



4

Comparison of Water Demands with Water Supplies to Determine Needs



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4 Comparison of Water Demands with Water Supplies to Determine Needs

4.1 Introduction

In this section, the demand projections from Chapter 2 and the supply projections from Chapter 3 are brought together to estimate projected water needs in the Brazos G Area through year 2070.

4.2 Water Needs Projected for Water User Groups

If projected demands exceed projected supplies for a water user group, the difference or shortage, is identified as a “water need.” This section contains a summary of the water needs (shortages) for WUGs located in the Brazos G Area. A table in the Executive Summary Appendix presents the water needs for each WUG by county as “Region G Water User Group (WUG) Needs/Surplus.”

Secondary, or Second-Tier, water needs are those water needs that would remain after implementation of recommended water conservation and reuse strategies. Secondary water needs are presented in the Executive Summary Appendix as “Region G Water User Group (WUG) Second-Tier Identified Water Needs” and “Region G Water User Group (WUG) Second-Tier Identified Water Needs Summary.”

4.2.1 Projected Municipal Needs

Water shortages projected for municipal WUGs are listed in Table 4-1, along with the projected year 2040 and 2070 shortages, and the approximate decade that shortages are expected to begin. WUGs located in multiple counties are indicated with (P) in Table 4-1, and the shortages identified are for the portion of the WUG located in the county identified. Shortages for portions of WUGs in counties outside of Brazos G for which Brazos G is the primary planning area are shown. For municipal WUGs that are also wholesale water providers (WWPs), supplies are first assigned to contractual customers and remaining supplies are then assigned to the WUGs’ own municipal demands. The shortages shown are for the WUGs’ internal municipal demands and not shortages for any wholesale customers. Additional contractual demands associated with strategies recommended for WUGs and WWPs that are recommended to purchase additional water are shown in Chapter 5.

Thirty-six of the 37 counties in the Brazos G Area are projected to have at least one municipal WUG shortage. The County-Other category includes water supply corporations, water districts, privately owned utilities, and small towns that generally supply less than 100 acft of water, in addition to private domestic water use that is not served by a water utility. The County-Other category is projected to experience shortages in 12 counties: Bell, Comanche, Coryell, Erath, Hill, Hood, Jones, McLennan, Palo Pinto, Somervell, Taylor, and Williamson.

Table 4-1. Municipal WUGs with Projected Water Needs (acre-feet/year)

WUG	County	Projected Shortages (acft/yr)		Decade of Need
		Year 2040	Year 2070	
439 WSC	BELL	(293)	(1,161)	2030
BARTLETT (P)	BELL	(121)	(193)	2020
BELL COUNTY WCID 2	BELL	44	(63)	2060
BELTON	BELL	2,448	(1,072)	2070
BELL COUNTY-OTHER	BELL	955	(307)	2070
ELM CREEK WSC (P)	BELL	12	(107)	2050
GEORGETOWN (P)	BELL	(510)	(1,015)	2020
HARKER HEIGHTS	BELL	122	(3,000)	2050
KEMPNER WSC (P)	BELL	(121)	(215)	2020
SALADO WSC	BELL	(29)	(586)	2040
TEMPLE	BELL	(6,969)	(17,103)	2020
CLIFTON	BOSQUE	59	(70)	2060
HIGHLAND PARK WSC (P)	BOSQUE	(72)	(82)	2020
MUSTANG VALLEY WSC (P)	BOSQUE	(30)	(52)	2030
BRYAN	BRAZOS	(4,578)	(19,650)	2030
COLLEGE STATION	BRAZOS	(8,874)	(13,360)	2030
TEXAS A&M UNIVERSITY	BRAZOS	104	124	2020
WELLBORN SUD	BRAZOS	1,513	(379)	2070
SOUTHWEST MILAM WSC (P)	BURLESON	(34)	(40)	2030
BAIRD	CALLAHAN	(150)	(164)	2020
CLYDE	CALLAHAN	91	85	2030
POTOSI WSC (P)	CALLAHAN	(8)	(9)	2020
CORIX UTILITIES TEXAS INC (P)	COLORADO	(8)	(13)	2020
COMANCHE COUNTY-OTHER	COMANCHE	(440)	(488)	2020
COPPERAS COVE	CORYELL	3,343	(1,723)	2060
CORYELL COUNTY-OTHER	CORYELL	(259)	(1,107)	2040
ELM CREEK WSC (P)	CORYELL	2	(16)	2050
FLAT WSC	CORYELL	(23)	(62)	2030
FORT GATES WSC	CORYELL	(353)	(500)	2020
GATESVILLE	CORYELL	(2,455)	(4,688)	2020
KEMPNER WSC (P)	CORYELL	(223)	(394)	2020



Table 4-1. Municipal WUGs with Projected Water Needs (acre-feet/year)

WUG	County	Projected Shortages (acft/yr)		Decade of Need
		Year 2040	Year 2070	
MULTI-COUNTY WSC (P)	CORYELL	(77)	(153)	2020
VENUS (P)	ELLIS	(15)	(35)	2020
ERATH COUNTY-OTHER	ERATH	310	(347)	2060
GORDAN	ERATH	(7)	(8)	2020
ROTAN	FISHER	(19)	(66)	2020
THE BITTER CREEK WSC (P)	FISHER	(83)	(84)	2020
MULTI-COUNTY WSC (P)	HAMILTON	(14)	(21)	2020
HASKELL	HASKELL	(468)	(499)	2020
CHATT WSC	HILL	15	(12)	2060
HILL COUNTY-OTHER	HILL	(59)	(70)	2020
DOUBLE DIAMOND UTILITIES (P)	HILL	(23)	(84)	2030
JOHNSON COUNTY SUD (P)2	HILL	4	(5)	2020
PARKER WSC (P)	HILL	6	(5)	2060
POST OAK SUD (P)	HILL	(1)	(102)	2040
WHITNEY	HILL	(49)	(77)	2030
ACTON MUD (P)	HOOD	(1,111)	(4,148)	2030
HOOD COUNTY-OTHER	HOOD	(759)	924	2020
GRANBURY	HOOD	144	(342)	2050
ACTON MUD (P)	JOHNSON	(15)	(55)	2040
BETHESDA WSC (P)	JOHNSON	(751)	(2,255)	2030
BURLESON (P)	JOHNSON	(1,651)	(4,062)	2030
CLEBURNE	JOHNSON	(1,097)	(7,324)	2040
DOUBLE DIAMOND UTILITIES (P)	JOHNSON	(2)	(9)	2030
GODLEY	JOHNSON	(22)	(65)	2020
JOHNSON COUNTY SUD (P)	JOHNSON	1,473	(1,486)	2020
PARKER WSC (P)	JOHNSON	115	(140)	2060
VENUS (P)	JOHNSON	(396)	(619)	2020
ABILENE (P)	JONES	(292)	(861)	2020
JONES COUNTY-OTHER	JONES	(92)	(121)	2020
JAYTON	KENT	(112)	(111)	2020
KNOX CITY	KNOX	(235)	(256)	2020

Table 4-1. Municipal WUGs with Projected Water Needs (acre-feet/year)

WUG	County	Projected Shortages (acft/yr)		Decade of Need
		Year 2040	Year 2070	
MUNDAY	KNOX	(249)	(270)	2020
COPPERAS COVE	LAMPASAS	130	(79)	2060
CORIX UTILITIES TEXAS INC (P)	LAMPASAS	(117)	(159)	2020
KEMPNER WSC (P)	LAMPASAS	(626)	(1,055)	2020
LAMPASAS	LAMPASAS	(308)	(600)	2020
SOUTHWEST MILAM WSC (P)	LEE	(13)	(12)	2030
GROESBECK	LIMESTONE	(667)	(665)	2020
MART (P)	LIMESTONE	0	(1)	2050
MEXIA	LIMESTONE	284	(182)	2060
POST OAK SUD (P)	LIMESTONE	0	(16)	2050
MCLENNAN COUNTY-OTHER	MCLENNAN	172	667	2020
EAST CRAWFORD WSC	MCLENNAN	(154)	(219)	2020
ELM CREEK WSC (P)	MCLENNAN	9	(73)	2050
HEWITT	MCLENNAN	(1,172)	(2,262)	2020
HIGHLAND PARK WSC (P)	MCLENNAN	(30)	(34)	2020
MART (P)	MCLENNAN	(180)	(243)	2020
NORTH BOSQUE WSC	MCLENNAN	(190)	(522)	2030
ROBINSON	MCLENNAN	(1,048)	(2,255)	2020
WACO	MCLENNAN	5,023	(2,908)	2060
ROCKDALE	MILAM	(613)	(609)	2020
SOUTHWEST MILAM WSC (P)	MILAM	(263)	(342)	2030
THORNDALE	MILAM	12	(10)	2060
POST OAK SUD (P)	NAVARRO	(3)	(66)	2040
ROSCOE	NOLAN	(90)	(107)	2020
SWEETWATER	NOLAN	(350)	(521)	2020
THE BITTER CREEK WSC (P)	NOLAN	(130)	(145)	2020
PALO PINTO COUNTY-OTHER	PALO PINTO	(187)	(177)	2020
GORDON	PALO PINTO	(153)	(167)	2020
MINERAL WELLS	PALO PINTO	(533)	(1,093)	2020
POSSUM KINGDOM WSC (P)	PALO PINTO	(200)	(281)	2020
SANTO SUD	PALO PINTO	34	(14)	2070



Table 4-1. Municipal WUGs with Projected Water Needs (acre-feet/year)

WUG	County	Projected Shortages (acft/yr)		Decade of Need
		Year 2040	Year 2070	
SPORTSMANS WORLD MUD	PALO PINTO	(47)	(61)	2020
STRAWN	PALO PINTO	(46)	(59)	2020
MINERAL WELLS	PARKER	(61)	(107)	2030
SANTO SUD	PARKER	1	(1)	2070
ROBERTSON COUNTY WSC	ROBERTSON	(235)	(526)	2020
WELLBORN SUD	ROBERTSON	272	(55)	2070
FORT GRIFFIN SUD (P)	SHACKELFORD	(1)	(1)	2020
SOMERVELL COUNTY-OTHER	SOMERVELL	(92)	(183)	2030
GLEN ROSE	SOMERVELL	(90)	(179)	2030
FORT BELKNAPP WSC (P)	STEPHENS	0	(1)	2030
FORT GRIFFIN SUD (P)	STEPHENS	(1)	(1)	2020
POSSUM KINGDOM WSC (P)	STEPHENS	(6)	(9)	2020
ASPERMONT	STONEWALL	(41)	(52)	2020
BETHESDA WSC (P)	TARRANT	(416)	(1,125)	2020
BURLESON (P)	TARRANT	(386)	(1,142)	2030
JOHNSON COUNTY SUD (P)	TARRANT	(4)	(190)	2020
ABILENE (P)	TAYLOR	(6,471)	(18,910)	2020
TAYLOR COUNTY-OTHER	TAYLOR	287	(197)	2070
MERKEL	TAYLOR	(25)	(41)	2020
POTOSI WSC (P)	TAYLOR	(534)	(577)	2020
STEAMBOAT MOUNTAIN WSC	TAYLOR	(155)	(171)	2020
TYE	TAYLOR	(4)	(13)	2030
VIEW CAPS WSC	TAYLOR	0	(9)	2050
FORT BELKNAPP WSC (P)	THROCKMORTON	(2)	(3)	2020
THROCKMORTON	THROCKMORTON	(147)	(177)	2020
CEDAR PARK (P)	TRAVIS	(732)	(659)	2020
LEANDER (P)	TRAVIS	(2,009)	(3,281)	2020
BRENHAM	WASHINGTON	(1,120)	(1,681)	2020
CORIX UTILITIES TEXAS INC (P)	WASHINGTON	(282)	(339)	2020
BARTLETT (P)	WILLIAMSON	(130)	(189)	2020
BRUSHY CREEK MUD	WILLIAMSON	(191)	(231)	2020

Table 4-1. Municipal WUGs with Projected Water Needs (acre-feet/year)

WUG	County	Projected Shortages (acft/yr)		Decade of Need
		Year 2040	Year 2070	
CEDAR PARK (P)	WILLIAMSON	(4,759)	(4,768)	2020
WILLIAMSON COUNTY-OTHER	WILLIAMSON	(3,631)	(37,814)	2020
FLORENCE	WILLIAMSON	(42)	(72)	2020
GEORGETOWN (P)	WILLIAMSON	(27,790)	(65,617)	2020
GRANGER	WILLIAMSON	2	(56)	2050
HUTTO	WILLIAMSON	(3,304)	(10,703)	2020
LEANDER (P)	WILLIAMSON	(8,258)	(19,041)	2020
LIBERTY HILL	WILLIAMSON	(90)	(90)	2020
ROUND ROCK	WILLIAMSON	(8,830)	(16,566)	2030
SOUTHWEST MILAM WSC (P)	WILLIAMSON	(109)	(225)	2030
FORT BELKNAPP WSC (P)	YOUNG	(49)	(89)	2020
GRAHAM	YOUNG	(1,769)	(2,434)	2020

(P) Indicates WUG is in multiple counties.

4.2.2 Projected Manufacturing Needs

Nine of the 37 counties in the Brazos G Area are projected to have manufacturing shortages. Table 4-2 lists the counties projected to have shortages in the Manufacturing Use category, projected year 2040 and 2070 shortages, and the approximate decade shortages are projected to begin.

Table 4-2. Counties with Projected Water Needs for Manufacturing Use (acre-feet per year)

County	Projected Shortages (acft/yr)		Decade of Need
	Year 2040	Year 2070	
BELL	(186)	(186)	2020
BURLESON	(6)	(6)	2020
ERATH ¹	2	29	2020
LAMPASAS	(22)	(3)	2020
LIMESTONE	(314)	(313)	2020
MCLENNAN	(2,463)	(1,309)	2020
NOLAN	(33)	(35)	2030
STONEWALL	(58)	(58)	2020
WASHINGTON	(6)	(6)	2030

1 - Projected shortage in 2020 and 2030. Surplus in all other decades.



4.2.3 Projected Steam-Electric Needs

Table 4-3 lists the six counties projected to have shortages in the Steam-Electric Use category, projected year 2040 and 2070 shortages, and the approximate decade shortages are projected begin.

Table 4-3. Counties with Projected Water Needs for Steam-Electric Use (acre-feet per year)

County	Projected Shortages (acft/yr)		Decade of Need
	Year 2040	Year 2070	
BRAZOS ¹	20	20	2020
HILL	(4,120)	(4,120)	2020
JOHNSON	(571)	(571)	2020
LIMESTONE	(388)	(388)	2020
MILAM ²	(32,254)	(32,254)	2020
SOMERVELL	(35,579)	(35,867)	2020

1 - Projected shortage in 2020. Surplus in all other decades.

2 – Milam County needs based on reallocation of supply from Steam-Electric to water management strategies for municipal supply in Williamson County.

4.2.4 Projected Mining Needs

Shortages are projected for mining use in most of the counties. Table 4-4 lists the 31 counties projected to have shortages in the Mining Use category, projected year 2040 and 2070 shortages, and the approximate decade shortages are projected to begin. Mining water use in Williamson County is primarily associated with dewatering for quarry operations.

Table 4-4. Counties with Projected Water Needs for Mining Use (acre-feet per year)

County	Projected Shortages (acft/yr)		Decade of Need
	Year 2040	Year 2070	
BELL	(3,434)	(5,803)	2020
BOSQUE	(726)	(655)	2020
CALLAHAN	(134)	(100)	2020
COMANCHE	(151)	83	2020
CORYELL	(296)	(242)	2020
EASTLAND	(686)	(189)	2020
FALLS	(161)	(233)	2020
FISHER	(143)	(22)	2020

Table 4-4. Counties with Projected Water Needs for Mining Use (acre-feet per year)

County	Projected Shortages (acft/yr)		Decade of Need
	Year 2040	Year 2070	
GRIMES	(281)	62	2020
HAMILTON ¹	155	256	2020
HASKELL	(83)	(59)	2020
HILL ¹	623	926	2020
HOOD	(821)	(656)	2020
JOHNSON	(68)	107	2020
JONES	(139)	(90)	2020
KNOX	(9)	(8)	2020
LAMPASAS	(137)	(209)	2020
LEE ¹	3,115	3,324	2020
LIMESTONE	(6,707)	(8,267)	2020
MCLENNAN	(2,322)	(3,478)	2020
NOLAN	(53)	6	2020
PALO PINTO	(622)	(232)	2020
SHACKELFORD	(348)	(33)	2020
SOMERVELL	(455)	(280)	2020
STEPHENS	(2,869)	(1,184)	2020
STONEWALL	(318)	(144)	2020
TAYLOR	(232)	(181)	2020
THROCKMORTON	(67)	(12)	2020
WASHINGTON	(625)	(186)	2020
WILLIAMSON	(6,923)	(10,745)	2020
YOUNG	(115)	8	2020

1 - Projected shortage in 2020. Surplus in all other decades.

4.2.5 Projected Irrigation Needs

Table 4-5 lists the 20 counties projected to have shortages in the Irrigation Use category, projected year 2040 and 2070 shortages, and the approximate decade shortages are projected to begin.



Table 4-5. Counties with Projected Water Needs for Irrigation Use (acre-feet per year)

County	Projected Shortages (acft/yr)		Decade of Need
	Year 2040	Year 2070	
BELL	(690)	(719)	2020
BOSQUE	(1,366)	(1,366)	2020
BURLESON	(347)	(347)	2020
COMANCHE	(15,151)	(15,292)	2020
GRIMES	(151)	(151)	2020
HASKELL	(14,462)	(15,835)	2020
HILL	(210)	(211)	2020
JOHNSON	(269)	(269)	2020
JONES	(191)	(191)	2020
KNOX	(13,590)	(13,381)	2020
LAMPASAS	(233)	(242)	2020
MILAM	(205)	93	2030
NOLAN	(8,237)	(8,237)	2020
PALO PINTO	(2,326)	(2,326)	2020
ROBERTSON	(17,100)	(17,921)	2020
STEPHENS	(121)	(121)	2020
TAYLOR	(1,266)	(1,266)	2020
THROCKMORTON	(157)	(157)	2020
WILLIAMSON	(172)	(172)	2020
YOUNG	(456)	(456)	2020

4.2.6 Projected Livestock Needs

There are no livestock shortages projected. As explained in Section 3, livestock demands were assumed to be met from stock tanks and locally occurring groundwater.

4.3 Water Needs Projected for Wholesale Water Providers

Needs projected for WWPs that are not also WUGs are shown in Table 4-6. The needs shown are for existing contractual commitments, regardless if the customers' water demands are different from the stated contractual supply. In the case of "needs met" contracts, the contractual demand is assumed to be the customer's water demands, less any other supplies the customer may have available. Additional contractual demands associated with strategies recommended for WUGs and WWPs are shown in Chapter 5.

Table 4-6. Water Needs Projected for Wholesale Water Providers

WWP	Projected Surpluses / (Shortages) (acft/yr)		Decade of Need
	Year 2040	Year 2070	
AQUILLA WSD	1	(262)	2020
BELL COUNTY WCID #1	6,056	(4,805)	none
BLUEBONNET WSC	(317)	(453)	2020
BRAZOS RIVER AUTHORITY			
<i>Lake Aquilla System</i>	997	(503)	2060
<i>Little River System</i>	(45,246)	(49,386)	2020
<i>Main Stem/Lower Basin System¹</i>	0	0	none
<i>Highland Lakes Supply (HB 1437)²</i>	2,872	2,872	none
<i>System Operations Permit³</i>	0	0	none
CENTRAL TEXAS WSC	342	144	none
EASTLAND COUNTY WSD	(955)	(1,045)	2020
FHLM WSC	0	0	none
NORTH CENTRAL TEXAS MWA	(1,752)	(1,797)	2020
PALO PINTO COUNTY MWD #1	(2,186)	(2,806)	2020
SALT FORK WATER QUALITY CORPORATION	0	0	none
UPPER LEON MWD	708	602	none
WEST CENTRAL TEXAS MWD	6,775	13,535	none

1 – Includes contract demands in both Brazos G and Region H.

2 – 25,000 acft/yr is available per HB 1763, of which BRA has contracted 1,200 acft/yr (Liberty Hill) and 20,928 acft/yr (Round Rock). Surplus shown represents the remaining uncontracted supply.

3 – Assumes all current and pending contracts for sales of System Operations Supply are firm.

4.4 Water Needs Projected for Major Water Providers

Water needs for MWP's summarized by decade and category of use and secondary water needs are presented in Appendix O.