5.28 Robertson County Water Supply Plan

Table 5.28-1 lists each water user group in Robertson County and their corresponding surplus or shortage in years 2040 and 2070. A brief summary of the water user groups and the plan for the selected water user are presented in the following subsections.

Table 5.28-1. Robertson County Surplus/(Shortage)

Water User Group	Surplus/(Shortage)[1]		Comment
	2040 (acft/yr)	2070 (acft/yr)	
City of Bremond	178	131	Projected surplus
City of Calvert	349	350	Projected surplus
City of Franklin	340	280	Projected surplus
City of Hearne	2,127	2,131	Projected surplus
Robertson County WSC	244	192	Projected surplus
Tri-County SUD			See Falls County
Wellborn SUD			See Brazos County
Wickson Creek SUD			See Brazos County
County-Other	168	(39)	Projected shortage – see plan below
Manufacturing	75	19	Projected surplus
Steam-Electric	(2,012	(18,478)	Projected shortage – see plan below
Mining	(3,563)	(12,735)	Projected shortage – see plan below
Irrigation	(49,210)	(44,445)	Projected shortage – see plan below
Livestock	0	0	Demand equals supply

1 – From Tables C-55 and C-56, Appendix C – Comparison of Water Demands with Water Supplies to Determine Needs.

5.28.1 City of Bremond

Description of Supply

The City of Bremond obtains its water supply from the Carrizo-Wilcox Aquifer. No shortages are projected for the City of Bremond.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategy is recommended for the City of Bremond.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: 2020
- Annual Cost: maximum of $12,000 in 2070
- Unit Cost: $470/acft

Table 5.28-2. Recommended Plan Costs by Decade for City of Bremond

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*202*	*190*	*178*	*162*	*147*	*131*
Conservation						
Supply From Plan Element (acft/yr)	6	20	22	23	23	25
Annual Cost ($/yr)	$3,000	$9,000	$10,000	$11,000	$11,000	$12,000
Projected Surplus/(Shortage) after Conservation (acft/yr)	*208*	*209*	*200*	*185*	*170*	*156*

5.28.2 City of Calvert

Description of Supply

The City of Calvert obtains its water supply from the Carrizo-Wilcox Aquifer. No shortages are projected for the City of Calvert.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategy is recommended for the City of Calvert.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: 2020
- Annual Cost: $1,000
- Unit Cost: $470/acft

Table 5.28-3. Recommended Plan Costs by Decade for City of Calvert

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*339*	*346*	*349*	*349*	*350*	*350*
Conservation						
Supply From Plan Element (acft/yr)	3	—	—	—	—	—
Annual Cost ($/yr)	$1,000	—	—	—	—	—
Projected Surplus/(Shortage) after Conservation (acft/yr)	*342*	*346*	*349*	*349*	*350*	*350*

5.28.3 City of Franklin

The City of Franklin obtains its water supply from the Carrizo-Wilcox Aquifer. No shortages are projected for the City of Franklin. Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd.

5.28.4 City of Hearne

Description of Supply

The City of Hearne obtains its water supply from the Carrizo-Wilcox Aquifer. The City also provides supply to Robertson County Manufacturing. No shortages are projected for the City of Hearne.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategy is recommended for the City of Hearne.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: 2020
- Annual Cost: $16,000 in 2030
- Unit Cost: $470/acft

Table 5.28-4. Recommended Plan Costs by Decade for City of Hearne

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*2,085*	*2,108*	*2,127*	*2,129*	*2,131*	*2,131*
Conservation						
Supply From Plan Element (acft/yr)	22	35	16	14	12	12
Annual Cost ($/yr)	$10,000	$16,000	$8,000	$7,000	$6,000	$6,000
Projected Surplus/(Shortage) after Conservation (acft/yr)	*2,107*	*2,142*	*2,142*	*2,142*	*2,142*	*2,142*

5.28.5 Robertson County WSC

Robertson County WSC obtains its water supply from the Carrizo-Wilcox Aquifer. The entity also provides supply to Robertson County Manufacturing. No shortages are projected for the Robertson County WSC. Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd.

5.28.6 County-Other

Description of Supply

Robertson County-Other entities obtain water supply from groundwater from the Carrizo-Wilcox Aquifer. A shortage of supply is projected in 2070.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategy is recommended to meet the projected water shortage for County-Other.

a. Groundwater Development

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: 2070
- Project Cost: $825,000
- Unit Cost: $1,079/acft

Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd.

Table 5.28-5. Recommended Plan Costs by Decade for County – Other

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*318*	*245*	*168*	*92*	*23*	*(39)*
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost ($/yr)	—	—	—	—	—	—
Projected Surplus/(Shortage) after Conservation	*318*	*245*	*168*	*92*	*23*	*(39)*
Groundwater Development – Carrizo Wilcox						
Supply From Plan Element (acft/yr)	—	—	—	—	—	81
Annual Cost ($/yr)	—	—	—	—	—	$87,000
Unit Cost ($/acft)	—	—	—	—	—	$1,079

5.28.7 Manufacturing

Water supply for manufacturing in Robertson County is obtained by purchase from a city or water supply corporation, or from Carrizo-Wilcox wells operated by the manufacturing entity. Manufacturing is projected to have a surplus of water through the year 2070 and no changes in water supply are recommended.

5.28.8 Steam-Electric

Description of Supply

Robertson County Steam-Electric entities obtain water supply from the Carrizo-Wilcox Aquifer, contracts with the Brazos River Authority for water from Lake Limestone, and various run-of-river rights. Based on the available groundwater and surface water supply, Robertson County Steam-Electric is projected to have shortages beginning in year 2040 and continuing through year 2070.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended to meet water needs for Steam-Electric.

a. Conservation
   - Cost Source: Volume II, Chapter 2
   - Date to be Implemented: before 2020
   - Annual Cost: not determined

b. Purchase depressurization water from Walnut Creek Mine
   - Cost Source: Volume II, Chapter 12
   - Date to be Implemented: 2050
   - Project Cost: Not enough information to cost delivery
   - Unit Cost: $500/acft (Water purchase rate only)

c. BRA System Operation to Robertson County
   - Cost Source: BRA System Operations Supply (Volume II, Chapter 7.11)
     - Supply dependent on BRA obtaining the System Operations permit from TCEQ
   - Date to be Implemented: 2050
   - Project Cost: Infrastructure assumed sufficient
   - Unit Cost: $65.65/acft

Table 5.28-6. Recommended Plan Costs by Decade for Robertson County – Steam Electric

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*16,438*	*3,319*	*(2,012)*	*(13,683)*	*(16,031)*	*(18,478)*
Conservation						
Supply From Plan Element (acft/yr)	—	—	2,486	3,289	3,439	3,597
Annual Cost ($/yr)	ND	ND	ND	ND	ND	ND
Projected Surplus/(Shortage) after Conservation (acft/yr)	*16,438*	*3,319*	*474*	*(10,394)*	*(12,592)*	*(14,882)*
Purchase Water from Walnut Creek Mine						
Supply From Plan Element (acft/yr)	—	—	—	9,000	9,000	9,000
Annual Cost ($/yr)	—	—	—	$4,500,000	$4,500,000	$4,500,000
Unit Cost ($/acft)	—	—	—	$500	$500	$500

Table 5.28-6. Recommended Plan Costs by Decade for Robertson County – Steam Electric

Plan Element	2020	2030	2040	2050	2060	2070
BRA System Operation						
Supply From Plan Element (acft/yr)	—	—	—	2,000	4,000	6,000
Annual Cost ($/yr)	—	—	—	$131,300	$262,600	$393,900
Unit Cost ($/acft)	—	—	—	$65.65	$65.65	$65.65

ND – Not determined. Costs to implement industrial conservation technologies will vary based on each location

5.28.9 Mining

Description of Supply

Mining operations in Robertson County are supplied by Carrizo-Wilcox Groundwater. Demands for Mining are projected to increase significantly resulting in shortages beginning in 2030.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended to meet water needs for Robertson County-Mining.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: 2030
- Annual Cost: not determined

b. Leave needs unmet

- Cost Source: Cost of not meeting needs – see Appendix H
- Date to be Implemented: 2030

Table 5.28-7. Recommended Plan Costs by Decade for Robertson County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*292*	*(1,548)*	*(3,563)*	*(6,017)*	*(9,012)*	*(12,735)*
Conservation						
Supply From Plan Element (acft/yr)	—	588	964	1,136	1,345	1,606
Annual Cost ($/yr)	ND	ND	ND	ND	ND	ND
Projected Surplus/(Shortage) after Conservation (acft/yr)	*292*	*(960)*	*(2,599)*	*(4,881)*	*(7,667)*	*(11,129)*

Table 5.28-7. Recommended Plan Costs by Decade for Robertson County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
Leave Needs Unmet						
Supply From Plan Element (acft/yr)	—	1,000	2,600	5,000	7,700	11,200
Annual Cost ($/yr)	—	—	—	—	—	—
Unit Cost ($/acft)	—	—	—	—	—	—

ND – Not determined. Costs to implement industrial conservation technologies will vary based on each location

5.28.10 Irrigation

Description of Supply

Robertson County Irrigation is supplied by Carrizo-Wilcox, Queen City, Sparta and Brazos River Alluvium groundwater as well as run of the river water rights. Current pumping in the Brazos River Alluvium greatly exceeds the MAG for Robertson County reducing available groundwater to meet projected demands. Irrigation is projected to have shortages beginning in 2020.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended to meet water needs for Robertson County-Irrigation.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: before 2020
- Annual Cost: maximum of $963,000 in 2040

b. Groundwater Development – Carrizo Wilcox Aquifer

- Cost Source: Volume II, Chapter 12
- Date to be Implemented: 2020
- Project Cost: $128,018,000
- Unit Cost: Max of $726 /acft (2020)

c. Leave needs unmet

New supplies for irrigation would be cost prohibitive to develop and most farms would switch to dry-land crops or allow fields to go fallow during a prolonged drought.

- Cost Source: Cost of not meeting needs – see Appendix H
- Date to be Implemented: 2020

Table 5.28-8. Recommended Plan Costs by Decade for Robertson County – Irrigation

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(52,989)*	*(51,076)*	*(49,210)*	*(47,448)*	*(45,781)*	*(44,445)*
Conservation						
Supply From Plan Element (acft/yr)	1,903	3,080	4,189	4,069	3,952	3,859
Annual Cost ($/yr)	$438,000	$708,000	$963,000	$936,000	$909,000	$888,000
Projected Surplus/(Shortage) after Conservation (acft/yr)	*(51,086)*	*(47,995)*	*(45,021)*	*(43,379)*	*(41,829)*	*(40,586)*
Groundwater Development – Carrizo Wilcox Aquifer						
Supply From Plan Element (acft/yr)	15,764	16,143	16,222	15,172	8,912	1,179
Annual Cost ($/yr)	$11,713,251	$11,713,251	$992,251	$992,251	$992,251	$992,251
Unit Cost ($/acft)	$726	$726	$61	$61	$61	$61
Allow needs to remain unmet						
Supply From Plan Element (acft/yr)	35,322	31,852	28,799	28,207	32,917	39,407
Annual Cost ($/yr)	—	—	—	—	—	—
Unit Cost ($/acft)	—	—	—	—	—	—

5.28.11 Livestock

Livestock water supply is projected to meet demands through 2070 and no changes in water supply are recommended.