

To: Matt Nelson, TWDB Lann Bookout, TWDB	
From: Grady Reed David Dunn, P.E.	Project: Brazos G 2011 Regional Water Plan
CC: Dale Spurgin, Trey Buzbee	
Date: October 28, 2010 (Updated December 30, 2010)	Job No: 00010478-001

RE: Brazos G Regional Water Plan Errata Sheets

This memo summarizes revisions to the 2011 Brazos G Regional Water Plan made after submittal to the TWDB. These changes have been incorporated into the attached errata sheets and include changes to the Executive Summary, Section 2, Section 4A, Sections 4B.12 and 4B.16 (Volume II), Section 4C, Section 8, and Appendices C and N. In addition, minor changes were made to the TWDB database after final plan adoption. These attached errata pages have been incorporated into the final electronic plan documents with each individually noted as "Updated October 2010."

Executive Summary

Changes were made to Pages ES-12, ES-14, and in Table ES-3 to correct typographic errors regarding summary statistics of water management strategies.

Section 2

Changes were made in Tables 2-1 and 2-2 to correct the population estimates for the City of Itasca.

Section 4A

Changes were made in Table 4A-1 to account for a changed water supply allocation for Wickson Creek SUD. This resulted in different needs shown in Brazos and Grimes Counties. In addition, the City of Albany was added to Shackleford County. Albany was inadvertently left out of the previous table.

Section 4B.12 (Volume II)

The costs in Table 4B.12.1-4 did not show relocation costs, although the totals shown were correct. Relocation costs were included on a row that was not printed in the table but included in the totals.

Section 4B.16 (Volume II)

Changes were made in Table 4B.16-1 to account for changes made in the needs values for various WUGs.

Section 4C

Changes were made in Table 4C.15-1 to the City of Itasca. This change is in response to updating the City's water demand values in Appendix C.

Changes were made to Section 4C.39 to correct typographic errors regarding summary statistics of water management strategies.

Section 8

A typographic error was corrected regarding the number of recommended unique reservoir sites.

Appendix C

Five WUGs supplies and balances (Bitter Creek WSC, City of Roby, Limestone County-Other, City of Mexia, and Nolan County-Other) have been adjusted in Appendix C to reflect updates to prorated contracts from wholesale water providers. The links between the groundwater and surface water spreadsheets were not updated correctly before the appendix tables were printed and did not show the correct volumes in Appendix C.

Supplies for Wickson Creek SUD have been adjusted between Brazos, Grimes and Robertson counties to match the balances in the database.

The demands for the City of Itasca have been updated to reflect the demand values in the TWDB database.

Appendix N

The tables of Appendix N were updated to reflect how the list of recommended and alternative water management strategies are presented in the TWDB database.

TWDB Database Changes

Changes made to the TWDB database included the following:

- Harker Heights (Bell County) – supply from the BRA Little River System adjusted to match projected demands.
- Nolanville (Bell County) – supply from the BRA Little River System adjusted to match projected demands.
- Brazos County-Other (Brazos County) – supply from the Carrizo Aquifer was changed from 91 acft/yr to 651 acft/yr.
- Wellborn SUD (Brazos County) – supply from the Carrizo Aquifer was changed from 1,135 acft/yr to 1,695 acft/yr.
- The WMS for Wickson Creek SUD (Robertson County) needs deleted as a WMS for this WUG.
- Hill County-Other (Hill County – Trinity Basin) – supply from the Navarro Mills Lake/Reservoir was reduced by 9 acft/yr in all decades.
- Decordova (Hood County) – supply from the BRA Main Stem System was changed to match projected demands.
- Manville (Lee County) – 100 acft/yr of supply from Other Aquifer (Williamson County) was moved to Manville in Williamson County.
- Manville (Williamson County) – see comment above.
- Limestone County-Other (Limestone County – Brazos Basin) – the following amounts were added (to the already existing supply) for the Carrizo Aquifer (Limestone County – Brazos Basin) supply beginning in 2010: 548, 514, 481, 447, 414, 380 acft.
- Palo Pinto County-Other (Palo Pinto County) – supply from the BRA Main Stem System were reduced by 110 acft/yr in all decades.
- Bell County WCID #1 – 1,000 acft/yr was added to the demands of Belton and Copperas Cove. Bell County-Other was added as a customer with a demand of 1,000 acft/yr in all decades.

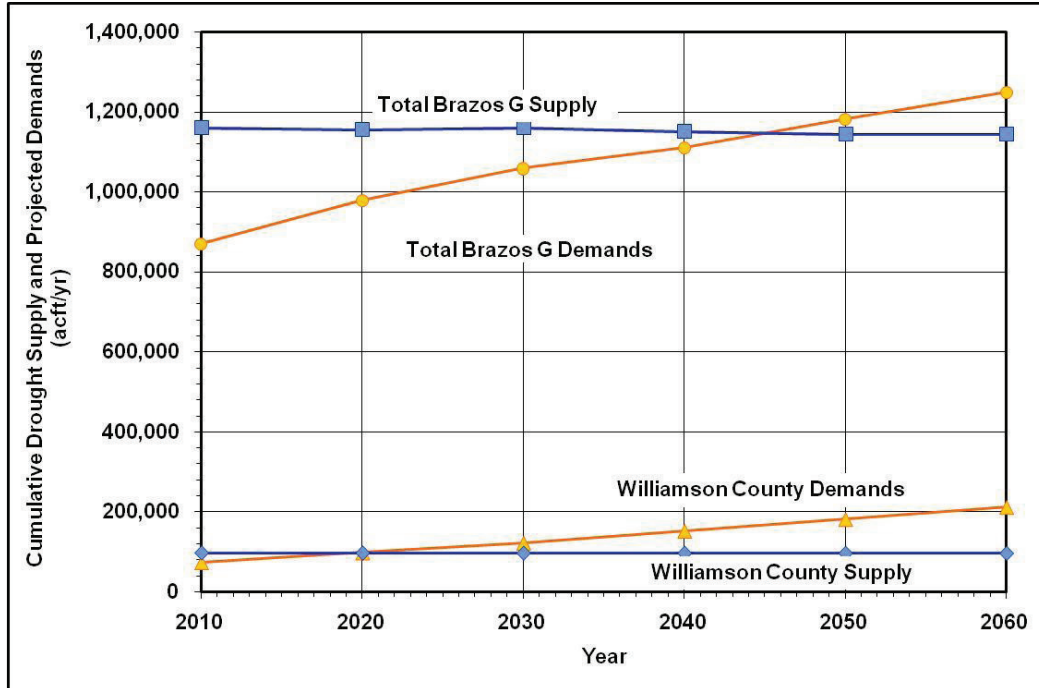


Figure ES-8. Comparison of Supplies and Demands for Brazos G Region and Williamson County

ES.5.5 Water Supply Strategies to Meet Needs

The water management strategies in Table ES-2 were identified by the BGRWPG as potentially feasible to meet shortages. These strategies were evaluated by the consultant team and compared to criteria adopted by the BGRWPG. Section 4B in Volume 2 contains subsections discussing each of these possible strategies.

ES.5.6 Water Plan Findings

Table ES-3 summarizes the recommended water management strategies in the plan that develop or import new sources of supply into the Brazos G Area. Strategies that utilize existing water resources without increasing or augmenting those supplies are not listed.

Total new supplies of water into the Brazos G Area total 397,655 acft/yr, comprised of newly developed groundwater, supply transferred from other regions, newly developed surface water supplies, or supplies made available through conservation or augmentation of existing facilities. These totals do not reflect water trades between users of existing supplies in Brazos G, but represent entirely new supplies to the Brazos G Area. Total project costs for these new supplies exceed \$2 billion.

Table ES-2 (Concluded)

Report Section (Volume II)	Water Management Strategy and Description
4B.16	Voluntary Redistribution (the purchase or lease of water supply from an entity that has water supply in excess of long-term or interim needs)
4B.17	Miscellaneous Strategies (various pipelines, treatment plants and groundwater wells to meet projected needs of water user groups and wholesale water providers)
4B.18	Storage Reallocation of Federal Reservoirs (reallocate a portion of the flood control pool of US Army Corps of Engineers reservoirs to conservation storage)
4B.19	Upper Brazos Chloride Control (intercept highly-saline groundwater before it discharges to the surface)
4B.20	BRA Reservoir Connection <ul style="list-style-type: none"> • Lake Belton to Lake Stillhouse Hollow • Lake Aquilla Augmentation
4B.21	2006 Plan Amendments (various amendments to the 2006 Plan that are included in the 2011 Plan)

The 2011 Brazos G Regional Water Plan includes recommendations for 21,346 acft/yr of municipal conservation savings and another 71,767 acft/yr for wastewater reuse. The conservation savings are in excess of those already included in the TWDB demand projections, and the recommended reuse strategies are in excess of existing reuse supplies in the basin.

System operation of the Brazos River Authority's reservoirs can increase supplies in the Brazos G Area by more than 139,000 acft/yr (assuming interruptible supplies can be firmed up through conjunctive operation with other sources), with additional supplies available to the Region H Area in the lower basin. This strategy would more efficiently utilize the existing resources of the Brazos River Authority by expanding the supply that can be developed from the BRA's existing reservoirs, thus delaying the need for new reservoirs to meet growing needs in the basin. As shown by analysis of the Lake Granger Augmentation strategy, the interruptible supply proposed by the BRA can be firmed up with groundwater resources, further extending existing resources in the basin.

Implementation of the 2011 Brazos G Regional Water Plan will result in the development of new water supplies that will be reliable in the event of a repeat of the most severe drought on record. It is evident that implementation of all recommended water management strategies is not likely to be necessary in order to meet projected needs within the planning period. The BGRWPG explicitly recognizes the difference between additional supplies and projected needs as System Management Supplies and has recommended the associated water management strategies in the Regional Water Plan for the following reasons:

- So that water management strategies are identified to replace any planned strategies that may fail to develop, through legal, economic or other reasons;
- To serve as additional supplies in the event that rules, regulations, or other restrictions limit use of any planned strategies;

Table ES-3 (Continued)

Strategy	WUG or WWP	New Supply by 2060 (acft/yr)	Total Project Cost (September 2008 Prices)
New Reservoirs			
Groesbeck Off-Channel	City of Groesbeck	1,755	\$10,412,000
Coryell County	BRA – Little River	3,365	\$37,489,000
Cedar Ridge	City of Abilene	23,380	\$285,214,000
Brushy Creek Reservoir	City of Marlin	2,090	\$18,553,000
Total New Reservoirs		30,590	\$351,668,000
Systems Approaches			
BRA System Operation (Excluding Lake Granger Augmentation)	Bosque County – Steam Electric	5,222	\$24,725,000
	White Bluff Community WSC	600	\$9,277,000
	City of Keene	157	\$3,062,000
	Woodrow-Osceola WSC	150	\$7,231,000
	Somervell County – Steam Electric	76,270	\$136,032,000
	College Station	2,500	\$23,954,000
Total from Systems Approaches		84,899	\$204,280,000
Groundwater Development			
Carrizo-Wilcox Aquifer – Limestone County	Manufacturing – Limestone County	75	\$347,000
	City of Kosse	100	\$2,386,000
	Bistone MWSD	3,600	\$18,458,000
Champion Well Field Expansion	City of Sweetwater	1,000	\$15,015,000
Carrizo-Wilcox Aquifer – Brazos County	City of College Station	3,000	\$28,101,000
	Wickson SUD	1,500	\$1,201,000
Carrizo-Wilcox Aquifer – Burleson County	Southwest Milam WSC ⁴	966	\$3,502,000
Carrizo-Wilcox Aquifer – Lee County	Aqua WSC	403	\$1,364,000
	Lee County WSC	806	\$2,166,000
Carrizo-Wilcox Aquifer – Milam County	Steam Electric – Milam County	1,613	\$3,160,000
	Mining – Milam County	100	\$715,000
Edwards-Trinity Nolan County	Mining – Nolan County	114	\$679,000
Trinity Aquifer – McLennan County	Chalk Bluff WSC	230	\$2,707,000
	Western Hills WSC	198	\$1,073,000
Trinity Aquifer – Hood County	Lipan	685	\$8,524,000
	Tolar	150	\$1,286,000
Trinity Aquifer – Johnson County	Parker WSC	160	\$2,045,000

Table ES-3 (Concluded)

Strategy	WUG or WWP	New Supply by 2060 (acft/yr)	Total Project Cost (September 2008 Prices)
Groundwater Development			
Trinity Aquifer – Williamson County	City of Florence	322	\$1,648,000
	Williamson County-Other	280	\$1,995,000
Gulf Coast Aquifer – Grimes County	Steam Electric – Grimes County	5,600	\$31,630,000
Total Groundwater Development		20,902	\$128,002,000
Total New Supplies		397,655	>\$2,027,526,000
<ol style="list-style-type: none"> 1. Not Determined or cost shared by multiple entities. 2. The Lake Granger Augmentation includes development of an average annual supply of groundwater from the Carrizo-Wilcox Aquifer of 30,832 acft/yr to develop the total new supply of 54,813 acft/yr (Volume II, Section 4B.5). 3. Includes additional BRA contractual commitments not specifically identified in Section 4B.4. Does not include Region H supplies, but does include minor increases to Region C. 4. Although Southwest Milam is primarily located in Milam County, supplies for this strategy are located in Burleson County. 			

Section 2

Current and Projected Population and Water Demand Data for the Region

2.1 Introduction

The TWDB publishes population and water demand projections, respectively, for each county in the state for use by the regional water planning groups. Population projections were developed for municipal Water User Groups (WUGs), which are defined as cities with a population greater than 500 in 2000, water supply corporations and special utility districts using volumes of 280 acft or more in 2000, and ‘County-Other’ to capture those people living outside the cities or WUG-sized water supply corporation/special utility districts for each county. In the Brazos G Area, population projections were completed for 226 municipal WUGs, including County-Other. Water demand projections were developed by type of use—specific municipal WUG demands for cities and other water utilities (along with a ‘County-Other’ for each county) and countywide demands for manufacturing, steam-electric, mining, irrigation, and livestock.

The TWDB has adopted several revisions to the population and water demand projections for the Brazos G Area, as forwarded by the Brazos G RWPG. Revisions have been made to the census-based population projections, and municipal and steam-electric water demand projections. Revisions to the population and municipal water demand projections for cities resulted from requests from individual cities and faster growth rates than projected in the 2006 Plan. Water demand projections for steam-electric use were revised to reflect input from industry and the Brazos G RWPG.

2.2 Population Projections

As shown in Figure 2-1, the population of the 37-county area is projected to increase from 1,621,961 in 2000 to 3,448,879 in 2060, an increase of 113 percent (1.27 percent annual growth). This is somewhat less than the projected statewide population growth during the same period of 117 percent, (1.30 percent annually). In 2060, it is projected that 32 percent of the Brazos G Area population will live in Williamson County, 13 percent in Bell County, 10 percent in Johnson County, 9 percent in McLennan County, 8 percent in Brazos County, 4 percent in Coryell County, 4 percent in Taylor County, and less than 3 percent in each of the remaining

Table 2-1 (Continued)

City/County	Historical		Projections ¹						Percent Growth ² 1990-00	Percent Growth 2000-60
	1990	2000	2010	2020	2030	2040	2050	2060		
<i>Hamilton County</i>										
Hamilton	2,937	2,977	2,942	2,933	2,926	2,928	2,919	2,918	0.14%	-0.03%
Hico	1,342	1,341	1,417	1,417	1,417	1,417	1,417	1,417	-0.01%	0.09%
County-Other	3,454	3,911	3,431	3,331	3,253	3,279	3,176	3,169	1.25%	-0.35%
<i>Hamilton County Total</i>	<i>7,733</i>	<i>8,229</i>	<i>7,790</i>	<i>7,681</i>	<i>7,596</i>	<i>7,624</i>	<i>7,512</i>	<i>7,504</i>	<i>0.62%</i>	<i>-0.15%</i>
<i>Haskell County</i>										
Haskell	3,362	3,106	3,024	2,982	2,925	2,895	2,842	2,752	-0.79%	-0.20%
Rule	783	698	671	657	638	628	610	580	-1.14%	-0.31%
Stamford (P)	36	43	45	46	48	49	50	52	1.79%	0.32%
County-Other	2,639	2,246	2,120	2,056	1,969	1,924	1,843	1,705	-1.60%	-0.46%
<i>Haskell County Total</i>	<i>6,820</i>	<i>6,093</i>	<i>5,860</i>	<i>5,741</i>	<i>5,580</i>	<i>5,496</i>	<i>5,345</i>	<i>5,089</i>	<i>-1.12%</i>	<i>-0.30%</i>
<i>Hill County</i>										
Brandon-Irene WSC (P)		2,009	2,059	2,128	2,207	2,285	2,369	2,462	NA	0.34%
Fills Valley WSC (P)		1,963	1,997	2,045	2,100	2,154	2,212	2,277	NA	0.25%
Hillsboro	7,072	8,232	8,923	9,284	9,692	10,099	10,534	11,017	1.53%	0.49%
Hubbard	1,589	1,586	1,713	1,713	1,713	1,713	1,713	1,713	-0.02%	0.13%
Itasca	1,523	1,503	1,633	1,626	1,619	1,612	1,604	1,595	-0.13%	0.10%
Johnson County SUD (P)		177	191	211	233	255	279	305	NA	0.91%
Lake Whitney Water Company (P)		5,374	5,396	5,426	5,460	5,494	5,530	5,570	NA	0.06%
Parker WSC (P)		371	391	419	451	483	517	555	NA	0.67%
White Bluff Community WS		1,000	1,211	1,507	1,841	2,175	2,531	2,927	NA	1.81%
Whitney	1,626	1,833	2,157	2,227	2,306	2,385	2,470	2,564	1.21%	0.56%
Woodrow-Osceola WSC		5,396	5,671	6,056	6,491	6,925	7,389	7,904	NA	0.64%
County-Other	15,336	2,877	2,074	2,305	2,566	2,827	3,104	3,411	-15.41%	0.28%
<i>Hill County Total</i>	<i>27,146</i>	<i>32,321</i>	<i>33,519</i>	<i>35,050</i>	<i>36,782</i>	<i>38,510</i>	<i>40,355</i>	<i>42,402</i>	<i>1.76%</i>	<i>0.45%</i>
<i>Hood County</i>										
Acton MUD (P)		12,222	15,036	18,435	21,599	24,913	29,088	33,909	NA	1.72%
Cresson (P)			295	360	439	536	654	799	NA	2.01%
DeCordova			3,074	3,125	3,177	3,230	3,283	3,337	NA	0.16%
Granbury	4,045	5,718	8,073	10,083	11,954	13,914	16,383	19,234	3.52%	2.04%
Lipan			599	844	1,189	1,675	2,359	3,323	NA	3.49%
Oak Trail Shores Subdivision		2,985	3,512	3,512	3,512	3,512	3,512	3,512	NA	0.27%
Tolar		504	749	958	1,153	1,357	1,614	1,911	NA	2.25%
County-Other	24,936	19,671	17,869	21,047	23,865	26,677	30,166	34,020	-2.34%	0.92%
<i>Hood County Total</i>	<i>28,981</i>	<i>41,100</i>	<i>49,207</i>	<i>58,364</i>	<i>66,888</i>	<i>75,814</i>	<i>87,059</i>	<i>100,045</i>	<i>3.56%</i>	<i>1.49%</i>
<i>Johnson County</i>										
Acton MUD (P)		101	133	171	211	255	309	376	NA	2.21%
Alvarado	2,918	3,288	4,204	4,627	5,071	5,556	6,158	6,897	1.20%	1.24%
Bethany WSC		3,000	3,373	3,813	4,275	4,780	5,406	6,174	NA	1.21%
Bethesda WSC (P)		14,650	19,035	24,199	29,625	35,552	42,905	51,926	NA	2.13%
Burleson (P)	14,153	17,514	27,206	42,037	52,747	52,747	52,747	52,747	2.15%	1.85%
Cleburne	22,205	26,005	30,572	34,467	38,558	43,027	48,353	52,812	1.59%	1.19%
Cresson (P)			78	95	116	141	172	210	NA	2.00%
Godley		879	1,136	1,439	1,757	2,105	2,536	3,065	NA	2.10%
Grandview	1,245	1,358	1,600	2,000	2,500	2,500	2,500	2,500	0.87%	1.02%
Johnson County SUD (P)		33,656	43,983	56,147	68,926	82,885	100,205	121,454	NA	2.16%
Joshua	3,828	4,528	5,503	6,247	7,028	7,881	8,940	10,239	1.69%	1.37%
Keene	3,944	5,003	5,882	6,917	8,004	9,192	10,666	12,474	2.41%	1.53%

Table 2-2.
TWDB Approved Revisions to the 2006 Population Projections

Plan	County	WUG	2006 and Revised (2011) Population Projection					
			2010	2020	2030	2040	2050	2060
2006 RWP	BELL	BELL COUNTY-OTHER	1,810	1,813	1,810	1,809	1,808	1,809
2011 RWP	BELL	BELL COUNTY-OTHER	1,289	1,223	1,157	1,116	1,089	1,071
2006 RWP	BELL	HARKER HEIGHTS	22,477	29,147	34,822	39,636	41,096	41,818
2011 RWP	BELL	HARKER HEIGHTS	23,869	30,952	36,978	42,090	43,640	44,407
2006 RWP	BELL	KILLEEN	104,528	117,239	130,315	142,772	156,151	169,937
2011 RWP	BELL	KILLEEN	113,217	126,985	141,148	154,641	169,132	184,064
2006 RWP	BELL	MORGANS POINT RESORT	3,698	4,191	4,637	4,924	5,109	5,243
2011 RWP	BELL	MORGANS POINT RESORT	4,219	4,781	5,290	5,617	5,828	5,981
2006 RWP	BELL	NOLANVILLE	2,333	2,460	2,575	2,649	2,697	2,732
2011 RWP	BELL	NOLANVILLE	2,611	2,753	2,882	2,965	3,019	3,058
2006 RWP	BOSQUE	BOSQUE COUNTY-OTHER	19,831	22,646	24,622	25,364	25,667	26,032
2011 RWP	BOSQUE	BOSQUE COUNTY-OTHER	5,521	6,877	7,782	8,029	8,025	8,025
2006 RWP	BOSQUE	MORGAN	1,164	1,211	1,244	1,256	1,261	1,267
2011 RWP	BOSQUE	MORGAN	569	668	784	920	1,080	1,268
2006 RWP	BOSQUE	VALLEY MILLS	804	857	894	908	914	921
2011 RWP	BOSQUE	VALLEY MILLS	1,279	1,449	1,568	1,613	1,631	1,653
2006 RWP	CALLAHAN	CALLAHAN COUNTY-OTHER	6,371	6,443	6,332	6,208	6,070	5,955
2011 RWP	CALLAHAN	CALLAHAN COUNTY-OTHER	5,958	6,024	5,922	5,808	5,681	5,575
2006 RWP	CALLAHAN	CLYDE	3,320	3,368	3,296	3,215	3,125	3,050
2011 RWP	CALLAHAN	CLYDE	3,733	3,787	3,706	3,615	3,514	3,430
2006 RWP	EASTLAND	EASTLAND	3,777	3,787	3,720	3,618	3,500	3,342
2011 RWP	EASTLAND	EASTLAND	4,017	4,028	3,957	3,849	3,723	3,555
2006 RWP	EASTLAND	EASTLAND COUNTY-OTHER	6,021	6,036	5,932	5,769	5,579	5,329
2011 RWP	EASTLAND	EASTLAND COUNTY-OTHER	5,781	5,795	5,695	5,538	5,356	5,116
2006 RWP	HAMILTON	HAMILTON COUNTY-OTHER	3,507	3,407	3,329	3,355	3,252	3,245
2011 RWP	HAMILTON	HAMILTON COUNTY-OTHER	3,431	3,331	3,253	3,279	3,176	3,169
2006 RWP	HAMILTON	HICO	1,341	1,341	1,341	1,341	1,341	1,341
2011 RWP	HAMILTON	HICO	1,417	1,417	1,417	1,417	1,417	1,417
2006 RWP	HILL	HILL COUNTY-OTHER	2,892	3,144	3,428	3,712	4,014	4,349
2011 RWP	HILL	HILL COUNTY-OTHER	2,074	2,305	2,566	2,827	3,104	3,411
2006 RWP	HILL	HILLSBORO	8,477	8,820	9,208	9,595	10,008	10,467
2011 RWP	HILL	HILLSBORO	8,923	9,284	9,692	10,099	10,534	11,017
2006 RWP	HILL	HUBBARD	1,586	1,586	1,586	1,586	1,586	1,586
2011 RWP	HILL	HUBBARD	1,713	1,713	1,713	1,713	1,713	1,713
2006 RWP	HILL	ITASCA	1,499	1,493	1,487	1,481	1,474	1,466
2011 RWP	HILL	ITASCA	1,633	1,626	1,619	1,612	1,604	1,595
2006 RWP	HILL	WHITNEY	2,046	2,112	2,187	2,262	2,343	2,432
2011 RWP	HILL	WHITNEY	2,157	2,227	2,306	2,385	2,470	2,564
2006 RWP	HOOD	CRESSON	0	0	0	0	0	0
2011 RWP	HOOD	CRESSON	295	360	439	536	654	799
2006 RWP	HOOD	DECORDOVA	0	0	0	0	0	0
2011 RWP	HOOD	DECORDOVA	3,074	3,125	3,177	3,230	3,283	3,337
2006 RWP	HOOD	GRANBURY	6,843	8,202	9,467	10,792	12,461	14,388
2011 RWP	HOOD	GRANBURY	8,073	10,083	11,954	13,914	16,383	19,234
2006 RWP	HOOD	HOOD COUNTY-OTHER	23,312	27,711	31,806	36,093	41,494	47,732
2011 RWP	HOOD	HOOD COUNTY-OTHER	17,869	21,047	23,865	26,677	30,166	34,020

**Table 4A-1.
Municipal WUGs with Projected Water Shortages**

County	Shortages Begin	Projected Shortages (acft/yr)	
		Year 2030	Year 2060
Bell County			
Bartlett (P)	2010	(80)	(94)
Bell Milam Falls WSC (P)	2020	(47)	(84)
Jarrell-Schwertner WSC (P)	2010	(70)	(140)
Little River - Academy	2010	(18)	(27)
Morgans Point Resort	2010	(272)	(332)
Temple	2050	-	(3,577)
Bosque County			
Cross Country WSC (P)	2040	-	(52)
Valley Mills (P)	2030	(2)	(12)
Brazos County			
Bryan	2050	-	(809)
College Station	2030	(68)	(5,631)
Wickson Creek SUD (P)	2030	(191)	(791)
Burleson County			
Southwest Milam WSC (P)	2020	(10)	(22)
Callahan County			
Baird	2010	(241)	(232)
Potosi WSC (P)	2010	(1)	(0)
Comanche County			
None			
Coryell County			
Gatesville	2030	(72)	(1,450)
Kempner WSC (P)	2050	-	(812)
Eastland County			
Eastland County-Other	2010	(184)	(81)
Rising Star	2010	(9)	-
Erath County			
None			
Falls County			
Bell-Milam Falls WSC (P)	2010	(120)	(246)
Marlin	2010	(2,039)	(2,276)
West Brazos WSC (P)	2010	(140)	(241)
Fisher County			
None			
Grimes County			
Wickson Creek SUD (P)	2030	(162)	(518)

Table 4A-1 (Continued)

County	Shortages Begin	Projected Shortages (acft/yr)	
		Year 2030	Year 2060
Hamilton County			
None			
Haskell County			
Haskell County-Other	2010	(2)	-
Haskell	2010	(506)	(472)
Hill County			
Files Valley WSC	2050	-	(150)
White Bluff Community WS	2010	(235)	(557)
Woodrow-Osceola WSC	2010	(81)	(116)
Hood County			
Granbury	2010	(3,109)	(5,577)
Lipan	2030	(94)	(683)
Oak Trail Shores Subdivision	2010	(345)	(333)
Tolar	2030	(18)	(147)
Johnson County			
Alvarado	2010	(300)	(504)
Bethany WSC	2030	(73)	(244)
Bethesda WSC	2030	(502)	(3,660)
Cleburne	2050	-	(1,954)
Godley	2010	(174)	(353)
Johnson County SUD (P)	2020	(4,841)	(16,704)
Keene	2060	-	(97)
Parker WSC (P)	2050	-	(124)
Jones County			
Abilene (P)	2020	(107)	(1)
Jones County-Other	2010	(46)	(29)
Stamford (P)	2010	(2,750)	(2,684)
Kent County			
Jayton	2010	(95)	(57)
Knox County			
Knox County-Other	2010	(9)	-
Knox City	2010	(220)	(216)
Munday	2010	(255)	(250)
Lampasas County			
None			

Table 4A-1 (Continued)

County	Shortages Begin	Projected Shortages (acft/yr)	
		Year 2030	Year 2060
Lee County			
Aqua WSC	2020	(86)	(179)
Lee County WSC (P)	2010	(383)	(595)
Southwest Milam WSC (P)	2020	(11)	(23)
Limestone County			
Bistone MWSD	2010	(2,870)	(3,539)
Groesbeck	2050	-	(109)
Kosse	2010	(74)	(74)
McLennan County			
Chalk Bluff WSC	2040	-	(190)
Cross Country WSC (P)	2040	-	(245)
Hallsburg	2010	(21)	(45)
Lacy-Lakeview	2040	-	(357)
Mart	2010	(224)	(272)
North Bosque WSC	2040	-	(199)
Riesel	2040	(14)	(31)
Robinson	2060	-	(112)
West Brazos WSC (P)	2010	(82)	(131)
Western Hills WS	2040	-	(163)
Milam County			
Bell-Milam Falls WSC (P)	2010	(78)	(109)
Southwest Milam WSC (P)	2010	(407)	(508)
Nolan County			
Sweetwater	2010	(3,435)	(3,117)
Palo Pinto County			
Mineral Wells (P)	2020	(1,583)	(2,565)
Strawn	2020	(7)	(23)
Robertson County			
None			
Shackelford County			
Albany	2010	(15)	-
Somerville County			
Glen Rose	2030	(26)	(77)
Stephens County			
None			
Stonewall County			
None			
Taylor County			
Abilene(P)	2010	(19,048)	(17,811)
Merkel	2010	(116)	(83)

Table 4A-1 (Concluded)

County	Shortages Begin	Projected Shortages (acft/yr)	
		Year 2030	Year 2060
Potosi WSC (P)	2010	(119)	(84)
Steamboat Mountain WSC	2010	(34)	(4)
Throckmorton County			
Throckmorton County-Other	2010	(14)	-
Throckmorton	2010	(9)	-
Washington County			
None			
Williamson County			
Aqua WSC (P)	2020	(27)	(85)
Bartlett (P)	2010	(56)	(85)
Bell-Milam Falls WSC (P)	2010	(35)	(94)
Blockhouse MUD	2030	(418)	(2,058)
Brushy Creek MUD	2020	(478)	(478)
Cedar Park	2010	(6,100)	(10,156)
Chisholm Trail SUD (P)	2050	-	(3,992)
Williamson County-Other	2040	-	(3,677)
Florence	2010	(161)	(344)
Georgetown	2030	(763)	(16,082)
Jarrell	2010	(169)	(164)
Jarrell-Schwertner WSC (P)	2020	(372)	(1,359)
Jonah Water SUD	2010	(1)	(1,575)
Leander	2030	(719)	(7,039)
Liberty Hill	2010	(863)	(1,797)
Round Rock	2010	(22,273)	(60,139)
Southwest Milam WSC (P)	2020	(105)	(357)
Thrall	2010	(185)	(293)
Weir	2010	(288)	(568)
Williamson-Travis County MUD #1	2020	(784)	(2,267)
Young County			
None			
(P) Indicates WUG is in multiple counties.			

4A.2.2 Projected Manufacturing Shortages

Table 4A-2 lists the counties projected to have shortages in the Manufacturing Use category, projected year 2030 and 2060 shortages, and the approximate decade shortages are projected to begin. Five of the 37 counties in the Brazos G Area are projected to have manufacturing shortages, including Johnson, Lampasas, Nolan, Limestone, and Williamson Counties.

**Table 4B.12.1-4.
Cost Estimate Summary for
Cedar Ridge Reservoir
(September 2008 Prices)**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Capital Costs	
Dam and Reservoir (Conservation Pool 227,127 acft, 6,635 acres, 1489 ft. msl)	\$65,538,000
Intake and Pump Station (20.9 MGD)	\$12,197,000
Transmission Pipeline (36 in dia., 29 miles)	\$35,566,000
Water Treatment Plant (13.9 MGD)	\$24,226,000
Relocations & Other	<u>\$11,500,000</u>
Total Capital Cost	\$149,027,000
Engineering, Legal Costs and Contingencies	\$55,398,000
Environmental & Archaeology Studies and Mitigation	\$30,842,000
Land Acquisition and Surveying (16,314 acres)	\$24,519,000
Interest During Construction (3 years)	<u>\$25,428,000</u>
Total Project Cost	\$285,214,000
Annual Costs	
Debt Service (6 percent, 20 years)	\$11,337,000
Reservoir Debt Service (6 percent, 40 years)	\$10,314,000
Operation and Maintenance	
Intake, Pipeline, Pump Station	\$661,000
Dam and Reservoir	\$983,000
Water Treatment Plant	\$2,013,000
Pumping Energy Costs (19,067,256 kW-hr @ 0.09 \$/kW-hr)	\$1,716,000
Purchase of Water (5000 acft/yr @ 54.5 \$/acft)	<u>\$273,000</u>
Total Annual Cost	\$27,297,000
Available Project Yield (acft/yr)	23,380
Annual Cost of Water (\$ per acft)	\$1,168
Annual Cost of Water (\$ per 1,000 gallons)	\$3.58

4B.16 Voluntary Redistribution

4B.16.1 Description of Option

For the purposes of this discussion, “voluntary redistribution” is defined as an entity in possession of water rights or water purchase contracts freely selling, leasing, giving, or otherwise providing water to another entity. Typically, the entity providing the water has determined that it does not need the water for the duration of the transfer. The water could be transferred for a set period of years or permanently.

Voluntary redistribution is nothing new to Texas or to the Brazos G Area, and is essentially a water purchase. Typical examples of voluntary redistribution occurring in the region are the sale of water by entities such as the BRA, City of Waco, LCRA, and the City of Abilene through purchase contracts. The most common water sales occur when cities such as Waco or Abilene sell water to their surrounding communities.

Voluntary redistribution has many benefits over other supply options because it avoids implementation issues associated with new reservoir projects such as environmental, local impacts, and large capital costs. Most importantly, redistribution of water makes use of existing resources and provides a more immediate source of water.

4B.16.2 Available Supply and Shortages

The first step towards voluntary distribution is determining where water supplies are available and are projected to be available for some future period. Water available for the voluntary redistribution option was identified for municipal and industrial uses only.

As potential sources of water for voluntary redistribution are identified, it is important to remember that the redistribution of water is voluntary. No entity is required to participate. For this reason, entities with available water will not be specifically identified in this analysis, and the quantity of unused water is aggregated on a county-wide basis.

The amount of water available for municipal use was determined from the projected demands and supplies. Each municipal water user group was examined for water that is projected to be in excess of projected demands.

4B.16.2.1 Available Municipal Supplies

The municipal water supplies available as a potential source for voluntary redistribution are approximately 98,250 acft/yr and 66,837 acft/yr, in 2030 and 2060, respectively. The total

municipal need for the region in 2030 and 2060 is 79,940 acft/yr and 194,370 acft/yr, respectively. It is important to note that municipal voluntary redistribution is typically only feasible when an entity with a projected shortage is located in close proximity to an entity with a projected surplus. The projected municipal shortages and the amount of water available for transfer within each county are shown for 2030 and 2060 in Table 4B.16-1.

4B.16.2.2 Available Industrial Supply

Industrial uses include manufacturing, steam-electric, and mining. The industrial water supplies available as a potential source for voluntary redistribution are approximately 133,420 acft/yr and 113,192 acft/yr, in 2030 and 2060, respectively. The total industrial need for the region in 2030 and 2060 is 97,953 acft/yr and 151,084 acft/yr, respectively. The projected industrial shortages and the amount of water available for transfer are shown by county for 2030 and 2060 in Table 4B.16-2.

4B.16.3 Environmental Issues

No substantial environmental impacts are anticipated, as available water resources identified for this option are from existing supplies. A summary of the few environmental issues that might arise for this alternative are presented in Table 4B.16-3.

4B.16.4 Engineering and Costing

A cost estimate to this option cannot be fully assessed. Many unknowns exist including the price of the water, potential costs of new pipelines or water treatment facilities, and the proximity of the water needs to the water supply.

Potential costs of purchasing and using water available from voluntary redistribution are listed below:

- Cost of raw water;
- Treatment costs;
- Conveyance costs;
- Engineering costs of designing and constructing treatment and conveyance systems; and
- Additional costs required by water supplier. Many times when the water supplier is a city, water will be sold for 1.5 times the price of water sold within the city limits.

**Table 4B.16-1.
Municipal Needs/Available Supplies for Voluntary Redistribution**

County	Shortages		Available Supplies	
	2030 (acft/yr)	2060 (acft/yr)	2030 (acft/yr)	2060 (acft/yr)
Bell	487	3,841	10,613	7,816
Bosque	2	64	850	604
Brazos	259	6,422	8,126	5,648
Burleson	10	22	2,027	1,777
Callahan	242	232	796	895
Comanche	0	0	394	482
Coryell	72	2,262	3,148	2,108
Eastland	193	81	1,471	1,715
Erath	0	0	4,262	2,478
Falls	2,299	2,763	1,006	1,084
Fisher	0	0	490	547
Grimes	162	518	1,296	1,201
Hamilton	0	0	832	886
Haskell	508	472	48	89
Hill	316	823	4,082	2,793
Hood	3,566	6,740	3,807	380
Johnson	5,890	23,640	7,672	4,389
Jones	2,902	2,713	461	622
Kent	95	57	8	21
Knox	484	466	0	2
Lampasas	0	0	4,027	3,543
Lee	480	797	776	459
Limestone	2,944	3,722	2,126	1,316
McLennan	341	1,745	17,733	11,616
Milam	485	617	2,291	2,377
Nolan	3,435	3,117	263	327
Palo Pinto	1,590	2,588	1,413	974
Robertson	0	0	2,669	2,684
Shackelford	15	0	449	737
Somervell	26	77	2,057	2,038
Stephens	0	0	1,112	1,286
Stonewall	0	0	143	193
Taylor	19,317	17,982	614	660
Throckmorton	23	0	45	84
Washington	0	0	1,074	863
Williamson	33,797	112,609	8,339	625
Young	0	0	1,730	1,518

4C.15 Hill County Water Supply Plan

Table 4C.15-1 lists each water user group in Hill County and their corresponding surplus or shortage in years 2030 and 2060. For each water user group with a projected shortage, a water supply plan has been developed and is presented in the following subsections. Water supply plans are also presented for some entities that need pumping/conveyance facilities to utilize their existing water resources, or to become a regional provider.

**Table 4C.15-1.
Hill County Surplus/(Shortage)**

Water User Group	Surplus/(Shortage) ¹		Comment
	2030 (acft/yr)	2060 (acft/yr)	
Brandon-Irene WSC	108	34	Projected surplus
Files Valley WSC	99	(150)	Projected shortage – see plan below
City of Hillsboro	2,208	1,305	Projected surplus
City of Hubbard	400	400	Projected surplus
City of Itasca	32	43	Projected surplus
Johnson County SUD			See Johnson County for Plan
Lake Whitney Water Co.	407	416	Projected surplus
Parker WSC			See Johnson County for Plan
White Bluff Community WS	(235)	(557)	Projected shortage – see plan below
City of Whitney	104	74	Projected surplus
Woodrow-Osceola WSC	(81)	(116)	Projected shortage – see plan below
County-Other	833	661	Projected surplus
Manufacturing	284	252	Projected surplus
Steam-Electric	0	0	No projected demand
Mining	1,054	1,059	Projected surplus
Irrigation	3,308	3,310	Projected surplus
Livestock	0	0	Demand equals supply

¹ From Tables C-29 and C-30, Appendix C – Comparison of Water Demands with Water Supplies to Determine Needs.

4C.15.1 Brandon-Irene WSC

Brandon-Irene WSC obtains its water from the Trinity Aquifer and surface water through a contract with Aquilla WSD. Surpluses are projected through 2060 for Brandon Irene WSC, and no changes in water supply are recommended.

4C.39 Summary of Recommended Water Management Strategies

For convenient reference, the Table 4C.39-1 summarizes the water management strategies recommended by the Brazos G Regional Water Planning Group. The strategies listed below include only those related to developing new sources of supply in the Brazos G Area. Strategies involving system interconnections and purchasing water from existing supplies in Brazos G are not included.

The 2011 Brazos G Regional Water Plan includes recommendations for 21,346 acft/yr of municipal conservation savings; these savings are in addition to those savings already included in the TWDB water demand projections. Total new supplies of water into the Brazos G Area, whether conservation, newly developed groundwater, supply imported from other regions, newly developed surface water supplies, or augmentation of existing facilities, total 397,655 acft/yr. These totals do not reflect water trades between users of existing supplies in Brazos G, but are entirely new supplies to the Brazos G Area.

Implementation of the 2011 Brazos G Regional Water Plan will result in the development of new water supplies that will be reliable in the event of a repeat of the most severe drought on record. It is evident that implementation of all recommended water management strategies is not likely to be necessary in order to meet projected needs within the planning period. The Brazos G RWPG explicitly recognizes the difference between additional supplies and projected needs as System Management Supplies and has recommended the associated water management strategies in the 2011 Plan for the following reasons:

- So that water management strategies are identified to replace any planned strategies that may fail to develop, through legal, economic or other reasons;
- To serve as additional supplies in the event that rules, regulations, or other restrictions limit use of any planned strategies;
- To facilitate development of specific projects being pursued by local entities for reasons that may not be captured in the supply and demand projections used to identify future supply shortages; and/or
- To ensure adequate supplies in the event of a drought more severe than that which occurred historically.

Table 4C.39-1 (Continued)

Strategy	WUG or WWP	New Supply by 2060 (acft/yr)	Total Project Cost (September 2008 Prices)
New Reservoirs			
Groesbeck Off-Channel	City of Groesbeck	1,755	\$10,412,000
Coryell County	BRA – Little River	3,365	\$37,489,000
Cedar Ridge	City of Abilene	23,380	\$285,214,000
Brushy Creek Reservoir	City of Marlin	2,090	\$18,553,000
Total New Reservoirs		30,590	\$351,668,000
Systems Approaches			
BRA System Operation (Excluding Lake Granger Augmentation)	Bosque County – Steam Electric	5,222	\$24,725,000
	White Bluff Community WSC	600	\$9,277,000
	City of Keene	157	\$3,062,000
	Woodrow-Osceola WSC	150	\$7,231,000
	Somervell County – Steam Electric	76,270	\$136,032,000
	College Station	2,500	\$23,954,000
Total from Systems Approaches		84,899	\$204,280,000
Groundwater Development			
Carrizo-Wilcox Aquifer – Limestone County	Manufacturing – Limestone County	75	\$347,000
	City of Kosse	100	\$2,386,000
	Bistone MWSD	3,600	\$18,458,000
Champion Well Field Expansion	City of Sweetwater	1,000	\$15,015,000
Carrizo-Wilcox Aquifer – Brazos County	City of College Station	3,000	\$28,101,000
	Wickson SUD	1,500	\$1,201,000
Carrizo-Wilcox Aquifer – Burleson County	Southwest Milam WSC ⁴	966	\$3,502,000
Carrizo-Wilcox Aquifer – Lee County	Aqua WSC	403	\$1,364,000
	Lee County WSC	806	\$2,166,000
Carrizo-Wilcox Aquifer – Milam County	Steam Electric – Milam County	1,613	\$3,160,000
	Mining – Milam County	100	\$715,000
Edwards-Trinity Nolan County	Mining – Nolan County	114	\$679,000
Trinity Aquifer – McLennan County	Chalk Bluff WSC	230	\$2,707,000
	Western Hills WSC	198	\$1,073,000
Trinity Aquifer – Hood County	Lipan	685	\$8,524,000
	Tolar	150	\$1,286,000
Trinity Aquifer – Johnson County	Parker WSC	160	\$2,045,000

Table 4C.39-1 (Concluded)

Strategy	WUG or WWP	New Supply by 2060 (acft/yr)	Total Project Cost (September 2008 Prices)
Groundwater Development			
Trinity Aquifer – Williamson County	City of Florence	322	\$1,648,000
	Williamson County-Other	280	\$1,995,000
Gulf Coast Aquifer – Grimes County	Steam Electric – Grimes County	5,600	\$31,630,000
Total Groundwater Development		20,902	\$128,002,000
Total New Supplies		397,655	>\$2,027,526,000
<ol style="list-style-type: none"> 1. Not Determined or cost shared by multiple entities. 2. The Lake Granger Augmentation includes development of an average annual supply of groundwater from the Carrizo-Wilcox Aquifer of 30,832 acft/yr to develop the total new supply of 54,813 acft/yr (Volume II, Section 4B.5). 3. Includes additional BRA contractual commitments not specifically identified in Section 4B.4. Does not include Region H supplies, but does include minor increases to Region C. 4. Although Southwest Milam is primarily located in Milam County, supplies for this strategy are located in Burleson County. 			

In addition to the water management strategies recommended by the BGRWPG to meet future water needs, the BGRWPG has identified a number of alternative strategies that could be pursued should a recommended strategy prove infeasible. Water management strategies that were fully evaluated for consideration by the BGRWPG and are identified as alternatives to recommended strategies are summarized in Table 4C.39-2.

8.2 Recommendations Concerning Sites Uniquely Suited for Reservoirs

The Brazos G RWPG has chosen to identify the following four sites as uniquely suited for reservoir construction. Each of these sites is associated with a recommended water management strategy in the 2011 Plan, and local entities have requested these sites be identified as unique reservoir sites.

- Cedar Ridge Reservoir,
- Turkey Peak Reservoir,
- Millers Creek Reservoir Augmentation (downstream dam site), and
- Coryell County Off-Channel Reservoir.

8.3 Legislative and Policy Recommendations

The Brazos G RWPG established a Water Policy Workgroup to discuss various issues concerning State water policy and to formulate proposed positions for the planning group to consider for recommendation to the TWDB and the Texas Legislature. For the 2006 Plan, the Brazos G RWPG formulated recommendations for several legislative and water policy positions. For the 2011 Plan, these policy recommendations were revisited by the Water Policy Workgroup, and specific revised recommendations were offered to the full planning group for consideration.

The Brazos G RWPG offers the following specific recommendations concerning State water policy to the TWDB and the Texas Legislature. Issue number refers to a larger list of topics considered by the Brazos G RWPG for the 2006 Plan. Only those issues for which the Brazos G RWPG has formulated a recommendation are included here.

Issue #1: Interaction of State Agencies with Regional Water Planning Groups

“The Brazos G Regional Water Planning Group (Brazos G) recognizes that all State agencies involved in planning and/or permitting regional water projects need to act consistently with the current statewide water plan and to work cooperatively with Regional Water Planning Groups that are considering significant new regional water projects requiring State agency input and/or permits.”

**Table C-5
Brazos County
Population, Water Supply, and Water Demand Projections**

Population Projection		Year						
		2000	2010	2020	2030	2040	2050	2060
		152,415	178,187	205,099	229,850	248,962	271,608	279,182
Supply and Demand by Type of Use		Year						
		2000 (acft)	2010 (acft)	2020 (acft)	2030 (acft)	2040 (acft)	2050 (acft)	2060 (acft)
Municipal	Municipal Demand	30,317	34,992	39,587	43,776	46,937	50,976	52,417
	Contractual Demand	0	1,120	1,120	1,120	1,120	1,120	1,120
	Municipal Existing Supply							
	Groundwater (Less Contractual Demand) ¹	47,570	47,643	47,643	47,643	47,643	47,643	47,643
	Surface water	4,000	2,880	2,880	2,880	2,880	2,880	2,880
	Total Existing Municipal Supply	51,570	50,523	50,523	50,523	50,523	50,523	50,523
Municipal Balance	21,253	15,531	10,936	6,747	3,586	(453)	(1,894)	
Industrial	Manufacturing Demand	244	316	365	413	462	506	549
	Manufacturing Existing Supply							
	Groundwater	2,475	2,475	2,475	2,475	2,475	2,475	2,475
	Surface water	14,720	14,720	14,720	14,720	14,720	14,720	14,720
	Total Manufacturing Supply	17,195	17,195	17,195	17,195	17,195	17,195	17,195
	Manufacturing Balance	16,951	16,879	16,830	16,782	16,733	16,689	16,646
	Steam-Electric Demand	545	526	488	394	446	303	393
	Steam-Electric Existing Supply							
	Groundwater	460	460	460	460	460	460	460
	Surface water	85	85	85	85	85	85	85
	Total Steam-Electric Supply	545	545	545	545	545	545	545
	Steam-Electric Balance	0	19	57	151	99	242	152
	Mining Demand	25	27	28	29	30	31	31
	Mining Existing Supply							
	Groundwater	32	32	32	32	32	32	32
Surface water	0	0	0	0	0	0	0	
Total Mining Supply	32	32	32	32	32	32	32	
Mining Balance	7	5	4	3	2	1	1	
Agriculture	Irrigation Demand	6,918	6,584	6,267	5,964	5,676	5,403	5,142
	Irrigation Existing Supply							
	Groundwater	12,133	12,133	12,133	12,133	12,133	12,133	12,133
	Surface water	4,359	4,379	4,399	4,420	4,440	4,460	4,480
	Total Irrigation Supply	16,492	16,512	16,532	16,553	16,573	16,593	16,613
	Irrigation Balance	9,574	9,928	10,265	10,589	10,897	11,190	11,471
	Livestock Demand	1,032	1,032	1,032	1,032	1,032	1,032	1,032
	Livestock Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	1,032	1,032	1,032	1,032	1,032	1,032	1,032
Total Livestock Supply	1,032	1,032	1,032	1,032	1,032	1,032	1,032	
Livestock Balance	0	0	0	0	0	0	0	
Total	Municipal & Industrial Demand	31,131	35,861	40,468	44,612	47,875	51,816	53,390
	Existing Municipal & Industrial Supply							
	Groundwater	50,537	50,610	50,610	50,610	50,610	50,610	50,610
	Surface water	18,805	17,685	17,685	17,685	17,685	17,685	17,685
	Total Municipal & Industrial Supply	69,342	68,295	68,295	68,295	68,295	68,295	68,295
	Municipal & Industrial Balance	38,211	32,434	27,827	23,683	20,420	16,479	14,905
	Agriculture Demand	7,950	7,616	7,299	6,996	6,708	6,435	6,174
	Existing Agricultural Supply							
	Groundwater	12,133	12,133	12,133	12,133	12,133	12,133	12,133
	Surface water	5,391	5,411	5,431	5,452	5,472	5,492	5,512
	Total Agriculture Supply	17,524	17,544	17,564	17,585	17,605	17,625	17,645
	Agriculture Balance	9,574	9,928	10,265	10,589	10,897	11,190	11,471
	Total Demand	39,081	43,477	47,767	51,608	54,583	58,251	59,564
	Total Supply							
	Groundwater	62,670	62,743	62,743	62,743	62,743	62,743	62,743
	Surface water	24,196	23,096	23,116	23,137	23,157	23,177	23,197
	Total Supply	86,866	85,839	85,859	85,880	85,900	85,920	85,940
Total Balance	47,785	42,362	38,092	34,272	31,317	27,669	26,376	

¹ Contractual demands are subtracted from the supplies available to municipal water user groups in order to not double-count demands and supplies available within a County.

Table C-6
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
<i>Brazos County</i>							
BRYAN							
Demand	10,812	11,957	13,179	14,221	15,022	16,096	16,493
Contractual Demand		1,120	1,120	1,120	1,120	1,120	1,120
Supply	18,304	18,304	18,304	18,304	18,304	18,304	18,304
Groundwater	18,304	18,304	18,304	18,304	18,304	18,304	18,304
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	7,492	5,227	4,005	2,963	2,162	1,088	691
COLLEGE STATION							
Demand	17,110	20,032	22,977	25,779	27,844	30,432	31,342
Supply	25,711	25,711	25,711	25,711	25,711	25,711	25,711
Groundwater	25,711	25,711	25,711	25,711	25,711	25,711	25,711
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	8,601	5,679	2,734	(68)	(2,133)	(4,721)	(5,631)
WELLBORN SUD							
Demand	858	1,069	1,285	1,482	1,637	1,820	1,886
Supply	5,135	5,695	5,695	5,695	5,695	5,695	5,695
Groundwater	1,135	1,695	1,695	1,695	1,695	1,695	1,695
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	4,000	4,000	4,000	4,000	4,000	4,000	4,000
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	4,277	4,626	4,410	4,213	4,058	3,875	3,809
WICKSON CREEK SUD							
Demand	624	1,126	1,451	1,701	1,924	2,206	2,301
Supply	1,437	1,510	1,510	1,510	1,510	1,510	1,510
Groundwater	1,437	1,510	1,510	1,510	1,510	1,510	1,510
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	813	384	59	(191)	(414)	(696)	(791)
COUNTY-OTHER							
Demand	913	808	695	593	510	422	395
Supply	983	1,543	1,543	1,543	1,543	1,543	1,543
Groundwater	983	1,543	1,543	1,543	1,543	1,543	1,543
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	70	735	848	950	1,033	1,121	1,148

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
Dash represents a value of zero (0)
NC indicates the supply is "not constrained"

**Table C-21
Fisher County
Population, Water Supply, and Water Demand Projections**

Population Projection		Year						
		2000	2010	2020	2030	2040	2050	2060
		4,344	4,264	4,259	4,097	3,972	3,910	3,717
Supply and Demand by Type of Use		Year						
		2000 (acft)	2010 (acft)	2020 (acft)	2030 (acft)	2040 (acft)	2050 (acft)	2060 (acft)
Municipal	Municipal Demand	689	656	641	592	550	530	489
	Contractual Demand	0	0	0	0	0	0	0
	Municipal Existing Supply							
	Groundwater	341	341	341	341	341	341	341
	Surface water	783	770	763	741	723	714	695
	Total Existing Municipal Supply	1,124	1,111	1,104	1,082	1,064	1,055	1,036
	Municipal Balance	435	455	463	490	514	525	547
Industrial	Manufacturing Demand	158	192	225	255	284	310	336
	Manufacturing Existing Supply							
	Groundwater	340	340	340	340	340	340	340
	Surface water	0	0	0	0	0	0	0
	Total Manufacturing Supply	340	340	340	340	340	340	340
	Manufacturing Balance	182	148	115	85	56	30	4
	Steam-Electric Demand	0	0	0	0	0	0	0
	Steam-Electric Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	0	0	0	0	0	0	0
	Total Steam-Electric Supply	0	0	0	0	0	0	0
	Steam-Electric Balance	0	0	0	0	0	0	0
	Mining Demand	468	375	359	354	349	344	337
Mining Existing Supply								
Groundwater	583	583	583	583	583	583	583	
Surface water	0	0	0	0	0	0	0	
Total Mining Supply	583	583	583	583	583	583	583	
Mining Balance	115	208	224	229	234	239	246	
Agriculture	Irrigation Demand	2,459	2,386	2,314	2,245	2,178	2,113	2,049
	Irrigation Existing Supply							
	Groundwater	3,924	3,924	3,924	3,924	3,924	3,924	3,924
	Surface water	758	758	758	758	758	758	758
	Total Irrigation Supply	4,682	4,682	4,682	4,682	4,682	4,682	4,682
	Irrigation Balance	2,223	2,296	2,368	2,437	2,504	2,569	2,633
	Livestock Demand	585	585	585	585	585	585	585
	Livestock Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	585	585	585	585	585	585	585
Total Livestock Supply	585	585	585	585	585	585	585	
Livestock Balance	0	0	0	0	0	0	0	
Total	Municipal & Industrial Demand	1,315	1,223	1,225	1,201	1,183	1,184	1,162
	Existing Municipal & Industrial Supply							
	Groundwater	1,264	1,264	1,264	1,264	1,264	1,264	1,264
	Surface water	783	770	763	741	723	714	695
	Total Municipal & Industrial Supply	2,047	2,034	2,027	2,005	1,987	1,978	1,959
	Municipal & Industrial Balance	732	811	802	804	804	794	797
	Agriculture Demand	3,044	2,971	2,899	2,830	2,763	2,698	2,634
	Existing Agricultural Supply							
	Groundwater	3,924	3,924	3,924	3,924	3,924	3,924	3,924
	Surface water	1,343	1,343	1,343	1,343	1,343	1,343	1,343
	Total Agriculture Supply	5,267	5,267	5,267	5,267	5,267	5,267	5,267
	Agriculture Balance	2,223	2,296	2,368	2,437	2,504	2,569	2,633
	Total Demand	4,359	4,194	4,124	4,031	3,946	3,882	3,796
	Total Supply							
	Groundwater	5,188	5,188	5,188	5,188	5,188	5,188	5,188
	Surface water	2,126	2,113	2,106	2,084	2,066	2,057	2,038
	Total Supply	7,314	7,301	7,294	7,272	7,254	7,245	7,226
Total Balance	2,955	3,107	3,170	3,241	3,308	3,363	3,430	

Table C-22
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
<i>Fisher County</i>							
BITTER CREEK WSC							
Demand	121	117	114	113	111	110	113
Supply	253	253	253	253	253	253	253
Groundwater	58	58	58	58	58	58	58
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	195	195	195	195	195	195	195
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	132	136	139	140	142	143	140
ROBY							
Demand	78	76	75	75	74	74	76
Supply	331	331	331	331	331	331	331
Groundwater	34	34	34	34	34	34	34
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	297	297	297	297	297	297	297
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	253	255	256	256	257	257	255
ROTAN							
Demand	291	278	271	249	231	222	203
Supply	291	278	271	249	231	222	203
Groundwater	-	-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	291	278	271	249	231	222	203
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	-	-	-	-	-	-	-
COUNTY-OTHER							
Demand	199	185	181	155	134	124	97
Supply	249	249	249	249	249	249	249
Groundwater	249	249	249	249	249	249	249
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	50	64	68	94	115	125	152

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
Dash represents a value of zero (0)
NC indicates the supply is "not constrained"

**Table C-23
Grimes County
Population, Water Supply, and Water Demand Projections**

Population Projection		Year						
		2000	2010	2020	2030	2040	2050	2060
		23,552	26,635	30,073	32,785	34,670	36,176	37,657

Supply and Demand by Type of Use		Year						
		2000 (acft)	2010 (acft)	2020 (acft)	2030 (acft)	2040 (acft)	2050 (acft)	2060 (acft)
		Municipal	Municipal Demand	2,923	3,320	3,629	3,855	3,983
Contractual Demand	0		0	0	0	0	0	0
Municipal Existing Supply								
Groundwater	4,391		5,004	4,994	4,989	4,985	4,985	4,985
Surface water	0		0	0	0	0	0	0
Total Existing Municipal Supply	4,391		5,004	4,994	4,989	4,985	4,985	4,985
Municipal Balance	1,468		1,684	1,365	1,134	1,002	856	683
Industrial	Manufacturing Demand	197	257	297	336	375	410	445
	Manufacturing Existing Supply							
	Groundwater	445	445	445	445	445	445	445
	Surface water	112	112	112	112	112	112	112
	Total Manufacturing Supply	557	557	557	557	557	557	557
	Manufacturing Balance	360	300	260	221	182	147	112
	Steam-Electric Demand	4,405	12,000	31,760	33,160	34,660	36,660	39,660
	Steam-Electric Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	9,740	16,461	16,461	16,461	16,461	16,461	16,461
	Total Steam-Electric Supply	9,740	16,461	16,461	16,461	16,461	16,461	16,461
	Steam-Electric Balance	5,335	4,461	(15,299)	(16,699)	(18,199)	(20,199)	(23,199)
	Mining Demand	158	166	169	171	173	174	175
Mining Existing Supply								
Groundwater	114	114	114	114	114	114	114	
Surface water	78	79	80	81	82	84	85	
Total Mining Supply	192	193	194	195	196	198	199	
Mining Balance	34	27	25	24	23	24	24	
Agriculture	Irrigation Demand	241	241	241	241	241	241	241
	Irrigation Existing Supply							
	Groundwater	315	315	315	315	315	315	315
	Surface water	1,679	1,679	1,679	1,678	1,678	1,678	1,678
	Total Irrigation Supply	1,994	1,994	1,994	1,993	1,993	1,993	1,993
	Irrigation Balance	1,753	1,753	1,753	1,752	1,752	1,752	1,752
	Livestock Demand	1,554	1,554	1,554	1,554	1,554	1,554	1,554
	Livestock Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	1,554	1,554	1,554	1,554	1,554	1,554	1,554
Total Livestock Supply	1,554	1,554	1,554	1,554	1,554	1,554	1,554	
Livestock Balance	0	0	0	0	0	0	0	
Total	Municipal & Industrial Demand	7,683	15,743	35,855	37,522	39,191	41,373	44,582
	Existing Municipal & Industrial Supply							
	Groundwater	4,950	5,563	5,553	5,548	5,544	5,544	5,544
	Surface water	9,930	16,652	16,653	16,654	16,655	16,656	16,657
	Total Municipal & Industrial Supply	14,880	22,215	22,206	22,202	22,199	22,200	22,201
	Municipal & Industrial Balance	7,197	6,472	(13,649)	(15,320)	(16,992)	(19,173)	(22,381)
	Agriculture Demand	1,795	1,795	1,795	1,795	1,795	1,795	1,795
	Existing Agricultural Supply							
	Groundwater	315	315	315	315	315	315	315
	Surface water	3,233	3,233	3,233	3,232	3,232	3,232	3,232
	Total Agriculture Supply	3,548	3,548	3,548	3,547	3,547	3,547	3,547
	Agriculture Balance	1,753	1,753	1,753	1,752	1,752	1,752	1,752
	Total Demand	9,478	17,538	37,650	39,317	40,986	43,168	46,377
	Total Supply							
	Groundwater	5,265	5,878	5,868	5,863	5,859	5,859	5,859
Surface water	13,163	19,884	19,885	19,886	19,887	19,888	19,889	
Total Supply	18,428	25,762	25,753	25,749	25,746	25,747	25,748	
Total Balance	8,950	8,224	(11,897)	(13,568)	(15,240)	(17,421)	(20,629)	

Table C-24
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
<i>Grimes County</i>							
NAVASOTA							
Demand	1,384	1,426	1,464	1,494	1,505	1,526	1,555
Supply	2,561	2,561	2,561	2,561	2,561	2,561	2,561
Groundwater	2,561	2,561	2,561	2,561	2,561	2,561	2,561
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	1,177	1,135	1,097	1,067	1,056	1,035	1,006
WICKSON CREEK SUD							
Demand	303	625	878	1,044	1,175	1,286	1,396
Supply	284	897	887	882	878	878	878
Groundwater	284	897	887	882	878	878	878
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	(19)	272	9	(162)	(297)	(408)	(518)
COUNTY-OTHER							
Demand	1,236	1,269	1,287	1,317	1,303	1,317	1,351
Supply	1,546	1,546	1,546	1,546	1,546	1,546	1,546
Groundwater	1,546	1,546	1,546	1,546	1,546	1,546	1,546
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	310	277	259	229	243	229	195

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
Dash represents a value of zero (0)
NC indicates the supply is "not constrained"

**Table C-29
Hill County
Population, Water Supply, and Water Demand Projections**

Population Projection		Year						
		2000	2010	2020	2030	2040	2050	2060
		32,321	33,416	34,947	36,679	38,407	40,252	42,300
Supply and Demand by Type of Use		Year						
		2000 (acft)	2010 (acft)	2020 (acft)	2030 (acft)	2040 (acft)	2050 (acft)	2060 (acft)
Municipal	Municipal Demand	4,790	4,901	5,041	5,206	5,372	5,616	5,936
	Contractual Demand	420	420	420	420	420	420	420
	Municipal Existing Supply							
	Groundwater	2,871	2,871	2,871	2,871	2,871	2,871	2,871
	Surface water (Less Contractual Demand) ¹	6,335	6,136	6,118	6,101	5,821	5,425	5,036
	Total Existing Municipal Supply	9,206	9,007	8,989	8,972	8,692	8,296	7,907
Municipal Balance	4,416	4,106	3,948	3,766	3,320	2,680	1,971	
Industrial	Manufacturing Demand	67	85	97	108	119	129	140
	Manufacturing Existing Supply							
	Groundwater	142	142	142	142	142	142	142
	Surface water	250	250	250	250	250	250	250
	Total Manufacturing Supply	392	392	392	392	392	392	392
	Manufacturing Balance	325	307	295	284	273	263	252
	Steam-Electric Demand	0	0	0	0	0	0	0
	Steam-Electric Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	0	0	0	0	0	0	0
	Total Steam-Electric Supply	0	0	0	0	0	0	0
	Steam-Electric Balance	0	0	0	0	0	0	0
Mining	Mining Demand	118	100	96	94	92	90	89
	Mining Existing Supply							
	Groundwater	148	148	148	148	148	148	148
	Surface water	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	Total Mining Supply	1,148	1,148	1,148	1,148	1,148	1,148	1,148
	Mining Balance	1,030	1,048	1,052	1,054	1,056	1,058	1,059
Agriculture	Irrigation Demand	43	43	42	42	42	42	41
	Irrigation Existing Supply							
	Groundwater	359	359	359	359	359	359	359
	Surface water	2,990	2,991	2,991	2,991	2,992	2,992	2,992
	Total Irrigation Supply	3,349	3,350	3,350	3,350	3,351	3,351	3,351
	Irrigation Balance	3,306	3,307	3,308	3,308	3,309	3,309	3,310
	Livestock Demand	1,401	1,401	1,401	1,401	1,401	1,401	1,401
	Livestock Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	1,401	1,401	1,401	1,401	1,401	1,401	1,401
Total Livestock Supply	1,401	1,401	1,401	1,401	1,401	1,401	1,401	
Livestock Balance	0	0	0	0	0	0	0	
Total	Municipal & Industrial Demand	4,975	5,086	5,234	5,408	5,583	5,835	6,165
	Existing Municipal & Industrial Supply							
	Groundwater	3,161	3,161	3,161	3,161	3,161	3,161	3,161
	Surface water	7,585	7,386	7,368	7,351	7,071	6,675	6,286
	Total Municipal & Industrial Supply	10,746	10,547	10,529	10,512	10,232	9,836	9,447
	Municipal & Industrial Balance	5,771	5,461	5,295	5,104	4,649	4,001	3,282
	Agriculture Demand	1,444	1,444	1,443	1,443	1,443	1,443	1,442
	Existing Agricultural Supply							
	Groundwater	359	359	359	359	359	359	359
	Surface water	4,391	4,392	4,392	4,392	4,393	4,393	4,393
	Total Agriculture Supply	4,750	4,751	4,751	4,751	4,752	4,752	4,752
	Agriculture Balance	3,306	3,307	3,308	3,308	3,309	3,309	3,310
	Total Demand	6,419	6,530	6,677	6,851	7,026	7,278	7,607
	Total Supply							
	Groundwater	3,520	3,520	3,520	3,520	3,520	3,520	3,520
	Surface water	11,977	11,778	11,760	11,744	11,464	11,068	10,679
Total Supply	15,497	15,298	15,280	15,264	14,984	14,588	14,199	
Total Balance	9,078	8,768	8,603	8,413	7,958	7,310	6,592	

¹ Contractual demands are subtracted from the supplies available to municipal water user groups in order to not double-count demands and supplies available within a County.

Table C-30
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
<i>Hill County</i>							
BRANDON-IRENE WSC							
Demand	254	251	253	255	256	263	273
Supply	404	367	365	363	349	329	307
Groundwater	129	129	129	129	129	129	129
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	275	238	236	234	220	200	178
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	150	116	112	108	93	66	34
FILES VALLEY WSC							
Demand	413	413	417	421	424	433	447
Contractual Demand	420	420	420	420	420	420	420
Supply	1,103	960	950	940	882	801	717
Groundwater	-	-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	1,103	960	950	940	882	801	717
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	270	127	113	99	38	(52)	(150)
HILLSBORO							
Demand	1,706	1,819	1,862	1,911	1,957	2,030	2,123
Supply	4,119	4,119	4,119	4,119	3,940	3,684	3,428
Groundwater	-	-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	4,119	4,119	4,119	4,119	3,940	3,684	3,428
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	2,413	2,300	2,257	2,208	1,983	1,654	1,305
HUBBARD							
Demand	185	194	188	183	177	173	173
Supply	585	594	588	583	577	573	573
Groundwater	400	400	400	400	400	400	400
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	185	194	188	183	177	173	173
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	400	400	400	400	400	400	400
ITASCA							
Demand	214	225	219	212	206	202	201
Supply	244	244	244	244	244	244	244
Groundwater	244	244	244	244	244	244	244
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	30	19	25	32	38	42	43
JOHNSON COUNTY SUD							
Demand	34	37	41	46	53	59	65
Supply	59	59	59	59	59	59	65
Groundwater	19	19	19	19	19	19	19
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	40	40	40	40	40	40	46
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	25	22	18	13	6	(0)	-

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.

Dash represents a value of zero (0)

NC indicates the supply is "not constrained"

Table C-30
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
LAKE WHITNEY WATER COMPANY							
Demand	638	623	608	593	578	570	574
Supply	857	857	857	857	853	847	841
Groundwater	765	765	765	765	765	765	765
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	92	92	92	92	88	82	76
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	219	234	249	264	275	277	267
PARKER WSC							
Demand	50	51	53	56	59	64	68
Supply	106	78	78	78	78	78	78
Groundwater	48	48	48	48	48	48	48
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	58	30	30	30	30	30	30
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	56	27	25	22	19	14	10
WHITE BLUFF COMMUNITY WS							
Demand	307	369	456	553	650	757	875
Supply	318	318	318	318	318	318	318
Groundwater	318	318	318	318	318	318	318
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	11	(51)	(138)	(235)	(332)	(439)	(557)
WHITNEY							
Demand	316	365	370	375	380	391	405
Supply	479	479	479	479	479	479	479
Groundwater	479	479	479	479	479	479	479
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	163	114	109	104	99	88	74
WOODROW-OSCEOLA WSC							
Demand	296	286	285	284	287	298	319
Supply	203	203	203	203	203	203	203
Groundwater	203	203	203	203	203	203	203
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	(93)	(83)	(82)	(81)	(84)	(95)	(116)
COUNTY-OTHER							
Demand	377	268	289	317	345	376	413
Supply	1,150	1,150	1,150	1,150	1,130	1,102	1,074
Groundwater	266	266	266	266	266	266	266
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	884	884	884	884	864	836	808
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	773	882	861	833	785	726	661

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.

Dash represents a value of zero (0)

NC indicates the supply is "not constrained"

**Table C-45
Limestone County
Population, Water Supply, and Water Demand Projections**

Population Projection		Year						
		2000	2010	2020	2030	2040	2050	2060
		22,051	23,322	24,944	25,828	26,505	27,177	28,050

Supply and Demand by Type of Use		Year						
		2000	2010	2020	2030	2040	2050	2060
		(acft)	(acft)	(acft)	(acft)	(acft)	(acft)	(acft)
Municipal	Municipal Demand	3,193	3,313	3,468	3,531	3,566	3,638	3,775
	Contractual Demand	5,534	5,534	5,534	5,534	5,534	5,534	5,534
	Municipal Existing Supply							
	Groundwater	3,146	3,151	3,151	3,151	3,151	3,151	3,151
	Surface water (Less Contractual Demand) ¹	891	458	10	(438)	(885)	(1,333)	(1,781)
	Total Existing Municipal Supply	4,037	3,609	3,161	2,713	2,266	1,818	1,370
Municipal Balance	844	296	(307)	(818)	(1,300)	(1,820)	(2,405)	
Industrial	Manufacturing Demand	39	48	53	58	63	67	72
	Manufacturing Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	36	30	25	19	14	8	3
	Total Manufacturing Supply	36	30	25	19	14	8	3
	Manufacturing Balance	(3)	(18)	(28)	(39)	(49)	(59)	(69)
	Steam-Electric Demand	22,065	22,332	22,598	26,420	31,079	36,758	43,681
	Steam-Electric Existing Supply							
	Groundwater	1,268	1,268	1,268	1,268	1,268	1,268	1,268
	Surface water	25,675	25,535	25,396	25,256	25,116	24,977	24,837
	Total Steam-Electric Supply	26,943	26,803	26,664	26,524	26,384	26,245	26,105
	Steam-Electric Balance	4,878	4,471	4,066	104	(4,695)	(10,513)	(17,576)
Mining Demand	360	380	387	392	396	400	403	
Mining Existing Supply								
Groundwater	1,168	1,168	1,168	1,168	1,168	1,168	1,168	
Surface water	0	0	0	0	0	0	0	
Total Mining Supply	1,168	1,168	1,168	1,168	1,168	1,168	1,168	
Mining Balance	808	788	781	776	772	768	765	
Agriculture	Irrigation Demand	0	0	0	0	0	0	0
	Irrigation Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	19	19	19	19	19	19	19
	Total Irrigation Supply	19	19	19	19	19	19	19
	Irrigation Balance	19	19	19	19	19	19	19
	Livestock Demand	1,487	1,487	1,487	1,487	1,487	1,487	1,487
	Livestock Existing Supply							
Groundwater	0	0	0	0	0	0	0	
Surface water	1,487	1,487	1,487	1,487	1,487	1,487	1,487	
Total Livestock Supply	1,487	1,487	1,487	1,487	1,487	1,487	1,487	
Livestock Balance	0	0	0	0	0	0	0	
Total	Municipal & Industrial Demand	25,657	26,073	26,506	30,401	35,104	40,863	47,931
	Existing Municipal & Industrial Supply							
	Groundwater	5,582	5,587	5,587	5,587	5,587	5,587	5,587
	Surface water	26,601	26,024	25,431	24,838	24,245	23,652	23,059
	Total Municipal & Industrial Supply	32,183	31,611	31,018	30,425	29,832	29,239	28,646
	Municipal & Industrial Balance	6,526	5,538	4,512	24	(5,272)	(11,624)	(19,286)
	Agriculture Demand	1,487	1,487	1,487	1,487	1,487	1,487	1,487
	Existing Agricultural Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	1,506	1,506	1,506	1,506	1,506	1,506	1,506
	Total Agriculture Supply	1,506	1,506	1,506	1,506	1,506	1,506	1,506
	Agriculture Balance	19	19	19	19	19	19	19
	Total Demand	27,144	27,560	27,993	31,888	36,591	42,350	49,418
	Total Supply							
	Groundwater	5,582	5,587	5,587	5,587	5,587	5,587	5,587
	Surface water	28,107	27,529	26,936	26,343	25,750	25,157	24,564
Total Supply	33,689	33,116	32,523	31,930	31,337	30,744	30,151	
Total Balance	6,545	5,556	4,530	42	(5,254)	(11,606)	(19,267)	

¹ Contractual demands are subtracted from the supplies available to municipal water user groups in order to not double-count demands and supplies available within a County.

Table C-46
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
<i>Limestone County</i>							
BISTONE MWSD							
Demand	150	148	146	144	142	141	141
Contractual Demand	5,534	5,534	5,534	5,534	5,534	5,534	5,534
Supply	3,480	3,256	3,032	2,808	2,584	2,360	2,136
Groundwater	1,937	1,937	1,937	1,937	1,937	1,937	1,937
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	1,543	1,319	1,095	871	647	423	199
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	(2,204)	(2,426)	(2,648)	(2,870)	(3,092)	(3,315)	(3,539)
COOLIDGE							
Demand	88	95	103	108	110	114	120
Supply	141	169	160	151	142	133	124
Groundwater	-	-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	141	169	160	151	142	133	124
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	53	74	57	43	32	19	4
GROESBECK							
Demand	634	760	923	1,006	1,071	1,135	1,229
Supply	1,142	1,120	1,120	1,120	1,120	1,120	1,120
Groundwater	-	-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	1,142	1,142	1,142	1,142	1,142	1,142	1,142
SW Constrained Supply		1,120	1,120	1,120	1,120	1,120	1,120
Balance	508	360	197	114	49	(15)	(109)
KOSSE							
Demand		75	75	74	73	73	74
Supply	-	-	-	-	-	-	-
Groundwater		-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water		-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	-	(75)	(75)	(74)	(73)	(73)	(74)
MEXIA							
Demand	1,213	1,250	1,289	1,328	1,358	1,408	1,479
Supply	2,817	2,636	2,455	2,273	2,092	1,911	1,730
Groundwater	-	-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	2,817	2,636	2,455	2,273	2,092	1,911	1,730
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	1,604	1,386	1,166	945	734	503	251
THORNTON							
Demand	56	54	52	50	49	48	48
Supply	272	272	272	272	272	272	272
Groundwater	272	272	272	272	272	272	272
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	216	218	220	222	223	224	224

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
Dash represents a value of zero (0)
NC indicates the supply is "not constrained"

Table C-46
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
TRI-COUNTY SUD							
Demand	95	103	115	118	121	125	133
Supply	133	138	138	138	138	138	138
Groundwater	133	138	138	138	138	138	138
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	38	35	23	20	17	13	5
COUNTY-OTHER							
Demand	957	828	765	703	642	594	551
Supply	1,585	1,552	1,518	1,485	1,451	1,418	1,384
Groundwater	804	804	804	804	804	804	804
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	781	748	714	681	647	614	580
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	628	724	753	782	809	824	833

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
 Dash represents a value of zero (0)
 NC indicates the supply is "not constrained"

**Table C-51
Nolan County
Population, Water Supply, and Water Demand Projections**

Population Projection		Year						
		2000	2010	2020	2030	2040	2050	2060
		15,802	16,550	17,177	17,464	17,412	16,747	15,954

Supply and Demand by Type of Use		Year						
		2000 (acft)	2010 (acft)	2020 (acft)	2030 (acft)	2040 (acft)	2050 (acft)	2060 (acft)
		Municipal	Municipal Demand	3,419	3,523	3,581	3,582	3,512
	Contractual Demand	2,354	2,354	2,354	2,354	2,354	2,354	2,354
	Municipal Existing Supply							
	Surface water (Less Contractual Demand) ¹	(44)	(44)	(44)	(44)	(44)	(44)	(44)
	Surface water	454	454	454	454	454	454	454
	Total Existing Municipal Supply	410	410	410	410	410	410	410
	Municipal Balance	(3,009)	(3,113)	(3,171)	(3,172)	(3,102)	(2,949)	(2,790)
Industrial	Manufacturing Demand	643	779	915	1,038	1,159	1,266	1,372
	Manufacturing Existing Supply							
	Groundwater	841	841	841	841	841	841	841
	Surface water	467	467	467	467	467	467	467
	Total Manufacturing Supply	1,308	1,308	1,308	1,308	1,308	1,308	1,308
	Manufacturing Balance	665	529	393	270	149	42	(64)
	Steam-Electric Demand	1,093	807	11,311	20,000	20,000	20,000	20,000
	Steam-Electric Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	0	0	0	0	0	0	0
	Total Steam-Electric Supply	0	0	0	0	0	0	0
	Steam-Electric Balance	(1,093)	(807)	(11,311)	(20,000)	(20,000)	(20,000)	(20,000)
	Mining Demand	277	278	278	278	278	278	278
	Mining Existing Supply							
	Groundwater	170	170	170	170	170	170	170
	Surface water	0	0	0	0	0	0	0
	Total Mining Supply	170	170	170	170	170	170	170
	Mining Balance	(107)	(108)	(108)	(108)	(108)	(108)	(108)
Agriculture	Irrigation Demand	5,276	5,138	5,003	4,871	4,741	4,618	4,497
	Irrigation Existing Supply							
	Groundwater	3,286	3,286	3,286	3,286	3,286	3,286	3,286
	Surface water	120	120	120	120	120	120	120
	Total Irrigation Supply	3,406	3,406	3,406	3,406	3,406	3,406	3,406
	Irrigation Balance	(1,870)	(1,732)	(1,597)	(1,465)	(1,335)	(1,212)	(1,091)
	Livestock Demand	464	464	464	464	464	464	464
	Livestock Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	464	464	464	464	464	464	464
	Total Livestock Supply	464	464	464	464	464	464	464
	Livestock Balance	0	0	0	0	0	0	0
Total	Municipal & Industrial Demand	5,432	5,387	16,085	24,898	24,949	24,903	24,850
	Existing Municipal & Industrial Supply							
	Groundwater	967	967	967	967	967	967	967
	Surface water	921	921	921	921	921	921	921
	Total Municipal & Industrial Supply	1,888	1,888	1,888	1,888	1,888	1,888	1,888
	Municipal & Industrial Balance	(3,544)	(3,499)	(14,197)	(23,010)	(23,061)	(23,015)	(22,962)
	Agriculture Demand	5,740	5,602	5,467	5,335	5,205	5,082	4,961
	Existing Agricultural Supply							
	Groundwater	3,286	3,286	3,286	3,286	3,286	3,286	3,286
	Surface water	584	584	584	584	584	584	584
	Total Agriculture Supply	3,870	3,870	3,870	3,870	3,870	3,870	3,870
	Agriculture Balance	(1,870)	(1,732)	(1,597)	(1,465)	(1,335)	(1,212)	(1,091)
	Total Demand	11,172	10,989	21,552	30,233	30,154	29,985	29,811
	Total Supply							
	Groundwater	4,253	4,253	4,253	4,253	4,253	4,253	4,253
	Surface water	1,505	1,505	1,505	1,505	1,505	1,505	1,505
	Total Supply	5,758	5,758	5,758	5,758	5,758	5,758	5,758
	Total Balance	(5,414)	(5,231)	(15,794)	(24,475)	(24,396)	(24,227)	(24,053)

¹ Contractual demands are subtracted from the supplies available to municipal water user groups in order to not double-count demands and supplies available within a County.

Table C-52
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
<i>Nolan County</i>							
BITTER CREEK WSC							
Demand	122	122	122	120	115	109	104
Supply	254	254	254	254	254	254	254
Groundwater	58	58	58	58	58	58	58
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	196	196	196	196	196	196	196
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	132	132	132	134	139	145	150
ROSCOE							
Demand	187	189	190	188	182	173	165
Supply	252	252	252	252	252	252	252
Groundwater	252	252	252	252	252	252	252
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	65	63	62	64	70	79	87
SWEETWATER							
Demand	2,915	3,013	3,072	3,081	3,029	2,900	2,763
Contractual Demand	2,354	2,354	2,354	2,354	2,354	2,354	2,354
Supply	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Groundwater	2,000	2,000	2,000	2,000	2,000	2,000	2,000
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	(3,269)	(3,367)	(3,426)	(3,435)	(3,383)	(3,254)	(3,117)
COUNTY-OTHER							
Demand	195	199	197	193	186	177	168
Supply	257	257	257	257	257	257	257
Groundwater	-	-	-	-	-	-	-
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	257	257	257	257	257	257	257
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	62	58	60	64	71	80	89

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
Dash represents a value of zero (0)
NC indicates the supply is "not constrained"

Table C-55
Robertson County
Population, Water Supply, and Water Demand Projections

Population Projection		Year						
		2000	2010	2020	2030	2040	2050	2060
		16,000	17,164	18,704	19,674	20,335	20,419	20,353
Supply and Demand by Type of Use		Year						
		2000 (acft)	2010 (acft)	2020 (acft)	2030 (acft)	2040 (acft)	2050 (acft)	2060 (acft)
Municipal	Municipal Demand	2,812	2,874	2,979	3,026	3,044	3,021	3,015
	Contractual Demand	0	0	0	0	0	0	0
	Municipal Existing Supply							
	Groundwater	5,778	5,680	5,690	5,695	5,699	5,699	5,699
	Surface water	0	0	0	0	0	0	0
	Total Existing Municipal Supply	5,778	5,680	5,690	5,695	5,699	5,699	5,699
	Municipal Balance	2,966	2,806	2,711	2,669	2,655	2,678	2,684
Industrial	Manufacturing Demand	65	85	101	117	134	150	163
	Manufacturing Existing Supply							
	Groundwater	165	165	165	165	165	165	165
	Surface water	0	0	0	0	0	0	0
	Total Manufacturing Supply	165	165	165	165	165	165	165
	Manufacturing Balance	100	80	64	48	31	15	2
	Steam-Electric Demand	15,000	15,789	17,882	31,113	36,369	48,118	50,319
	Steam-Electric Existing Supply							
	Groundwater	5,983	5,983	5,983	5,983	5,983	5,983	5,983
	Surface water	27,901	27,893	27,884	27,876	27,868	27,859	27,851
	Total Steam-Electric Supply	33,884	33,876	33,867	33,859	33,851	33,842	33,834
	Steam-Electric Balance	18,884	18,087	15,985	2,746	(2,518)	(14,276)	(16,485)
	Mining Demand	7,500	10,300	10,300	10,300	78	77	76
Mining Existing Supply								
Groundwater	7,500	10,300	10,300	10,300	78	77	76	
Surface water	9	9	9	9	9	9	9	
Total Mining Supply	7,509	10,309	10,309	10,309	87	86	85	
Mining Balance	9	9	9	9	9	9	9	
Agriculture	Irrigation Demand	16,572	16,175	16,019	15,561	15,115	14,682	14,261
	Irrigation Existing Supply							
	Groundwater	12,429	12,429	12,429	12,429	12,429	12,429	12,429
	Surface water	9,080	9,080	9,080	9,080	9,080	9,081	9,081
	Total Irrigation Supply	21,509	21,509	21,509	21,509	21,509	21,510	21,510
	Irrigation Balance	4,937	5,334	5,490	5,948	6,394	6,828	7,249
	Livestock Demand	1,508	1,508	1,508	1,508	1,508	1,508	1,508
	Livestock Existing Supply							
	Groundwater	0	0	0	0	0	0	0
	Surface water	1,508	1,508	1,508	1,508	1,508	1,508	1,508
Total Livestock Supply	1,508	1,508	1,508	1,508	1,508	1,508	1,508	
Livestock Balance	0	0	0	0	0	0	0	
Total	Municipal & Industrial Demand	25,377	29,048	31,262	44,556	39,625	51,366	53,573
	Existing Municipal & Industrial Supply							
	Groundwater	19,426	22,128	22,138	22,143	11,925	11,924	11,923
	Surface water	27,910	27,902	27,893	27,885	27,877	27,868	27,860
	Total Municipal & Industrial Supply	47,336	50,030	50,031	50,028	39,802	39,792	39,783
	Municipal & Industrial Balance	21,959	20,982	18,769	5,472	177	(11,574)	(13,790)
	Agriculture Demand	18,080	17,683	17,527	17,069	16,623	16,190	15,769
	Existing Agricultural Supply							
	Groundwater	12,429	12,429	12,429	12,429	12,429	12,429	12,429
	Surface water	10,588	10,588	10,588	10,588	10,588	10,589	10,589
	Total Agriculture Supply	23,017	23,017	23,017	23,017	23,017	23,018	23,018
	Agriculture Balance	4,937	5,334	5,490	5,948	6,394	6,828	7,249
	Total Demand	43,457	46,731	48,789	61,625	56,248	67,556	69,342
	Total Supply							
	Groundwater	31,855	34,557	34,567	34,572	24,354	24,353	24,352
	Surface water	38,498	38,490	38,481	38,473	38,465	38,457	38,449
	Total Supply	70,353	73,047	73,048	73,045	62,819	62,810	62,801
Total Balance	26,896	26,316	24,259	11,420	6,571	(4,746)	(6,541)	

Table C-56
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
<i>Robertson County</i>							
BREMOND							
Demand	160	157	154	151	148	146	146
Supply	391	391	391	391	391	391	391
Groundwater	391	391	391	391	391	391	391
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	231	234	237	240	243	245	245
CALVERT							
Demand	332	327	323	318	313	310	310
Supply	513	513	513	513	513	513	513
Groundwater	513	513	513	513	513	513	513
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	181	186	190	195	200	203	203
FRANKLIN							
Demand	324	344	373	389	397	396	395
Supply	628	628	628	628	628	628	628
Groundwater	628	628	628	628	628	628	628
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	304	284	255	239	231	232	233
HEARNE							
Demand	1,145	1,124	1,108	1,093	1,077	1,066	1,066
Supply	2,931	2,931	2,931	2,931	2,931	2,931	2,931
Groundwater	2,931	2,931	2,931	2,931	2,931	2,931	2,931
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	1,786	1,807	1,823	1,838	1,854	1,865	1,865
ROBERTSON COUNTY WSC							
Demand	218	258	315	348	370	368	365
Supply	417	417	417	417	417	417	417
Groundwater	417	417	417	417	417	417	417
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	199	159	102	69	47	49	52
TRI-COUNTY SUD							
Demand	75	77	82	83	84	83	83
Supply	120	95	95	95	95	95	95
Groundwater	120	95	95	95	95	95	95
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	45	18	13	12	11	12	12

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
Dash represents a value of zero (0)
NC indicates the supply is "not constrained"

Table C-56
Brazos G Regional Water Planning Area
Municipal Water Demand & Supply By City/County
(acft)

<u>City/County</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>	<u>2050</u>	<u>2060</u>
WICKSON CREEK SUD							
Demand	10	20	30	35	39	39	39
Supply	93	20	30	35	39	39	39
Groundwater	93	20	30	35	39	39	39
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	83	-	-	-	-	-	-
COUNTY-OTHER							
Demand	548	567	594	609	616	613	611
Supply	685	685	685	685	685	685	685
Groundwater	685	685	685	685	685	685	685
GW Constrained Supply		NC	NC	NC	NC	NC	NC
Surface water	-	-	-	-	-	-	-
SW Constrained Supply		NC	NC	NC	NC	NC	NC
Balance	137	118	91	76	69	72	74

(P) Indicates city is in multiple counties. Projections shown are for this county's portion only.
Dash represents a value of zero (0)
NC indicates the supply is "not constrained"

**Table C-75
Region Total
Population, Water Supply, and Water Demand Projections**

Population Projection		Year							
		2000	2010	2020	2030	2040	2050	2060	
		1,621,961	1,957,767	2,278,243	2,576,783	2,873,382	3,164,777	3,448,879	
Supply and Demand by Type of Use		Year							
		2000 (acft)	2010 (acft)	2020 (acft)	2030 (acft)	2040 (acft)	2050 (acft)	2060 (acft)	
Municipal	Municipal Demand	316,798	361,419	417,462	466,106	515,151	565,027	615,483	
	Municipal Existing Supply								
	Groundwater	148,267	156,145	156,030	155,930	155,888	155,151	154,956	
	Surface water	459,528	326,740	321,968	327,364	329,595	331,040	331,874	
	Total Existing Municipal Supply	607,795	482,885	477,998	483,294	485,483	486,191	486,830	
	Municipal Surplus (Shortage)	290,997	121,466	60,536	17,188	(29,668)	(78,836)	(128,653)	
Industrial	Manufacturing Demand	16,939	19,787	23,201	25,077	26,962	30,191	31,942	
	Manufacturing Existing Supply								
	Groundwater	13,855	16,616	16,616	16,616	16,709	16,709	16,709	
	Surface water	35,185	35,876	36,364	36,816	37,273	37,676	38,239	
	Total Manufacturing Supply	49,040	52,492	52,980	53,432	53,982	54,385	54,948	
	Manufacturing Surplus (Shortage)	32,101	32,705	29,779	28,355	27,020	24,194	23,006	
	Steam-Electric Demand	103,330	168,193	221,696	254,803	271,271	300,859	319,884	
	Steam-Electric Existing Supply								
	Groundwater	9,585	9,119	9,119	9,119	9,119	9,119	9,119	
	Surface water	235,701	257,070	258,396	257,804	257,232	256,650	256,069	
	Total Steam-Electric Supply	245,286	266,189	267,515	266,923	266,351	265,769	265,188	
	Steam-Electric Surplus (Shortage)	141,956	97,996	45,819	12,120	(4,920)	(35,090)	(54,696)	
Mining	Mining Demand	72,854	36,664	37,591	38,037	27,251	20,744	21,243	
	Mining Existing Supply								
	Groundwater	49,283	28,655	28,723	28,751	17,626	10,715	10,753	
	Surface water	4,269	4,272	4,275	4,278	4,282	4,285	4,288	
	Total Mining Supply	53,552	32,927	32,998	33,029	21,908	15,000	15,041	
	Mining Surplus (Shortage)	(19,302)	(3,737)	(4,593)	(5,008)	(5,343)	(5,744)	(6,202)	
	Agriculture	Irrigation Demand	233,686	232,541	227,697	222,691	217,859	213,055	208,386
		Irrigation Existing Supply							
		Groundwater	143,019	143,299	143,299	143,299	143,308	143,308	143,308
		Surface water	138,217	138,222	138,227	138,232	138,238	138,243	138,248
Total Irrigation Supply		281,236	281,521	281,526	281,531	281,546	281,551	281,556	
Irrigation Surplus (Shortage)		47,550	48,980	53,829	58,840	63,687	68,496	73,170	
Livestock Demand		51,576	51,576	51,576	51,576	51,576	51,576	51,576	
Livestock Existing Supply									
Groundwater		0	0	0	0	0	0	0	
Surface water		51,576	51,576	51,576	51,576	51,576	51,576	51,576	
Total Livestock Supply	51,576	51,576	51,576	51,576	51,576	51,576	51,576		
Livestock Surplus (Shortage)	0	0	0	0	0	0	0		
Total	Municipal & Industrial Demand	509,921	586,063	699,950	784,023	840,635	916,821	988,552	
	Existing Municipal & Industrial Supply								
	Groundwater	220,990	210,535	210,488	210,416	199,342	191,694	191,537	
	Surface water	734,683	623,958	621,003	626,262	628,381	629,652	630,470	
	Total Municipal & Industrial Supply	955,673	834,493	831,491	836,677	827,723	821,345	822,007	
	Municipal & Industrial Surplus (Shortage)	445,752	248,430	131,541	52,654	(12,912)	(95,476)	(166,545)	
	Agriculture Demand	285,262	284,117	279,273	274,267	269,435	264,631	259,962	
	Existing Agricultural Supply								
	Groundwater	143,019	143,299	143,299	143,299	143,308	143,308	143,308	
	Surface water	189,793	189,798	189,803	189,808	189,814	189,819	189,824	
	Total Agriculture Supply	332,812	333,097	333,102	333,107	333,122	333,127	333,132	
	Agriculture Surplus (Shortage)	47,550	48,980	53,829	58,840	63,687	68,496	73,170	
	Total Demand	795,183	870,180	979,223	1,058,290	1,110,070	1,181,452	1,248,514	
	Total Supply								
	Groundwater	364,009	353,834	353,787	353,715	342,650	335,002	334,845	
	Surface water	924,475	813,756	810,806	816,070	818,195	819,471	820,294	
Total Supply	1,288,484	1,167,590	1,164,593	1,169,785	1,160,845	1,154,472	1,155,139		
Total Surplus (Shortage)	493,301	297,410	185,370	111,495	50,775	(26,980)	(93,375)		

Appendix N-1: Summary of Recommended Water Management Strategies in the 2011 Brazos G Regional Water Plan

Region	Recommended Strategy	Capital Cost	First Decade of Water Strategy	First Decade Water Supply Volume (acre-foot/year)	First Decade Estimated Annual Average Unit Cost (\$/acre-foot/year)	Year 2060 Water Supply Volume (acre-foot/year)	Year 2060 Estimated Annual Average Unit Cost (\$/acre-foot/year)
G	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING)	\$23,676,071.00	2010	1,481	\$584.74	6,963	\$182.11
G	ADDITIONAL EDWARDS-TRINITY (PLATEAU) AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING)	\$679,000.00	2010	114	\$587.72	114	\$70.18
G	ADDITIONAL GULF COAST AQUIFER DEVELOPMENT	\$31,630,000.00	2040	5,600	\$638.21	5,600	\$145.71
G	ADDITIONAL TRINITY AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING)	\$19,278,000.00	2010	723	\$264.18	2,025	\$552.94
G	AQUIFER STORAGE & RECOVERY (BRAZOS RIVER TO SEYMOUR AQUIFER)	\$38,625,000.00	2010	6,208	\$701.00	6,208	\$158.51
G	BELTON TO STILLHOUSE PIPELINE	\$36,038,000.00	2020	30,000	\$132.63	30,000	\$45.37
G	BOSQUE COUNTY REGIONAL PROJECT	\$5,150,000.00	2030	190	\$2,894.74	190	\$531.58
G	BRA SUPPLY THROUGH THE EWCRWTS	\$44,706,000.00	2010	4,601	\$1,679.77	6,958	\$429.52
G	BRA SWATS EXPANSION	\$39,971,000.00	2010	375	\$2,933.33	3,545	\$572.92
G	BRA SYSTEM OPERATIONS PERMIT	\$204,281,000.00	2010	750	\$2,808.00	84,899	\$314.08
G	BRUSHY CREEK RESERVOIR	\$18,553,000.00	2010	2,090	\$484.21	2,090	\$66.99
G	CEDAR RIDGE RESERVOIR	\$285,214,000.00	2020	23,380	\$1,167.54	23,380	\$241.49
G	CITY OF GROESBECK OFF-CHANNEL RESERVOIR	\$10,412,000.00	2050	1,755	\$564.67	1,755	\$564.67
G	CONJUNCTIVE MANAGEMENT OF CHAMPION WELL FIELD AND OAK CREEK RESERVOIR WITH SUBORDINATION AGREEMENT	\$0.00	2010	688	\$0.00	963	\$0.00
G	CORYELL COUNTY RESERVOIR (BRA SYSTEM)	\$37,489,000.00	2020	3,365	\$1,007.13	3,365	\$193.46
G	EXPANSION OF CHAMPION WELL FIELD	\$15,015,000.00	2010	1,000	\$1,643.00	1,000	\$334.00
G	FUTURE PHASES OF LAKE WHITNEY WATER SUPPLY PROJECT	\$110,843,000.00	2020	7,572	\$926.04	7,572	\$926.04
G	GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION)	\$643,928,000.00	2010	26,505	\$838.29	70,246	\$1,153.63
G	INCREASE TREATMENT CAPACITY	\$195,654,000.00	2010	15,176	\$546.31	58,435	\$293.81
G	INTERCONNECTION OF CITY OF WACO SYSTEM WITH NEIGHBORING COMMUNITIES	\$14,652,000.00	2010	837	\$3,387.10	1,814	\$1,136.36
G	IRRIGATION WATER CONSERVATION	\$0.00	2010	3,390	\$235.42	7,041	\$227.71
G	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT	\$18,458,000.00	2010	2,500	\$562.00	3,600	\$115.00
G	MANUFACTURING WATER CONSERVATION	\$0.00	2010	140	\$0.00	594	\$0.00
G	MIDWAY PIPELINE PROJECT (WEST CENTRAL BRAZOS DISTRIBUTION SYSTEM)	\$13,524,731.00	2010	843	\$2,046.14	843	\$647.92
G	MILLERS CREEK AUGMENTATION	\$46,948,000.00	2010	17,582	\$216.76	17,582	\$216.76
G	MINING WATER CONSERVATION	\$0.00	2010	340	\$0.00	973	\$0.00
G	MUNICIPAL WATER CONSERVATION	\$0.00	2010	4,873	\$475.00	21,347	\$474.99
G	NEW WATER TREATMENT PLANT	\$3,522,000.00	2010	224	\$2,178.57	224	\$808.04
G	NEW WEST LOOP REUSE LINE	\$5,495,500.00	2010	680	\$591.00	680	\$120.00
G	OAK CREEK RESERVOIR WITH SUBORDINATION AGREEMENT	\$0.00	2010	1,679	\$0.00	1,154	\$0.00
G	PHASE I LAKE WHITNEY WATER SUPPLY PROJECT	\$41,453,000.00	2010	2,128	\$2,851.50	2,128	\$1,153.20
G	PURCHASE WATER FROM CITY OF BRYAN	\$1,201,000.00	2010	1,500	\$262.00	1,500	\$192.00
G	RAISE LEVEL OF GIBBONS CREEK RESERVOIR	\$12,140,600.00	2020	3,870	\$237.47	3,870	\$28.94
G	REALLOCATION OF SOURCE	\$0.00	2010	35,928	\$0.00	52,628	\$0.00
G	REGIONAL SURFACE WATER SUPPLY TO WILLIAMSON COUNTY FROM LAKE TRAVIS	\$391,533,000.00	2010	34,148	\$1,308.40	44,459	\$938.46
G	REHABILITATE EXISTING WELLS	\$350,000.00	2020	1,100	\$30.00	1,100	\$30.00
G	RESTRUCTURE CONTRACT	\$0.00	2010	502	\$0.00	341	\$0.00
G	RUN-OF-RIVER WATER RIGHT FOR UNAPPROPRIATED FLOWS	\$0.00	2010	0	\$0.00	0	\$0.00
G	SOMERVELL COUNTY WATER SUPPLY PROJECT (PHASES 1-4)	\$29,923,000.00	2010	840	\$2,841.00	840	\$508.00
G	SOMERVELL COUNTY WATER SUPPLY PROJECT (PHASES 5-13)	\$74,228,000.00	2030	960	\$1,147.00	960	\$174.00
G	STEAM-ELECTRIC CONSERVATION	\$0.00	2010	2,114	\$0.00	11,803	\$0.00
G	STONEWALL, KENT, AND GARZA CHLORIDE CONTROL PROJECT	\$163,226,000.00	2020	0	\$0.00	0	\$0.00
G	STORAGE REALLOCATION OF FEDERAL RESERVOIRS - LAKE AQUILLA	\$11,447,000.00	2040	2,050	\$405.85	2,050	\$405.85
G	TURKEY PEAK RESERVOIR	\$50,227,000.00	2020	7,600	\$923.55	7,600	\$440.53
G	VOLUNTARY REDISTRIBUTION	\$6,391,000.00	2010	11,251	\$312.24	16,558	\$468.98
G	WASTEWATER REUSE	\$115,432,500.00	2010	17,043	\$340.14	70,087	\$316.79
G	CORYELL COUNTY RESERVOIR (BRA SYSTEM)*	\$14,399,000.00	2030	3,365	\$2,866.57	3,365	\$1,522.44

Appendix N-1: Summary of Recommended Water Management Strategies in the 2011 Brazos G Regional Water Plan (concluded)

Region	Recommended Strategy	Capital Cost	First Decade of Water Strategy	First Decade Water Supply Volume (acre-foot/year)	First Decade Estimated Annual Average Unit Cost (\$/acre-foot/year)	Year 2060 Water Supply Volume (acre-foot/year)	Year 2060 Estimated Annual Average Unit Cost (\$/acre-foot/year)
G	GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION)*	\$229,822,000.00	2040	33,814	\$865.00	39,710	\$863.96
G	INCREASE CURRENT CONTRACT*	\$0.00	2010	43	\$401.00	2,143	\$831.19
G	INCREASE TREATMENT CAPACITY*	\$13,951,000.00	2020	2,800	\$647.86	2,800	\$213.46
G	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT*	\$0.00	2010	148	\$562.00	141	\$115.00
G	NEW WATER TREATMENT PLANT*	\$35,822,000.00	2020	8,400	\$627.14	8,400	\$255.00
G	STORAGE REALLOCATION OF FEDERAL RESERVOIRS - LAKE AQUILLA*	\$0.00	2040	375	\$0.00	999	\$0.00
G	TURKEY PEAK RESERVOIR*	\$0.00	2020	7,600	\$923.55	7,600	\$440.66
G	VOLUNTARY REDISTRIBUTION*	\$91,940,000.00	2010	3,529	\$860.18	30,757	\$471.93
G	WASTEWATER REUSE*	\$39,128,901.00	2010	9,232	\$436.09	11,760	\$106.89
* DENOTES STRATEGIES WITH SUPPLY VALUES INCLUDED IN OTHER STRATEGIES							

Appendix N-2: Summary of Alternative Water Management Strategies in the 2011 Brazos G Regional Water Plan

Region	ALTERNATIVE Strategy	Capital Cost	First Decade of Water Strategy	First Decade Water Supply Volume (acre-feet/year)	First Decade Estimated Annual Average Unit Cost (\$/acre-foot/year)	Year 2060 Water Supply Volume (acre-feet/year)	Year 2060 Estimated Annual Average Unit Cost (\$/acre-foot/year)
G	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING)	\$212,042,000.00	2020	35,000	\$842.14	35,000	\$313.94
G	BRA SYSTEM OPERATIONS PERMIT	\$14,086,000.00	2020	1,530	\$943.14	1,530	\$139.87
G	INTERCONNECTION FROM ABILENE TO SWEETWATER	\$46,964,000.00	2010	4,000	\$2,365.25	4,000	\$1,342.00
G	LAKE AQUILLA AUGMENTATION	\$64,749,000.00	2020	5,000	\$552.00	5,000	\$232.00
G	LAKE PALO PINTO OFF-CHANNEL RESERVOIR	\$25,399,000.00	2020	3,110	\$804.41	3,110	\$91.96
G	SEDIMENT REDUCTION PROGRAM**	\$0.00	2010	0	\$0.00	0	\$0.00
G	POSSUM KINGDOM SUPPLY*	\$189,947,000.00	2020	12,400	\$2,076.77	12,400	\$741.37
* DENOTES STRATEGIES WITH SUPPLY VALUES INCLUDED IN OTHE STRATEGIES.							
** COSTS AND SUPPLY DEVELOPED HAVE NOT BEEN DETERMINED FOR THIS STRATEGY.							