DB27 Report – 2026 RWP WUG Population (Appendix A) presenting population projections by WUG, county, and river basin;
- TWDB DB27 Report – WUG Demand (Appendix B) presenting water demand projections by WUG, county, and river basin;
- TWDB DB27 Report – Source Availability (Appendix C) presenting water availability by source;
- TWDB DB27 Report – WUG Existing Water Supply (Appendix D) presenting existing water supplies by WUG, county, and river basin;
- TWDB DB27 Report – WUG Needs/Surplus (Appendix E) presenting identified water needs by WUG, county, and river basin;
- TWDB DB27 Report – WUG Data Comparison to 2021 RWP (Appendix F) presenting a comparison of supply, demand, and needs between the 2021 and 2026 RWP at a county level;
- TWDB DB27 Report – Source Data Comparison to 2021 RWP (Appendix G) presenting a comparison of availability by source type between the 2021 and 2026 RWP at a county level.

As required, all data entered by the FWTWPG into DB27 are rounded to the nearest whole number to avoid cumulative data errors. Data are entered into DB27 such that the net water balance for each source is zero or greater than zero, except for those sources that may be over allocated initially due to conflicting data with another regional water planning area.

### [Surface Water Availability](#)

Surface water supplies in the Far West Texas Region are obtained from the Rio Grande River and Pecos River, a tributary of the Rio Grande. During drought-of-record conditions, there is very little reliable surface water in Region E, except for controlled releases in the Rio Grande from the U.S. Bureau of Reclamation's Rio Grande Project in New Mexico.

In accordance with regional planning rules and guidelines, the TWDB requires that water availability be based on results derived from the approved Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAMs) Full Authorization Scenario (Run 3), with any modifications shown in an approved hydrologic variance request.

The FWTWPG submitted a hydrologic variance request listing the modifications to the approved WAM Run 3 to make it more applicable for use in developing the 2026 Region E Regional Water Plan. For Region E, these modifications included:

- Using the lowest historical delivery from the Rio Grande Project; and
- Modifying the demand pattern for irrigation rights upstream of Fort Quitman so that diversions only occur during March to October to be consistent with deliveries from the Rio Grande Project.

Corrections also included modifications to priorities in the Balmorhea area in Reeves County. These supplies are used in Region F, and the Region E model was changed to reflect the Region F changes.

There are no surface water supply reservoirs in Region E so there were no modifications for sedimentation. Also, because the supplies from the Rio Grande Project are based on the historical minimum supply (which is included in the WAM), and there are no reservoirs whose supplies reduce over time due to sedimentation, surface water supplies do not vary over the planning period. The hydrologic variance request is included in Appendix H.1, and the TWDB's response granting the requested variances is included in Appendix H.2.

A memorandum describing the Region E WAM is included in Appendix I. Supplies from run-of-river water rights are also presented in the memorandum. Model versions and input files are listed in Appendix J, which includes an electronic submittal of the files that is separate from this document. All modeling used the January 2021 version of WRAP.

## Groundwater Availability

Almost all water use within Region E is supplied from groundwater sources. Although not as large in areal extent as some aquifers in the State, such as the Ogallala and the Carrizo-Wilcox, individual aquifers in Far West Texas are more numerous (10 TWDB designated and 3 Planning Group designated) than in any of the other planning regions state-wide.

Presented in this section is documentation of the methodologies utilized for the FWTWPG's estimation of groundwater availabilities to date. As further information is developed, the methods employed herein are subject to revision as work progresses.

For planning purposes, the total source groundwater availability is the sum of Modeled Available Groundwater (MAGs) and non-MAG groundwater availability. MAGs are developed by the TWDB based on the Desired Future Conditions (DFCs) determined by the Groundwater Management Areas (GMAs). Region E utilized the Modeled Available Groundwater (MAG) estimates based on desired future conditions adopted by Groundwater Management Areas 4, 5 and 7. MAGs have been provided by the TWDB and have been determined for all the major and most of the minor aquifer systems within the Region E planning area.



If there is a greater need for groundwater than estimated by the MAG on a county/aquifer/basin basis, a more refined assessment of groundwater availability will be performed to evaluate if increasing availability can be justified hydrogeologically. For those WUGs/sellers wherein existing or planned pumpage exceeds MAG amounts, a more detailed analysis of the entity's pumping, typical production of the aquifer, and relevant information from applicable GMAs will be considered towards development of the available groundwater supply for the entity. Current infrastructure (number of wells, well field capacity, peaking factors, etc.) will also be considered when evaluating future water management strategies. These analyses, along with their accordant methodologies, will be submitted to TWDB for review and consideration of approval prior to incorporation into the IPP, per requirement.

Non-MAG availability is the availability in aquifers designated as non-relevant by GMAs. For aquifers or portions of aquifers without a MAG, the TWDB provided "non-MAG availability" values. These values may be based on results from groundwater modeling during the development of the MAGs for other aquifers or on other methodologies.

A table summarizing the groundwater availability determination methodology is included as Appendix K of this memorandum.

### Process for Identification of Potentially Feasible Water Management Strategies

At the April 23, 2024, public meeting of the FWTWPG held in El Paso, Texas, the FWTWPG adopted a process for identifying potentially feasible Water Management Strategies (WMSs), as required by 31 TAC §357.12(b). The process was documented, and incorporated input received, and all potentially feasible WMSs were listed. The criteria were determined by the FWTWPG and represent an equitable and consistent evaluation and application of all potentially feasible WMSs for each identified water supply need.

In addition, as required by statute and rules (TWC §16.053(e)(3), and 31 TAC §357.34(c)), the FWTWPG has considered 24 various types of WMSs for all identified water needs.

Below summarizes the process approved for identifying potentially feasible water management strategies for the development of the 2026 Far West Texas Water Plan.

### Strategy Types

1. conservation;
2. drought management;
3. reuse;
4. management of existing water supplies;
5. conjunctive use;
6. acquisition of available existing water supplies;
7. development of new water supplies;
8. developing regional water supply facilities or providing regional management of water supply facilities;

9. developing large-scale desalination facilities for seawater or brackish groundwater that serve local or regional brackish groundwater production zones identified and designated under Texas Water Code (TWC) §16.060(b)(5);
10. developing large-scale desalination facilities for marine seawater that serve local or regional entities;
11. 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;
12. emergency transfer of water under TWC §11.139;
13. interbasin transfers of surface water;
14. system optimization;
15. reallocation of reservoir storage to new uses;
16. enhancements of yields;
17. improvements to water quality;
18. new surface water supply;
19. new groundwater supply;
20. brush control;
21. precipitation enhancement;
22. aquifer storage and recovery;
23. cancellation of water rights; and
24. rainwater harvesting.

#### Other potential projects considered for the initial list included:

- appropriate strategies from the *2021 Plan*
- water-loss audits and line replacement
- projects suggested by municipalities through a survey
- projects that are currently or have recently applied to the TWDB for funding

#### Needs Analysis

1. Receive a *Needs Analysis Report* from the TWDB, which provides a comparison of existing water supplies and projected water demands for each water user group (WUG) and wholesale water provider (WWP) in the Region. Based on this comparison, the report identifies WUGs and WWPs that are expected to experience needs for additional water supplies within the 50-year time frame of the regional water plan.

## Identification and Selection Process

2. Review the potential infeasibility and implementation status identifying:
  - If strategy contemplates permitting and/or construction;
  - If strategy is near-term or necessitates significant time for implementation;
  - If the potential sponsor(s) have taken, or have indicated they will take, affirmative steps towards the strategy's implementation. Affirmative steps may include, but not be limited to:
    - i. Spending money on the strategy or project;
    - ii. Voting to spend money on the strategy or project;
    - iii. Applying for a federal or state permit for the strategy or project
3. Review and consider recommended water management strategies adopted by the water planning group for the *2021 Far West Texas Water Plan*.
4. Review and consider any issues identified in the most current TWDB Water Loss Audit Report, including leak detection and supply side analysis.
5. Solicit current water planning information, including specific water management strategies of interest from WUGs and WWP with identified needs.
6. 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.
7. Consider potentially feasible water management strategies that may include, but are not limited to (Chapter 357 Subchapter C §357.34):
  - Extended use of existing supplies including:
    - i. System optimization and conjunctive use of water resources
    - ii. Reallocation of reservoir storage to new uses
    - iii. Voluntary redistribution of water resources including contracts, water marketing, regional water banks, sales, leases, options, subordination agreements, and financing agreements
    - iv. Subordination of existing water rights through voluntary agreements
    - v. Enhancement of yields of existing sources
    - vi. Improvement of water quality including control of naturally occurring chlorides
    - vii. Drought management
  - New supply development including:
    - i. Construction and improvement of surface water and groundwater resources
    - ii. Brush control
    - iii. Precipitation enhancement
    - iv. Desalination
    - v. Water supply that could be made available by cancellation of water rights
    - vi. Rainwater harvesting

- vii. Aquifer storage and recovery
  - Conservation and drought management measures including demand management
  - Reuse of wastewater
  - Interbasin transfers of surface water
  - Emergency transfers of surface water
8. Consider other *potentially feasible water management strategies* suggested by planning group members, stakeholders, and the public.
9. 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
10. 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.

Presented in Appendix L is the required tabular list of the potentially feasible WMSs identified by the FWTWPG for further analysis to date.

### Identification of Infeasible Water Management Strategies and Water Management Strategy Projects from 2021 RWP

In accordance with Texas Water Code §16.053(h)(10), the FWTWPG performed an evaluation to determine if WMSs and/or WMSPs recommended in the 2021 Far West Texas Water Plan are infeasible. The FWTWPG met on September 21, 2023, to develop a list of infeasible WMSs and WMSPs from the 2021 Far West Texas Water Plan. On April 23, 2024, the planning group members voted that all strategies within the 2021 Far West Texas Water Plan are feasible. The FWTWPG determined that there are no "infeasible" WMSs or WMSPs identified.

Information collected regarding potentially infeasible strategies has been collected into the required TWDB spreadsheet format and is included as a digital deliverable in Appendix M.

### Summary of Interregional Coordination

At each regular meeting of the FWTWPG updates from other regional water planning groups are communicated via members of the FWTWPG appointed as liaisons for Region F and M. The Chair of the FWTWPG participates in both the regular RWPG Chairs Conference calls and is a representative of the FWTWPG that serves on the Interregional Planning Council.



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Additionally, throughout the development of the 2026 Far West Texas Water Plan, the technical consultant for the FWTWPG has coordinated with the technical consultants for these RWPGs. This has included coordination on the identification and engagement with Water User Groups (WUGs), consistency in the development of recommended revisions to population and water demand projections, source availability determinations, supply allocation, responsibilities relating to data entry, and continued consistency in all reporting elements.

### [Summary of Public Comments](#)

Following a 14-day public notice period, the Chairman of the Far West Texas Water Planning Group at a Planning Group public meeting on April 23, 2024 in El Paso, Texas called for public comments on the proposed Far West Texas 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 10-day period was observed to receive public comments. At the close of this period no further public comments were received.





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## Appendix A. TWDB DB27 Report – 2026 RWP WUG Population

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

	WUG Population					
	2030	2040	2050	2060	2070	2080
<b>Brewster County Total</b>	<b>10,021</b>	<b>9,641</b>	<b>9,299</b>	<b>9,021</b>	<b>8,742</b>	<b>8,460</b>
<b>Brewster County / Rio Grande Basin Total</b>	<b>10,021</b>	<b>9,641</b>	<b>9,299</b>	<b>9,021</b>	<b>8,742</b>	<b>8,460</b>
Alpine	7,129	6,859	6,615	6,418	6,219	6,019
Lajitas Municipal Services	125	120	116	112	109	105
Marathon Water Supply & Sewer Service	374	359	347	336	326	315
Study Butte Terlingua Water System	542	522	503	488	473	458
County-Other	1,851	1,781	1,718	1,667	1,615	1,563
<b>Culberson County Total</b>	<b>2,561</b>	<b>2,410</b>	<b>2,295</b>	<b>2,184</b>	<b>2,072</b>	<b>1,959</b>
<b>Culberson County / Rio Grande Basin Total</b>	<b>2,561</b>	<b>2,410</b>	<b>2,295</b>	<b>2,184</b>	<b>2,072</b>	<b>1,959</b>
Van Horn	2,312	2,179	2,079	1,982	1,884	1,785
County-Other	249	231	216	202	188	174
<b>El Paso County Total</b>	<b>999,348</b>	<b>1,033,407</b>	<b>1,051,976</b>	<b>1,063,828</b>	<b>1,075,857</b>	<b>1,088,063</b>
<b>El Paso County / Rio Grande Basin Total</b>	<b>999,348</b>	<b>1,033,407</b>	<b>1,051,976</b>	<b>1,063,828</b>	<b>1,075,857</b>	<b>1,088,063</b>
Anthony	4,108	4,280	4,369	4,406	4,442	4,479
East Montana Water System	14,756	15,376	15,696	15,827	15,959	16,092
El Paso County Tornillo WID	3,403	3,546	3,620	3,650	3,681	3,712
El Paso County WCID 4	6,132	6,385	6,517	6,571	6,626	6,681
El Paso Water	790,511	815,858	829,931	839,949	850,135	860,485
Federal Correctional Institution La Tuna	1,675	1,675	1,675	1,675	1,675	1,675
Fort Bliss and East Biggs	40,791	42,504	43,388	43,751	44,116	44,484
Haciendas Del Norte WID	1,465	1,545	1,584	1,587	1,588	1,589
Horizon Regional MUD	49,297	51,367	52,435	52,874	53,316	53,760
Lower Valley Water District	67,684	70,526	71,992	72,595	73,202	73,812
Paseo Del Este MUD 1	17,378	18,107	18,484	18,639	18,794	18,951
County-Other	2,148	2,238	2,285	2,304	2,323	2,343
<b>Hudspeth County Total</b>	<b>3,157</b>	<b>2,851</b>	<b>2,621</b>	<b>2,413</b>	<b>2,204</b>	<b>1,993</b>
<b>Hudspeth County / Rio Grande Basin Total</b>	<b>3,157</b>	<b>2,851</b>	<b>2,621</b>	<b>2,413</b>	<b>2,204</b>	<b>1,993</b>
Esperanza Water Service	652	588	541	498	455	411
Hudspeth County WCID 1	1,663	1,502	1,381	1,271	1,161	1,050
County-Other	842	761	699	644	588	532
<b>Jeff Davis County Total</b>	<b>1,776</b>	<b>1,495</b>	<b>1,205</b>	<b>901</b>	<b>598</b>	<b>297</b>
<b>Jeff Davis County / Rio Grande Basin Total</b>	<b>1,776</b>	<b>1,495</b>	<b>1,205</b>	<b>901</b>	<b>598</b>	<b>297</b>
Fort Davis WSC	945	795	641	479	318	158

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

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

	WUG Population					
	2030	2040	2050	2060	2070	2080
County-Other	831	700	564	422	280	139
<b>Presidio County Total</b>	<b>5,441</b>	<b>4,740</b>	<b>4,260</b>	<b>3,844</b>	<b>3,425</b>	<b>3,003</b>
<b>Presidio County / Rio Grande Basin Total</b>	<b>5,441</b>	<b>4,740</b>	<b>4,260</b>	<b>3,844</b>	<b>3,425</b>	<b>3,003</b>
Marfa	2,814	2,451	2,203	1,988	1,771	1,553
Presidio	2,279	1,986	1,785	1,610	1,435	1,258
County-Other	348	303	272	246	219	192
<b>Terrell County Total</b>	<b>629</b>	<b>511</b>	<b>441</b>	<b>370</b>	<b>299</b>	<b>228</b>
<b>Terrell County / Rio Grande Basin Total</b>	<b>629</b>	<b>511</b>	<b>441</b>	<b>370</b>	<b>299</b>	<b>228</b>
Terrell County WCID 1	477	388	335	281	227	173
County-Other	152	123	106	89	72	55
<b>Region E Population Total</b>	<b>1,022,933</b>	<b>1,055,055</b>	<b>1,072,097</b>	<b>1,082,561</b>	<b>1,093,197</b>	<b>1,104,003</b>

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.



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## Appendix B. TWDB DB27 Report – WUG Demand

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

	WUG Demand (acre-feet per year)					
	2030	2040	2050	2060	2070	2080
<b>Brewster County Total</b>	<b>6,539</b>	<b>6,379</b>	<b>6,243</b>	<b>6,130</b>	<b>6,020</b>	<b>5,908</b>
<b>Brewster County / Rio Grande Basin Total</b>	<b>6,539</b>	<b>6,379</b>	<b>6,243</b>	<b>6,130</b>	<b>6,020</b>	<b>5,908</b>
Alpine	3,019	2,900	2,797	2,713	2,629	2,545
Lajitas Municipal Services	244	234	226	218	212	205
Marathon Water Supply & Sewer Service	116	111	107	104	101	97
Study Butte Terlingua Water System	341	328	316	306	297	288
County-Other	294	281	271	263	255	247
Mining	56	56	57	57	57	57
Livestock	495	495	495	495	495	495
Irrigation	1,974	1,974	1,974	1,974	1,974	1,974
<b>Culberson County Total</b>	<b>66,699</b>	<b>66,648</b>	<b>66,612</b>	<b>66,576</b>	<b>66,538</b>	<b>66,499</b>
<b>Culberson County / Rio Grande Basin Total</b>	<b>66,699</b>	<b>66,648</b>	<b>66,612</b>	<b>66,576</b>	<b>66,538</b>	<b>66,499</b>
Van Horn	858	807	770	734	698	661
County-Other	44	41	38	36	33	31
Manufacturing	5	5	5	5	5	5
Mining	10,016	10,019	10,023	10,025	10,026	10,026
Livestock	294	294	294	294	294	294
Irrigation	55,482	55,482	55,482	55,482	55,482	55,482
<b>El Paso County Total</b>	<b>367,658</b>	<b>372,695</b>	<b>376,034</b>	<b>378,326</b>	<b>380,648</b>	<b>382,997</b>
<b>El Paso County / Rio Grande Basin Total</b>	<b>367,658</b>	<b>372,695</b>	<b>376,034</b>	<b>378,326</b>	<b>380,648</b>	<b>382,997</b>
Anthony	858	891	909	917	924	932
East Montana Water System	2,583	2,685	2,741	2,764	2,787	2,810
El Paso County Tornillo WID	422	437	446	450	454	458
El Paso County WCID 4	973	1,009	1,030	1,038	1,047	1,056
El Paso Water	120,789	124,096	126,236	127,760	129,309	130,883
Federal Correctional Institution La Tuna	370	369	369	369	369	369
Fort Bliss and East Biggs	6,431	6,656	6,794	6,851	6,908	6,966
Haciendas Del Norte WID	272	286	293	294	294	294
Horizon Regional MUD	9,548	9,914	10,121	10,205	10,291	10,376
Lower Valley Water District	7,176	7,434	7,588	7,652	7,716	7,780
Paseo Del Este MUD 1	5,188	5,396	5,508	5,554	5,600	5,647
County-Other	478	495	506	510	514	518
Manufacturing	7,915	8,208	8,512	8,827	9,154	9,493
Mining	1,591	1,755	1,917	2,071	2,217	2,351
Steam Electric Power	8,880	8,880	8,880	8,880	8,880	8,880

\*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

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

	WUG Demand (acre-feet per year)					
	2030	2040	2050	2060	2070	2080
Livestock	194	194	194	194	194	194
Irrigation	193,990	193,990	193,990	193,990	193,990	193,990
<b>Hudspeth County Total</b>	<b>144,463</b>	<b>144,386</b>	<b>144,331</b>	<b>144,278</b>	<b>144,227</b>	<b>144,174</b>
<b>Hudspeth County / Rio Grande Basin Total</b>	<b>144,463</b>	<b>144,386</b>	<b>144,331</b>	<b>144,278</b>	<b>144,227</b>	<b>144,174</b>
Esperanza Water Service	124	111	103	94	86	78
Hudspeth County WCID 1	520	468	431	396	362	327
County-Other	146	132	121	111	102	92
Mining	68	70	71	72	72	72
Livestock	533	533	533	533	533	533
Irrigation	143,072	143,072	143,072	143,072	143,072	143,072
<b>Jeff Davis County Total</b>	<b>2,199</b>	<b>2,133</b>	<b>2,065</b>	<b>1,996</b>	<b>1,925</b>	<b>1,856</b>
<b>Jeff Davis County / Rio Grande Basin Total</b>	<b>2,199</b>	<b>2,133</b>	<b>2,065</b>	<b>1,996</b>	<b>1,925</b>	<b>1,856</b>
Fort Davis WSC	286	240	193	145	96	48
County-Other	126	106	85	64	42	21
Mining	59	59	59	59	59	59
Livestock	503	503	503	503	503	503
Irrigation	1,225	1,225	1,225	1,225	1,225	1,225
<b>Presidio County Total</b>	<b>9,359</b>	<b>9,159</b>	<b>9,027</b>	<b>8,911</b>	<b>8,795</b>	<b>8,676</b>
<b>Presidio County / Rio Grande Basin Total</b>	<b>9,359</b>	<b>9,159</b>	<b>9,027</b>	<b>8,911</b>	<b>8,795</b>	<b>8,676</b>
Marfa	816	709	638	575	513	449
Presidio	640	556	500	451	402	352
County-Other	61	52	47	43	38	33
Livestock	492	492	492	492	492	492
Irrigation	7,350	7,350	7,350	7,350	7,350	7,350
<b>Terrell County Total</b>	<b>1,421</b>	<b>1,392</b>	<b>1,376</b>	<b>1,359</b>	<b>1,342</b>	<b>1,325</b>
<b>Terrell County / Rio Grande Basin Total</b>	<b>1,421</b>	<b>1,392</b>	<b>1,376</b>	<b>1,359</b>	<b>1,342</b>	<b>1,325</b>
Terrell County WCID 1	131	106	92	77	62	47
County-Other	19	15	13	11	9	7
Mining	132	132	132	132	132	132
Livestock	183	183	183	183	183	183
Irrigation	956	956	956	956	956	956
<b>Region E Demand Total</b>	<b>598,338</b>	<b>602,792</b>	<b>605,688</b>	<b>607,576</b>	<b>609,495</b>	<b>611,435</b>

\*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.



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## Appendix C. TWDB DB27 Report – Source Availability

## DRAFT Region E Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	County	Basin	Salinity*	2030	2040	2050	2060	2070	2080
<b>Groundwater Source Availability Total</b>				<b>834,779</b>	<b>834,486</b>	<b>834,281</b>	<b>834,150</b>	<b>833,966</b>	<b>833,783</b>
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	5,408	5,408	5,408	5,408	5,408	5,408
Capitan Reef Complex Aquifer	Jeff Davis	Rio Grande	Fresh	0	0	0	0	0	0
Edwards-Trinity-Plateau and Pecos Valley Aquifers	Jeff Davis	Rio Grande	Fresh	138	138	138	138	138	138
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, Pecos Valley, and Trinity Aquifers	Terrell	Rio Grande	Fresh	1,420	1,420	1,420	1,420	1,420	1,420
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	2,587	2,586	2,583	2,582	2,582	2,582
Igneous Aquifer	Culberson	Rio Grande	Fresh	99	99	99	99	99	99
Igneous Aquifer	Jeff Davis	Rio Grande	Fresh	4,585	4,585	4,585	4,585	4,585	4,585
Igneous Aquifer	Presidio	Rio Grande	Fresh	4,065	4,065	4,065	4,065	4,065	4,065
Marathon Aquifer	Brewster	Rio Grande	Fresh	7,327	7,327	7,327	7,327	7,327	7,327
Other Aquifer	Brewster	Rio Grande	Fresh	1,484	1,484	1,484	1,484	1,484	1,484
Other Aquifer	El Paso	Rio Grande	Brackish	57,043	57,043	57,043	57,043	57,043	57,043

\* 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.

\*\* Since reservoir sources can exist across multiple counties, the county field value, ‘reservoir’ is applied to all reservoir sources.



## DRAFT Region E Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	County	Basin	Salinity*	2030	2040	2050	2060	2070	2080
Other Aquifer	Hudspeth	Rio Grande	Brackish	52,518	52,518	52,518	52,518	52,518	52,518
Other Aquifer	Hudspeth	Rio Grande	Fresh	26,400	26,400	26,400	26,400	26,400	26,400
Rustler Aquifer	Brewster	Rio Grande	Brackish /Saline	0	0	0	0	0	0
Rustler Aquifer	Culberson	Rio Grande	Brackish /Saline	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	35,678	35,601	35,551	35,509	35,419	35,347
West Texas Bolsons Aquifer	Hudspeth	Rio Grande	Brackish	321	321	321	321	321	321
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	6,138	6,071	6,043	6,024	5,986	5,958
West Texas Bolsons Aquifer	Presidio	Rio Grande	Fresh	8,983	8,835	8,711	8,642	8,586	8,503
West Texas Bolsons Aquifer	Presidio	Rio Grande	Fresh/ Brackish	7,743	7,743	7,743	7,743	7,743	7,743

Reuse Source Availability Total				55,721	56,998	58,123	59,347	60,532	61,838
Direct Reuse	Brewster	Rio Grande	Brackish	193	193	193	193	193	193
Direct Reuse	El Paso	Rio Grande	Fresh	19,748	21,025	22,150	23,374	24,559	25,865
Indirect Reuse	El Paso	Rio Grande	Fresh	35,446	35,446	35,446	35,446	35,446	35,446
Indirect Reuse	Hudspeth	Rio Grande	Fresh	334	334	334	334	334	334

Surface Water Source Availability Total				64,045	64,045	64,045	64,045	64,045	64,045
Rio Grande Livestock Local Supply	Brewster	Rio Grande	Fresh	25	25	25	25	25	25

\* 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.

\*\* Since reservoir sources can exist across multiple counties, the county field value, ‘reservoir’ is applied to all reservoir sources.

**DRAFT Region E Source Total Availability**

				Source Availability (acre-feet per year)					
Source Name	County	Basin	Salinity*	2030	2040	2050	2060	2070	2080
Rio Grande Livestock Local Supply	Culberson	Rio Grande	Fresh	15	15	15	15	15	15
Rio Grande Livestock Local Supply	El Paso	Rio Grande	Fresh	19	19	19	19	19	19
Rio Grande Livestock Local Supply	Hudspeth	Rio Grande	Fresh	80	80	80	80	80	80
Rio Grande Livestock Local Supply	Jeff Davis	Rio Grande	Fresh	24	24	24	24	24	24
Rio Grande Livestock Local Supply	Presidio	Rio Grande	Fresh	49	49	49	49	49	49
Rio Grande Livestock Local Supply	Terrell	Rio Grande	Fresh	4	4	4	4	4	4
Rio Grande Run-of-River	Brewster	Rio Grande	Fresh	7,759	7,759	7,759	7,759	7,759	7,759
Rio Grande Run-of-River	El Paso	Rio Grande	Fresh	44,270	44,270	44,270	44,270	44,270	44,270
Rio Grande Run-of-River	Hudspeth	Rio Grande	Fresh	916	916	916	916	916	916
Rio Grande Run-of-River	Presidio	Rio Grande	Fresh	10,452	10,452	10,452	10,452	10,452	10,452
Rio Grande Run-of-River	Terrell	Rio Grande	Fresh	432	432	432	432	432	432
<b>Region E Source Availability Total</b>				<b>954,545</b>	<b>955,529</b>	<b>956,449</b>	<b>957,542</b>	<b>958,543</b>	<b>959,666</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.

\*\* Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.



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## Appendix D. TWDB DB27 Report – WUG Existing Water Supply

## DRAFT Region E Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
<b>Brewster County WUG Total</b>			<b>8,383</b>	<b>8,382</b>	<b>8,379</b>	<b>8,378</b>	<b>8,378</b>	<b>8,378</b>
<b>Brewster County / Rio Grande Basin WUG Total</b>			<b>8,383</b>	<b>8,382</b>	<b>8,379</b>	<b>8,378</b>	<b>8,378</b>	<b>8,378</b>
Alpine	E	Direct Reuse	109	109	109	109	109	109
Alpine	E	Igneous Aquifer   Brewster County	2,064	2,064	2,064	2,064	2,064	2,064
Alpine	E	Igneous Aquifer   Jeff Davis County	2,065	2,065	2,065	2,065	2,065	2,065
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
Study Butte Terlingua Water System	E	Other Aquifer   Brewster County	387	387	387	387	387	387
County-Other	E	Edwards-Trinity-Plateau Aquifer   Brewster County	10	10	10	10	10	10
County-Other	E	Igneous Aquifer   Brewster County	207	207	207	207	207	207
County-Other	E	Other Aquifer   Brewster County	301	301	301	301	301	301
Mining	E	Igneous Aquifer   Brewster County	52	52	52	52	52	52
Livestock	E	Capitan Reef Complex Aquifer   Brewster County	38	38	38	38	38	38
Livestock	E	Edwards-Trinity-Plateau Aquifer   Brewster County	125	125	125	125	125	125
Livestock	E	Igneous Aquifer   Brewster County	144	144	144	144	144	144
Livestock	E	Local Surface Water Supply	25	25	25	25	25	25
Livestock	E	Marathon Aquifer   Brewster County	19	19	19	19	19	19
Livestock	E	Other Aquifer   Brewster County	144	144	144	144	144	144
Irrigation	E	Igneous Aquifer   Brewster County	120	119	116	115	115	115
Irrigation	E	Marathon Aquifer   Brewster County	128	128	128	128	128	128
Irrigation	E	Other Aquifer   Brewster County	321	321	321	321	321	321

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

## DRAFT Region E Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Irrigation	E	Rio Grande Run-of-River	1,551	1,551	1,551	1,551	1,551	1,551
<b>Culberson County WUG Total</b>			<b>43,379</b>	<b>43,302</b>	<b>43,252</b>	<b>43,210</b>	<b>43,120</b>	<b>43,048</b>
<b>Culberson County / Rio Grande Basin WUG Total</b>			<b>43,379</b>	<b>43,302</b>	<b>43,252</b>	<b>43,210</b>	<b>43,120</b>	<b>43,048</b>
Van Horn	E	West Texas Bolsons Aquifer   Culberson County	1,218	1,218	1,218	1,218	1,218	1,218
County-Other	E	Edwards-Trinity-Plateau Aquifer   Culberson County	1	1	1	1	1	1
County-Other	E	Rustler Aquifer   Culberson County	1	1	1	1	1	1
County-Other	E	West Texas Bolsons Aquifer   Culberson County	68	68	68	68	68	68
Manufacturing	E	West Texas Bolsons Aquifer   Culberson County	5	5	5	5	5	5
Mining	E	Capitan Reef Complex Aquifer   Culberson County	2,000	2,000	2,000	2,000	2,000	2,000
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	54	54	54	54	54	54
Livestock	E	Edwards-Trinity-Plateau Aquifer   Culberson County	19	19	19	19	19	19
Livestock	E	Igneous Aquifer   Culberson County	82	82	82	82	82	82
Livestock	E	Local Surface Water Supply	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	158	158	158	158	158	158
Irrigation	E	Capitan Reef Complex Aquifer   Culberson County	5,526	5,526	5,526	5,526	5,526	5,526

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

## DRAFT Region E Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Irrigation	E	West Texas Bolsons Aquifer   Culberson County	32,156	32,079	32,029	31,987	31,897	31,825
<b>El Paso County WUG Total</b>			<b>319,272</b>	<b>319,292</b>	<b>319,311</b>	<b>319,330</b>	<b>319,347</b>	<b>319,363</b>
<b>El Paso County / Rio Grande Basin WUG Total</b>			<b>319,272</b>	<b>319,292</b>	<b>319,311</b>	<b>319,330</b>	<b>319,347</b>	<b>319,363</b>
Anthony	E	Hueco-Mesilla Bolson Aquifer   El Paso County	1,847	1,847	1,847	1,847	1,847	1,847
East Montana Water System	E	Hueco-Mesilla Bolson Aquifer   El Paso County	2,810	2,810	2,810	2,810	2,810	2,810
El Paso County Tornillo WID	E	Hueco-Mesilla Bolson Aquifer   El Paso County	629	629	629	629	629	629
El Paso County WCID 4	E	Hueco-Mesilla Bolson Aquifer   El Paso County	1,363	1,363	1,363	1,363	1,363	1,363
El Paso Water	E	Direct Reuse	6,000	6,000	6,000	6,000	6,000	6,000
El Paso Water	E	Hueco-Mesilla Bolson Aquifer   El Paso County	115,000	115,000	115,000	115,000	115,000	115,000
El Paso Water	E	Rio Grande Run-of-River	10,000	10,000	10,000	10,000	10,000	10,000
Federal Correctional Institution La Tuna	E	Hueco-Mesilla Bolson Aquifer   El Paso County	2,017	2,017	2,017	2,017	2,017	2,017
Fort Bliss and East Biggs	E	Hueco-Mesilla Bolson Aquifer   El Paso County	5,503	5,503	5,503	5,503	5,503	5,503
Haciendas Del Norte WID	E	Hueco-Mesilla Bolson Aquifer   El Paso County	306	306	306	306	306	306
Horizon Regional MUD	E	Hueco-Mesilla Bolson Aquifer   El Paso County	4,828	4,828	4,828	4,828	4,828	4,828
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	4,356	4,356	4,356	4,356	4,356	4,356
Paseo Del Este MUD 1	E	Hueco-Mesilla Bolson Aquifer   El Paso County	5,647	5,647	5,647	5,647	5,647	5,647
County-Other	E	Hueco-Mesilla Bolson Aquifer   El Paso County	6,678	6,678	6,678	6,678	6,678	6,678
Manufacturing	E	Hueco-Mesilla Bolson Aquifer   El Paso County	9,493	9,493	9,493	9,493	9,493	9,493
Manufacturing	E	Rio Grande Run-of-River	0	0	0	0	0	0
Mining	E	Hueco-Mesilla Bolson Aquifer   El Paso County	871	891	910	929	946	962

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

## DRAFT Region E Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
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	8,880	8,880	8,880	8,880	8,880	8,880
Livestock	E	Hueco-Mesilla Bolson Aquifer   El Paso County	151	151	151	151	151	151
Livestock	E	Local Surface Water Supply	19	19	19	19	19	19
Livestock	E	Other Aquifer   El Paso County	24	24	24	24	24	24
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	53,964	53,964	53,964	53,964	53,964	53,964
Irrigation	E	Rio Grande Indirect Reuse	34,169	34,169	34,169	34,169	34,169	34,169
Irrigation	E	Rio Grande Run-of-River	34,270	34,270	34,270	34,270	34,270	34,270
<b>Hudspeth County WUG Total</b>			<b>129,666</b>	<b>129,666</b>	<b>129,666</b>	<b>129,666</b>	<b>129,666</b>	<b>129,666</b>
<b>Hudspeth County / Rio Grande Basin WUG Total</b>			<b>129,666</b>	<b>129,666</b>	<b>129,666</b>	<b>129,666</b>	<b>129,666</b>	<b>129,666</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	E	Bone Spring-Victorio Peak Aquifer   Hudspeth County	42	42	42	42	42	42
County-Other	E	Hueco-Mesilla Bolson Aquifer   Hudspeth County	14	14	14	14	14	14
County-Other	E	Other Aquifer   Hudspeth County	179	179	179	179	179	179
Mining	E	Hueco-Mesilla Bolson Aquifer   Hudspeth County	56	56	56	56	56	56
Mining	E	Other Aquifer   Hudspeth County	5	5	5	5	5	5
Mining	E	West Texas Bolsons Aquifer   Hudspeth County	0	0	0	0	0	0

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

## DRAFT Region E Water User Group (WUG) Existing Water Supply

WUG Name	Source		Existing Supply (acre-feet per year)					
	Region	Source Description	2030	2040	2050	2060	2070	2080
Livestock	E	Bone Spring-Victorio Peak Aquifer   Hudspeth County	83	83	83	83	83	83
Livestock	E	Capitan Reef Complex Aquifer   Hudspeth County	7	7	7	7	7	7
Livestock	E	Hueco-Mesilla Bolson Aquifer   Hudspeth County	10	10	10	10	10	10
Livestock	E	Local Surface Water Supply	80	80	80	80	80	80
Livestock	E	Other Aquifer   Hudspeth County	277	277	277	277	277	277
Livestock	E	West Texas Bolsons Aquifer   Hudspeth County	69	69	69	69	69	69
Irrigation	E	Bone Spring-Victorio Peak Aquifer   Hudspeth Count	68,495	68,495	68,495	68,495	68,495	68,495
Irrigation	E	Capitan Reef Complex Aquifer   Hudspeth County	4,213	4,213	4,213	4,213	4,213	4,213
Irrigation	E	Hueco-Mesilla Bolson Aquifer   Hudspeth County	1,683	1,683	1,683	1,683	1,683	1,683
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	916	916	916	916	916	916
<b>Jeff Davis County WUG Total</b>			<b>2,673</b>	<b>2,673</b>	<b>2,673</b>	<b>2,673</b>	<b>2,673</b>	<b>2,673</b>
<b>Jeff Davis County / Rio Grande Basin WUG Total</b>			<b>2,673</b>	<b>2,673</b>	<b>2,673</b>	<b>2,673</b>	<b>2,673</b>	<b>2,673</b>
Fort Davis WSC	E	Igneous Aquifer   Jeff Davis County	468	468	468	468	468	468
County-Other	E	Edwards-Trinity-Plateau and Pecos Valley Aquifers   Jeff Davis County	0	0	0	0	0	0
County-Other	E	Igneous Aquifer   Jeff Davis County	233	233	233	233	233	233
County-Other	E	West Texas Bolsons Aquifer   Jeff Davis County	0	0	0	0	0	0
Mining	E	Igneous Aquifer   Jeff Davis County	153	153	153	153	153	153

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.



## DRAFT Region E Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Livestock	E	Edwards-Trinity-Plateau and Pecos Valley Aquifers   Jeff Davis County	0	0	0	0	0	0
Livestock	E	Igneous Aquifer   Jeff Davis County	299	299	299	299	299	299
Livestock	E	Local Surface Water Supply	24	24	24	24	24	24
Livestock	E	West Texas Bolsons Aquifer   Jeff Davis County	63	63	63	63	63	63
Irrigation	E	Edwards-Trinity-Plateau and Pecos Valley Aquifers   Jeff Davis County	0	0	0	0	0	0
Irrigation	E	Igneous Aquifer   Jeff Davis County	1,118	1,118	1,118	1,118	1,118	1,118
Irrigation	E	West Texas Bolsons Aquifer   Jeff Davis County	315	315	315	315	315	315
<b>Presidio County WUG Total</b>			<b>13,531</b>	<b>13,531</b>	<b>13,531</b>	<b>13,531</b>	<b>13,531</b>	<b>13,531</b>
<b>Presidio County / Rio Grande Basin WUG Total</b>			<b>13,531</b>	<b>13,531</b>	<b>13,531</b>	<b>13,531</b>	<b>13,531</b>	<b>13,531</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	2,460	2,460	2,460	2,460	2,460	2,460
County-Other	E	Igneous Aquifer   Presidio County	58	58	58	58	58	58
County-Other	E	West Texas Bolsons Aquifer   Presidio County	39	39	39	39	39	39
Livestock	E	Igneous Aquifer   Presidio County	270	270	270	270	270	270
Livestock	E	Local Surface Water Supply	49	49	49	49	49	49
Livestock	E	West Texas Bolsons Aquifer   Presidio County	171	171	171	171	171	171
Irrigation	E	Igneous Aquifer   Presidio County	770	770	770	770	770	770
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	1,477	1,477	1,477	1,477	1,477	1,477

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

## DRAFT Region E Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
<b>Terrell County WUG Total</b>			<b>1,748</b>	<b>1,748</b>	<b>1,748</b>	<b>1,748</b>	<b>1,748</b>	<b>1,748</b>
<b>Terrell County / Rio Grande Basin WUG Total</b>			<b>1,748</b>	<b>1,748</b>	<b>1,748</b>	<b>1,748</b>	<b>1,748</b>	<b>1,748</b>
Terrell County WCID 1	E	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers   Terrell County	476	476	476	476	476	476
County-Other	E	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers   Terrell County	43	43	43	43	43	43
Mining	E	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers   Terrell County	141	141	141	141	141	141
Livestock	E	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers   Terrell County	179	179	179	179	179	179
Livestock	E	Local Surface Water Supply	4	4	4	4	4	4
Irrigation	E	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers   Terrell County	473	473	473	473	473	473
Irrigation	E	Rio Grande Run-of-River	432	432	432	432	432	432
<b>Region E WUG Existing Water Supply Total</b>			<b>518,652</b>	<b>518,594</b>	<b>518,560</b>	<b>518,536</b>	<b>518,463</b>	<b>518,407</b>

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.



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## Appendix E. TWDB DB27 Report – WUG Needs/Surplus

## DRAFT Region E Water User Group (WUG) Needs or Surplus

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.

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Alpine	Brewster	Rio Grande	1,219	1,338	1,441	1,525	1,609	1,693
Lajitas Municipal Services	Brewster	Rio Grande	87	97	105	113	119	126
Marathon Water Supply & Sewer Service	Brewster	Rio Grande	126	131	135	138	141	145
Study Butte Terlingua Water System	Brewster	Rio Grande	46	59	71	81	90	99
County-Other	Brewster	Rio Grande	224	237	247	255	263	271
Mining	Brewster	Rio Grande	(4)	(4)	(5)	(5)	(5)	(5)
Livestock	Brewster	Rio Grande	0	0	0	0	0	0
Irrigation	Brewster	Rio Grande	146	145	142	141	141	141
Van Horn	Culberson	Rio Grande	360	411	448	484	520	557
County-Other	Culberson	Rio Grande	26	29	32	34	37	39
Manufacturing	Culberson	Rio Grande	0	0	0	0	0	0
Mining	Culberson	Rio Grande	(5,971)	(5,974)	(5,978)	(5,980)	(5,981)	(5,981)
Livestock	Culberson	Rio Grande	65	65	65	65	65	65
Irrigation	Culberson	Rio Grande	(17,800)	(17,877)	(17,927)	(17,969)	(18,059)	(18,131)
Anthony	El Paso	Rio Grande	989	956	938	930	923	915
East Montana Water System	El Paso	Rio Grande	227	125	69	46	23	0
El Paso County Tornillo WID	El Paso	Rio Grande	207	192	183	179	175	171
El Paso County WCID 4	El Paso	Rio Grande	390	354	333	325	316	307
<b>El Paso Water</b>	<b>El Paso</b>	<b>Rio Grande</b>	<b>10,211</b>	<b>6,904</b>	<b>4,764</b>	<b>3,240</b>	<b>1,691</b>	<b>117</b>
Federal Correctional Institution La Tuna	El Paso	Rio Grande	1,647	1,648	1,648	1,648	1,648	1,648
Fort Bliss and East Biggs	El Paso	Rio Grande	(928)	(1,153)	(1,291)	(1,348)	(1,405)	(1,463)
Haciendas Del Norte WID	El Paso	Rio Grande	34	20	13	12	12	12
Horizon Regional MUD	El Paso	Rio Grande	(3,142)	(3,508)	(3,715)	(3,799)	(3,885)	(3,970)

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

## DRAFT Region E Water User Group (WUG) Needs or Surplus

WUG Name	County	Basin	Water Supply Needs or Surplus (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Lower Valley Water District	El Paso	Rio Grande	(2,820)	(3,078)	(3,232)	(3,296)	(3,360)	(3,424)
Paseo Del Este MUD 1	El Paso	Rio Grande	459	251	139	93	47	0
County-Other	El Paso	Rio Grande	6,200	6,183	6,172	6,168	6,164	6,160
Manufacturing	El Paso	Rio Grande	1,578	1,285	981	666	339	0
Mining	El Paso	Rio Grande	757	613	470	335	206	88
Steam Electric Power	El Paso	Rio Grande	0	0	0	0	0	0
Livestock	El Paso	Rio Grande	0	0	0	0	0	0
Irrigation	El Paso	Rio Grande	(64,195)	(64,195)	(64,195)	(64,195)	(64,195)	(64,195)
Esperanza Water Service	Hudspeth	Rio Grande	360	373	381	390	398	406
Hudspeth County WCID 1	Hudspeth	Rio Grande	12	64	101	136	170	205
County-Other	Hudspeth	Rio Grande	89	103	114	124	133	143
Mining	Hudspeth	Rio Grande	(7)	(9)	(10)	(11)	(11)	(11)
Livestock	Hudspeth	Rio Grande	(7)	(7)	(7)	(7)	(7)	(7)
Irrigation	Hudspeth	Rio Grande	(15,244)	(15,244)	(15,244)	(15,244)	(15,244)	(15,244)
Fort Davis WSC	Jeff Davis	Rio Grande	182	228	275	323	372	420
County-Other	Jeff Davis	Rio Grande	107	127	148	169	191	212
Mining	Jeff Davis	Rio Grande	94	94	94	94	94	94
Livestock	Jeff Davis	Rio Grande	(117)	(117)	(117)	(117)	(117)	(117)
Irrigation	Jeff Davis	Rio Grande	208	208	208	208	208	208
Marfa	Presidio	Rio Grande	1,281	1,388	1,459	1,522	1,584	1,648
Presidio	Presidio	Rio Grande	1,820	1,904	1,960	2,009	2,058	2,108
County-Other	Presidio	Rio Grande	36	45	50	54	59	64
Livestock	Presidio	Rio Grande	(2)	(2)	(2)	(2)	(2)	(2)
Irrigation	Presidio	Rio Grande	1,037	1,037	1,037	1,037	1,037	1,037
Terrell County WCID 1	Terrell	Rio Grande	345	370	384	399	414	429
County-Other	Terrell	Rio Grande	24	28	30	32	34	36
Mining	Terrell	Rio Grande	9	9	9	9	9	9
Livestock	Terrell	Rio Grande	0	0	0	0	0	0
Irrigation	Terrell	Rio Grande	(51)	(51)	(51)	(51)	(51)	(51)

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.



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## Appendix F. TWDB DB27 Report – WUG Data Comparison to 2021 RWP

## DRAFT Region E 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
<b>Brewster County  Municipal WUG Type</b>						
Existing WUG supply total	3,815	5,716	49.8%	3,815	5,716	49.8%
Projected demand total	2,605	4,014	54.1%	2,613	3,494	33.7%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Brewster County  Mining WUG Type</b>						
Existing WUG supply total	0	52	100.0%	0	52	100.0%
Projected demand total	0	56	100.0%	0	57	100.0%
Water supply needs total**	0	4	100.0%	0	5	100.0%
<b>Brewster County  Livestock WUG Type</b>						
Existing WUG supply total	366	495	35.2%	366	495	35.2%
Projected demand total	347	495	42.7%	347	495	42.7%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Brewster County  Irrigation WUG Type</b>						
Existing WUG supply total	3,387	2,120	-37.4%	3,387	2,115	-37.6%
Projected demand total	2,006	1,974	-1.6%	2,006	1,974	-1.6%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Culberson County  Municipal WUG Type</b>						
Existing WUG supply total	1,173	1,288	9.8%	1,173	1,288	9.8%
Projected demand total	780	902	15.6%	858	731	-14.8%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Culberson County  Manufacturing WUG Type</b>						
Existing WUG supply total	6	5	-16.7%	6	5	-16.7%
Projected demand total	6	5	-16.7%	6	5	-16.7%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Culberson County  Mining WUG Type</b>						
Existing WUG supply total	4,045	4,045	0.0%	4,045	4,045	0.0%

\*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

\*\*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 2021 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 water supply needs totals.

## DRAFT Region E 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Projected demand total	2,853	10,016	251.1%	2,253	10,026	345.0%
Water supply needs total**	0	5,971	100.0%	0	5,981	100.0%
<b>Culberson County   Livestock WUG Type</b>						
Existing WUG supply total	285	359	26.0%	285	359	26.0%
Projected demand total	270	294	8.9%	270	294	8.9%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Culberson County   Irrigation WUG Type</b>						
Existing WUG supply total	37,530	37,682	0.4%	32,005	37,423	16.9%
Projected demand total	37,863	55,482	46.5%	37,863	55,482	46.5%
Water supply needs total**	333	17,800	5245.3%	5,858	18,059	208.3%
<b>El Paso County   Municipal WUG Type</b>						
Existing WUG supply total	165,047	168,562	2.1%	165,047	168,562	2.1%
Projected demand total	151,311	155,088	2.5%	211,208	166,213	-21.3%
Water supply needs total**	8,023	6,890	-14.1%	52,627	8,650	-83.6%
<b>El Paso County   Manufacturing WUG Type</b>						
Existing WUG supply total	7,297	9,493	30.1%	7,297	9,493	30.1%
Projected demand total	8,157	7,915	-3.0%	8,157	9,154	12.2%
Water supply needs total**	860	0	-100.0%	860	0	-100.0%
<b>El Paso County   Mining WUG Type</b>						
Existing WUG supply total	2,157	2,348	8.9%	2,157	2,423	12.3%
Projected demand total	4,626	1,591	-65.6%	7,539	2,217	-70.6%
Water supply needs total**	2,469	0	-100.0%	5,382	0	-100.0%
<b>El Paso County   Steam Electric Power WUG Type</b>						
Existing WUG supply total	3,285	8,880	170.3%	3,285	8,880	170.3%
Projected demand total	10,545	8,880	-15.8%	10,545	8,880	-15.8%
Water supply needs total**	7,260	0	-100.0%	7,260	0	-100.0%

\*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

\*\*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 2021 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 water supply needs totals.



## DRAFT Region E 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
<b>El Paso County   Livestock WUG Type</b>						
Existing WUG supply total	238	194	-18.5%	238	194	-18.5%
Projected demand total	171	194	13.5%	171	194	13.5%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>El Paso County   Irrigation WUG Type</b>						
Existing WUG supply total	103,166	129,795	25.8%	103,166	129,795	25.8%
Projected demand total	149,570	193,990	29.7%	149,570	193,990	29.7%
Water supply needs total**	46,404	64,195	38.3%	46,404	64,195	38.3%
<b>Hudspeth County   Municipal WUG Type</b>						
Existing WUG supply total	1,372	1,251	-8.8%	1,372	1,251	-8.8%
Projected demand total	530	790	49.1%	541	550	1.7%
Water supply needs total**	38	0	-100.0%	39	0	-100.0%
<b>Hudspeth County   Mining WUG Type</b>						
Existing WUG supply total	283	61	-78.4%	283	61	-78.4%
Projected demand total	451	68	-84.9%	502	72	-85.7%
Water supply needs total**	168	7	-95.8%	219	11	-95.0%
<b>Hudspeth County   Livestock WUG Type</b>						
Existing WUG supply total	460	526	14.3%	460	526	14.3%
Projected demand total	437	533	22.0%	437	533	22.0%
Water supply needs total**	0	7	100.0%	0	7	100.0%
<b>Hudspeth County   Irrigation WUG Type</b>						
Existing WUG supply total	125,954	127,828	1.5%	125,954	127,828	1.5%
Projected demand total	115,542	143,072	23.8%	115,542	143,072	23.8%
Water supply needs total**	0	15,244	100.0%	0	15,244	100.0%
<b>Jeff Davis County   Municipal WUG Type</b>						
Existing WUG supply total	812	701	-13.7%	812	701	-13.7%

\*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

\*\*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 2021 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 water supply needs totals.

## DRAFT Region E 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Projected demand total	462	412	-10.8%	449	138	-69.3%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Jeff Davis County   Mining WUG Type</b>						
Existing WUG supply total	153	153	0.0%	153	153	0.0%
Projected demand total	153	59	-61.4%	153	59	-61.4%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Jeff Davis County   Livestock WUG Type</b>						
Existing WUG supply total	470	386	-17.9%	470	386	-17.9%
Projected demand total	397	503	26.7%	397	503	26.7%
Water supply needs total**	0	117	100.0%	0	117	100.0%
<b>Jeff Davis County   Irrigation WUG Type</b>						
Existing WUG supply total	1,366	1,433	4.9%	1,366	1,433	4.9%
Projected demand total	665	1,225	84.2%	665	1,225	84.2%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Presidio County   Municipal WUG Type</b>						
Existing WUG supply total	6,345	4,654	-26.7%	6,345	4,654	-26.7%
Projected demand total	1,619	1,517	-6.3%	2,066	953	-53.9%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Presidio County   Mining WUG Type</b>						
Existing WUG supply total	403	0	-100.0%	403	0	-100.0%
Projected demand total	0	0	0.0%	0	0	0.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Presidio County   Livestock WUG Type</b>						
Existing WUG supply total	366	490	33.9%	366	490	33.9%
Projected demand total	328	492	50.0%	328	492	50.0%
Water supply needs total**	0	2	100.0%	0	2	100.0%

\*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

\*\*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 2021 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 water supply needs totals.

## DRAFT Region E 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
<b>Presidio County   Irrigation WUG Type</b>						
Existing WUG supply total	9,001	8,387	-6.8%	9,001	8,387	-6.8%
Projected demand total	4,006	7,350	83.5%	4,006	7,350	83.5%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Terrell County   Municipal WUG Type</b>						
Existing WUG supply total	551	519	-5.8%	551	519	-5.8%
Projected demand total	199	150	-24.6%	197	71	-64.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Terrell County   Mining WUG Type</b>						
Existing WUG supply total	190	141	-25.8%	190	141	-25.8%
Projected demand total	776	132	-83.0%	385	132	-65.7%
Water supply needs total**	586	0	-100.0%	195	0	-100.0%
<b>Terrell County   Livestock WUG Type</b>						
Existing WUG supply total	206	183	-11.2%	206	183	-11.2%
Projected demand total	151	183	21.2%	151	183	21.2%
Water supply needs total**	0	0	0.0%	0	0	0.0%
<b>Terrell County   Irrigation WUG Type</b>						
Existing WUG supply total	914	905	-1.0%	914	905	-1.0%
Projected demand total	751	956	27.3%	751	956	27.3%
Water supply needs total**	0	51	100.0%	0	51	100.0%
<b>Region E Total</b>						
Existing WUG supply total	480,643	518,652	7.9%	475,118	518,463	9.1%
Projected demand total	497,577	598,338	20.3%	559,976	609,495	8.8%
Water supply needs total**	66,141	110,288	66.7%	118,844	112,322	-5.5%

\*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

\*\*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 2021 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 water supply needs totals.



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## Appendix G. TWDB DB27 Report – Source Data Comparison to 2021 RWP

## DRAFT Region E 2026 Regional Water Plan (RWP)

### Source Availability Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
<b>Brewster County</b>						
Groundwater availability total	13,786	13,375	-3.0%	13,782	13,370	-3.0%
Reuse availability total	193	193	0.0%	193	193	0.0%
Surface Water availability total	7,774	7,784	0.1%	7,774	7,784	0.1%
<b>Culberson County</b>						
Groundwater availability total	60,660	60,660	0.0%	60,391	60,401	0.0%
<b>El Paso County</b>						
Groundwater availability total	492,922	492,043	-0.2%	492,922	492,043	-0.2%
Reuse availability total	55,194	55,194	0.0%	60,005	60,005	0.0%
Surface Water availability total	46,605	44,289	-5.0%	46,605	44,289	-5.0%
<b>Hudspeth County</b>						
Groundwater availability total	238,984	235,629	-1.4%	238,984	235,629	-1.4%
Reuse availability total	334	334	0.0%	334	334	0.0%
Surface Water availability total	725	996	37.4%	725	996	37.4%
<b>Jeff Davis County</b>						
Groundwater availability total	11,095	10,861	-2.1%	10,932	10,709	-2.0%
<b>Presidio County</b>						
Groundwater availability total	20,789	20,791	0.0%	20,242	20,394	0.8%
Surface Water availability total	10,218	10,501	2.8%	10,218	10,501	2.8%
<b>Terrell County</b>						
Groundwater availability total	1,420	1,420	0.0%	1,420	1,420	0.0%
Surface Water availability total	441	436	-1.1%	441	436	-1.1%
<b>Region E Total</b>						
Groundwater availability total	839,656	834,779	-0.6%	838,673	833,966	-0.6%
Reuse availability total	55,721	55,721	0.0%	60,532	60,532	0.0%
Surface Water availability total	65,763	64,006	-2.7%	65,763	64,006	-2.7%

\*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs.

\*\*Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.



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## Appendix H.1. Region E Hydrologic Variance Request



October 25, 2023

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

Re: Hydrologic Variance Requests for Water Availability Determination of Current Surface Water Supplies in Far West Texas (Region E)

Dear Mr. Walker

The Far West Texas Region is located within the Rio Grande Basin. Surface water supplies are obtained from the Rio Grande River and Pecos River, a tributary of the Rio Grande.

As intended by Senate Bill 1, the assessment of surface water availability in the Far West Texas Region will be conducted to accurately reflect water supplies that are available for use. This assessment will include updates to new water right permits and current operating policies and/or contractual agreements. As required by the planning guidelines, we will provide information on firm yields for all water supply sources.

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.

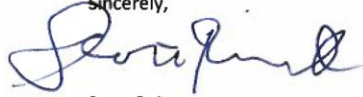
**Far West Texas (Region E) Variance Requests**

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 Utilities 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 October. This change is to be consistent with actual operation of the Rio Grande Project.
3. 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.



No other variances are anticipated at this time.

Please call me if you have any questions regarding our request.

Sincerely,  


Scott Reinert  
Chair, Far West Texas Water Planning Group

cc: Heather Rose, TWDB Project Manager  
Jennifer Herrera, WSP  
Juan Acevedo, WSP  
Annette Gutierrez, Rio Grande Council of Government  
Jon Albright, Freese and Nichols, Inc.





## Surface Water Hydrologic Variance Request Checklist

Texas Water Development Board (TWDB) rules<sup>1</sup> require that regional water planning groups (RWPG) use most current Water Availability Models (WAM) from the Texas Commission on Environmental Quality (TCEQ) and assume full utilization of existing water rights and no return flows for surface water supply analysis. Additionally, evaluation of existing stored surface water available during Drought of Record conditions must be based on Firm Yield using anticipated sedimentation rates. However, the TWDB rules also allow, and **we encourage**, RWPGs to use more representative, water availability modeling assumptions; better site-specific information; or justified operational procedures other than Firm Yield with written approval (via a Hydrologic Variance) from the Executive Administrator in order to better represent and therefore prepare for expected drought conditions.

RWPGs must use this checklist, which is intended to save time and reduce effort, to request a Hydrologic Variance for estimating the availability of surface water sources. For Questions 4 – 10, please indicate whether the requested variance is for determining Existing Supply, Strategy Supply, or both. Please complete a separate checklist for each river basin in which variances are being requested.

### Water Planning Region:E

1. Which major river basin does the request apply to? Please specify if the request only applies part of the basin or only to certain reservoirs.

Rio Grande Basin

2. Please give a brief, bulleted, description of the requested hydrologic variances including how the alternative availability assumptions vary from rule requirements, how the modifications will affect the associated annual availability volume(s) in the regional water plan, and why the variance is necessary or provides a better basis for planning. You must provide more-detailed descriptions in the subsequent checklist questions. Attach any available documentation supporting the request.
  - The demand pattern for irrigation rights above Fort Quitman will be modified so that diversions only occur from March through October. This change is consistent with the actual operation of the Rio Grande Project.
  - Variances proposed by Region F in the Balmorhea area in Reeves County in the Pecos Basin to reflect potential futile calls by downstream water rights.
3. Was this request submitted in a previous planning cycle? If yes, please indicate which cycle and note how it is different, if at all, from the previous request?

Yes

The same hydrologic variance requests were implemented in the 2021 Far West Texas Water Plan with the exception of corrections for cancelled or abandoned water rights. This correction is included in the updated Rio Grande WAM.

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<sup>1</sup> 31 Texas Administrative Code (TAC) §§ 357.10(14) and 357.32(c)



4. Are you requesting to extend the period of record beyond the current applicable WAM hydrologic period? If yes, please describe the proposed methodology. Indicate whether you believe there is a new drought of record in the basin.

No

Choose an item.

[Click or tap here to enter text.](#)

5. Are you requesting to use a reservoir safe yield? If yes, please describe in detail how the safe yield would be calculated and defined, which reservoir(s) it would apply to, and why the modification is needed or preferable for drought planning purposes.

No

Choose an item.

[Click or tap here to enter text.](#)

6. Are you requesting to use a reservoir yield other than firm yield or safe yield? If yes, please describe, in a bulleted list, each modification requested including how the alternative yield was calculated, which reservoir(s) it applies to, and why the modification is needed or preferable for drought planning purposes. Examples of alternative reservoir yield analyses may include using an alternative reservoir level, conditional reliability, or other special reservoir operations.

No

Choose an item.

7. Are you requesting to use a different model (such as a RiverWare or Excel-based models) than RUN 3 of the applicable TCEQ WAM? If yes, please describe the model being considered including how it incorporates water rights and prior appropriation and how it is more conservative than RUN 3 of the applicable TCEQ WAM.

No

Choose an item.



8. Are you requesting to use a modified TCEQ WAM? If yes, please describe in a bulleted list all modifications in detail including all specific changes to the WAM and whether the modified WAM is more conservative than the TCEQ WAM RUN 3. Examples of WAM modifications may include adding subordination agreements, contracts, updated water rights, modified spring flows, updated lake evaporation, updated sedimentation<sup>2</sup>, system or reservoir operations, or special operational procedures into the WAM.

Yes

Existing and Strategy Supply

These changes are detailed in Question 2. They are more conservative since they reflect actual operation.

9. Are you requesting to include return flows in the modeling? If yes, are you doing so to model an indirect reuse water management strategy (WMS)? Please provide complete details regarding the proposed methodology for determining reuse WMS availability.

No

Choose an item.

[Click or tap here to enter text.](#)

10. Are any of the requested Hydrologic Variances also planned to be used by another region for the same basin? If yes, please indicate the other Region. Please indicate if unknown.

Unknown

[Click or tap here to enter text.](#)

11. Please describe any other variance requests not captured on this checklist or add any other information regarding the variance requests on this checklist.

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 Utilities and El Paso County Water Improvement District #1.

---

<sup>2</sup> Updating anticipated sedimentation rates does not require a hydrologic variance under 31 TAC § 357.10(14). The Technical Memorandum will require providing details regarding the sedimentation methodology utilized. Please consider providing that information with this request.



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## Appendix H.2. TWDB Response to Region E Hydrologic Variance Request

December 21, 2023

Mr. Scott Reinert  
Chair  
Far West Texas Water Planning Group  
c/o Rio Grande Council of Governments  
8037 Lockheed, Suite 100  
El Paso, TX 79925

Dear Chairman Reinert:

I have reviewed your request dated October 25, 2023, for approval of alternative water supply assumptions to be used in determining existing and future surface water availability. This letter confirms that the TWDB approves the following assumptions:

1. In the Rio Grande Basin, estimate existing and strategy supplies from the Bureau of Reclamation's Rio Grande Project, including releases from Elephant Butte and Caballo Reservoirs, as well as run-of-river flows entering Texas from New Mexico, based on the lowest annual historical allotment delivered and available to El Paso Water Utilities and El Paso County Water Improvement District #1.
2. In the Rio Grande Basin, for the assessment for existing and strategy supplies, modify the demand pattern for irrigation rights above Fort Quitman so that diversions only occur from March to October.
3. Utilize the variances requested by the Region F RWPG and approved by the TWDB for existing supplies for the Balmorhea area in Reeves County in the Pecos Basin. These changes are related to San Solomon Springs and Griffin Springs flows, which in the current TCEQ WAM are being passed downstream instead of being used by water rights dependent on those springs.

While the use of these modified conditions may be reasonable for planning purposes, WAM RUN3 would be utilized by the Texas Commission on Environmental Quality for analyzing permit applications. It is acceptable to use the modified conditions for strategy supply evaluations only if the yield produced is more conservative (less) for surface water appropriations than WAM RUN3.

While the TWDB authorizes these modification to evaluate existing and future water supplies for development of the 2026 Region E RWP, it is the responsibility of the RWPG to ensure that the resulting estimates of water availability are reasonable for drought planning purposes and will reflect conditions expected in the event of actual drought

Chairman Reinert  
December 21, 2023  
Page 2

conditions; and in all other regards will be evaluated in accordance with the most recent version of regional water planning contract Exhibit C, *General Guidelines for Development of the 2026 Regional Water Plans*.

Please do not hesitate to contact Heather Rose of our Regional Water Planning staff at 512-475-1558 or [heather.rose@twdb.texas.gov](mailto:heather.rose@twdb.texas.gov) if you have any questions.

Sincerely,

Matt Nelson  
Deputy Executive Administrator

c: Annette Gutierrez, Rio Grande Council of Governments  
Jennifer Herrera, WSP  
Juan Acevedo, WSP  
Jon Albright, Freese and Nichols, Inc  
Lissa Gregg, Freese and Nichols, Inc (Region F)  
Heather Rose, Water Supply Planning  
Sarah Lee, Water Supply Planning  
Nelun Fernando, Ph.D., Surface Water



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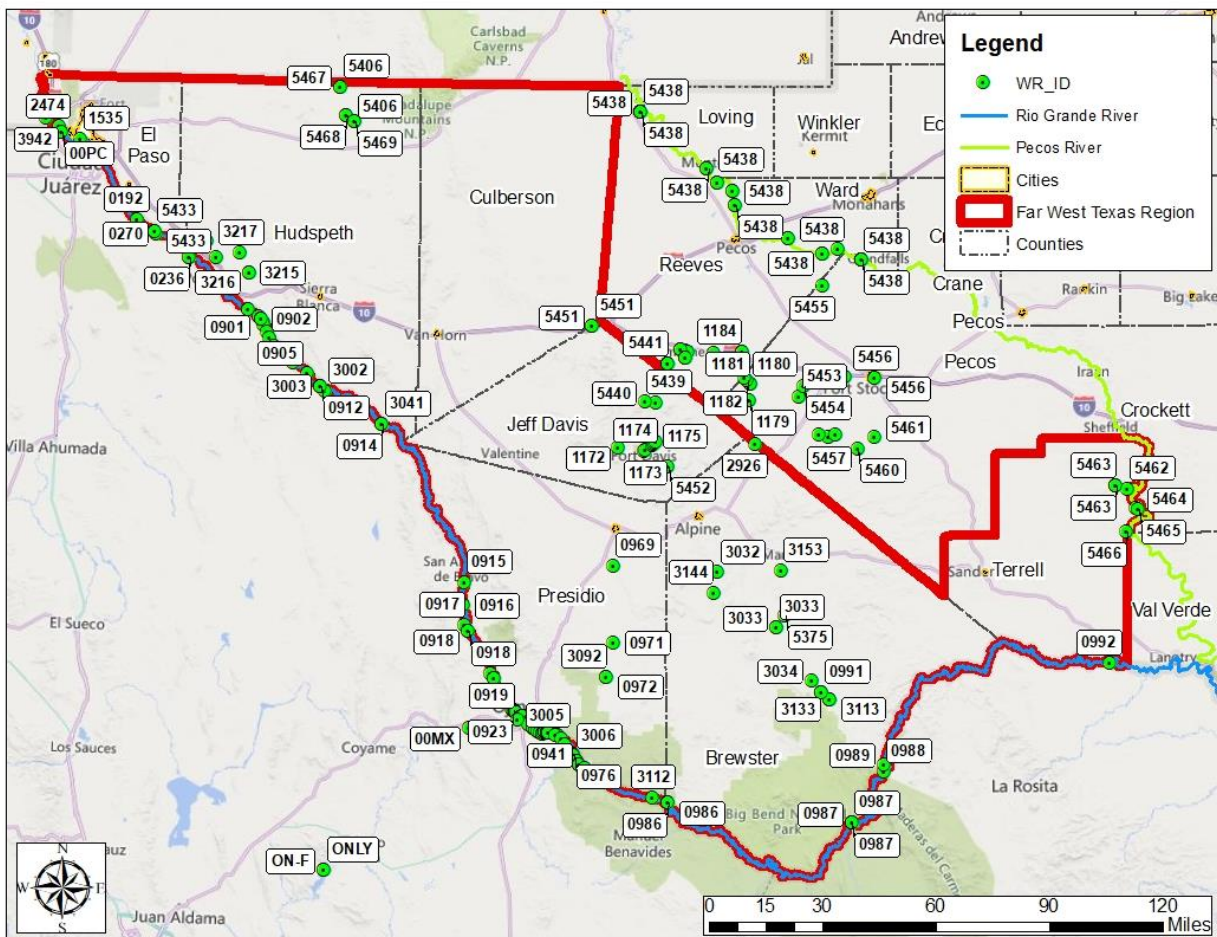
## Appendix I. Development of the Region E WAMs for Determining Surface Water Supplies

801 Cherry Street, Suite 2800 + Fort Worth, Texas 76102 + 817-735-7300 + FAX 817-735-7491

**TO:** File  
**CC:**  
**FROM:** Jon S. Albright  
**SUBJECT:** Region E 2026 Plan Modeling  
**DATE:** 4/4/2024  
**PROJECT:** GUT22180

This memorandum is an overview of the modeling done for the 2026 Region E Water Plan. This modeling follows procedures used in previous plans. The 2026 modeling uses the recently updated and extended TCEQ Rio Grande WAM Run 3, dated October 27, 2021. This version is identical to the version posted by TCEQ in October 2023. **Figure 1** show the location of water rights in Region E.

Figure 1: Location of Region E Water Rights





The only significant modification for Region E is changing the use pattern (UC Record) for irrigation rights upstream of Fort Quitman. **Table 1** shows the monthly coefficients. These values are multiplied by the annual target to determine demands for each month. **Table 2** shows the water rights affected by this change. The modified TCEQ WAM is referred to as the Region E WAM.

**Table 1: Monthly Use Pattern Upstream of Fort Quitman**

Month	Monthly Coefficient IRR-FQ
Jan	0
Feb	0
Mar	0.13486
Apr	0.11653
May	0.11442
Jun	0.1608
July	0.19216
Aug	0.17989
Sep	0.10122
Oct	0.00011
Nov	0
Dec	0

**Table 2: Control Points and Water Right Identifiers Upstream of Fort Quitman**

Control Point	Water Right Identifier
AT1010	62300902001
AT1020	62300901001
AT1040	62300900001
AT1040	62300900002
AT1190	12300236001
AT1230	12305433001

The Region E WAM also includes some modifications for sources in Reeves County that are used in Region F. These sources, located in the Balmorhea area, are used exclusively to supply local irrigation. Any water that would be passed downstream would be lost before it reaches the Pecos River, so these rights were disconnected from the rest of the basin. See Region F’s Technical Memo for a description of these modifications.

There are no major water supply reservoirs in Region E, so there is no need to perform sedimentation adjustments.

All supplies in Region E are based on the minimum annual diversion. Water supply in the Upper Rio Grande valley (El Paso and part of Hudspeth Counties) comes from the Bureau of Reclamation’s Rio Grande Project

(Elephant Butte and Caballo Reservoirs), located in New Mexico. The supply from this source in the Rio Grande WAM is represented by historical releases from this project. It is not explicitly modeled. Therefore, it is appropriate to use the minimum annual supplies. Other supplies in the region are small irrigation rights.

**Table 3** shows the surface water supplies from the analysis compared to the 2021 Plan. The changes in supply are due to the extension of the WAM and corrections to the hydrology in the upper Rio Grande. These supplies are only from natural runoff and do not include return flows.

***Table 3: Summary of Region E Surface Water Supplies by County***

<b>County</b>	<b>2026 Plan</b>	<b>2021 Plan</b>
Brewster	7,759	7,774
El Paso	44,270	46,605
Hudspeth	916	725
Presidio	10,452	10,218
Terrell	432	441
<b>Total</b>	<b>63,829</b>	<b>65,763</b>



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## Appendix J. Model Input and Output Files for the Region E WAMs

Region E 2026 WAM Model Input and Output Files

<b>Folder Name</b>	<b>Description</b>	<b>Use</b>	<b>Version Date*</b>	<b>Simulation Date</b>
WAM Files	Rio Grande WAM Run 3, modified in accordance with approved Hydrologic Variance Request.	Used to determine run-of-river supplies.	10/27/2021	12/20/2023

\* Identical to October 2023 version on TCEQ website.



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## Appendix K. Region E Groundwater Source Availability Methodology



Region E 2026 Groundwater Source Availability Methodology

Water Supply Source	County	Methodology
Hueco-Mesilla Bolson	El Paso	GMA Non-DFC process. RWPG approved values. Same as the 2021 RWP. 90% of Hueco total from Hutchison model plus 25,000 acre-feet from Mesilla.
	Hudspeth	GMA Non-DFC process. RWPG approved values. Same as the 2021 RWP. 10% of Hueco total based on Hutchison model.
Edwards-Trinity (Plateau)	Brewster	GMA 4 MAG
	Culberson	GCD (non-relevant) TWDB modeled
	Jeff Davis	
	Terrell	MAG
Bone Spring - Victorio Peak	Hudspeth	GMA 4 MAG
Capitan Reef Complex	Brewster	GMA 4 MAG
	Culberson	
	Jeff Davis	GCD Non-Relevant TWDB-Null
	Hudspeth	GCD Non-Relevant (TWDB-Null). The average between the max. 8-year annual historical pumpage use (2008-2015) that was utilized in the 2021 Plan (8,695 acre-feet = 2008); and the max. 11-year annual historical pumpage use (2011-2021) that was reviewed for the development of the 2026 Plan (2,120 acre-feet = 2011). This data is provided by the TWDB groundwater historical pumpage use surveys.
Igneous	Brewster	GMA 4 MAG
	Culberson	
	Jeff Davis	
	Presidio	
Marathon	Brewster	GMA 4 MAG
Rustler	Brewster	GCD Non-Relevant (TWDB modeled)
	Culberson	
	Jeff Davis	



(continued) Region E 2026 Groundwater Source Availability Methodology

Water Supply Source	County	Methodology
West Texas Bolson (Red Light Draw)	Hudspeth	GCD Non-Relevant. GAM recharge from TWDB Contract Report (June 2004).
West Texas Bolson (Eagle Flat)	Hudspeth	
West Texas Bolson (Green River Valley)	Hudspeth	
West Texas Bolson (Green River Valley)	Jeff Davis	
West Texas Bolson (Green River Valley)	Presidio	
West Texas Bolson (Presidio-Redford)	Presidio	MAG
West Texas Bolson (Upper Salt Basin)	Hudspeth	GCD Non-Relevant (TWDB-Null). The average between the max. 8-year annual historical pumpage use (2008-2015) that was utilized in the 2021 Plan (429 acre-feet = 2008); and the max. 11-year annual historical pumpage use (2011-2021) that was reviewed for the development of the 2026 Plan (212 acre-feet = 2011). This data is provided by the TWDB groundwater historical pumpage use surveys.
	Culberson	GCD Non-Relevant (TWDB-Null). TWDB Report AA 10-38 MAG.



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## Appendix L. List of Potentially Feasible Water Management Strategies





Region E 2026 List of Potentially Feasible Water Management Strategies

County	Water User Group	Strategy	Source
Brewster	City of Alpine	Modification to wastewater treatment facility & irrigation system	Direct Non-Potable Reuse
		Irrigation and recharge application of captured rainwater runoff	Demand Reduction
	Marathon WSS Service	Water loss audit and main-line repair	Demand Reduction
	Lajitas Municipal Services	Water loss audit and main-line repair	Demand Reduction
	Brewster County Other (Study Butte Terlingua WS)	Water loss audit and main-line repair	Demand Reduction
Culberson	*Culberson County Irrigation	Irrigation scheduling	Demand Reduction
		Additional groundwater wells	West Texas Bolsons Aquifer / Upper Salt Flat
El Paso	Town of Anthony	Arsenic treatment facility	Mesilla Bolson Aquifer
		Additional groundwater well	Hueco-Mesilla Bolson Aquifer
	*El Paso Water	Municipal conservation programs	Demand Reduction
		Advanced water purification at the Bustamante WWTP	Direct Potable Reuse
		Hueco Bolson artificial recharge	Hueco Bolson Aquifer
		Groundwater from Dell City Area (Phase 1)	Capitan Reef Complex Aquifer
		Groundwater from Dell City Area (Phase 2)	Bone Spring-Victorio Peak Aquifer
	*El Paso Water ALTERNATE STRATEGIES	Treatment and reuse of agricultural drain water	Agricultural drain water
		Expansion of the Kay Bailey Hutchison Desal Plant	Hueco Bolson Aquifer
		Expansion of Canutillo Mesilla Bolson Well Field	Hueco-Mesilla Bolson Aquifer
		Riverside Regulating Reservoir	Rio Grande & Stormwater Run-off
		Lower Valley well head RO	Rio Grande Alluvium Aquifer
		Expansion of Jonathan Rogers WTP	Rio Grande
		Conjunctive treatment of groundwater and surface water at the Upper Valley WWTP	Rio Grande
		Advanced water purification at the Haskell Street RWP	Direct Potable Reuse
Advanced water purification at the Fred Hervey WWTP	Direct Potable Reuse		



(continued) Region E 2026 List of Potentially Feasible Water Management Strategies

County	Water User Group	Strategy	Source
El Paso	*Lower Valley Water District	Public conservation education	Demand Reduction
		Purchase water from EPW	EPW Blended Source
		Surface water treatment plant & transmission line	Rio Grande
		Groundwater from proposed Well field	Rio Grande Alluvium Aquifer
		Groundwater from proposed Well field	Hueco Bolson Aquifer
		Wastewater treatment facility and ASR	Reuse Treated Wastewater
	*Horizon Regional MUD	Water loss audit and main-line repair	Demand Reduction
		Public conservation education	Demand Reduction
		Additional wells & expansion of desalination plant	Hueco Bolson & Rio Grande Alluvium Aquifers
	Haciendas Del Norte WID	Water loss audit and main-line repair	Demand Reduction
	East Montana WS	Water loss audit and main-line repair	Demand Reduction
	El Paso County Tornillo WID	Additional groundwater well & transmission line	Hueco Bolson Aquifer
	*El Paso County Other (Vinton Hills)	Public conservation education	Demand Reduction
		Purchase water from EPW	EPW Blended Source
	*El Paso County Irrigation (EPCWID #1)	Irrigation scheduling	Demand Reduction
		Tailwater reuse	Demand Reduction
		Improvements to water district delivery system	Demand Reduction
		Riverside Regulating Reservoir	Rio Grande & Stormwater Run-off
		New Wasteway 32 River Diversion Pumping Point	Rio Grande
	*El Paso County Manufacturing	Purchase water from EPW	EPW Blended Source
*El Paso County Mining	Additional groundwater wells	Hueco-Mesilla Bolson Aquifer	
*El Paso County Steam Electric Power	Purchase water from EPW	EPW Blended Source	



(continued) Region E 2026 List of Potentially Feasible Water Management Strategies

County	Water User Group	Strategy	Source
Hudspeth	Hudspeth County Other (Dell City)	Brackish groundwater desal facility	Bone Spring-Victorio Peak Aquifer
	*Hudspeth County Other (City of Sierra Blanca - Hudspeth Co. WCID #1)	Public conservation education	Demand Reduction
		Replace water-supply line from Van Horn	West Texas Bolsons Aquifer / Wild Horse Flat
		Local groundwater well	Diablo Plateau Aquifer
		Groundwater well NE of Van Horn	West Texas Bolsons Aquifer / Wild Horse Flat
		Groundwater well West of Van Horn	Diablo Plateau Aquifer
	*Hudspeth County Mining	Additional groundwater well	West Texas Bolsons Aquifer / Eagle Flat
Jeff Davis	Fort Davis WSC	Additional groundwater well	Igneous Aquifer
		Transmission line to connect Fort Davis WSC to Fort Davis Estates	Igneous Aquifer
	Jeff Davis County Other (Town of Valentine)	Additional groundwater well	West Texas Bolsons Aquifer / Salt Basin
Presidio	City of Presidio	Water loss audit and main-line repair	Demand Reduction
		Additional groundwater well	West Texas Bolsons Aquifer / Presidio-Redford
Terrell	*Terrell County Mining <b>ALTERNATE STRATEGY</b>	Additional groundwater wells	Edwards-Trinity (Plateau) Aquifer



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## Appendix M. List of Infeasible Water Management Strategies and Water Management Strategy Projects from the 2021 Far West Texas Water Plan

No Water Management Strategies or Water Management Strategy Projects from the 2021 Far West Texas Water Plan have been identified as infeasible by the FWTWPG.