



2021 Llano Estacado
Region O
Regional Water Plan

Technical Memorandum

September 2018



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2021 Llano Estacado (Region O) Regional Water Plan

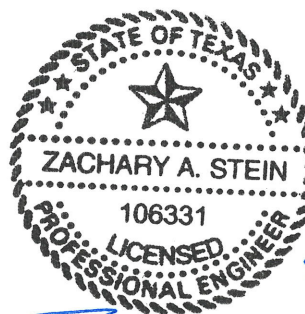
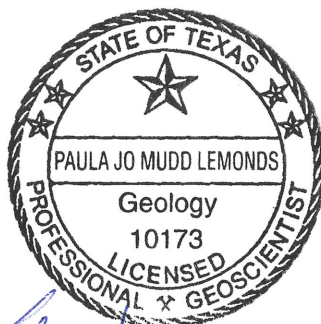
Technical Memorandum

September 2018



Paula Jo Mudd Lemonds 9/7/2018

Paula Jo Lemonds, P.E., P.G.



Zachary A. Stein 9/7/2018

Zachary A. Stein, P.E.

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Memo

Date: September 10, 2018

Project: 2021 Llano Estacado (Region O) Regional Water Plan

To: Texas Water Development Board

From: Paula Jo Lemonds, PE, PG, Grady Reed, and Zach Stein, PE - HDR,
on behalf of the Llano Estacado (Region O) Regional Water Planning Group

Subject: **2021 Regional Water Plan Technical Memorandum**

Introduction

The Texas Water Development Board (TWDB) regional water plan development guidance,¹ requires that a Technical Memorandum be submitted to the TWDB. The Llano Estacado Regional Water Planning Group (LERWPG) submits this memorandum to fulfill the TWDB requirements for the 2021 Regional Water Plan (RWP) development. This memorandum includes documentation of the LERWPG's preliminary analysis of water demand projections, water availability, existing water supplies, and water needs and a declaration of the LERWPG's intent not to pursue simplified planning.

At a regular meeting of the LERWPG on August 8, 2018, and during a public comment period 14 days following the meeting, the LERWPG received comments from the public. No public comments were received at the LERWPG meeting or during the official comment period.

1.0 TWDB DB22 Reports

The TWDB's regional water plan development guidance,² describes the State Water Planning Database (DB22) as the tool that "will synthesize regions' data and provide summary reports that shall be incorporated into the Technical Memorandum, 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 DB22 interface, all data generated or updated during the current cycle of planning to the TWDB in accordance with TWDB specifications prior to submitting the Technical Memorandum and IPP.

This section includes the following TWDB DB22 reports that are required for the Technical Memorandum:

- Population Projections (TWDB DB22 Report #1),
- Water Demand Projections (TWDB DB22 Report #2),
- WUG Category Summary (TWDB DB22 Report #3),
- Source Water Availability (TWDB DB22 Report #4),

¹ TWDB, 2018. Second Amended General Guidelines for Fifth Cycle of Regional Water Plan Development.

² Ibid.

- WUG Existing Water Supplies (TWDB DB22 Report #5),
- WUG Identified Water Needs/Surpluses (TWDB DB22 Report #6),
- Source Water Balance (TWDB DB22 Report #9),
- WUG Data Comparison to 2016 RWP (TWDB DB22 Report #10a), and
- Source Data Comparison to 2016 RWP (TWDB DB22 Report #10b)

TWDB DB22 Report Numbers 7 and 8 will be developed at a later date for inclusion into the 2021 RWP. Data entered by RWPGs into DB22 is rounded to the nearest whole number to avoid cumulative data errors.

1.1 WUG Population Projections

The TWDB DB22 WUG population projection report presenting population projections by WUG, county, and river basin are included in Appendix A.

1.2 WUG Water Demand Reports

The TWDB DB22 water demand report presenting water demand projections by WUG, county, and river basin are included in Appendix B.

1.3 WUG Category Summary Report

The TWDB DB22 WUG Category Summary report presenting population, demands, supplies, and needs by WUG category is included in Appendix C.

1.4 Source Water Availability Report

The TWDB DB22 Source Water Availability report presenting water availability by source is included in Appendix D.

1.5 WUG Existing Water Supplies Report

The TWDB DB22 Existing Water Supplies report presenting existing water supplies by WUG, county, and river basin is included in Appendix E.

1.6 WUG Identified Water Needs/Surpluses Report

The TWDB DB22 Identified Water Needs/Surpluses report presenting identified water needs by WUG, county, and river basin is included in Appendix F.

1.7 Source Water Balance Report

The TWDB DB22 Source Water Balance report with the condition that the total has to be zero or greater than zero, except for those sources that are thereby revealed in IPPs as potentially overallocated and create potential interregional conflicts, is included in Appendix G.

1.8 WUG Data Comparison to 2016 RWP Report

The TWDB DB22 WUG Data Comparison report presents availability, supply, demands, and needs compared to the 2016 RWP report is included in Appendix H.

1.9 Source Data Comparison to 2016 RWP Report

The TWDB DB22 Comparison of Availability, Supply, Demands, and Needs to 2016 RWP report presenting sources at an aggregated level and WUG supplies, demands, and needs at a county level is included in Appendix I.

2.0 Surface Water Availability

The LERWPG met on January 23, 2018, and discussed the process to determine the amount of surface water available from existing water rights and future water management strategies. During this meeting, Region O discussed specific variations from the standard TWDB guidance that will be employed to develop the 2021 LERWP.

The guidance provided by the TWDB in the base scope of work for the Fifth Cycle of Regional Water Planning requires the use of the Run 3 (full authorization) version of Water Availability Models (WAMs) maintained by the Texas Commission on Environmental Quality (TCEQ). These river-basin-scale models are used by the TCEQ for evaluating legal water available to applications for new or amended water rights, and as such, include some aspects that are not appropriate for water planning. This section includes model modification assumptions and yields used in developing the 2021 Llano Estacado Regional Water Plan.

2.1 Written Summary of Water Availability Models

Information regarding the WAM simulations used in determining surface water availability are included in this section. The model input and output files used to date are submitted with this memorandum as an electronic appendix, Appendix J.

For Red River Basin WAM simulations, the unmodified WAM was used. The Red River WAM ends in 1998 and does not include the most recent drought, so run of river reliabilities may be less than the modeled values.

Hydrologic Variances

In a letter dated March 28, 2018, Region O requested that the TWDB allow specific variations from the base TCEQ WAMs for analyses that determine surface water available to existing rights. In a letter dated May 18, 2018, TWDB approved the variances as described in this section.

For Lake Alan Henry (LAH) analyses, Region O received approval from the TWDB to conduct analyses using a stand-alone WAM developed specifically for LAH. In response to the ongoing drought in the mid-2000s, the City of Lubbock requested that HDR perform a yield analysis of LAH that extended through 2006 in order to better account for the impacts of that drought cycle. Additionally, a recent (2005) hydrographic survey of LAH by the TWDB indicates that the capacity of LAH has been reduced from its permitted capacity of 115,937 to 94,808 acre-feet (acft). This is due to sedimentation in the reservoir pool and inaccuracies in the determination of the storage capacity during initial construction.

Region O also received approval from the TWDB to conduct analyses using the TCEQ Brazos River Basin WAM as modified by the Brazos G Regional Water Planning Group (Brazos G WAM) for determining surface water reliabilities for the sake of inter-regional consistency. This model includes limited return flows for its reliability evaluations. A complete summary of the approved modifications

to the Brazos G WAM approved by the TWDB for use in the regional water planning process for Region G and Region O are included in Appendix K and Appendix L, respectively. These appendices include both the hydrologic variance request from the respective planning group and the subsequent approval letter from the TWDB.

2.2 Versions and Dates of WAM Simulations

This section lists the versions and dates of WAM simulations completed to calculate available surface water supply for Region O.

Brazos River Basin

For Brazos River Basin supply calculations, three models were used:

1. Unmodified Brazos WAM (TCEQ Run 3 including updated sediment conditions),
2. Brazos G WAM modified with TWDB-approved hydrologic variances,
3. Lake Alan Henry WAM (reservoir-specific model with TWDB-approved hydrologic variances)

The modifications to the Brazos WAM simulations are described in Section 2.1. Table 2-1 summarizes the yield simulations completed.

Note that the unmodified WAM yields for Lake Alan Henry are much lower, even though they do not include hydrology from the new drought. The reason for this is that the Possum Kingdom Reservoir subordination is not included in the unmodified WAM. A subordination agreement states that contrary to the normal prior appropriation water right permit system in effect in general, as an exception, a water right is not required to curtail diversions or storage to pass inflows through its reservoir to maintain stream flows for a senior right.³ A Brazos G WAM simulation for Lake Alan Henry was not completed because the Lake Alan Henry WAM was created specifically to determine the supply available from Lake Alan Henry.

Red River Basin

For Red River Basin WAM simulations, the unmodified WAM was used.

Dates of WAM Simulations

The yield simulations were run on July 23, 2018, and August 6, 2018, by HDR staff.

³ Wurbs, Ralph A., 2015. Water Rights Analysis Package (WRAP) Modeling System Reference Manual. TR-255, Texas Water Resources Institute, College Station, Texas.

Table 2-1. Summary of WAM simulations completed to date

River Basin	Model	Reservoir / Water Body	Firm that Performed Model Run	Date of Model Run	Decade and Type of Yield	Yield (acre-feet/year)
Brazos	Unmodified Brazos WAM	Lake Alan Henry	HDR	July 23, 2018	2020 Firm	10,800
					2070 Firm	10,400
	Lake Alan Henry WAM	Lake Alan Henry	HDR	July 23, 2018	2020 Firm	21,050
					2070 Firm	20,400
	Lake Alan Henry WAM	Lake Alan Henry	HDR	July 23, 2018	2020 2-Yr Safe	13,275
					2070 2-Yr Safe	12,250
Unmodified Brazos WAM	White River	HDR	August 6, 2018	2020 and 2070 Firm	0	
Brazos G WAM	Brazos Run of River	HDR	August 6, 2018	2020 and 2070	0	
Red	Unmodified Red WAM	Mackenzie	HDR	August 6, 2018	2020 and 2070	4,530
	Unmodified Red WAM	Red Run of River	HDR	August 6, 2018	2020 and 2070	137

3.0 Groundwater Availability

The LERWPG uses the established modeled available groundwater (MAG) values for the Regional Water Planning Area (RWPA) in development of the 2021 Region O RWP.

Non-MAG Availability

MAG reports for the Region O RWPA did not include availabilities for “Other Aquifer.” To calculate RWPG-estimated availability, or non-MAG availability, for the “Other Aquifer” designation in the 2021 Regional Water Plan, the methodology used includes the following assumptions.

- Groundwater capacity is determined based upon historical groundwater pumpage reports available from the TWDB.
- Historical pumpage is reported for river basin portions of each county by aquifer for the time period 2007 through 2015.
- Well capacity is assumed to be the maximum annual pumpage during this time period.

4.0 Identification of Potentially Feasible Water Management Strategies

TWDB rules require that the process for identifying potentially feasible Water Management Strategies (WMSs) be documented at a public meeting (31 TAC §357.12(b)). This section describes the documented process used by the LERWPG to identify potentially feasible WMSs. On January 23, 2018, the LERWPG formally considered the process for identifying, evaluating and selecting WMSs as described below.

Process for identifying, evaluating and selecting WMSs:

1. Potentially include strategies identified in previous plans.
 - a. Potentially include recommended and alternative strategies from 2016.
 - b. Potentially include strategies evaluated, but not recommended in 2016.
 - c. Potentially include strategies evaluated in previous Plans that were not moved forward.
2. Identify draft needs and develop additional ideas to meet those needs.
3. Maintain ongoing communication from local interests through the regional water planning process.

Then, an initial list of potentially feasible strategies is determined. Additional WMSs are included if local interests request them and the planning schedule and budget allow for the addition.

5.0 Potentially Feasible Water Management Strategies

A single tabular list of all potentially feasible WMSs identified by the LERWPG to date is included in Table 5-1.

Table 5-1. Tabular list of potentially feasible WMSs identified by the LERWPG to date

Potentially Feasible Water Management Strategies
Municipal water conservation
Non-municipal water conservation
Reclaimed wastewater supplies and reuse
Local groundwater development
Water loss reduction
Groundwater desalination
LAH Water District Water Supply
Bailey County Well Field capacity maintenance
Jim Bertram Lake 7
Lake Alan Henry Phase 2
North Fork scalping operation
South Lubbock well field
Potable reuse
Wolfforth CRMWA lease from Slaton
Direct potable reuse to North Water Treatment Plant
Direct potable reuse to South Water Treatment Plant
North Fork diversion at CR 7300
North Fork diversion to Lake Alan Henry pump station
Post Reservoir
Reclaimed water to aquifer storage and recovery
South Fork discharge
Transportation of water between counties of surplus and need
Brackish well field in Lubbock area
CRMWA aquifer storage and recovery
CRMWA II (Roberts County Wellfield)
Chloride control project
Enhanced recharge project

6.0 Simplified Planning Declaration

The TWDB guidelines for planning⁴ state:

The Senate Bill 1511, 85th Legislative Session, provided RWPGs the option to implement simplified planning if there are no significant changes to the water availability, water supplies, or water demands in the regional water planning area. The TWDB has revised 31 TAC §357.10(33) to define the Technical Memorandum and 31 TAC §357.12 to add this

⁴ TWDB, 2018. Second Amended General Guidelines for Fifth Cycle of Regional Water Plan Development.

new simplified planning provision to the previously existing simplified planning rule, which had required that an RWPG determine in its analysis of water needs that there are sufficient existing water supplies in the regional water planning area to meet water needs for the 50-year planning period. The rule identifies the Technical Memorandum (the mid-point analysis of water demand projections, source availability, WUG supplies, and WUG needs calculations) as the decision point for an RWPG to declare its intent whether or not to pursue simplified planning in accordance with either simplified planning provision (adequate existing supplies or no significant changes in water demands, source availability, or WUG supplies). The threshold(s) for significant changes are to be defined by the RWPG however, significance may not be based solely on aggregated, region-wide comparisons without consideration of sub-regional changes. Simplified planning, by either provision, may only be implemented during off-census planning cycles.

The LERWPG will not pursue simplified planning for the development of the 2021 Region O RWP.

7.0 Summary of Public Comments

To comply with the TWDB Regional Water Planning Rules [31 TAC Section 357.21(c)(7)(C)], written comments from the public were accepted for a period of 14 days prior to and 14 days after the meeting where this Technical Memorandum was considered for approval by the LERWPG. Public comments were also accepted at the meeting where this Technical Memorandum was considered for approval by the LERWPG, held on August 8, 2018. No public comments were received at the meeting or during the official comment period.

Appendix A. TWDB DB22 Report #1 – WUG Population Projections

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Region O Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
MULESHOE	5,769	6,452	7,131	7,833	8,527	9,208
COUNTY-OTHER	2,243	2,510	2,775	3,047	3,317	3,582
BRAZOS BASIN TOTAL	8,012	8,962	9,906	10,880	11,844	12,790
BAILEY COUNTY TOTAL	8,012	8,962	9,906	10,880	11,844	12,790
QUITAQUE	420	420	420	420	420	420
SILVERTON	754	755	755	755	755	755
COUNTY-OTHER	499	498	498	498	498	498
RED BASIN TOTAL	1,673	1,673	1,673	1,673	1,673	1,673
BRISCOE COUNTY TOTAL	1,673	1,673	1,673	1,673	1,673	1,673
DIMMITT	4,825	5,237	5,533	5,806	6,019	6,191
HART MUNICIPAL WATER SYSTEM	1,194	1,296	1,369	1,437	1,489	1,532
COUNTY-OTHER	1,398	1,518	1,603	1,683	1,745	1,794
BRAZOS BASIN TOTAL	7,417	8,051	8,505	8,926	9,253	9,517
NAZARETH	352	382	404	423	439	452
COUNTY-OTHER	1,121	1,217	1,285	1,349	1,399	1,438
RED BASIN TOTAL	1,473	1,599	1,689	1,772	1,838	1,890
CASTRO COUNTY TOTAL	8,890	9,650	10,194	10,698	11,091	11,407
MORTON PWS	2,168	2,224	2,216	2,166	2,216	2,230
WHITEFACE	501	529	533	526	541	546
COUNTY-OTHER	490	557	577	581	605	615
BRAZOS BASIN TOTAL	3,159	3,310	3,326	3,273	3,362	3,391
COUNTY-OTHER	332	377	391	394	410	416
COLORADO BASIN TOTAL	332	377	391	394	410	416
COCHRAN COUNTY TOTAL	3,491	3,687	3,717	3,667	3,772	3,807
CROSBYTON	1,922	2,067	2,188	2,311	2,444	2,563
LORENZO	1,260	1,380	1,480	1,583	1,704	1,786
RALLS	2,075	2,223	2,343	2,465	2,590	2,717
COUNTY-OTHER	1,263	1,347	1,415	1,484	1,554	1,641
BRAZOS BASIN TOTAL	6,520	7,017	7,426	7,843	8,292	8,707
COUNTY-OTHER	6	6	7	7	7	8
RED BASIN TOTAL	6	6	7	7	7	8
CROSBY COUNTY TOTAL	6,526	7,023	7,433	7,850	8,299	8,715
ODONNELL	128	134	139	142	148	151
COUNTY-OTHER	30	33	35	36	38	40
BRAZOS BASIN TOTAL	158	167	174	178	186	191
LAMESA	9,755	10,098	10,333	10,377	10,678	10,874
COUNTY-OTHER	4,894	5,312	5,670	5,885	6,234	6,510
COLORADO BASIN TOTAL	14,649	15,410	16,003	16,262	16,912	17,384
DAWSON COUNTY TOTAL	14,807	15,577	16,177	16,440	17,098	17,575
COUNTY-OTHER	8	9	11	12	13	15

Region O Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
CANADIAN BASIN TOTAL	8	9	11	12	13	15
HEREFORD	17,150	19,799	22,694	25,978	28,558	31,379
COUNTY-OTHER	4,993	5,765	6,609	7,564	8,316	9,137
RED BASIN TOTAL	22,143	25,564	29,303	33,542	36,874	40,516
DEAF SMITH COUNTY TOTAL	22,151	25,573	29,314	33,554	36,887	40,531
SPUR	1,041	1,041	1,041	1,041	1,041	1,041
COUNTY-OTHER	894	890	886	882	878	875
BRAZOS BASIN TOTAL	1,935	1,931	1,927	1,923	1,919	1,916
RED RIVER AUTHORITY OF TEXAS	45	50	55	59	64	68
COUNTY-OTHER	184	183	182	182	181	180
RED BASIN TOTAL	229	233	237	241	245	248
DICKENS COUNTY TOTAL	2,164	2,164	2,164	2,164	2,164	2,164
FLOYDADA	3,242	3,242	3,242	3,242	3,242	3,242
LOCKNEY	2,029	2,156	2,236	2,321	2,388	2,444
COUNTY-OTHER	1,070	1,270	1,396	1,534	1,641	1,730
BRAZOS BASIN TOTAL	6,341	6,668	6,874	7,097	7,271	7,416
COUNTY-OTHER	528	626	689	757	810	854
RED BASIN TOTAL	528	626	689	757	810	854
FLOYD COUNTY TOTAL	6,869	7,294	7,563	7,854	8,081	8,270
SEAGRAVES	2,558	2,700	2,871	3,060	3,164	3,273
SEMINOLE	7,102	7,893	8,834	9,855	10,648	11,475
COUNTY-OTHER	11,656	15,153	19,292	23,739	27,854	32,138
COLORADO BASIN TOTAL	21,316	25,746	30,997	36,654	41,666	46,886
GAINES COUNTY TOTAL	21,316	25,746	30,997	36,654	41,666	46,886
POST	6,012	6,452	6,841	7,098	7,466	7,770
COUNTY-OTHER	1,065	1,058	1,058	1,068	1,103	1,135
BRAZOS BASIN TOTAL	7,077	7,510	7,899	8,166	8,569	8,905
GARZA COUNTY TOTAL	7,077	7,510	7,899	8,166	8,569	8,905
ABERNATHY	2,263	2,360	2,401	2,381	2,444	2,469
HALE CENTER	2,252	2,252	2,252	2,252	2,252	2,252
PETERSBURG MUNICIPAL WATER SYSTEM	1,252	1,306	1,329	1,317	1,352	1,366
PLAINVIEW	24,624	25,685	26,123	25,905	26,587	26,874
COUNTY-OTHER	7,923	8,362	8,542	8,452	8,734	8,853
BRAZOS BASIN TOTAL	38,314	39,965	40,647	40,307	41,369	41,814
HALE COUNTY TOTAL	38,314	39,965	40,647	40,307	41,369	41,814
ANTON	1,235	1,313	1,361	1,370	1,431	1,470
LEVELLAND	14,839	15,785	16,359	16,467	17,202	17,676
COUNTY-OTHER	7,273	7,739	8,021	8,072	8,434	8,665
BRAZOS BASIN TOTAL	23,347	24,837	25,741	25,909	27,067	27,811
SUNDOWN	1,538	1,636	1,696	1,707	1,783	1,832

Region O Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	245	261	270	272	284	292
COLORADO BASIN TOTAL	1,783	1,897	1,966	1,979	2,067	2,124
HOCKLEY COUNTY TOTAL	25,130	26,734	27,707	27,888	29,134	29,935
AMHERST	799	877	930	963	1,018	1,059
EARTH	1,099	1,125	1,131	1,118	1,134	1,137
LITTLEFIELD	6,642	6,642	6,642	6,642	6,642	6,642
OLTON	2,250	2,275	2,266	2,218	2,229	2,217
SUDAN	1,042	1,127	1,182	1,213	1,273	1,316
COUNTY-OTHER	2,783	3,129	3,287	3,265	3,495	3,604
BRAZOS BASIN TOTAL	14,615	15,175	15,438	15,419	15,791	15,975
LAMB COUNTY TOTAL	14,615	15,175	15,438	15,419	15,791	15,975
ABERNATHY	786	874	961	1,054	1,142	1,229
IDALOU	2,425	2,534	2,647	2,772	2,883	2,993
LUBBOCK	261,706	294,862	329,597	356,227	381,205	403,901
NEW DEAL	869	951	1,036	1,125	1,210	1,294
RANSOM CANYON	1,171	1,257	1,344	1,438	1,525	1,612
SHALLOWATER	2,820	3,192	3,562	3,956	4,334	4,709
SLATON	6,179	6,257	6,352	6,467	6,547	6,621
WOLFFORTH	4,577	5,577	6,569	7,614	8,633	9,647
COUNTY-OTHER	29,236	28,473	26,252	34,285	42,291	52,310
BRAZOS BASIN TOTAL	309,769	343,977	378,320	414,938	449,770	484,316
LUBBOCK COUNTY TOTAL	309,769	343,977	378,320	414,938	449,770	484,316
ODONNELL	765	805	807	803	843	862
TAHOKA PUBLIC WATER SYSTEM	2,832	2,978	2,987	2,973	3,122	3,190
COUNTY-OTHER	2,601	2,737	2,745	2,733	2,870	2,931
BRAZOS BASIN TOTAL	6,198	6,520	6,539	6,509	6,835	6,983
COUNTY-OTHER	81	85	85	85	89	91
COLORADO BASIN TOTAL	81	85	85	85	89	91
LYNN COUNTY TOTAL	6,279	6,605	6,624	6,594	6,924	7,074
MATADOR	643	643	643	643	643	643
RED RIVER AUTHORITY OF TEXAS	23	26	28	31	33	35
COUNTY-OTHER	546	543	541	538	536	534
RED BASIN TOTAL	1,212	1,212	1,212	1,212	1,212	1,212
MOTLEY COUNTY TOTAL	1,212	1,212	1,212	1,212	1,212	1,212
BOVINA	2,082	2,304	2,506	2,701	2,931	3,142
FARWELL	1,507	1,668	1,813	1,956	2,122	2,274
COUNTY-OTHER	1,980	2,193	2,383	2,570	2,789	2,989
BRAZOS BASIN TOTAL	5,569	6,165	6,702	7,227	7,842	8,405
FRIONA	4,437	4,913	5,340	5,759	6,251	6,698

Region O Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	1,418	1,570	1,706	1,841	1,998	2,141
RED BASIN TOTAL	5,855	6,483	7,046	7,600	8,249	8,839
PARMER COUNTY TOTAL	11,424	12,648	13,748	14,827	16,091	17,244
COUNTY-OTHER	384	403	409	407	427	436
BRAZOS BASIN TOTAL	384	403	409	407	427	436
HAPPY	649	682	692	687	721	738
TULIA	4,879	5,123	5,198	5,166	5,422	5,542
COUNTY-OTHER	2,345	2,462	2,499	2,484	2,605	2,664
RED BASIN TOTAL	7,873	8,267	8,389	8,337	8,748	8,944
SWISHER COUNTY TOTAL	8,257	8,670	8,798	8,744	9,175	9,380
COUNTY-OTHER	69	72	77	74	78	82
BRAZOS BASIN TOTAL	69	72	77	74	78	82
BROWNFIELD	10,000	10,700	11,300	12,250	12,800	13,300
COUNTY-OTHER	3,530	3,685	3,944	3,784	3,969	4,153
COLORADO BASIN TOTAL	13,530	14,385	15,244	16,034	16,769	17,453
TERRY COUNTY TOTAL	13,599	14,457	15,321	16,108	16,847	17,535
DENVER CITY	5,072	5,736	6,327	6,955	7,618	8,249
PLAINS	1,702	1,926	2,124	2,335	2,557	2,769
COUNTY-OTHER	2,146	2,427	2,677	2,942	3,226	3,493
COLORADO BASIN TOTAL	8,920	10,089	11,128	12,232	13,401	14,511
YOAKUM COUNTY TOTAL	8,920	10,089	11,128	12,232	13,401	14,511
REGION O TOTAL POPULATION	540,495	594,391	645,980	697,869	750,858	801,719

Appendix B. TWDB DB22 Report #2 – WUG Water Demand Projections

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Region O Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MULESHOE	1,173	1,283	1,397	1,523	1,655	1,787
COUNTY-OTHER	277	296	320	351	381	411
LIVESTOCK	2,428	2,821	3,070	3,341	3,639	3,958
IRRIGATION	88,108	88,108	72,000	63,505	58,659	55,616
BRAZOS BASIN TOTAL	91,986	92,508	76,787	68,720	64,334	61,772
BAILEY COUNTY TOTAL	91,986	92,508	76,787	68,720	64,334	61,772
QUITAQUE	106	104	102	102	101	101
SILVERTON	128	124	121	120	120	120
COUNTY-OTHER	159	156	154	154	154	154
LIVESTOCK	286	300	315	331	347	352
IRRIGATION	26,417	26,417	20,687	17,833	16,225	15,231
RED BASIN TOTAL	27,096	27,101	21,379	18,540	16,947	15,958
BRISCOE COUNTY TOTAL	27,096	27,101	21,379	18,540	16,947	15,958
DIMMITT	1,091	1,159	1,205	1,254	1,299	1,335
HART MUNICIPAL WATER SYSTEM	175	183	188	197	203	209
COUNTY-OTHER	204	213	221	231	240	246
LIVESTOCK	4,974	5,616	6,053	6,528	7,043	7,594
IRRIGATION	246,911	246,911	195,321	164,462	151,177	144,884
BRAZOS BASIN TOTAL	253,355	254,082	202,988	172,672	159,962	154,268
NAZARETH	134	144	150	157	163	168
COUNTY-OTHER	164	171	177	186	192	198
MANUFACTURING	61	66	66	66	66	66
LIVESTOCK	1,747	1,973	2,126	2,292	2,474	2,667
IRRIGATION	132,952	132,952	105,172	88,556	81,402	78,014
RED BASIN TOTAL	135,058	135,306	107,691	91,257	84,297	81,113
CASTRO COUNTY TOTAL	388,413	389,388	310,679	263,929	244,259	235,381
MORTON PWS	477	477	471	459	469	472
WHITEFACE	118	122	121	120	123	124
COUNTY-OTHER	182	204	211	212	221	224
MINING	8	11	11	8	6	4
LIVESTOCK	70	73	75	78	81	81
IRRIGATION	67,626	67,626	57,664	51,479	46,346	42,821
BRAZOS BASIN TOTAL	68,481	68,513	58,553	52,356	47,246	43,726
COUNTY-OTHER	124	139	143	144	150	152
MINING	146	197	199	155	109	77
LIVESTOCK	32	33	34	35	36	37
IRRIGATION	31,823	31,823	27,136	24,225	21,810	20,151
COLORADO BASIN TOTAL	32,125	32,192	27,512	24,559	22,105	20,417
COCHRAN COUNTY TOTAL	100,606	100,705	86,065	76,915	69,351	64,143
CROSBYTON	301	313	323	340	359	376
LORENZO	231	246	258	275	296	310
RALLS	311	322	331	345	362	379
COUNTY-OTHER	149	153	160	167	175	184
MANUFACTURING	2	3	3	3	3	3
MINING	626	617	549	477	413	358
LIVESTOCK	167	175	184	192	202	204

Region O Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
IRRIGATION	103,321	103,321	103,321	81,768	70,915	65,013
BRAZOS BASIN TOTAL	105,108	105,150	105,129	83,567	72,725	66,827
COUNTY-OTHER	1	1	1	1	1	1
MINING	368	363	322	280	243	210
LIVESTOCK	4	4	4	5	5	5
IRRIGATION	4,262	4,262	4,262	3,373	2,925	2,682
RED BASIN TOTAL	4,635	4,630	4,589	3,659	3,174	2,898
CROSBY COUNTY TOTAL	109,743	109,780	109,718	87,226	75,899	69,725
ODONNELL	18	18	18	18	19	20
COUNTY-OTHER	4	4	4	4	4	5
LIVESTOCK	1	1	1	1	1	1
IRRIGATION	1,045	1,045	1,045	903	827	781
BRAZOS BASIN TOTAL	1,068	1,068	1,068	926	851	807
LAMESA	2,240	2,268	2,279	2,284	2,346	2,389
COUNTY-OTHER	602	628	651	666	704	734
MINING	1,812	1,812	1,812	1,812	1,812	1,812
LIVESTOCK	52	54	57	60	63	64
IRRIGATION	105,267	105,267	105,267	90,896	83,299	78,662
COLORADO BASIN TOTAL	109,973	110,029	110,066	95,718	88,224	83,661
DAWSON COUNTY TOTAL	111,041	111,097	111,134	96,644	89,075	84,468
COUNTY-OTHER	1	1	1	1	1	2
LIVESTOCK	112	122	130	138	147	157
IRRIGATION	2,101	2,101	1,628	1,383	1,255	1,183
CANADIAN BASIN TOTAL	2,214	2,224	1,759	1,522	1,403	1,342
HEREFORD	3,857	4,354	4,917	5,589	6,136	6,739
COUNTY-OTHER	589	650	723	820	899	986
MANUFACTURING	1,002	1,107	1,107	1,107	1,107	1,107
LIVESTOCK	11,058	12,035	12,803	13,628	14,514	15,447
IRRIGATION	207,915	207,915	161,073	136,891	124,191	117,036
RED BASIN TOTAL	224,421	226,061	180,623	158,035	146,847	141,315
DEAF SMITH COUNTY TOTAL	226,635	228,285	182,382	159,557	148,250	142,657
SPUR	180	174	172	172	171	171
COUNTY-OTHER	120	115	111	110	109	109
MINING	10	10	10	10	10	10
LIVESTOCK	238	250	262	275	290	293
IRRIGATION	5,155	5,155	5,155	5,155	5,155	5,155
BRAZOS BASIN TOTAL	5,703	5,704	5,710	5,722	5,735	5,738
RED RIVER AUTHORITY OF TEXAS	11	12	13	14	15	16
COUNTY-OTHER	25	24	23	23	23	23
MINING	2	2	2	2	2	2
LIVESTOCK	149	156	164	172	180	182
IRRIGATION	3,884	3,884	3,884	3,884	3,884	3,884
RED BASIN TOTAL	4,071	4,078	4,086	4,095	4,104	4,107
DICKENS COUNTY TOTAL	9,774	9,782	9,796	9,817	9,839	9,845
FLOYDADA	572	554	546	545	544	544
LOCKNEY	277	283	285	295	303	310
COUNTY-OTHER	129	145	158	173	185	195

Region O Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MINING	214	217	215	214	213	214
LIVESTOCK	894	910	928	947	966	971
IRRIGATION	46,380	46,380	36,899	31,963	29,122	27,444
BRAZOS BASIN TOTAL	48,466	48,489	39,031	34,137	31,333	29,678
COUNTY-OTHER	63	71	78	86	91	96
MINING	272	275	274	272	271	271
LIVESTOCK	274	279	284	290	296	297
IRRIGATION	82,457	82,457	65,601	56,826	51,774	48,791
RED BASIN TOTAL	83,066	83,082	66,237	57,474	52,432	49,455
FLOYD COUNTY TOTAL	131,532	131,571	105,268	91,611	83,765	79,133
SEAGRAVES	423	433	450	474	489	506
SEMINOLE	2,348	2,571	2,847	3,160	3,411	3,675
COUNTY-OTHER	1,400	1,760	2,202	2,688	3,148	3,630
MANUFACTURING	1,512	1,587	1,587	1,587	1,587	1,587
MINING	1,829	2,400	2,071	1,527	1,051	776
LIVESTOCK	123	126	129	133	136	137
IRRIGATION	362,482	362,482	328,442	306,787	291,887	282,438
COLORADO BASIN TOTAL	370,117	371,359	337,728	316,356	301,709	292,749
GAINES COUNTY TOTAL	370,117	371,359	337,728	316,356	301,709	292,749
POST	792	827	860	884	927	964
COUNTY-OTHER	135	128	125	126	129	133
MANUFACTURING	2	2	2	2	2	2
MINING	395	544	438	334	234	164
LIVESTOCK	148	155	162	170	179	181
IRRIGATION	10,353	10,353	10,353	10,353	10,353	10,353
BRAZOS BASIN TOTAL	11,825	12,009	11,940	11,869	11,824	11,797
GARZA COUNTY TOTAL	11,825	12,009	11,940	11,869	11,824	11,797
ABERNATHY	536	547	549	540	553	559
HALE CENTER	281	271	264	260	259	259
PETERSBURG MUNICIPAL WATER SYSTEM	321	329	329	325	333	336
PLAINVIEW	4,587	4,664	4,650	4,562	4,672	4,722
COUNTY-OTHER	1,031	1,048	1,040	1,013	1,044	1,058
MANUFACTURING	4,383	5,076	5,076	5,076	5,076	5,076
MINING	1,168	1,152	1,022	886	766	662
STEAM ELECTRIC POWER	31	31	31	31	31	31
LIVESTOCK	2,752	3,111	3,325	3,561	3,820	4,098
IRRIGATION	307,440	307,440	263,617	241,892	231,023	225,295
BRAZOS BASIN TOTAL	322,530	323,669	279,903	258,146	247,577	242,096
IRRIGATION	3,102	3,102	2,660	2,441	2,331	2,273
RED BASIN TOTAL	3,102	3,102	2,660	2,441	2,331	2,273
HALE COUNTY TOTAL	325,632	326,771	282,563	260,587	249,908	244,369
ANTON	160	164	165	165	171	176
LEVELLAND	2,441	2,520	2,553	2,547	2,654	2,727
COUNTY-OTHER	891	914	922	915	953	979
MANUFACTURING	576	691	691	691	691	691
MINING	16	16	15	15	14	13
LIVESTOCK	113	118	123	128	133	134

Region O Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MINING	82	93	88	73	58	46
LIVESTOCK	5	5	5	5	6	6
IRRIGATION	5,930	5,930	5,930	5,930	5,930	5,930
COLORADO BASIN TOTAL	6,026	6,037	6,032	6,017	6,003	5,992
LYNN COUNTY TOTAL	91,045	91,223	91,134	90,901	90,738	90,594
MATADOR	224	221	219	218	218	218
RED RIVER AUTHORITY OF TEXAS	6	6	7	7	8	8
COUNTY-OTHER	98	94	92	92	91	91
MINING	240	213	205	198	179	161
LIVESTOCK	276	290	305	320	336	340
IRRIGATION	9,426	9,426	9,426	9,426	9,426	9,426
RED BASIN TOTAL	10,270	10,250	10,254	10,261	10,258	10,244
MOTLEY COUNTY TOTAL	10,270	10,250	10,254	10,261	10,258	10,244
BOVINA	373	402	429	458	496	531
FARWELL	393	426	457	490	531	569
COUNTY-OTHER	385	415	443	475	514	551
LIVESTOCK	5,871	6,654	7,173	7,739	8,355	9,020
IRRIGATION	191,424	191,424	165,947	153,526	146,303	142,274
BRAZOS BASIN TOTAL	198,446	199,321	174,449	162,688	156,199	152,945
FRIONA	801	864	922	985	1,067	1,143
COUNTY-OTHER	276	298	317	340	368	394
MANUFACTURING	1,666	1,841	1,841	1,841	1,841	1,841
LIVESTOCK	1,468	1,664	1,794	1,935	2,089	2,256
IRRIGATION	47,801	47,801	41,439	38,338	36,534	35,528
RED BASIN TOTAL	52,012	52,468	46,313	43,439	41,899	41,162
PARMER COUNTY TOTAL	250,458	251,789	220,762	206,127	198,098	194,107
COUNTY-OTHER	50	51	50	50	52	53
LIVESTOCK	136	143	150	158	166	173
IRRIGATION	24,372	24,372	19,808	17,581	16,340	15,578
BRAZOS BASIN TOTAL	24,558	24,566	20,008	17,789	16,558	15,804
HAPPY	99	100	100	98	102	105
TULIA	865	883	876	863	903	923
COUNTY-OTHER	307	308	306	303	317	324
LIVESTOCK	2,592	2,721	2,857	2,999	3,148	3,296
IRRIGATION	111,024	111,024	90,233	80,087	74,435	70,962
RED BASIN TOTAL	114,887	115,036	94,372	84,350	78,905	75,610
SWISHER COUNTY TOTAL	139,445	139,602	114,380	102,139	95,463	91,414
COUNTY-OTHER	9	9	9	9	9	9
MINING	25	37	38	29	21	15
LIVESTOCK	19	20	22	23	25	26
IRRIGATION	8,639	8,639	7,295	6,735	6,445	6,276
BRAZOS BASIN TOTAL	8,692	8,705	7,364	6,796	6,500	6,326
BROWNFIELD	1,604	1,665	1,718	1,841	1,919	1,993
COUNTY-OTHER	436	435	456	436	456	478
MANUFACTURING	14	17	17	17	17	17
MINING	330	488	505	387	272	191

Region O Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
LIVESTOCK	401	441	470	503	537	560
IRRIGATION	164,146	164,146	138,606	127,969	122,446	119,251
COLORADO BASIN TOTAL	166,931	167,192	141,772	131,153	125,647	122,490
TERRY COUNTY TOTAL	175,623	175,897	149,136	137,949	132,147	128,816
DENVER CITY	1,423	1,579	1,720	1,888	2,066	2,236
PLAINS	438	486	529	578	632	685
COUNTY-OTHER	263	287	310	336	368	398
MINING	1,300	1,334	1,147	957	783	641
STEAM ELECTRIC POWER	1,910	1,910	1,910	1,910	1,910	1,910
LIVESTOCK	91	96	101	106	111	113
IRRIGATION	161,693	161,693	138,141	127,049	121,210	117,681
COLORADO BASIN TOTAL	167,118	167,385	143,858	132,824	127,080	123,664
YOAKUM COUNTY TOTAL	167,118	167,385	143,858	132,824	127,080	123,664
REGION O TOTAL DEMAND	3,367,953	3,381,960	2,927,996	2,663,087	2,526,590	2,452,931

Appendix C. TWDB DB22 Report #3 – WUG Category Summary

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Region O Water User Group (WUG) Category Summary*

MUNICIPAL	2020	2030	2040	2050	2060	2070
POPULATION	445,261	491,921	538,163	575,363	612,430	645,875
DEMAND (acre-feet per year)	82,286	88,710	95,415	101,302	107,715	113,672
EXISTING SUPPLIES (acre-feet per year)	115,797	115,646	115,084	113,284	109,674	107,658
NEEDS (acre-feet per year)	4,345	9,335	14,966	20,923	28,664	35,051

COUNTY-OTHER	2020	2030	2040	2050	2060	2070
POPULATION	95,234	102,470	107,817	122,506	138,428	155,844
DEMAND (acre-feet per year)	12,613	13,077	13,424	15,057	16,929	19,001
EXISTING SUPPLIES (acre-feet per year)	18,011	18,011	18,011	18,011	18,011	18,011
NEEDS (acre-feet per year)	0	10	452	938	1,398	1,880

MANUFACTURING	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	10,881	12,341	12,341	12,341	12,341	12,341
EXISTING SUPPLIES (acre-feet per year)	5,982	5,982	5,982	5,982	5,982	5,982
NEEDS (acre-feet per year)	5,454	6,482	6,482	6,482	6,482	6,482

MINING	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	16,869	18,021	16,518	14,345	12,375	10,890
EXISTING SUPPLIES (acre-feet per year)	15,097	15,097	15,097	15,097	15,097	15,097
NEEDS (acre-feet per year)	10,118	10,503	9,517	8,145	6,908	6,016

STEAM ELECTRIC POWER	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	21,085	21,085	21,085	21,085	21,085	21,085
EXISTING SUPPLIES (acre-feet per year)	27,795	27,795	27,795	25,555	25,555	25,555
NEEDS (acre-feet per year)	0	0	0	0	0	0

LIVESTOCK	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	41,589	46,096	49,276	52,721	56,453	60,304
EXISTING SUPPLIES (acre-feet per year)	59,836	59,836	59,836	59,836	59,836	59,514
NEEDS (acre-feet per year)	112	122	844	2,041	3,794	5,825

IRRIGATION	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	3,182,630	3,182,630	2,719,937	2,446,236	2,299,692	2,215,638
EXISTING SUPPLIES (acre-feet per year)	2,734,172	1,852,341	1,329,074	1,047,743	896,737	810,663
NEEDS (acre-feet per year)	686,345	1,415,306	1,422,699	1,418,084	1,417,882	1,416,649

*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.

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Appendix D. TWDB DB22 Report #4 – Source Water Availability

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Region O Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
DOCKUM AQUIFER	BAILEY	BRAZOS	FRESH	833	833	833	833	833	833
DOCKUM AQUIFER	BRISCOE	RED	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	CASTRO	BRAZOS	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	CASTRO	RED	FRESH	425	425	425	425	425	425
DOCKUM AQUIFER	COCHRAN	BRAZOS	FRESH	104	104	104	104	104	104
DOCKUM AQUIFER	COCHRAN	COLORADO	FRESH	868	868	868	868	868	868
DOCKUM AQUIFER	CROSBY	BRAZOS	FRESH	3,858	3,858	3,858	3,858	3,858	3,858
DOCKUM AQUIFER	CROSBY	RED	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	DEAF SMITH	CANADIAN	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	DEAF SMITH	RED	FRESH	4,401	4,401	4,401	4,401	4,401	4,401
DOCKUM AQUIFER	DICKENS	BRAZOS	FRESH	100	100	100	100	100	100
DOCKUM AQUIFER	DICKENS	RED	FRESH	100	100	100	100	100	100
DOCKUM AQUIFER	FLOYD	BRAZOS	FRESH	2,976	2,976	2,976	2,976	2,976	2,976
DOCKUM AQUIFER	FLOYD	RED	FRESH	250	250	250	250	250	250
DOCKUM AQUIFER	GAINES	COLORADO	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	GARZA	BRAZOS	BRACKISH	911	911	911	911	911	911
DOCKUM AQUIFER	HALE	BRAZOS	FRESH	1,092	1,092	1,092	1,092	1,092	1,092
DOCKUM AQUIFER	HALE	RED	FRESH	29	29	29	29	29	29
DOCKUM AQUIFER	HOCKLEY	BRAZOS	FRESH	890	890	890	890	890	890
DOCKUM AQUIFER	HOCKLEY	COLORADO	FRESH	167	167	167	167	167	167
DOCKUM AQUIFER	LAMB	BRAZOS	FRESH	923	923	923	923	923	923
DOCKUM AQUIFER	LUBBOCK	BRAZOS	FRESH	1,086	1,086	1,086	1,086	1,086	1,086
DOCKUM AQUIFER	LYNN	BRAZOS	FRESH	791	791	791	791	791	791
DOCKUM AQUIFER	LYNN	COLORADO	FRESH	121	121	121	121	121	121
DOCKUM AQUIFER	MOTLEY	RED	FRESH	93	93	93	92	92	92
DOCKUM AQUIFER	PARMER	BRAZOS	FRESH	3,152	3,152	3,152	3,152	2,392	2,291
DOCKUM AQUIFER	PARMER	RED	FRESH	2,298	2,298	2,298	2,298	2,298	2,298
DOCKUM AQUIFER	SWISHER	BRAZOS	FRESH	25	25	25	25	25	25
DOCKUM AQUIFER	SWISHER	RED	FRESH	1,551	1,551	1,551	1,551	1,551	1,551
OGALLALA AQUIFER	DICKENS	BRAZOS	FRESH	500	500	500	500	500	500
OGALLALA AQUIFER	DICKENS	RED	FRESH	800	800	800	800	800	800
OGALLALA AQUIFER	MOTLEY	RED	FRESH	409	409	409	409	409	409
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	BAILEY	BRAZOS	FRESH	97,679	67,307	51,199	42,704	37,858	34,815
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	BRISCOE	RED	FRESH	29,022	17,637	11,907	9,053	7,445	6,451
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CASTRO	BRAZOS	FRESH	159,730	112,038	61,892	32,048	19,950	14,535
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CASTRO	RED	FRESH	107,563	72,432	43,208	25,577	17,236	12,970
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	COCHRAN	BRAZOS	FRESH	26,117	21,555	18,919	17,399	16,483	15,900
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	COCHRAN	COLORADO	FRESH	75,645	57,597	45,584	38,008	31,376	26,775
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CROSBY	BRAZOS	FRESH	162,630	108,077	68,110	46,363	35,547	29,723

*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 O Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CROSBY	RED	FRESH	3,693	3,503	3,068	2,373	1,888	1,567
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	DAWSON	BRAZOS	FRESH	1,699	1,456	1,329	1,256	1,210	1,178
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	DAWSON	COLORADO	FRESH	171,153	122,020	95,467	81,027	73,400	68,749
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	DEAF SMITH	RED	FRESH	206,336	137,403	90,088	65,661	52,833	45,606
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	FLOYD	BRAZOS	FRESH	144,643	69,038	43,219	30,165	23,203	19,428
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	FLOYD	RED	FRESH	25,808	25,101	24,583	23,926	22,995	22,109
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	GAINES	COLORADO	FRESH	277,954	218,338	184,298	162,643	147,743	138,294
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	GARZA	BRAZOS	FRESH	16,297	13,648	12,395	11,657	11,180	10,855
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	GARZA	COLORADO	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HALE	BRAZOS	FRESH	219,639	114,473	70,305	48,453	37,543	31,804
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HALE	RED	FRESH	472	455	358	266	197	150
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HOCKLEY	BRAZOS	FRESH	130,832	85,716	66,206	56,994	52,150	49,382
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HOCKLEY	COLORADO	FRESH	46,599	26,171	11,564	6,793	5,037	4,228
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LAMB	BRAZOS	FRESH	223,477	112,082	71,220	56,582	50,140	46,816
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LUBBOCK	BRAZOS	FRESH	151,056	121,404	109,134	100,850	94,935	90,798
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LYNN	BRAZOS	FRESH	104,528	88,796	79,406	73,546	69,934	67,598
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LYNN	COLORADO	FRESH	8,079	7,355	6,088	5,057	4,414	4,042
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	PARMER	BRAZOS	FRESH	78,257	50,870	34,925	26,034	20,971	17,881
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	PARMER	RED	FRESH	73,758	40,228	24,334	17,703	14,499	12,655
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	SWISHER	BRAZOS	FRESH	25,301	10,833	6,160	4,109	3,092	2,534
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	SWISHER	RED	FRESH	103,982	60,806	40,124	29,802	23,926	20,249
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	TERRY	BRAZOS	FRESH	8,367	7,167	6,548	6,142	5,864	5,670
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	TERRY	COLORADO	FRESH	182,401	125,610	99,345	88,554	83,019	79,849
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	YOAKUM	COLORADO	FRESH	138,940	92,952	69,400	58,308	52,469	48,940
OTHER AQUIFER	BRISCOE	RED	FRESH	6,000	6,000	6,000	6,000	6,000	6,000
OTHER AQUIFER	CROSBY	BRAZOS	BRACKISH	9,000	9,000	9,000	9,000	9,000	9,000
OTHER AQUIFER	DICKENS	BRAZOS	BRACKISH	6,000	6,000	6,000	6,000	6,000	6,000
OTHER AQUIFER	DICKENS	RED	BRACKISH	4,000	4,000	4,000	4,000	4,000	4,000
OTHER AQUIFER	FLOYD	RED	FRESH	16,000	16,000	16,000	16,000	16,000	16,000
OTHER AQUIFER	GARZA	BRAZOS	FRESH	2,000	2,000	2,000	2,000	2,000	2,000

*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 O Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
OTHER AQUIFER	MOTLEY	RED	BRACKISH	13,000	13,000	13,000	13,000	13,000	13,000
SEYMOUR AQUIFER	BRISCOE	RED	BRACKISH	313	313	313	313	313	313
SEYMOUR AQUIFER	MOTLEY	RED	FRESH	4,843	6,679	4,843	4,830	3,972	3,961
GROUNDWATER TOTAL SOURCE AVAILABILITY				3,091,566	2,083,813	1,540,292	1,258,948	1,106,814	1,019,716

REUSE SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
DIRECT REUSE	BAILEY	BRAZOS	FRESH	825	825	825	825	825	825
DIRECT REUSE	CASTRO	BRAZOS	FRESH	4,031	4,031	4,031	4,031	4,031	4,031
DIRECT REUSE	COCHRAN	BRAZOS	FRESH	267	267	267	267	267	267
DIRECT REUSE	COCHRAN	COLORADO	FRESH	27	27	27	27	27	27
DIRECT REUSE	CROSBY	BRAZOS	FRESH	583	583	583	583	583	583
DIRECT REUSE	DEAF SMITH	RED	FRESH	2,810	2,810	2,810	2,810	2,810	2,810
DIRECT REUSE	FLOYD	BRAZOS	FRESH	449	449	449	449	449	449
DIRECT REUSE	HALE	BRAZOS	FRESH	5,477	5,477	5,477	5,477	5,477	5,477
DIRECT REUSE	HOCKLEY	BRAZOS	FRESH	1,359	1,359	1,359	1,359	1,359	1,359
DIRECT REUSE	HOCKLEY	COLORADO	FRESH	162	162	162	162	162	162
DIRECT REUSE	LAMB	BRAZOS	FRESH	7,199	7,199	7,199	7,199	7,199	7,199
DIRECT REUSE	LUBBOCK	BRAZOS	FRESH	22,523	24,931	27,384	29,075	30,576	31,830
DIRECT REUSE	LYNN	BRAZOS	FRESH	346	346	346	346	346	346
DIRECT REUSE	PARMER	BRAZOS	FRESH	401	401	401	401	401	401
DIRECT REUSE	PARMER	RED	FRESH	2,486	2,486	2,486	2,486	2,486	2,486
REUSE TOTAL SOURCE AVAILABILITY				48,945	51,353	53,806	55,497	56,998	58,252

SURFACE WATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
ALAN HENRY LAKE/RESERVOIR	RESERVOIR	BRAZOS	FRESH	20,600	20,320	20,020	19,700	19,380	18,720
BRAZOS RUN-OF-RIVER	DICKENS	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	GARZA	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	LUBBOCK	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	LYNN	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	CROSBY	BRAZOS	FRESH	0	0	0	0	0	0
MACKENZIE LAKE/RESERVOIR	RESERVOIR	RED	FRESH	4,530	4,530	4,530	4,530	4,530	4,530
RED RUN-OF-RIVER	BRISCOE	RED	FRESH	96	96	96	96	96	96
RED RUN-OF-RIVER	FLOYD	RED	FRESH	18	18	18	18	18	18
RED RUN-OF-RIVER	MOTLEY	RED	FRESH	4	4	4	4	4	4
RED RUN-OF-RIVER	PARMER	RED	FRESH	0	0	0	0	0	0
WHITE RIVER LAKE/RESERVOIR	RESERVOIR	BRAZOS	FRESH	3,650	3,650	3,650	3,650	3,650	3,650
SURFACE WATER TOTAL SOURCE AVAILABILITY				28,898	28,618	28,318	27,998	27,678	27,018

REGION O TOTAL SOURCE AVAILABILITY				3,169,409	2,163,784	1,622,416	1,342,443	1,191,490	1,104,986
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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.

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Appendix E. TWDB DB22 Report #5 – WUG Existing Water Supplies

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Region O 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
MULESHOE	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	3,056	3,056	3,056	3,056	3,056	3,056
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	411	411	411	411	411	411
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	3,077	3,077	3,077	3,077	3,077	3,077
IRRIGATION	O	DIRECT REUSE	825	825	825	825	825	825
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	71,985	41,613	25,505	17,010	12,164	9,121
BRAZOS BASIN TOTAL			79,354	48,982	32,874	24,379	19,533	16,490
BAILEY COUNTY TOTAL			79,354	48,982	32,874	24,379	19,533	16,490
QUITAQUE	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BRISCOE COUNTY	318	318	318	318	318	318
SILVERTON	O	MACKENZIE LAKE/RESERVOIR	128	128	128	128	128	128
COUNTY-OTHER	O	OTHER AQUIFER BRISCOE COUNTY	199	199	199	199	199	199
COUNTY-OTHER	O	RED RUN-OF-RIVER	20	20	20	20	20	20
LIVESTOCK	O	DOCKUM AQUIFER BRISCOE COUNTY	0	0	0	0	0	0
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BRISCOE COUNTY	115	115	115	115	115	115
LIVESTOCK	O	OTHER AQUIFER BRISCOE COUNTY	238	238	238	238	238	238
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BRISCOE COUNTY	28,589	17,204	11,474	8,620	7,012	6,018
IRRIGATION	O	OTHER AQUIFER BRISCOE COUNTY	4,690	4,690	4,690	4,690	4,690	4,690
IRRIGATION	O	RED RUN-OF-RIVER	76	76	76	76	76	76
IRRIGATION	O	SEYMOUR AQUIFER BRISCOE COUNTY	313	313	313	313	313	313
RED BASIN TOTAL			34,686	23,301	17,571	14,717	13,109	12,115
BRISCOE COUNTY TOTAL			34,686	23,301	17,571	14,717	13,109	12,115
DIMMITT	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	3,923	3,923	3,923	3,923	3,923	3,923
HART MUNICIPAL WATER SYSTEM	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	559	559	559	559	559	559
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	255	255	255	255	255	255
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	7,596	7,596	7,596	7,596	7,596	7,596
IRRIGATION	O	DIRECT REUSE	4,031	4,031	4,031	4,031	4,031	4,031
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	147,397	99,705	49,559	19,715	7,617	2,202
BRAZOS BASIN TOTAL			163,761	116,069	65,923	36,079	23,981	18,566
NAZARETH	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	552	552	552	552	552	552
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	205	205	205	205	205	205
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	95	95	95	95	95	95
LIVESTOCK	O	DOCKUM AQUIFER CASTRO COUNTY	425	425	425	425	425	425
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	3,318	3,318	3,318	3,318	3,318	3,318
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CASTRO COUNTY	103,393	68,262	39,038	21,407	13,066	8,800
RED BASIN TOTAL			107,988	72,857	43,633	26,002	17,661	13,395
CASTRO COUNTY TOTAL			271,749	188,926	109,556	62,081	41,642	31,961
MORTON PWS	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	598	598	598	598	598	598

Region O Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	REGION		2020	2030	2040	2050	2060	2070
WHITEFACE	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	313	313	313	313	313	313
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	228	228	228	228	228	228
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	90	90	90	90	90	90
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	307	307	307	307	307	307
IRRIGATION	O	DIRECT REUSE	267	267	267	267	267	267
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	24,581	20,019	17,383	15,863	14,947	14,364
BRAZOS BASIN TOTAL			26,384	21,822	19,186	17,666	16,750	16,167
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	155	155	155	155	155	155
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	222	222	222	222	222	222
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	367	367	367	367	367	367
IRRIGATION	O	DIRECT REUSE	27	27	27	27	27	27
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER COCHRAN COUNTY	49,785	49,785	44,840	37,264	30,632	26,031
COLORADO BASIN TOTAL			50,556	50,556	45,611	38,035	31,403	26,802
COCHRAN COUNTY TOTAL			76,940	72,378	64,797	55,701	48,153	42,969
CROSBYTON	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	382	382	382	382	382	382
LORENZO	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	904	904	904	904	904	904
RALLS	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	233	233	233	233	233	233
COUNTY-OTHER	O	DOCKUM AQUIFER CROSBY COUNTY	2	2	2	2	2	2
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	183	183	183	183	183	183
COUNTY-OTHER	O	OTHER AQUIFER CROSBY COUNTY	2	2	2	2	2	2
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	3	3	3	3	3	3
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	1,183	1,183	1,183	1,183	1,183	1,183
LIVESTOCK	O	DOCKUM AQUIFER CROSBY COUNTY	84	84	84	84	84	84
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	66	66	66	66	66	66
LIVESTOCK	O	OTHER AQUIFER CROSBY COUNTY	55	55	55	55	55	55
IRRIGATION	O	BRAZOS RUN-OF-RIVER	0	0	0	0	0	0
IRRIGATION	O	DIRECT REUSE	583	583	583	583	583	583
IRRIGATION	O	DOCKUM AQUIFER CROSBY COUNTY	3,600	3,600	3,600	3,600	3,600	3,600
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	150,886	104,239	64,272	42,525	31,709	25,885
IRRIGATION	O	OTHER AQUIFER CROSBY COUNTY	8,405	8,405	8,405	8,405	8,405	8,405
BRAZOS BASIN TOTAL			166,571	119,924	79,957	58,210	47,394	41,570
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	1	1	1	1	1	1
MINING		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	6	6	6	6	6	6
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	3,686	3,496	3,061	2,366	1,881	1,560

Region O 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
RED BASIN TOTAL			3,693	3,503	3,068	2,373	1,888	1,567
CROSBY COUNTY TOTAL			170,264	123,427	83,025	60,583	49,282	43,137
ODONNELL	A	MEREDITH LAKE/RESERVOIR	4	4	4	4	4	4
ODONNELL	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	17	17	17	17	17	17
ODONNELL	A	OGALLALA AQUIFER ROBERTS COUNTY	12	11	10	8	8	8
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	5	5	5	5	5	5
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	1	1	1	1	1	1
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	1,578	1,335	1,208	1,135	1,089	1,057
BRAZOS BASIN TOTAL			1,617	1,373	1,245	1,170	1,124	1,092
LAMESA	A	MEREDITH LAKE/RESERVOIR	429	438	490	560	555	554
LAMESA	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	723	723	723	723	723	723
LAMESA	A	OGALLALA AQUIFER ROBERTS COUNTY	1,130	1,157	1,208	1,264	1,128	1,127
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	745	745	745	745	745	745
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	266	266	266	266	266	266
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	200	200	200	200	200	200
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	156,857	120,086	93,533	79,093	71,466	66,815
COLORADO BASIN TOTAL			160,350	123,615	97,165	82,851	75,083	70,430
DAWSON COUNTY TOTAL			161,967	124,988	98,410	84,021	76,207	71,522
COUNTY-OTHER	O	DOCKUM AQUIFER DEAF SMITH COUNTY	2	2	2	2	2	2
LIVESTOCK	O	DOCKUM AQUIFER DEAF SMITH COUNTY	0	0	0	0	0	0
IRRIGATION		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
CANADIAN BASIN TOTAL			2	2	2	2	2	2
HEREFORD	O	DOCKUM AQUIFER DEAF SMITH COUNTY	3,422	3,422	3,422	3,422	3,422	3,422
HEREFORD	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DEAF SMITH COUNTY	3,337	3,337	3,337	3,337	3,337	3,337
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DEAF SMITH COUNTY	986	986	986	986	986	986
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DEAF SMITH COUNTY	4	4	4	4	4	4
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DEAF SMITH COUNTY	12,089	12,089	12,089	12,089	12,089	12,089
IRRIGATION	O	DIRECT REUSE	2,810	2,810	2,810	2,810	2,810	2,810
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DEAF SMITH COUNTY	189,620	120,687	73,372	48,945	36,167	28,990
RED BASIN TOTAL			212,268	143,335	96,020	71,593	58,815	51,638
DEAF SMITH COUNTY TOTAL			212,270	143,337	96,022	71,595	58,817	51,640
SPUR	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	224	224	224	224	224	224
COUNTY-OTHER	O	OGALLALA AQUIFER DICKENS COUNTY	12	12	12	12	12	12
COUNTY-OTHER	O	OTHER AQUIFER DICKENS COUNTY	138	138	138	138	138	138
MINING	O	OGALLALA AQUIFER DICKENS COUNTY	18	18	18	18	18	18
LIVESTOCK	O	DOCKUM AQUIFER DICKENS COUNTY	35	35	35	35	35	35
LIVESTOCK	O	OGALLALA AQUIFER DICKENS COUNTY	36	36	36	36	36	36
LIVESTOCK	O	OTHER AQUIFER DICKENS COUNTY	230	230	230	230	230	230

Region O Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	REGION		2020	2030	2040	2050	2060	2070
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GAINES COUNTY	1,750	1,750	1,750	1,750	1,750	1,750
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GAINES COUNTY	544	544	544	544	544	544
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GAINES COUNTY	7,729	7,729	7,729	7,729	7,729	7,729
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GAINES COUNTY	203	203	203	203	203	203
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GAINES COUNTY	264,961	205,345	171,305	149,650	134,750	125,301
COLORADO BASIN TOTAL			277,953	218,337	184,297	162,642	147,742	138,293
GAINES COUNTY TOTAL			277,953	218,337	184,297	162,642	147,742	138,293
POST	O	BRAZOS RUN-OF-RIVER	0	0	0	0	0	0
POST	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	658	658	658	658	658	658
POST	A	OGALLALA AQUIFER ROBERTS COUNTY	306	306	306	306	306	306
COUNTY-OTHER	O	ALAN HENRY LAKE/RESERVOIR	25	25	25	25	25	25
COUNTY-OTHER	G	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
COUNTY-OTHER	O	DOCKUM AQUIFER GARZA COUNTY	30	30	30	30	30	30
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GARZA COUNTY	116	116	116	116	116	116
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER CROSBY COUNTY	2	2	2	2	2	2
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GARZA COUNTY	544	544	544	544	544	544
LIVESTOCK	O	DOCKUM AQUIFER GARZA COUNTY	152	152	152	152	152	152
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GARZA COUNTY	12	12	12	12	12	12
LIVESTOCK	O	OTHER AQUIFER GARZA COUNTY	20	20	20	20	20	20
IRRIGATION	O	DOCKUM AQUIFER GARZA COUNTY	234	234	234	234	234	234
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER GARZA COUNTY	13,384	12,976	11,723	10,985	10,508	10,183
IRRIGATION	O	OTHER AQUIFER GARZA COUNTY	1,410	1,410	1,410	1,410	1,410	1,410
BRAZOS BASIN TOTAL			16,893	16,485	15,232	14,494	14,017	13,692
GARZA COUNTY TOTAL			16,893	16,485	15,232	14,494	14,017	13,692
ABERNATHY	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	1,379	1,355	1,326	1,288	1,267	1,241
HALE CENTER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	956	956	956	956	956	956
PETERSBURG MUNICIPAL WATER SYSTEM	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	594	594	594	594	594	594
PLAINVIEW	A	MEREDITH LAKE/RESERVOIR	613	675	692	712	707	705
PLAINVIEW	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	6,206	6,206	6,206	6,206	6,206	6,206
PLAINVIEW	A	OGALLALA AQUIFER ROBERTS COUNTY	1,614	1,780	1,707	1,608	1,436	1,434
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	1,289	1,289	1,289	1,289	1,289	1,289
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	1,416	1,416	1,416	1,416	1,416	1,416
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	215	215	215	215	215	215
STEAM ELECTRIC POWER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	31	31	31	31	31	31

Region O Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	REGION		2020	2030	2040	2050	2060	2070
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LAMB COUNTY	108	108	108	108	108	108
STEAM ELECTRIC POWER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LAMB COUNTY	15,666	15,666	15,666	15,666	15,666	15,666
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LAMB COUNTY	5,225	5,225	5,225	5,225	5,225	5,225
IRRIGATION	O	DIRECT REUSE	7,199	7,199	7,199	7,199	7,199	7,199
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LAMB COUNTY	176,876	65,481	24,619	9,981	3,539	215
BRAZOS BASIN TOTAL			211,722	100,327	59,465	44,827	38,385	35,061
LAMB COUNTY TOTAL			211,722	100,327	59,465	44,827	38,385	35,061
ABERNATHY	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER HALE COUNTY	479	503	532	570	591	617
IDALOU	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	1,306	1,306	1,306	1,306	1,306	1,306
LUBBOCK	O	ALAN HENRY LAKE/RESERVOIR	7,630	7,630	7,630	7,630	7,630	7,630
LUBBOCK	G	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
LUBBOCK	A	MEREDITH LAKE/RESERVOIR	8,723	8,769	9,264	9,565	9,494	9,470
LUBBOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	1,906	1,735	1,488	1,203	880	0
LUBBOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LAMB COUNTY	2,156	1,985	1,738	1,453	1,130	0
LUBBOCK	A	OGALLALA AQUIFER ROBERTS COUNTY	22,644	22,795	22,505	21,257	18,941	18,919
NEW DEAL	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	333	333	333	333	333	333
NEW DEAL	A	OGALLALA AQUIFER ROBERTS COUNTY	153	153	153	153	153	153
RANSOM CANYON	O	ALAN HENRY LAKE/RESERVOIR	143	143	143	143	143	143
RANSOM CANYON	G	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
RANSOM CANYON	O	BRAZOS RUN-OF-RIVER	0	0	0	0	0	0
RANSOM CANYON	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	142	142	142	142	142	142
RANSOM CANYON	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LAMB COUNTY	142	142	142	142	142	142
RANSOM CANYON	A	OGALLALA AQUIFER ROBERTS COUNTY	142	142	142	142	142	142
SHALLOWATER	G	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
SHALLOWATER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	250	250	250	250	250	250
SHALLOWATER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	416	416	416	416	416	416
SLATON	A	MEREDITH LAKE/RESERVOIR	344	322	310	301	298	298
SLATON	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	1,287	1,287	1,287	1,287	1,287	1,287
SLATON	A	OGALLALA AQUIFER ROBERTS COUNTY	448	389	305	221	147	146
WOLFFORTH	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	1,180	1,180	1,180	1,180	1,180	1,180
COUNTY-OTHER	O	ALAN HENRY LAKE/RESERVOIR	202	202	202	202	202	202
COUNTY-OTHER	G	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER BAILEY COUNTY	202	202	202	202	202	202
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LAMB COUNTY	202	202	202	202	202	202

Region O Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	REGION		2020	2030	2040	2050	2060	2070
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	5,534	5,534	5,534	5,534	5,534	5,534
COUNTY-OTHER	A	OGALLALA AQUIFER ROBERTS COUNTY	200	200	200	200	200	200
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	335	335	335	335	335	335
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	982	982	982	982	982	982
STEAM ELECTRIC POWER	O	DIRECT REUSE	10,080	10,080	10,080	7,840	7,840	7,840
STEAM ELECTRIC POWER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	18	18	18	18	18	18
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	1,290	1,290	1,290	1,290	1,290	1,290
IRRIGATION	O	DIRECT REUSE	8,960	2,240	2,240	2,240	2,240	2,240
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LUBBOCK COUNTY	138,374	108,722	96,452	88,168	82,253	78,116
BRAZOS BASIN TOTAL			216,203	179,629	167,003	154,907	145,903	139,735
LUBBOCK COUNTY TOTAL			216,203	179,629	167,003	154,907	145,903	139,735
ODONNELL	A	MEREDITH LAKE/RESERVOIR	26	24	22	21	22	23
ODONNELL	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER DAWSON COUNTY	98	98	98	98	98	98
ODONNELL	A	OGALLALA AQUIFER ROBERTS COUNTY	68	63	55	49	45	46
TAHOKA PUBLIC WATER SYSTEM	A	MEREDITH LAKE/RESERVOIR	117	109	102	96	99	101
TAHOKA PUBLIC WATER SYSTEM	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	441	441	441	441	441	441
TAHOKA PUBLIC WATER SYSTEM	A	OGALLALA AQUIFER ROBERTS COUNTY	307	288	251	216	202	206
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	378	378	378	378	378	378
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	449	449	449	449	449	449
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	158	158	158	158	158	158
IRRIGATION	O	BRAZOS RUN-OF-RIVER	0	0	0	0	0	0
IRRIGATION	O	DIRECT REUSE	346	346	346	346	346	346
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	103,102	87,370	77,980	72,120	68,508	66,172
BRAZOS BASIN TOTAL			105,490	89,724	80,280	74,372	70,746	68,418
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	11	11	11	11	11	11
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	93	93	93	93	93	93
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	9	9	9	9	9	9
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER LYNN COUNTY	7,045	7,045	5,975	4,944	4,301	3,929
COLORADO BASIN TOTAL			7,158	7,158	6,088	5,057	4,414	4,042
LYNN COUNTY TOTAL			112,648	96,882	86,368	79,429	75,160	72,460
MATADOR	O	OTHER AQUIFER MOTLEY COUNTY	192	192	192	192	192	192
MATADOR	O	SEYMOUR AQUIFER MOTLEY COUNTY	582	582	582	582	582	582
RED RIVER AUTHORITY OF TEXAS	O	OTHER AQUIFER MOTLEY COUNTY	6	6	7	7	8	8
COUNTY-OTHER	O	OTHER AQUIFER MOTLEY COUNTY	83	83	83	83	83	83
COUNTY-OTHER	O	SEYMOUR AQUIFER MOTLEY COUNTY	39	39	39	39	39	39

Region O Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	REGION		2020	2030	2040	2050	2060	2070
MINING	O	OGALLALA AQUIFER MOTLEY COUNTY	104	104	104	104	104	104
MINING	O	SEYMOUR AQUIFER MOTLEY COUNTY	140	140	140	140	140	140
LIVESTOCK	O	DOCKUM AQUIFER MOTLEY COUNTY	60	60	60	60	60	60
LIVESTOCK	O	OGALLALA AQUIFER MOTLEY COUNTY	19	19	19	19	19	19
LIVESTOCK	O	OTHER AQUIFER MOTLEY COUNTY	296	296	296	296	296	296
IRRIGATION	O	DOCKUM AQUIFER MOTLEY COUNTY	33	33	33	32	32	32
IRRIGATION	O	OGALLALA AQUIFER MOTLEY COUNTY	248	248	248	248	248	248
IRRIGATION	O	OTHER AQUIFER MOTLEY COUNTY	11,739	11,739	11,739	11,739	11,739	11,739
IRRIGATION	O	RED RUN-OF-RIVER	4	4	4	4	4	4
IRRIGATION	O	SEYMOUR AQUIFER MOTLEY COUNTY	83	83	83	83	83	83
RED BASIN TOTAL			13,628	13,628	13,629	13,628	13,629	13,629
MOTLEY COUNTY TOTAL			13,628	13,628	13,629	13,628	13,629	13,629
BOVINA	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	571	571	571	571	571	571
FARWELL	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	858	858	858	858	858	858
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	551	551	551	551	551	551
LIVESTOCK	O	DOCKUM AQUIFER PARMER COUNTY	900	900	900	900	900	900
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	8,163	8,163	8,163	8,163	8,163	8,163
IRRIGATION	O	DIRECT REUSE	401	401	401	401	401	401
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	68,114	40,727	24,782	15,891	10,828	7,738
BRAZOS BASIN TOTAL			79,558	52,171	36,226	27,335	22,272	19,182
FRIONA	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	2,163	2,163	2,163	2,163	2,163	2,163
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	395	395	395	395	395	395
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	1,866	1,866	1,866	1,866	1,866	1,866
LIVESTOCK	O	DOCKUM AQUIFER PARMER COUNTY	325	325	325	325	325	325
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	1,941	1,941	1,941	1,941	1,941	1,941
IRRIGATION	O	DIRECT REUSE	2,486	2,486	2,486	2,486	2,486	2,486
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER PARMER COUNTY	67,393	33,863	17,969	11,338	8,134	6,290
IRRIGATION	O	RED RUN-OF-RIVER	0	0	0	0	0	0
RED BASIN TOTAL			76,569	43,039	27,145	20,514	17,310	15,466
PARMER COUNTY TOTAL			156,127	95,210	63,371	47,849	39,582	34,648
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER SWISHER COUNTY	63	63	63	63	63	63
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER SWISHER COUNTY	2,793	2,793	2,793	2,793	2,793	2,471
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER SWISHER COUNTY	22,445	7,977	3,304	1,253	236	0
BRAZOS BASIN TOTAL			25,301	10,833	6,160	4,109	3,092	2,534
HAPPY	O	DOCKUM AQUIFER SWISHER COUNTY	476	475	474	473	472	470
TULIA	O	DOCKUM AQUIFER SWISHER COUNTY	1,065	1,065	1,065	1,065	1,065	1,065
TULIA	O	MACKENZIE LAKE/RESERVOIR	210	210	210	210	210	210
TULIA	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER SWISHER COUNTY	529	529	529	529	529	529

Region O Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER SWISHER COUNTY	384	384	384	384	384	384
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER SWISHER COUNTY	3,296	3,296	3,296	3,296	3,296	3,296
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER SWISHER COUNTY	99,773	56,597	35,915	25,593	19,177	16,040
RED BASIN TOTAL			105,733	62,556	41,873	31,550	25,133	21,994
SWISHER COUNTY TOTAL			131,034	73,389	48,033	35,659	28,225	24,528
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	11	11	11	11	11	11
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	40	40	40	40	40	40
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	28	28	28	28	28	28
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	8,288	7,088	6,469	6,063	5,785	5,591
BRAZOS BASIN TOTAL			8,367	7,167	6,548	6,142	5,864	5,670
BROWNFIELD	A	MEREDITH LAKE/RESERVOIR	368	349	351	356	353	353
BROWNFIELD	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	632	632	632	632	632	632
BROWNFIELD	A	OGALLALA AQUIFER ROBERTS COUNTY	969	920	867	804	718	717
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	545	545	545	545	545	545
MANUFACTURING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	17	17	17	17	17	17
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	100	100	100	100	100	100
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	562	562	562	562	562	562
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER TERRY COUNTY	180,545	123,754	97,489	86,698	81,163	77,993
COLORADO BASIN TOTAL			183,738	126,879	100,563	89,714	84,090	80,919
TERRY COUNTY TOTAL			192,105	134,046	107,111	95,856	89,954	86,589
DENVER CITY	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER YOAKUM COUNTY	5,313	5,313	5,313	5,313	5,313	5,313
PLAINS	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER YOAKUM COUNTY	1,138	1,138	1,138	1,138	1,138	1,138
COUNTY-OTHER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER YOAKUM COUNTY	399	399	399	399	399	399
MINING	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER YOAKUM COUNTY	764	764	764	764	764	764
STEAM ELECTRIC POWER	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER YOAKUM COUNTY	2,000	2,000	2,000	2,000	2,000	2,000
LIVESTOCK	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER YOAKUM COUNTY	191	191	191	191	191	191
IRRIGATION	O	OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER YOAKUM COUNTY	129,135	83,147	59,595	48,503	42,664	39,135
COLORADO BASIN TOTAL			138,940	92,952	69,400	58,308	52,469	48,940
YOAKUM COUNTY TOTAL			138,940	92,952	69,400	58,308	52,469	48,940
REGION O TOTAL EXISTING WATER SUPPLY			2,976,690	2,094,708	1,570,879	1,285,508	1,130,892	1,042,480

Appendix F. TWDB DB22 Report #6 – WUG
Identified Water Needs/Surpluses

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

	(NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BAILEY COUNTY - BRAZOS BASIN						
MULESHOE	1,883	1,773	1,659	1,533	1,401	1,269
COUNTY-OTHER	134	115	91	60	30	0
LIVESTOCK	649	256	7	(264)	(562)	(881)
IRRIGATION	(15,298)	(45,670)	(45,670)	(45,670)	(45,670)	(45,670)
BRISCOE COUNTY - RED BASIN						
QUITAQUE	212	214	216	216	217	217
SILVERTON	0	4	7	8	8	8
COUNTY-OTHER	60	63	65	65	65	65
LIVESTOCK	67	53	38	22	6	1
IRRIGATION	7,251	(4,134)	(4,134)	(4,134)	(4,134)	(4,134)
CASTRO COUNTY - BRAZOS BASIN						
DIMMITT	2,832	2,764	2,718	2,669	2,624	2,588
HART MUNICIPAL WATER SYSTEM	384	376	371	362	356	350
COUNTY-OTHER	51	42	34	24	15	9
LIVESTOCK	2,622	1,980	1,543	1,068	553	2
IRRIGATION	(95,483)	(143,175)	(141,731)	(140,716)	(139,529)	(138,651)
CASTRO COUNTY - RED BASIN						
NAZARETH	418	408	402	395	389	384
COUNTY-OTHER	41	34	28	19	13	7
MANUFACTURING	34	29	29	29	29	29
LIVESTOCK	1,996	1,770	1,617	1,451	1,269	1,076
IRRIGATION	(29,559)	(64,690)	(66,134)	(67,149)	(68,336)	(69,214)
COCHRAN COUNTY - BRAZOS BASIN						
MORTON PWS	121	121	127	139	129	126
WHITEFACE	195	191	192	193	190	189
COUNTY-OTHER	46	24	17	16	7	4
MINING	82	79	79	82	84	86
LIVESTOCK	237	234	232	229	226	226
IRRIGATION	(42,778)	(47,340)	(40,014)	(35,349)	(31,132)	(28,190)
COCHRAN COUNTY - COLORADO BASIN						
COUNTY-OTHER	31	16	12	11	5	3
MINING	76	25	23	67	113	145
LIVESTOCK	335	334	333	332	331	330
IRRIGATION	17,989	17,989	17,731	13,066	8,849	5,907
CROSBY COUNTY - BRAZOS BASIN						
CROSBYTON	81	69	59	42	23	6
LORENZO	673	658	646	629	608	594
RALLS	(78)	(89)	(98)	(112)	(129)	(146)
COUNTY-OTHER	38	34	27	20	12	3
MANUFACTURING	1	0	0	0	0	0
MINING	557	566	634	706	770	825
LIVESTOCK	38	30	21	13	3	1
IRRIGATION	60,153	13,506	(26,461)	(26,655)	(26,618)	(26,540)

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

CROSBY COUNTY - RED BASIN						
COUNTY-OTHER	0	0	0	0	0	0
MINING	(368)	(363)	(322)	(280)	(243)	(210)
LIVESTOCK	2	2	2	1	1	1
IRRIGATION	(576)	(766)	(1,201)	(1,007)	(1,044)	(1,122)
DAWSON COUNTY - BRAZOS BASIN						
ODONNELL	15	14	13	11	10	9
COUNTY-OTHER	1	1	1	1	1	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	533	290	163	232	262	276
DAWSON COUNTY - COLORADO BASIN						
LAMESA	42	50	142	263	60	15
COUNTY-OTHER	143	117	94	79	41	11
MINING	(1,546)	(1,546)	(1,546)	(1,546)	(1,546)	(1,546)
LIVESTOCK	148	146	143	140	137	136
IRRIGATION	51,590	14,819	(11,734)	(11,803)	(11,833)	(11,847)
DEAF SMITH COUNTY - CANADIAN BASIN						
COUNTY-OTHER	1	1	1	1	1	0
LIVESTOCK	(112)	(122)	(130)	(138)	(147)	(157)
IRRIGATION	(2,101)	(2,101)	(1,628)	(1,383)	(1,255)	(1,183)
DEAF SMITH COUNTY - RED BASIN						
HEREFORD	2,902	2,405	1,842	1,170	623	20
COUNTY-OTHER	397	336	263	166	87	0
MANUFACTURING	(998)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)
LIVESTOCK	1,031	54	(714)	(1,539)	(2,425)	(3,358)
IRRIGATION	(15,485)	(84,418)	(84,891)	(85,136)	(85,214)	(85,236)
DICKENS COUNTY - BRAZOS BASIN						
SPUR	44	50	52	52	53	53
COUNTY-OTHER	30	35	39	40	41	41
MINING	8	8	8	8	8	8
LIVESTOCK	63	51	39	26	11	8
IRRIGATION	763	763	763	763	763	763
DICKENS COUNTY - RED BASIN						
RED RIVER AUTHORITY OF TEXAS	0	0	0	0	0	0
COUNTY-OTHER	6	7	8	8	8	8
MINING	9	9	9	9	9	9
LIVESTOCK	37	30	22	14	6	4
IRRIGATION	574	574	574	574	574	574
FLOYD COUNTY - BRAZOS BASIN						
FLOYDADA	1,384	1,402	1,410	1,411	1,412	1,412
LOCKNEY	262	256	254	244	236	229
COUNTY-OTHER	67	51	38	23	11	1
MINING	3	0	2	3	4	3
LIVESTOCK	77	61	43	24	5	0
IRRIGATION	22,294	19,458	3,120	(4,998)	(9,119)	(11,216)
FLOYD COUNTY - RED BASIN						
COUNTY-OTHER	36	28	21	13	8	3

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

MINING	3	0	1	3	4	4
LIVESTOCK	394	389	384	378	372	371
IRRIGATION	(41,938)	(42,645)	(26,307)	(18,189)	(14,068)	(11,971)
GAINES COUNTY - COLORADO BASIN						
SEAGRAVES	546	536	519	495	480	463
SEMINOLE	(551)	(774)	(1,050)	(1,363)	(1,614)	(1,878)
COUNTY-OTHER	350	(10)	(452)	(938)	(1,398)	(1,880)
MANUFACTURING	(968)	(1,043)	(1,043)	(1,043)	(1,043)	(1,043)
MINING	5,900	5,329	5,658	6,202	6,678	6,953
LIVESTOCK	80	77	74	70	67	66
IRRIGATION	(97,521)	(157,137)	(157,137)	(157,137)	(157,137)	(157,137)
GARZA COUNTY - BRAZOS BASIN						
POST	172	137	104	80	37	0
COUNTY-OTHER	36	43	46	45	42	38
MANUFACTURING	0	0	0	0	0	0
MINING	149	0	106	210	310	380
LIVESTOCK	36	29	22	14	5	3
IRRIGATION	4,675	4,267	3,014	2,276	1,799	1,474
HALE COUNTY - BRAZOS BASIN						
ABERNATHY	843	808	777	748	714	682
HALE CENTER	675	685	692	696	697	697
PETERSBURG MUNICIPAL WATER SYSTEM	273	265	265	269	261	258
PLAINVIEW	3,846	3,997	3,955	3,964	3,677	3,623
COUNTY-OTHER	258	241	249	276	245	231
MANUFACTURING	(2,967)	(3,660)	(3,660)	(3,660)	(3,660)	(3,660)
MINING	(953)	(937)	(807)	(671)	(551)	(447)
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	963	604	390	154	(105)	(383)
IRRIGATION	(98,604)	(203,770)	(204,115)	(204,242)	(204,283)	(204,294)
HALE COUNTY - RED BASIN						
IRRIGATION	(2,630)	(2,647)	(2,302)	(2,175)	(2,134)	(2,123)
HOCKLEY COUNTY - BRAZOS BASIN						
ANTON	675	671	670	670	664	659
LEVELLAND	2,773	2,608	2,456	2,333	2,146	2,114
COUNTY-OTHER	223	200	192	199	161	135
MANUFACTURING	124	9	9	9	9	9
MINING	1,295	1,295	1,296	1,296	1,297	1,298
LIVESTOCK	236	231	226	221	216	215
IRRIGATION	2,037	(43,079)	(30,841)	(27,041)	(25,744)	(25,183)
HOCKLEY COUNTY - COLORADO BASIN						
SUNDOWN	443	425	413	411	391	378
COUNTY-OTHER	8	7	7	7	6	5
MINING	234	234	234	234	234	234
LIVESTOCK	39	39	38	37	36	36
IRRIGATION	4,830	4,830	3,745	(55)	(1,352)	(1,913)
LAMB COUNTY - BRAZOS BASIN						
AMHERST	132	127	124	121	115	110

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

EARTH	499	500	504	507	504	504
LITTLEFIELD	1,391	1,422	1,451	1,462	1,464	1,464
OLTON	886	891	901	915	914	916
SUDAN	169	155	146	141	127	118
COUNTY-OTHER	174	141	124	128	98	83
MANUFACTURING	193	60	60	60	60	60
MINING	(478)	(471)	(405)	(337)	(277)	(225)
STEAM ELECTRIC POWER	2,216	2,216	2,216	2,216	2,216	2,216
LIVESTOCK	1,285	696	315	(100)	(555)	(1,046)
IRRIGATION	(75,376)	(186,771)	(186,771)	(186,771)	(186,771)	(186,771)
LUBBOCK COUNTY - BRAZOS BASIN						
ABERNATHY	293	300	312	331	333	339
IDALOU	872	865	855	839	821	803
LUBBOCK	(3,716)	(8,472)	(13,818)	(19,356)	(26,501)	(32,370)
NEW DEAL	373	366	358	349	339	328
RANSOM CANYON	233	214	193	169	145	121
SHALLOWATER	244	202	159	108	56	4
SLATON	1,334	1,273	1,190	1,098	1,015	1,006
WOLFFORTH	415	268	119	(43)	(204)	(366)
COUNTY-OTHER	2,543	2,760	3,111	2,171	1,211	1
MANUFACTURING	(521)	(676)	(676)	(676)	(676)	(676)
MINING	(5,372)	(5,443)	(4,931)	(4,320)	(3,781)	(3,332)
STEAM ELECTRIC POWER	4,404	4,404	4,404	2,164	2,164	2,164
LIVESTOCK	202	152	117	78	37	3
IRRIGATION	2,468	(33,904)	(33,904)	(33,904)	(33,904)	(33,904)
LYNN COUNTY - BRAZOS BASIN						
ODONNELL	86	78	70	63	56	55
TAHOKA PUBLIC WATER SYSTEM	389	352	317	283	250	245
COUNTY-OTHER	76	73	82	89	75	69
MINING	(635)	(785)	(718)	(511)	(319)	(165)
LIVESTOCK	98	95	92	89	86	85
IRRIGATION	20,457	4,725	(4,665)	(10,525)	(14,137)	(16,473)
LYNN COUNTY - COLORADO BASIN						
COUNTY-OTHER	2	2	2	2	2	1
MINING	11	0	5	20	35	47
LIVESTOCK	4	4	4	4	3	3
IRRIGATION	1,115	1,115	45	(986)	(1,629)	(2,001)
MOTLEY COUNTY - RED BASIN						
MATADOR	550	553	555	556	556	556
RED RIVER AUTHORITY OF TEXAS	0	0	0	0	0	0
COUNTY-OTHER	24	28	30	30	31	31
MINING	4	31	39	46	65	83
LIVESTOCK	99	85	70	55	39	35
IRRIGATION	2,681	2,681	2,681	2,680	2,680	2,680
PARMER COUNTY - BRAZOS BASIN						
BOVINA	198	169	142	113	75	40
FARWELL	465	432	401	368	327	289

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

COUNTY-OTHER	166	136	108	76	37	0
LIVESTOCK	3,192	2,409	1,890	1,324	708	43
IRRIGATION	(122,909)	(150,296)	(140,764)	(137,234)	(135,074)	(134,135)
PARMER COUNTY - RED BASIN						
FRIONA	1,362	1,299	1,241	1,178	1,096	1,020
COUNTY-OTHER	119	97	78	55	27	1
MANUFACTURING	200	25	25	25	25	25
LIVESTOCK	798	602	472	331	177	10
IRRIGATION	22,078	(11,452)	(20,984)	(24,514)	(25,914)	(26,752)
SWISHER COUNTY - BRAZOS BASIN						
COUNTY-OTHER	13	12	13	13	11	10
LIVESTOCK	2,657	2,650	2,643	2,635	2,627	2,298
IRRIGATION	(1,927)	(16,395)	(16,504)	(16,328)	(16,104)	(15,578)
SWISHER COUNTY - RED BASIN						
HAPPY	377	375	374	375	370	365
TULIA	939	921	928	941	901	881
COUNTY-OTHER	77	76	78	81	67	60
LIVESTOCK	704	575	439	297	148	0
IRRIGATION	(11,251)	(54,427)	(54,318)	(54,494)	(55,258)	(54,922)
TERRY COUNTY - BRAZOS BASIN						
COUNTY-OTHER	2	2	2	2	2	2
MINING	15	3	2	11	19	25
LIVESTOCK	9	8	6	5	3	2
IRRIGATION	(351)	(1,551)	(826)	(672)	(660)	(685)
TERRY COUNTY - COLORADO BASIN						
BROWNFIELD	365	236	132	(49)	(216)	(291)
COUNTY-OTHER	109	110	89	109	89	67
MANUFACTURING	3	0	0	0	0	0
MINING	(230)	(388)	(405)	(287)	(172)	(91)
LIVESTOCK	161	121	92	59	25	2
IRRIGATION	16,399	(40,392)	(41,117)	(41,271)	(41,283)	(41,258)
YOAKUM COUNTY - COLORADO BASIN						
DENVER CITY	3,890	3,734	3,593	3,425	3,247	3,077
PLAINS	700	652	609	560	506	453
COUNTY-OTHER	136	112	89	63	31	1
MINING	(536)	(570)	(383)	(193)	(19)	123
STEAM ELECTRIC POWER	90	90	90	90	90	90
LIVESTOCK	100	95	90	85	80	78
IRRIGATION	(32,558)	(78,546)	(78,546)	(78,546)	(78,546)	(78,546)

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Appendix G. TWDB DB22 Report #9 - Source Water Balance

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Region O 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
DOCKUM AQUIFER	BAILEY	BRAZOS	FRESH	833	833	833	833	833	833
DOCKUM AQUIFER	BRISCOE	RED	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	CASTRO	BRAZOS	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	CASTRO	RED	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	COCHRAN	BRAZOS	FRESH	104	104	104	104	104	104
DOCKUM AQUIFER	COCHRAN	COLORADO	FRESH	868	868	868	868	868	868
DOCKUM AQUIFER	CROSBY	BRAZOS	FRESH	172	172	172	172	172	172
DOCKUM AQUIFER	CROSBY	RED	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	DEAF SMITH	CANADIAN	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	DEAF SMITH	RED	FRESH	977	977	977	977	977	977
DOCKUM AQUIFER	DICKENS	BRAZOS	FRESH	43	43	43	43	43	43
DOCKUM AQUIFER	DICKENS	RED	FRESH	51	51	51	51	51	51
DOCKUM AQUIFER	FLOYD	BRAZOS	FRESH	2,976	2,976	2,976	2,976	2,976	2,976
DOCKUM AQUIFER	FLOYD	RED	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	GAINES	COLORADO	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	GARZA	BRAZOS	BRACKISH	495	495	495	495	495	495
DOCKUM AQUIFER	HALE	BRAZOS	FRESH	1,092	1,092	1,092	1,092	1,092	1,092
DOCKUM AQUIFER	HALE	RED	FRESH	29	29	29	29	29	29
DOCKUM AQUIFER	HOCKLEY	BRAZOS	FRESH	862	862	862	862	862	862
DOCKUM AQUIFER	HOCKLEY	COLORADO	FRESH	167	167	167	167	167	167
DOCKUM AQUIFER	LAMB	BRAZOS	FRESH	923	923	923	923	923	923
DOCKUM AQUIFER	LUBBOCK	BRAZOS	FRESH	1,086	1,086	1,086	1,086	1,086	1,086
DOCKUM AQUIFER	LYNN	BRAZOS	FRESH	791	791	791	791	791	791
DOCKUM AQUIFER	LYNN	COLORADO	FRESH	121	121	121	121	121	121
DOCKUM AQUIFER	MOTLEY	RED	FRESH	0	0	0	0	0	0
DOCKUM AQUIFER	PARMER	BRAZOS	FRESH	2,252	2,252	2,252	2,252	1,492	1,391
DOCKUM AQUIFER	PARMER	RED	FRESH	1,973	1,973	1,973	1,973	1,973	1,973
DOCKUM AQUIFER	SWISHER	BRAZOS	FRESH	25	25	25	25	25	25
DOCKUM AQUIFER	SWISHER	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER	DICKENS	BRAZOS	FRESH	56	56	56	56	56	56
OGALLALA AQUIFER	DICKENS	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER	MOTLEY	RED	FRESH	38	38	38	38	38	38
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	BAILEY	BRAZOS	FRESH	16,650	16,821	17,068	17,353	17,676	18,556
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	BRISCOE	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CASTRO	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CASTRO	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	COCHRAN	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	COCHRAN	COLORADO	FRESH	25,116	7,068	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CROSBY	BRAZOS	FRESH	7,906	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	CROSBY	RED	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 O 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
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	DAWSON	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	DAWSON	COLORADO	FRESH	12,362	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	DEAF SMITH	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	FLOYD	BRAZOS	FRESH	72,769	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	FLOYD	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	GAINES	COLORADO	FRESH	1	1	1	1	1	1
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	GARZA	BRAZOS	FRESH	2,241	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	GARZA	COLORADO	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HALE	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HALE	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HOCKLEY	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	HOCKLEY	COLORADO	FRESH	31,581	11,153	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LAMB	BRAZOS	FRESH	16,454	16,625	16,872	17,157	17,480	18,610
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LUBBOCK	BRAZOS	FRESH	1	1	1	1	1	1
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LYNN	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	LYNN	COLORADO	FRESH	921	197	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	PARMER	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	PARMER	RED	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	SWISHER	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	SWISHER	RED	FRESH	0	0	0	0	540	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	TERRY	BRAZOS	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	TERRY	COLORADO	FRESH	0	0	0	0	0	0
OGALLALA AQUIFER & EDWARDS-TRINITY-HIGH PLAINS AQUIFER	YOAKUM	COLORADO	FRESH	0	0	0	0	0	0
OTHER AQUIFER	BRISCOE	RED	FRESH	873	873	873	873	873	873
OTHER AQUIFER	CROSBY	BRAZOS	BRACKISH	538	538	538	538	538	538
OTHER AQUIFER	DICKENS	BRAZOS	BRACKISH	114	114	114	114	114	114
OTHER AQUIFER	DICKENS	RED	BRACKISH	152	151	150	149	148	147
OTHER AQUIFER	FLOYD	RED	FRESH	515	515	515	515	515	515
OTHER AQUIFER	GARZA	BRAZOS	FRESH	570	570	570	570	570	570
OTHER AQUIFER	MOTLEY	RED	BRACKISH	684	684	683	683	682	682
SEYMOUR AQUIFER	BRISCOE	RED	BRACKISH	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 O 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
SEYMOUR AQUIFER	MOTLEY	RED	FRESH	3,999	5,835	3,999	3,986	3,128	3,117
GROUNDWATER TOTAL SOURCE WATER BALANCE				209,381	77,080	57,318	57,874	57,440	58,797

REUSE SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
DIRECT REUSE	BAILEY	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	CASTRO	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	COCHRAN	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	COCHRAN	COLORADO	FRESH	0	0	0	0	0	0
DIRECT REUSE	CROSBY	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	DEAF SMITH	RED	FRESH	0	0	0	0	0	0
DIRECT REUSE	FLOYD	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	HALE	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	HOCKLEY	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	HOCKLEY	COLORADO	FRESH	0	0	0	0	0	0
DIRECT REUSE	LAMB	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	LUBBOCK	BRAZOS	FRESH	3,483	12,611	15,064	18,995	20,496	21,750
DIRECT REUSE	LYNN	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	PARMER	BRAZOS	FRESH	0	0	0	0	0	0
DIRECT REUSE	PARMER	RED	FRESH	0	0	0	0	0	0
REUSE TOTAL SOURCE WATER BALANCE				3,483	12,611	15,064	18,995	20,496	21,750

SURFACE WATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
ALAN HENRY LAKE/RESERVOIR	RESERVOIR	BRAZOS	FRESH	12,600	12,320	12,020	11,700	11,380	10,720
BRAZOS RUN-OF-RIVER	DICKENS	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	GARZA	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	LUBBOCK	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	LYNN	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS RUN-OF-RIVER	CROSBY	BRAZOS	FRESH	0	0	0	0	0	0
MACKENZIE LAKE/RESERVOIR	RESERVOIR	RED	FRESH	3,962	3,962	3,962	3,962	3,962	3,962
RED RUN-OF-RIVER	BRISCOE	RED	FRESH	0	0	0	0	0	0
RED RUN-OF-RIVER	FLOYD	RED	FRESH	0	0	0	0	0	0
RED RUN-OF-RIVER	MOTLEY	RED	FRESH	0	0	0	0	0	0
RED RUN-OF-RIVER	PARMER	RED	FRESH	0	0	0	0	0	0
WHITE RIVER LAKE/RESERVOIR	RESERVOIR	BRAZOS	FRESH	3,650	3,650	3,650	3,650	3,650	3,650
SURFACE WATER TOTAL SOURCE WATER BALANCE				20,212	19,932	19,632	19,312	18,992	18,332

REGION O TOTAL SOURCE WATER BALANCE				233,076	109,623	92,014	96,181	96,928	98,879
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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.

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Appendix H. TWDB DB22 Report #10a – WUG Data Comparison to 2016 RWP

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Region O 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 (%)
BAILEY COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	280	411	46.8%	265	411	55.1%
PROJECTED DEMAND TOTAL	277	277	0.0%	411	411	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	146	0	-100.0%
BAILEY COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	36,926	72,810	97.2%	12,715	9,946	-21.8%
PROJECTED DEMAND TOTAL	119,268	88,108	-26.1%	105,752	55,616	-47.4%
WATER SUPPLY NEEDS TOTAL	82,342	15,298	-81.4%	93,037	45,670	-50.9%
BAILEY COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,286	3,077	139.3%	753	3,077	308.6%
PROJECTED DEMAND TOTAL	2,335	2,428	4.0%	3,204	3,958	23.5%
WATER SUPPLY NEEDS TOTAL	1,049	0	-100.0%	2,451	881	-64.1%
BAILEY COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	133	0	-100.0%	64	0	-100.0%
PROJECTED DEMAND TOTAL	316	0	-100.0%	388	0	-100.0%
WATER SUPPLY NEEDS TOTAL	183	0	-100.0%	324	0	-100.0%
BAILEY COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,125	3,056	171.6%	1,200	3,056	154.7%
PROJECTED DEMAND TOTAL	1,174	1,173	-0.1%	1,787	1,787	0.0%
WATER SUPPLY NEEDS TOTAL	49	0	-100.0%	587	0	-100.0%
BRISCOE COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	295	219	-25.8%	295	219	-25.8%
PROJECTED DEMAND TOTAL	297	159	-46.5%	288	154	-46.5%
WATER SUPPLY NEEDS TOTAL	2	0	-100.0%	0	0	0.0%
BRISCOE COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	33,335	33,668	1.0%	10,993	11,097	0.9%
PROJECTED DEMAND TOTAL	37,260	26,417	-29.1%	31,052	15,231	-51.0%
WATER SUPPLY NEEDS TOTAL	3,925	0	-100.0%	20,059	4,134	-79.4%
BRISCOE COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	273	353	29.3%	273	353	29.3%
PROJECTED DEMAND TOTAL	302	286	-5.3%	348	352	1.1%
WATER SUPPLY NEEDS TOTAL	29	0	-100.0%	75	0	-100.0%
BRISCOE COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	71	446	528.2%	71	446	528.2%
PROJECTED DEMAND TOTAL	126	234	85.7%	119	221	85.7%
WATER SUPPLY NEEDS TOTAL	55	0	-100.0%	48	0	-100.0%
CASTRO COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	420	460	9.5%	520	460	-11.5%
PROJECTED DEMAND TOTAL	411	368	-10.5%	496	444	-10.5%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
CASTRO COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	125,052	254,821	103.8%	33,519	15,033	-55.2%
PROJECTED DEMAND TOTAL	387,976	379,863	-2.1%	320,029	222,898	-30.4%

*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 O 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	262,924	125,042	-52.4%	286,510	207,865	-27.4%
CASTRO COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	3,656	11,339	210.1%	2,429	11,339	366.8%
PROJECTED DEMAND TOTAL	5,848	6,721	14.9%	7,851	10,261	30.7%
WATER SUPPLY NEEDS TOTAL	2,897	0	-100.0%	5,606	0	-100.0%
CASTRO COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	962	95	-90.1%	1,059	95	-91.0%
PROJECTED DEMAND TOTAL	980	61	-93.8%	1,319	66	-95.0%
WATER SUPPLY NEEDS TOTAL	85	0	-100.0%	260	0	-100.0%
CASTRO COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,244	5,034	304.7%	1,203	5,034	318.5%
PROJECTED DEMAND TOTAL	1,276	1,400	9.7%	1,557	1,712	10.0%
WATER SUPPLY NEEDS TOTAL	43	0	-100.0%	354	0	-100.0%
COCHRAN COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	485	383	-21.0%	560	383	-31.6%
PROJECTED DEMAND TOTAL	500	306	-38.8%	583	376	-35.5%
WATER SUPPLY NEEDS TOTAL	16	0	-100.0%	23	0	-100.0%
COCHRAN COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	35,366	74,660	111.1%	21,693	40,689	87.6%
PROJECTED DEMAND TOTAL	102,229	99,449	-2.7%	84,214	62,972	-25.2%
WATER SUPPLY NEEDS TOTAL	66,863	42,778	-36.0%	62,521	28,190	-54.9%
COCHRAN COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	149	674	352.3%	242	674	178.5%
PROJECTED DEMAND TOTAL	536	102	-81.0%	684	118	-82.7%
WATER SUPPLY NEEDS TOTAL	387	0	-100.0%	442	0	-100.0%
COCHRAN COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	152	312	105.3%	80	312	290.0%
PROJECTED DEMAND TOTAL	154	154	0.0%	81	81	0.0%
WATER SUPPLY NEEDS TOTAL	6	0	-100.0%	4	0	-100.0%
COCHRAN COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	350	911	160.3%	350	911	160.3%
PROJECTED DEMAND TOTAL	473	595	25.8%	469	596	27.1%
WATER SUPPLY NEEDS TOTAL	123	0	-100.0%	119	0	-100.0%
CROSBY COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	238	188	-21.0%	248	188	-24.2%
PROJECTED DEMAND TOTAL	155	150	-3.2%	192	185	-3.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
CROSBY COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	110,280	167,160	51.6%	89,800	40,033	-55.4%
PROJECTED DEMAND TOTAL	117,362	107,583	-8.3%	95,864	67,695	-29.4%
WATER SUPPLY NEEDS TOTAL	7,082	576	-91.9%	6,064	27,662	356.2%
CROSBY COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	155	211	36.1%	155	211	36.1%
PROJECTED DEMAND TOTAL	262	171	-34.7%	294	209	-28.9%

*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 O 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	107	0	-100.0%	139	0	-100.0%
CROSBY COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	6	3	-50.0%	6	3	-50.0%
PROJECTED DEMAND TOTAL	3	2	-33.3%	3	3	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
CROSBY COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	650	1,183	82.0%	360	1,183	228.6%
PROJECTED DEMAND TOTAL	994	994	0.0%	568	568	0.0%
WATER SUPPLY NEEDS TOTAL	348	368	5.7%	210	210	0.0%
CROSBY COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	952	1,519	59.6%	1,093	1,519	39.0%
PROJECTED DEMAND TOTAL	838	843	0.6%	1,058	1,065	0.7%
WATER SUPPLY NEEDS TOTAL	0	78	100.0%	40	146	265.0%
DAWSON COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	633	750	18.5%	582	750	28.9%
PROJECTED DEMAND TOTAL	588	606	3.1%	721	739	2.5%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	149	0	-100.0%
DAWSON COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	108,203	158,435	46.4%	76,137	67,872	-10.9%
PROJECTED DEMAND TOTAL	106,630	106,312	-0.3%	80,286	79,443	-1.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	4,149	11,847	185.5%
DAWSON COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	149	201	34.9%	159	201	26.4%
PROJECTED DEMAND TOTAL	139	53	-61.9%	159	65	-59.1%
WATER SUPPLY NEEDS TOTAL	2	0	-100.0%	2	0	-100.0%
DAWSON COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	129	0	-100.0%	168	0	-100.0%
PROJECTED DEMAND TOTAL	129	0	-100.0%	175	0	-100.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	7	0	-100.0%
DAWSON COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	779	266	-65.9%	0	266	100.0%
PROJECTED DEMAND TOTAL	954	1,812	89.9%	255	1,812	610.6%
WATER SUPPLY NEEDS TOTAL	175	1,546	783.4%	255	1,546	506.3%
DAWSON COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,039	2,315	13.5%	1,213	2,433	100.6%
PROJECTED DEMAND TOTAL	2,293	2,258	-1.5%	2,445	2,409	-1.5%
WATER SUPPLY NEEDS TOTAL	264	0	-100.0%	1,232	0	-100.0%
DEAF SMITH COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	603	988	63.8%	941	988	5.0%
PROJECTED DEMAND TOTAL	541	590	9.1%	904	988	9.3%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
DEAF SMITH COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	109,276	192,430	76.1%	36,547	31,800	-13.0%
PROJECTED DEMAND TOTAL	193,410	210,016	8.6%	164,985	118,219	-28.3%

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Region O 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	84,134	17,586	-79.1%	128,438	86,419	-32.7%
DEAF SMITH COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	8,080	12,089	49.6%	15,673	12,089	-22.9%
PROJECTED DEMAND TOTAL	12,555	11,170	-11.0%	16,471	15,604	-5.3%
WATER SUPPLY NEEDS TOTAL	4,475	112	-97.5%	798	3,515	340.5%
DEAF SMITH COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,600	4	-99.8%	1,800	4	-99.8%
PROJECTED DEMAND TOTAL	3,834	1,002	-73.9%	4,438	1,107	-75.1%
WATER SUPPLY NEEDS TOTAL	2,234	998	-55.3%	2,638	1,103	-58.2%
DEAF SMITH COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	4,000	6,759	69.0%	6,756	6,759	0.0%
PROJECTED DEMAND TOTAL	3,953	3,857	-2.4%	6,907	6,739	-2.4%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	151	0	-100.0%
DICKENS COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	294	181	-38.4%	277	181	-34.7%
PROJECTED DEMAND TOTAL	153	145	-5.2%	142	132	-7.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
DICKENS COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	9,608	10,376	8.0%	9,233	10,376	12.4%
PROJECTED DEMAND TOTAL	9,363	9,039	-3.5%	8,060	9,039	12.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
DICKENS COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	305	487	59.7%	305	487	59.7%
PROJECTED DEMAND TOTAL	375	387	3.2%	422	475	12.6%
WATER SUPPLY NEEDS TOTAL	70	0	-100.0%	117	0	-100.0%
DICKENS COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	12	29	141.7%	12	29	141.7%
PROJECTED DEMAND TOTAL	12	12	0.0%	12	12	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
DICKENS COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	178	235	32.0%	170	240	41.2%
PROJECTED DEMAND TOTAL	178	191	7.3%	170	187	10.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
FLOYD COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	292	295	1.0%	253	295	16.6%
PROJECTED DEMAND TOTAL	200	192	-4.0%	224	291	29.9%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
FLOYD COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	122,428	109,193	-10.8%	92,461	53,048	-42.6%
PROJECTED DEMAND TOTAL	147,725	128,837	-12.8%	120,941	76,235	-37.0%
WATER SUPPLY NEEDS TOTAL	26,565	41,938	57.9%	29,390	23,187	-21.1%
FLOYD COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	798	1,639	105.4%	948	1,639	72.9%
PROJECTED DEMAND TOTAL	738	1,168	58.3%	942	1,268	34.6%

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Region O 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%	23	0	-100.0%
FLOYD COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	486	492	1.2%	485	492	1.4%
PROJECTED DEMAND TOTAL	486	486	0.0%	485	485	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
FLOYD COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	978	2,495	155.1%	898	2,495	177.8%
PROJECTED DEMAND TOTAL	840	849	1.1%	958	854	-10.9%
WATER SUPPLY NEEDS TOTAL	35	0	-100.0%	67	0	-100.0%
GAINES COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,150	1,750	52.2%	2,020	1,750	-13.4%
PROJECTED DEMAND TOTAL	1,403	1,400	-0.2%	3,633	3,630	-0.1%
WATER SUPPLY NEEDS TOTAL	253	0	-100.0%	1,613	1,880	16.6%
GAINES COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	231,255	264,961	14.6%	25,401	125,301	393.3%
PROJECTED DEMAND TOTAL	379,779	362,482	-4.6%	292,238	282,438	-3.4%
WATER SUPPLY NEEDS TOTAL	148,524	97,521	-34.3%	266,837	157,137	-41.1%
GAINES COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	240	203	-15.4%	158	203	28.5%
PROJECTED DEMAND TOTAL	238	123	-48.3%	304	137	-54.9%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	146	0	-100.0%
GAINES COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,968	544	-72.4%	494	544	10.1%
PROJECTED DEMAND TOTAL	2,278	1,512	-33.6%	2,874	1,587	-44.8%
WATER SUPPLY NEEDS TOTAL	310	968	212.3%	2,380	1,043	-56.2%
GAINES COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,627	7,729	375.0%	313	7,729	2369.3%
PROJECTED DEMAND TOTAL	1,829	1,829	0.0%	776	776	0.0%
WATER SUPPLY NEEDS TOTAL	202	0	-100.0%	463	0	-100.0%
GAINES COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,220	2,766	24.6%	2,470	2,766	12.0%
PROJECTED DEMAND TOTAL	2,767	2,771	0.1%	4,177	4,181	0.1%
WATER SUPPLY NEEDS TOTAL	548	551	0.5%	1,707	1,878	10.0%
GARZA COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	195	171	-12.3%	154	171	11.0%
PROJECTED DEMAND TOTAL	135	135	0.0%	133	133	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
GARZA COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	11,675	15,028	28.7%	8,775	11,827	34.8%
PROJECTED DEMAND TOTAL	11,621	10,353	-10.9%	8,655	10,353	19.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
GARZA COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	68	184	170.6%	68	184	170.6%
PROJECTED DEMAND TOTAL	299	148	-50.5%	346	181	-47.7%

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Region O 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	231	0	-100.0%	278	0	-100.0%
GARZA COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2	2	0.0%	2	2	0.0%
PROJECTED DEMAND TOTAL	2	2	0.0%	2	2	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
GARZA COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	395	544	37.7%	164	544	231.7%
PROJECTED DEMAND TOTAL	395	395	0.0%	164	164	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
GARZA COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,098	964	-12.2%	1,271	964	-24.2%
PROJECTED DEMAND TOTAL	792	792	0.0%	965	964	-0.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
HALE COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,190	1,289	8.3%	1,200	1,289	7.4%
PROJECTED DEMAND TOTAL	1,171	1,031	-12.0%	1,173	1,058	-9.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
HALE COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	131,321	209,308	59.4%	108,113	21,151	-80.4%
PROJECTED DEMAND TOTAL	369,812	310,542	-16.0%	313,161	227,568	-27.3%
WATER SUPPLY NEEDS TOTAL	238,491	101,234	-57.6%	205,048	206,417	0.7%
HALE COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,107	3,715	235.6%	1,016	3,715	265.6%
PROJECTED DEMAND TOTAL	2,045	2,752	34.6%	2,821	4,098	45.3%
WATER SUPPLY NEEDS TOTAL	938	0	-100.0%	1,805	383	-78.8%
HALE COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,603	1,416	-11.7%	3,600	1,416	-60.7%
PROJECTED DEMAND TOTAL	2,830	4,383	54.9%	3,510	5,076	44.6%
WATER SUPPLY NEEDS TOTAL	1,227	2,967	141.8%	0	3,660	100.0%
HALE COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	14	215	1435.7%	0	215	100.0%
PROJECTED DEMAND TOTAL	1,168	1,168	0.0%	662	662	0.0%
WATER SUPPLY NEEDS TOTAL	1,154	953	-17.4%	662	447	-32.5%
HALE COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	6,744	11,362	68.5%	5,842	11,136	90.6%
PROJECTED DEMAND TOTAL	5,520	5,725	3.7%	5,687	5,876	3.3%
WATER SUPPLY NEEDS TOTAL	80	0	-100.0%	51	0	-100.0%
HALE COUNTY STEAM ELECTRIC POWER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	26	31	19.2%	139	31	-77.7%
PROJECTED DEMAND TOTAL	60	31	-48.3%	139	31	-77.7%
WATER SUPPLY NEEDS TOTAL	34	0	-100.0%	0	0	0.0%
HOCKLEY COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,048	1,152	9.9%	1,052	1,152	9.5%
PROJECTED DEMAND TOTAL	922	921	-0.1%	1,013	1,012	-0.1%

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Region O 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%
HOCKLEY COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	83,565	138,733	66.0%	52,686	46,493	-11.8%
PROJECTED DEMAND TOTAL	131,207	131,866	0.5%	107,813	73,589	-31.7%
WATER SUPPLY NEEDS TOTAL	47,642	0	-100.0%	55,127	27,096	-50.8%
HOCKLEY COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	468	408	-12.8%	625	408	-34.7%
PROJECTED DEMAND TOTAL	238	133	-44.1%	304	157	-48.4%
WATER SUPPLY NEEDS TOTAL	35	0	-100.0%	45	0	-100.0%
HOCKLEY COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,185	700	-40.9%	1,200	700	-41.7%
PROJECTED DEMAND TOTAL	1,185	576	-51.4%	1,203	691	-42.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	3	0	-100.0%
HOCKLEY COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,707	1,547	-9.4%	0	1,547	100.0%
PROJECTED DEMAND TOTAL	18	18	0.0%	15	15	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	15	0	-100.0%
HOCKLEY COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	3,357	6,909	105.8%	2,349	6,536	178.2%
PROJECTED DEMAND TOTAL	3,019	3,018	0.0%	3,383	3,385	0.1%
WATER SUPPLY NEEDS TOTAL	18	0	-100.0%	1,111	0	-100.0%
LAMB COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	450	575	27.8%	600	575	-4.2%
PROJECTED DEMAND TOTAL	435	401	-7.8%	596	492	-17.4%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
LAMB COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	126,104	184,075	46.0%	28,179	7,414	-73.7%
PROJECTED DEMAND TOTAL	325,356	259,451	-20.3%	268,045	194,185	-27.6%
WATER SUPPLY NEEDS TOTAL	199,252	75,376	-62.2%	239,866	186,771	-22.1%
LAMB COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,080	5,225	151.2%	788	5,225	563.1%
PROJECTED DEMAND TOTAL	2,969	3,940	32.7%	3,427	6,271	83.0%
WATER SUPPLY NEEDS TOTAL	889	0	-100.0%	2,639	1,046	-60.4%
LAMB COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	336	1,000	197.6%	635	1,000	57.5%
PROJECTED DEMAND TOTAL	616	807	31.0%	781	940	20.4%
WATER SUPPLY NEEDS TOTAL	280	0	-100.0%	146	0	-100.0%
LAMB COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	16	108	575.0%	0	108	100.0%
PROJECTED DEMAND TOTAL	586	586	0.0%	333	333	0.0%
WATER SUPPLY NEEDS TOTAL	570	478	-16.1%	333	225	-32.4%
LAMB COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,128	5,073	138.4%	1,928	5,073	163.1%
PROJECTED DEMAND TOTAL	1,966	1,996	1.5%	1,860	1,961	5.4%

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Region O 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%	24	0	-100.0%
LAMB COUNTY STEAM ELECTRIC POWER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	11,436	15,666	37.0%	37,407	15,666	-58.1%
PROJECTED DEMAND TOTAL	17,663	13,450	-23.9%	40,391	13,450	-66.7%
WATER SUPPLY NEEDS TOTAL	6,227	0	-100.0%	2,984	0	-100.0%
LUBBOCK COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	4,656	6,340	36.2%	6,906	6,340	-8.2%
PROJECTED DEMAND TOTAL	4,647	3,797	-18.3%	6,847	6,339	-7.4%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
LUBBOCK COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	114,222	147,334	29.0%	53,637	80,356	49.8%
PROJECTED DEMAND TOTAL	169,242	144,866	-14.4%	127,582	114,260	-10.4%
WATER SUPPLY NEEDS TOTAL	55,020	0	-100.0%	73,945	33,904	-54.1%
LUBBOCK COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	800	1,290	61.3%	1,050	1,290	22.9%
PROJECTED DEMAND TOTAL	780	1,088	39.5%	1,021	1,287	26.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
LUBBOCK COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,929	335	-82.6%	3,005	335	-88.9%
PROJECTED DEMAND TOTAL	2,161	856	-60.4%	3,148	1,011	-67.9%
WATER SUPPLY NEEDS TOTAL	232	521	124.6%	143	676	372.7%
LUBBOCK COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	93	982	955.9%	0	982	100.0%
PROJECTED DEMAND TOTAL	6,354	6,354	0.0%	4,314	4,314	0.0%
WATER SUPPLY NEEDS TOTAL	6,261	5,372	-14.2%	4,314	3,332	-22.8%
LUBBOCK COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	38,356	49,824	29.9%	27,138	42,574	56.9%
PROJECTED DEMAND TOTAL	48,610	49,776	2.4%	72,004	72,709	1.0%
WATER SUPPLY NEEDS TOTAL	10,565	3,716	-64.8%	45,022	32,736	-27.3%
LUBBOCK COUNTY STEAM ELECTRIC POWER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	15,682	10,098	-35.6%	8,961	7,858	-12.3%
PROJECTED DEMAND TOTAL	4,540	5,694	25.4%	9,906	5,694	-42.5%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	945	0	-100.0%
LYNN COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	316	389	23.1%	255	389	52.5%
PROJECTED DEMAND TOTAL	311	311	0.0%	319	319	0.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	69	0	-100.0%
LYNN COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	84,592	110,493	30.6%	64,587	70,447	9.1%
PROJECTED DEMAND TOTAL	84,566	88,921	5.1%	64,515	88,921	37.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	18,474	100.0%
LYNN COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	159	167	5.0%	159	167	5.0%
PROJECTED DEMAND TOTAL	141	65	-53.9%	165	79	-52.1%

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Region O 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	1	0	-100.0%	6	0	-100.0%
LYNN COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	483	542	12.2%	483	542	12.2%
PROJECTED DEMAND TOTAL	1,166	1,166	0.0%	660	660	0.0%
WATER SUPPLY NEEDS TOTAL	683	635	-7.0%	177	165	-6.8%
LYNN COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	647	1,057	63.4%	382	915	139.5%
PROJECTED DEMAND TOTAL	583	582	-0.2%	616	615	-0.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	234	0	-100.0%
MOTLEY COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	110	122	10.9%	105	122	16.2%
PROJECTED DEMAND TOTAL	109	98	-10.1%	103	91	-11.7%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
MOTLEY COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	9,701	12,107	24.8%	9,706	12,106	24.7%
PROJECTED DEMAND TOTAL	9,439	9,426	-0.1%	8,123	9,426	16.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
MOTLEY COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	320	375	17.2%	320	375	17.2%
PROJECTED DEMAND TOTAL	481	276	-42.6%	529	340	-35.7%
WATER SUPPLY NEEDS TOTAL	161	0	-100.0%	209	0	-100.0%
MOTLEY COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	6	0	-100.0%	6	0	-100.0%
PROJECTED DEMAND TOTAL	6	0	-100.0%	6	0	-100.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
MOTLEY COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	104	244	134.6%	104	244	134.6%
PROJECTED DEMAND TOTAL	240	240	0.0%	161	161	0.0%
WATER SUPPLY NEEDS TOTAL	136	0	-100.0%	57	0	-100.0%
MOTLEY COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	219	780	256.2%	219	782	257.1%
PROJECTED DEMAND TOTAL	213	230	8.0%	207	226	9.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
PARMER COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	625	946	51.4%	810	946	16.8%
PROJECTED DEMAND TOTAL	631	661	4.8%	902	945	4.8%
WATER SUPPLY NEEDS TOTAL	12	0	-100.0%	92	0	-100.0%
PARMER COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	57,086	138,394	142.4%	14,451	16,915	17.1%
PROJECTED DEMAND TOTAL	329,806	239,225	-27.5%	312,736	177,802	-43.1%
WATER SUPPLY NEEDS TOTAL	272,720	122,909	-54.9%	298,285	160,887	-46.1%
PARMER COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	5,125	11,329	121.1%	5,475	11,329	106.9%
PROJECTED DEMAND TOTAL	5,634	7,339	30.3%	7,593	11,276	48.5%

*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 O 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	582	0	-100.0%	2,149	0	-100.0%
PARMER COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,560	1,866	19.6%	1,560	1,866	19.6%
PROJECTED DEMAND TOTAL	2,233	1,666	-25.4%	2,973	1,841	-38.1%
WATER SUPPLY NEEDS TOTAL	673	0	-100.0%	1,413	0	-100.0%
PARMER COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,556	3,592	130.8%	1,855	3,592	93.6%
PROJECTED DEMAND TOTAL	1,598	1,567	-1.9%	2,286	2,243	-1.9%
WATER SUPPLY NEEDS TOTAL	45	0	-100.0%	431	0	-100.0%
SWISHER COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	220	447	103.2%	230	447	94.3%
PROJECTED DEMAND TOTAL	214	357	66.8%	226	377	66.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
SWISHER COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	99,462	122,218	22.9%	45,034	16,040	-64.4%
PROJECTED DEMAND TOTAL	196,895	135,396	-31.2%	198,581	86,540	-56.4%
WATER SUPPLY NEEDS TOTAL	97,433	13,178	-86.5%	153,547	70,500	-54.1%
SWISHER COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,370	6,089	156.9%	3,020	5,767	91.0%
PROJECTED DEMAND TOTAL	2,362	2,728	15.5%	3,015	3,469	15.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
SWISHER COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,077	2,280	111.7%	968	2,274	134.9%
PROJECTED DEMAND TOTAL	1,104	964	-12.7%	1,174	1,028	-12.4%
WATER SUPPLY NEEDS TOTAL	172	0	-100.0%	235	0	-100.0%
TERRY COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	339	556	64.0%	389	556	42.9%
PROJECTED DEMAND TOTAL	320	445	39.1%	383	487	27.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
TERRY COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	144,022	188,833	31.1%	3,381	83,584	2372.2%
PROJECTED DEMAND TOTAL	143,461	172,785	20.4%	110,848	125,527	13.2%
WATER SUPPLY NEEDS TOTAL	0	351	100.0%	107,467	41,943	-61.0%
TERRY COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	315	590	87.3%	16	590	3587.5%
PROJECTED DEMAND TOTAL	270	420	55.6%	395	586	48.4%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	379	0	-100.0%
TERRY COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2	17	750.0%	0	17	100.0%
PROJECTED DEMAND TOTAL	2	14	600.0%	2	17	750.0%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	2	0	-100.0%
TERRY COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	355	140	-60.6%	0	140	100.0%
PROJECTED DEMAND TOTAL	355	355	0.0%	206	206	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 O 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	230	100.0%	206	91	-55.8%
TERRY COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,897	1,969	3.8%	981	1,702	73.5%
PROJECTED DEMAND TOTAL	1,888	1,604	-15.0%	2,285	1,993	-12.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	1,304	291	-77.7%
YOAKUM COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	270	399	47.8%	405	399	-1.5%
PROJECTED DEMAND TOTAL	267	263	-1.5%	403	398	-1.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
YOAKUM COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	55,427	129,135	133.0%	5,480	39,135	614.1%
PROJECTED DEMAND TOTAL	146,083	161,693	10.7%	114,838	117,681	2.5%
WATER SUPPLY NEEDS TOTAL	90,656	32,558	-64.1%	109,358	78,546	-28.2%
YOAKUM COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	0	191	100.0%	0	191	100.0%
PROJECTED DEMAND TOTAL	281	91	-67.6%	322	113	-64.9%
WATER SUPPLY NEEDS TOTAL	281	0	-100.0%	322	0	-100.0%
YOAKUM COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	914	764	-16.4%	0	764	100.0%
PROJECTED DEMAND TOTAL	1,300	1,300	0.0%	641	641	0.0%
WATER SUPPLY NEEDS TOTAL	386	536	38.9%	641	0	-100.0%
YOAKUM COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	902	6,451	615.2%	1,350	6,451	377.9%
PROJECTED DEMAND TOTAL	1,855	1,861	0.3%	2,912	2,921	0.3%
WATER SUPPLY NEEDS TOTAL	953	0	-100.0%	1,562	0	-100.0%
YOAKUM COUNTY STEAM ELECTRIC POWER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,232	2,000	-10.4%	676	2,000	195.9%
PROJECTED DEMAND TOTAL	3,718	1,910	-48.6%	8,540	1,910	-77.6%
WATER SUPPLY NEEDS TOTAL	1,486	0	-100.0%	7,864	0	-100.0%
REGION O						
EXISTING WUG SUPPLY TOTAL	2,000,640	2,976,690	48.8%	976,717	1,042,480	6.7%
PROJECTED DEMAND TOTAL	3,710,638	3,367,953	-9.2%	3,210,784	2,452,931	-23.6%
WATER SUPPLY NEEDS TOTAL	1,731,832	706,374	-59.2%	2,240,096	1,471,903	-34.3%

*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.

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Appendix I. TWDB DB22 Report #10b – Source Data Comparison to 2016 RWP

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Region O 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 (%)
BAILEY COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	41,563	98,512	137.0%	15,443	35,648	130.8%
REUSE AVAILABILITY TOTAL (acre-feet per year)	825	825	0.0%	825	825	0.0%
BRISCOE COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	34,751	35,335	1.7%	12,406	12,764	2.9%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	80	96	20.0%	80	96	20.0%
CASTRO COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	127,304	267,718	110.3%	114,768	27,930	-75.7%
REUSE AVAILABILITY TOTAL (acre-feet per year)	4,031	4,031	0.0%	4,031	4,031	0.0%
COCHRAN COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	36,472	102,734	181.7%	22,895	43,647	90.6%
REUSE AVAILABILITY TOTAL (acre-feet per year)	294	294	0.0%	294	294	0.0%
CROSBY COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	145,791	179,181	22.9%	145,791	44,148	-69.7%
REUSE AVAILABILITY TOTAL (acre-feet per year)	583	583	0.0%	583	583	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	10	0	-100.0%	10	0	-100.0%
DAWSON COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	199,242	172,852	-13.2%	77,569	69,927	-9.9%
DEAF SMITH COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	122,952	210,737	71.4%	59,107	50,007	-15.4%
REUSE AVAILABILITY TOTAL (acre-feet per year)	2,810	2,810	0.0%	2,810	2,810	0.0%
DICKENS COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	24,049	11,500	-52.2%	23,195	11,500	-50.4%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	130	0	-100.0%	130	0	-100.0%
FLOYD COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	164,266	189,677	15.5%	132,633	60,763	-54.2%
REUSE AVAILABILITY TOTAL (acre-feet per year)	449	449	0.0%	449	449	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	10	18	80.0%	10	18	80.0%
GAINES COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	286,312	277,954	-2.9%	34,378	138,294	302.3%
GARZA COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	20,954	19,208	-8.3%	18,833	13,766	-26.9%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	30	0	-100.0%	30	0	-100.0%
HALE COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	134,877	221,232	64.0%	115,203	33,075	-71.3%
REUSE AVAILABILITY TOTAL (acre-feet per year)	5,477	5,477	0.0%	5,477	5,477	0.0%
HOCKLEY COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	93,049	178,488	91.8%	64,265	54,667	-14.9%
REUSE AVAILABILITY TOTAL (acre-feet per year)	1,521	1,521	0.0%	1,521	1,521	0.0%
LAMB COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	137,468	224,400	63.2%	70,998	47,739	-32.8%
REUSE AVAILABILITY TOTAL (acre-feet per year)	7,199	7,199	0.0%	7,199	7,199	0.0%
LUBBOCK COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	120,749	152,142	26.0%	86,132	91,884	6.7%
REUSE AVAILABILITY TOTAL (acre-feet per year)	22,728	22,523	-0.9%	30,759	31,830	3.5%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	20	0	-100.0%	20	0	-100.0%
LYNN COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	103,995	113,519	9.2%	82,501	72,552	-12.1%

Region O 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 (%)
REUSE AVAILABILITY TOTAL (acre-feet per year)	346	346	0.0%	346	346	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	30	0	-100.0%	30	0	-100.0%
MOTLEY COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	23,572	18,345	-22.2%	22,733	17,462	-23.2%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	10	4	-60.0%	10	4	-60.0%
PARMER COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	63,067	157,465	149.7%	35,142	35,125	0.0%
REUSE AVAILABILITY TOTAL (acre-feet per year)	2,887	2,887	0.0%	2,887	2,887	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	10	0	-100.0%	10	0	-100.0%
RESERVOIR COUNTY						
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	25,120	28,780	14.6%	23,240	26,900	15.7%
SWISHER COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	108,103	130,859	21.1%	52,961	24,359	-54.0%
TERRY COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	197,204	190,768	-3.3%	5,096	85,519	1578.2%
YOAKUM COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	61,638	138,940	125.4%	9,347	48,940	423.6%
REGION O						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	2,247,378	3,091,566	37.6%	1,201,396	1,019,716	-15.1%
REUSE AVAILABILITY TOTAL (acre-feet per year)	49,150	48,945	-0.4%	57,181	58,252	1.9%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	25,450	28,898	13.5%	23,570	27,018	14.6%

Appendix J. WAM input and output files

Electronic submittal of files

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Appendix K. Region G Hydrologic Variance Information

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Memorandum

Date: Friday, February 23, 2018

Project: 2021 Brazos G Regional Water Plan

To: Jeff Walker, Executive Administrator, Texas Water Development Board

CC: Brazos G RWPG, Thomas Barnett, Stephen Hamlin

From: David D. Dunn, P.E.

Subject: Hydrologic Variance Request for Surface Water Availability Analyses in Brazos G

The Brazos G Regional Water Planning Group (Brazos G) met on February 7, 2018 and discussed the process to determine the amount of surface water available from existing water rights and future water management strategies. During this meeting, Brazos G discussed specific deviations from the standard Texas Water Development Board (TWDB) guidance that will be employed to develop the 2021 Brazos G Regional Water Plan. As you know, the guidance provided by the TWDB in the base scope of work for the Fifth Cycle of Regional Water Planning requires the use of the Run 3 (full authorization) version of the Brazos River Basin and Brazos-San Jacinto Coastal Basin Water Availability Model (Brazos WAM) maintained by the Texas Commission on Environmental Quality (TCEQ). This model is used by the TCEQ for evaluating legal water available to applications for new or amended water rights, and as such, includes some aspects that limit its usefulness for water planning.

Brazos G requests that the TWDB allow specific variations from the base TCEQ Brazos WAM for analyses that determine surface water available to existing rights. These variations will allow a more accurate assessment of supplies available to existing water rights, and will provide consistency with the analyses used to develop the 2006, 2011 and 2016 Brazos G Plans. The resulting WAM containing these necessary modifications to the TCEQ Brazos WAM will be referred to as the “Brazos G WAM.”

1. Utilize naturalized flow and evaporation data developed by the Brazos River Authority (BRA) to extend the period of record through 2015.

The TCEQ Brazos WAM includes a period of record of 1940 – 1997. This period of record does not include the severe drought experienced recently, which in some areas of Texas has replaced the 1950’s drought as the “drought of record.” The BRA, in support of the development of its Water Management Plan for its recently-granted System Operations Permit, has extended the naturalized flow and evaporation datasets through 2015 in order to analyze the impact of the new potential drought of record on the agency’s water supplies. The hydrology has been updated throughout the Brazos Basin. Although developed in response to TCEQ requirements for the BRA’s Management Plan, the TCEQ does not consider these extended flows to be the “official” dataset for analyzing water right appropriations because the flow naturalization process did not include adjust gaged records for water rights with authorized annual diversions less than 1,000 acre-feet, reservoirs with storage less than 5,000 acre-feet, or wastewater effluent discharges less than 1 million gallons per day.. The resulting naturalized flows are somewhat more conservative (smaller) than those that would have been developed with a full flow naturalization process because diversions and water added to storage are added back into the gage flows during the flow naturalization process. The smaller return flows would

make an even smaller difference. Brazos G believes that this is a relatively small limitation in comparison to the opportunity to utilize an extended period of record that encompasses the existing and potentially new “droughts of record” in the Brazos Basin.

Benefit: Improved estimation of flows available to existing water rights considering the likelihood that a new drought of record exists in many parts of the Brazos Basin.

2. Separate individual BRA contractual diversions from cumulative contractual diversions.

The TCEQ Brazos WAM formerly assumed all diversions from storage occur lakeside and did not take into account the multiple BRA contracts located throughout the basin. The more recent TCEQ Brazos WAM now accumulates the BRA’s contracts within various reaches throughout the river basin. Those cumulative contractual diversions will need to be broken out to individual contract holders in the input data set to that water available to specific WUGs and WWP’s can be determined.

Benefits: Improved estimates of water available to WUGs and WWP’s that receive supplies from BRA.

3. Include estimated current and future return flows. (utilized in the 2006, 2011 and 2016 Brazos G Plans)

The Brazos G WAM will include a certain level of current and future return flows (wastewater treatment plant effluent) discharged by entities located throughout the basin that are permitted to discharge in excess of 0.9 million gallons per day (MGD). These return flows are based on historical discharges and projected future discharges assuming an aggressive plan for future reuse of each entity’s effluent. For determining a conservatively low estimate of return flows available to existing water rights, it was assumed that 25% of existing levels of discharge would be directly reused and not continued to be discharged, and 50% of any increases in wastewater plan flows would be reused. These return flow amounts were reviewed and acknowledged by each entity during the development of the 2006 Plan and were used during the development of the 2006, 2011 and 2016 Plans following approval by the TWDB. These return flow amounts will be revisited for the 2021 Plan and will be adjusted for any changes including new discharges, new reuse permits and requests by entities to revise their estimated discharges.

Benefits: Improved estimates of water available to existing water rights; improved estimates of streamflows throughout the Brazos Basin; provide an estimate of wastewater flows potentially available for direct reuse throughout the Brazos Basin.

4. Update reservoir operating rules to work correctly under recent drought conditions.

The reservoir operating rules in the TCEQ Brazos G WAM were developed to allow the BRA’s system of reservoirs to optimize water supply through the drought of the 1950’s. However, these operating rules do not allow the system to operate optimally during the more recent drought. The BRA has developed an alternative set of rules that allow the reservoir system to operate optimally through both the 1950’s and more recent drought, and the Brazos G WAM will incorporate these rules into the model.

5. Include existing subordination agreements in the Brazos G WAM. (utilized in the 2006, 2011 and 2016 Brazos G Plans)

Several agreements exist between parties in the Brazos River Basin whereby one party agrees to not exercise a priority call on the other party's upstream junior water right during times of low flow. This increases water available to the junior water right and decreases water available to the downstream senior water right when insufficient flows exist to satisfy both water rights. Some subordination agreements are included by TCEQ in the TCEQ Brazos WAM, but only those that are identified specifically in the language of the water rights involved. Many others are not included in the language of any water right and therefore are not included in the TCEQ Brazos WAM. The Brazos G WAM will be modified to include additional subordination agreements between entities in the Brazos Basin that are not included in the TCEQ Brazos WAM. Specific agreements currently identified to be added to the Brazos G WAM include:

- Possum Kingdom Reservoir water rights are subordinated to Lake Alan Henry;
- Possum Kingdom Reservoir water rights are subordinated to the City of Stamford's California Creek pump-back operation into Lake Stamford;
- Lake Waco is subordinated to the City of Clifton's 1996 priority date water right;
- Possum Kingdom Reservoir water rights are subordinated to rights held by the West Central Texas Municipal Water District in Hubbard Creek Reservoir; and
- Possum Kingdom Reservoir water rights are subordinated to rights held by the City of Abilene to divert flows from the Clear Fork of the Brazos River into Lake Fort Phantom Hill.

Some of these may already be incorporated into the TCEQ Brazos WAM. Other subordination agreements will also be incorporated when identified during the planning process.

Benefits: Provides a more realistic determination of water available to existing water rights; improved estimates of streamflows throughout the Brazos Basin.

6. Utilize safe yield analyses for reservoirs upstream of Possum Kingdom Reservoir and for Lake Palo Pinto. (utilized in the 2011 and 2016 Brazos G Plans)

Supplies available from reservoirs will use either a firm or safe yield depending on the location of the reservoir and the preference of the reservoir owner. In the upper Brazos Basin (upstream of Possum Kingdom Reservoir), both 1-year and 2-year safe yields are used by reservoir owners as their preferred basis of supply. These same approaches will be used, as requested by individual reservoir owners to best reflect the operation of their facilities. In addition, the Palo Pinto County Municipal Water District No. 1 has decided to operate on a percent storage reserve basis for Lake Palo Pinto, which is approximately equivalent to a 0.5-year safe yield. The same safe and firm yield assumptions employed in the 2016 Plan will be used in the 2021 Plan, unless a change is specifically requested by a reservoir owner. For reservoirs in which a 0.5-, 1-, or 2-year safe yield is used as the basis for supply, Brazos G will also determine and report the firm yield, as required by TWDB guidance.

Benefits: Provides a more realistic method for determining water supplies in west Texas because it matches that area's preferred approach for managing reservoir water supplies.

7. Utilize the Brazos Mini-WAM to determine supplies in the Clear Fork portion of the Brazos Basin.

During the Phase I studies leading into the 2011 planning cycle, Brazos G developed a subset of the Brazos WAM that extended the period of record through June 2008 for a portion of the upper Brazos Basin (16 primary control points) including the Clear Fork of the Brazos River. This model is referred to as the “Brazos Mini-WAM.” This model was used to determine water available to rights in the applicable portion of the Brazos Basin for the 2011 and 2016 Brazos G Plans. Hydrology for this model has now been updated through 2015 to incorporate the potential new drought of record. Naturalized streamflows for this model were developed using all water rights in the subwatershed and therefore are somewhat more precise than those developed by the BRA for the entire Brazos Basin. Brazos G requests that Brazos G Mini-WAM be used to determine surface water supplies for its applicable portion of the upper Brazos Basin, if it is determined that it provides greater than a 10-percent difference in supply (yield or run-of-river) than results from using the hydrology updated by the BRA.

Benefit: The Brazos G Mini-WAM may provide a better estimate of water available to water rights in the applicable part of the Brazos Basin; provide water supply estimates consistent with recent permitting and management decisions made by the City of Abilene.

8. Utilize the same water supply model for strategy evaluations as is used to determine supplies available to existing water rights.

TWDB guidance requires that evaluations of new water management strategies utilize a strict application of the TCEQ Run 3 WAM. The rationale for this guidance is to ensure that the supply from a water management strategy is consistent with what might actually be permitted by the TCEQ. However, TCEQ takes into account more information than a simple application of the WAM when making water right permitting decisions. Additionally, many water management strategies utilize or are intended to supplement existing supplies, and therefore should be evaluated consistent with the existing supplies they are intended to supplement. The existing supply and the supplementing water management strategy need to be evaluated consistently. Furthermore, the same aspects of the Run 3 WAM that limit its usefulness for determining supplies available to existing rights also limit its ability to determine supplies to new water management strategies. The TCEQ Run 3 WAM is a legal permitting tool that has only limited utility for water supply planning. Brazos G requests that the Brazos G WAM be utilized to evaluate water management strategies instead of the base TCEQ Run 3 WAM.

Benefits: This will provide a consistent basis of evaluation between existing supplies and new water management strategies.

Brazos G thanks the TWDB for considering these alternative technical approaches for determining surface water supplies to existing water rights and new water management strategies. We welcome any questions you may have regarding this hydrologic variance request for surface water supplies. Note that we have coordinated with the technical consultants for Region O and Region H, and they have indicated they intend to utilize the same approaches as outlined above.

Please direct any questions to the Brazos G technical consultant, David Dunn of HDR at david.dunn@hdrinc.com or (512) 912-5136.

April 17, 2018

Mr. Wayne Wilson
Region G Chair
c/o Wilson Cattle Company
7026 East OSR
Bryan, TX 77808

RE: Brazos G Regional Water Planning Group (RWPG) request for approval to modify surface water availability hydrologic assumptions for development of the 2021 Brazos G Regional Water Plan (RWP)

Dear Mr. Wilson:

The Texas Water Development Board (TWDB) has reviewed the request submitted by Mr. David Dunn on behalf of the Brazos G RWPG dated February 23, 2018 for approval of alternative water supply assumptions to be used in determining surface water availability. This letter confirms that the TWDB approves the following requests:

1. Utilize naturalized flow and evaporation data developed by the Brazos River Authority (BRA), which extends the hydrologic record through 2015.
2. Separate BRA individual contractual diversions from cumulative contractual diversions.
3. Include a conservative estimate of current and future return flows.
4. Incorporate updated reservoir system operating rules to more accurately reflect recent conditions.
5. Include existing subordination agreements in the Brazos G Water Availability Model (WAM).
6. Utilize 0.5, 1, or 2-year safe yields for reservoirs upstream of Possum Kingdom Reservoir and for Lake Palo Pinto (to be clearly specified, by reservoir, in the 2021 Brazos G RWP).
7. Utilize the Brazos Mini-WAM to determine supplies in the Clear Fork sub-basin of the Brazos basin.

Region G also requested to use the same water supply assumptions for strategy evaluations as used for existing supply. While the use of these modified conditions may be reasonable for planning purposes, WAM RUN 3 would be utilized by the Texas Commission on Environmental Quality for analyzing permit applications. It is acceptable to use modified conditions for water management strategy supply evaluations only if the yield produced is

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more conservative for surface water appropriations than WAM RUN 3. However, TWDB is of the understanding that the modified conditions will result in greater yields than WAM RUN 3. Therefore, strategy evaluations involving new surface water appropriations must be based on WAM RUN 3. Accounting for subordination agreements and use of future return flows are acceptable modifications for strategy evaluations as outlined in Exhibit C, Section 5.2.1.

Although the TWDB approves the use of safe yields for developing estimates of current water supplies, firm yield for each reservoir must still be reported to TWDB in the online planning database and plan documents.

While the TWDB authorizes these modifications to evaluate existing water supplies for development of the 2021 Brazos G 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 conditions; and in all other regards will be evaluated in accordance with the contract Exhibit C, *Second Amended General Guidelines for Fifth Cycle of Regional Water Plan Development*.

If you have any questions, please do not hesitate to contact Tom Barnett, project manager for Region G, at 512-463-4209 or via email at thomas.barnett@twdb.texas.gov.

Sincerely,



Jeff Walker
Executive Administrator

c w/o enc: Mr. Stephen Hamlin, Brazos River Authority
Mr. David Dunn, HDR, Inc.
Ms. Paula Jo Lemonds, HDR, Inc.
Ms. Simone Kiel, Freese & Nichols, Inc
Mr. Tom Barnett, TWDB

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Appendix L. Region O Hydrologic Variance Information

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LLANO ESTACADO REGIONAL WATER PLANNING GROUP

Planning Group Members

Aubrey A. Spear P.E., Chair
Mark Kirkpatrick, Vice-Chair
Doug Hutcheson, Secretary-Treasurer
Dr. Melanie Barnes
Jack Campsey
Jason Coleman P.E.
Harry DeWit
Delmon Ellison Jr.
Dr. Chris Grotegut, DVM
Joey Hardin
Ronnie Hopper
Nathaniel (Shane) Jones
Don McElroy
Shane McMinn, P.E.
Dr. Ken Rainwater
Charles (Charlie) Morris
Kent Satterwhite
Tom Simons
Jeffrey Snyder
Jim Steiert
John Taylor
Jimmy Wedel
Ben Weinheimer Sr., P.E.

Non-Voting Members

Tom Barnett, TWDB
John Clayton, TPWD
Carol Faulkenberry, TDA
Jason Lindeman, TCEQ
Tommy O'Brien, Region G Liaison
Rusty Ray, TSSWCB

1323 58th Street
Lubbock, TX 79412
(806) 762-8721
Fax (806) 765-9544
www.llanoplan.org
www.spag.org

March 28, 2018

Region O Project Manager
Texas Water Development Board
PO Box 13231
Austin, Texas 78711

Re: Procedures for determining surface water availability and water supplies for the 2021 Llano Estacado Regional Water Plan (Region O)

The Llano Estacado Regional Water Planning Group (Region O) met on January 23, 2018 and discussed the process to determine the amount of surface water available from existing water rights and future water management strategies. During this meeting, Region O discussed specific deviations from the standard Texas Water Development Board (TWDB) guidance that will be employed to develop the 2021 Llano Estacado Regional Water Plan.

As you know, the guidance provided by the TWDB in the base scope of work for the Fifth Cycle of Regional Water Planning requires the use of the Run 3 (full authorization) version of Water Availability Models (WAMs) maintained by the Texas Commission on Environmental Quality (TCEQ). These river-basin-scale models are used by the TCEQ for evaluating legal water available to applications for new or amended water rights, and as such, include some aspects that are not appropriate for water planning.

Region O requests that the TWDB allow specific variations from the base TCEQ WAMs for analyses that determine surface water available to existing rights.

1. Brazos WAM. Region O requests permission to conduct analyses using the TCEQ Brazos River Basin WAM as modified by the Brazos G Regional Water Planning Group (Brazos G WAM) for determining surface water reliabilities for the sake of inter-regional consistency. This model includes limited return flows for its reliability evaluations.
2. Canadian WAM. Also to promote inter-regional consistency, Region O requests permission to use yield values developed by the Panhandle Regional Water Planning Group using the TCEQ Canadian River Basin WAM for determining firm yield in that basin for water supplies supporting Region O Water User Groups (WUGs), specifically Lake Meredith.
3. Colorado WAM. Region O requests permission to use surface water reliability values developed by the Region F Regional Water Planning Group using the TCEQ Colorado River Basin WAM for determining reliability and yield

in that basin for water supplies supporting Region O Water User Groups (WUGs) to promote inter-regional consistency.

4. Red River WAM. Region O requests permission to use surface water reliability values developed by the Panhandle Regional Water Planning Group using the TCEQ Red River Basin WAM for determining reliability and yield in that basin for water supplies supporting Region O Water User Groups (WUGs), specifically Mackenzie Reservoir.
5. Lake Alan Henry Analysis. Region O requests permission to conduct analyses using a stand-alone WAM developed specifically for Lake Alan Henry. In response to the ongoing drought in the mid-2000s, the City of Lubbock requested that HDR perform a yield analysis of Lake Alan Henry (LAH) that extended through 2006 in order to better account for the impacts of that drought cycle. Additionally, a recent (2005) hydrographic survey of LAH by the TWDB indicates that the capacity of LAH has been reduced from its permitted capacity of 115,937 to 94,808 acre-feet (acft). This is due to sedimentation in the reservoir pool and inaccuracies in the determination of the storage capacity during initial construction. Both the drought extending through 2006 and the reduced storage capacity could substantially reduce the computed yield of the reservoir.

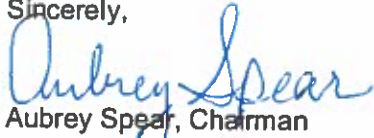
The model developed for Lubbock uses WAM naturalized flows through 1997 and then extends the period of record through 2006 using relationships consistent with the WAM methodology. The benefit to using this subset of the Brazos WAM is that it will provide a better estimate of the yield of Lake Alan Henry.

6. Utilize the same water supply model for strategy evaluations as is used to determine supplies available to existing water rights.
TWDB guidance requires that evaluations of new water management strategies utilize a strict application of the TCEQ Run 3 WAM. The rationale for this guidance is to ensure that the supply from a water management strategy is consistent with what might actually be permitted by the TCEQ. However, TCEQ takes into account more information than a simple application of the WAM when making water right permitting decisions. Additionally, many water management strategies utilize or are intended to supplement existing supplies, and therefore should be evaluated consistent with the existing supplies they are intended to supplement. The existing supply and the supplementing water management strategy need to be evaluated consistently. Furthermore, the same aspects of the Run 3 WAM that limit its usefulness for determining supplies available to existing rights also limit its ability to determine supplies to new water management strategies. The TCEQ Run 3 WAM is a legal permitting tool that has only limited utility for water supply planning. Region O requests that the Brazos G WAM be utilized to evaluate water management strategies instead of the base TCEQ Run 3 WAM.
The benefit to this methodology is that it will provide a consistent basis of evaluation between existing supplies and new water management strategies.

Region O thanks the TWDB for considering these alternative technical approaches for determining surface water supplies to existing water rights and new water management strategies. We welcome any questions you may have regarding this hydrologic variance request for surface water supplies.

Please direct any questions to the Region O technical consultant, Paula Jo Lemonds of HDR at paula.lemonds@hdrinc.com or (512) 912-5127.

Sincerely,



Aubrey Spear, Chairman

Llano Estacado Regional Water Planning Group – Region O

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Texas Water Development Board

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

May 18, 2018

Mr. Aubrey Spear
Region O Chair
c/o City of Lubbock
P.O. Box 2000
Lubbock, TX 79457

RE: Region O Regional Water Planning Group (RWPG) request for approval to modify surface water availability hydrologic assumptions for development of the 2021 Llano Estacado (Region O) Regional Water Plan (RWP)

Dear Mr. Spear:



The Texas Water Development Board (TWDB) has reviewed the request submitted by the Region O RWPG dated March 28, 2018 for approval of alternative water supply assumptions to be used in determining surface water availability. This letter confirms that the TWDB approves the following requests:

1. Utilize the hydrologic variances approved for use by the Brazos G RWPG to conduct analyses for the Brazos River Basin.
2. Utilize yield values approved for use by the Region A RWPG for the Canadian River Basin.
3. Utilize yield values approved for use by the Region F RWPG for the Colorado River Basin.
4. Utilize yield values approved for use by the Region A RWPG for the Red River Basin.
5. Utilize a stand-alone Water Availability Model (WAM) for Lake Alan Henry that was developed for the City of Lubbock.

Region O also requested to use the same water supply assumptions for strategy evaluations as used for existing supply. While the use of these modified conditions may be reasonable for planning purposes, WAM RUN 3 would be utilized by the Texas Commission on Environmental Quality for analyzing permit applications. It is acceptable to use modified conditions for water management strategy supply evaluations only if the yield produced is more conservative for surface water appropriations than WAM RUN 3. However, the TWDB is of the understanding that the modified conditions could result in greater or lesser yields than WAM RUN 3 on a case-by-case basis. Therefore, strategy evaluations involving new surface water appropriations must be based on WAM RUN 3 when modified conditions would be less conservative. Accounting for subordination agreements and use of future

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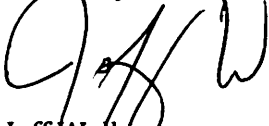
Mr. Aubrey Spear
May 18, 2018
Page 2

return flows are acceptable modifications for strategy evaluations as outlined in Exhibit C, Section 5.2.1.

While the TWDB authorizes these modifications to evaluate existing water supplies for development of the 2021 Brazos G 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 conditions; and in all other regards will be evaluated in accordance with the contract Exhibit C, *Second Amended General Guidelines for Fifth Cycle of Regional Water Plan Development*.

If you have any questions, please do not hesitate to contact Tom Barnett, project manager for Region O, at 512-463-4209 or via email at thomas.barnett@twdb.texas.gov.

Sincerely,



Jeff Walker
Executive Administrator

c w/o enc: Ms. Kelly Davila, South Plains Association of Governments
Ms. Paula Jo Lemonds, HDR, Inc.
Mr. David Dunn, HDR, Inc.
Ms. Simone Kiel, Freese & Nichols, Inc
Mr. Tom Barnett, TWDB