5.30 Somervell County Water Supply Plan

Table 5.30-1 lists each water user group in Somervell 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 5.30-1. Somervell County Surplus/(Shortage)

Water User Group	Surplus/(Shortage)[1]		Comment
	2040 (acft/yr)	2070 (acft/yr)	
City of Glen Rose	47	(39)	Projected shortage – see plan below
County-Other	459	344	Projected surplus
Manufacturing	10	7	Projected surplus
Steam-Electric	(35,521)	(35,559)	Projected shortage – see plan below
Mining	(441)	(266)	Projected shortage – see plan below
Irrigation	22	25	Projected surplus
Livestock	0	0	Demand equals supply

1 – From Tables C-59 and C-60, Appendix C – Comparison of Water Demands with Water Supplies to Determine Needs.

5.30.1 City of Glen Rose

Description of Supply

The City of Glen Rose obtains its water supply from groundwater from the Trinity Aquifer. Based on the available groundwater supply, the City of Glen Rose is projected to have a shortage from 2060 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 the projected water shortage for City of Glen Rose.

a. Conservation:

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: before 2020
- Annual Cost: $1,200,000

b. Alternative: Purchase Supply from Somervell County Water Supply Project – the project will treat raw water from the Wheeler Branch Off-Channel Reservoir and transmit the treated water to customers of the Somervell County Water District. Phases 1-4 of the project are complete and are located in the immediate vicinity of Glen Rose.

- Cost Source: Volume II, Chapter 8.3
- Date to be Implemented: by 2060
- Annual Cost: $52,950 (based on current cost of service for highest rate tier ($3.25/1000 gal) published by the Somervell County WSD[1])

Table 5.30-2. Recommended Plan Costs by Decade for City of Glen Rose

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*141*	*86*	*47*	*15*	*(14)*	*(39)*
Conservation						
Supply From Plan Element (acft/yr)	24	73	128	167	172	178
Annual Cost ($/yr)	$11,515	$34,834	$60,577	$78,949	$81,471	$84,327
Projected Surplus/(Shortage) after Conservation (acft/yr)	*165*	*160*	*175*	*182*	*158*	*139*
Alternative: Somervell County Water Supply Project Phases 1-4						
Supply From Plan Element (acft/yr)	—	—	—	—	50	50
Annual Cost ($/yr)	—	—	—	—	$52,950	$52,950
Unit Cost ($/acft)	—	—	—	—	$1,059	$1,059

5.30.2 County-Other

Description of Supply

Somervell County-Other obtains its water supply from groundwater from the Trinity Aquifer, and there are surpluses projected through 2060. However, the Somervell County Water District has recently completed the Wheeler Branch Off-Channel Reservoir, and is implementing infrastructure to utilize that resource throughout the county. Phases 1 – 4 are complete and supply 1,400 acft/yr of supply. Remaining phases will supply an additional 600 acft/yr.

Water Supply Plan

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

a. Somervell County Water Supply Project – the project will treat raw water from the Wheeler Branch Off-Channel Reservoir and transmit the treated water to customers of the Somervell County Water District.

- Cost Source: Volume II, Chapter 8.3
- Date to be Implemented: approximately 2040 for Phases 7A and 9 – 17
- Total Project Cost (Phases 7A and 9 – 17): $35,249,000
- Annual Cost: $3,556,000

[1] http://www.scwd.com/uploads/1/2/8/1/12818560/scwd_service_policy_5-14.pdf

Costs are shown for the additional supply of water made available by the remaining phases, which are planned for completion by 2035. Costs shown are for new infrastructure only, and do not include existing debt service for existing phases of the project or for costs for supply from Wheeler Branch Reservoir.

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

Table 5.30-3. Recommended Plan Costs by Decade for Somervell County – Other

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*578*	*508*	*459*	*418*	*378*	*344*
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost ($/yr)	—	—	—	—	—	—
Projected Surplus/(Shortage) after Conservation	*578*	*508*	*459*	*418*	*378*	*344*
Somervell County Water Supply Project Phases 7A and 9 – 17						
Supply From Plan Element (acft/yr)	600	600	600	600	600	600
Annual Cost ($/yr)	$3,556,000	$3,556,000	$3,556,000	$606,000	$606,000	$606,000
Unit Cost ($/acft)	$5,928	$5,928	$5,928	$1,010	$1,010	$1,010

5.30.3 Manufacturing

Somervell County Manufacturing obtains its water supply from groundwater from the Trinity Aquifer. There are surpluses projected through 2070 and no changes recommended to the water supply.

5.30.4 Steam-Electric

Description of Supply

Somervell County Steam-Electric obtains water supply Squaw Creek Reservoir and from the Brazos River Authority through Lake Granbury. Somervell County Steam-Electric is projected to have shortages beginning in year 2020 and continuing through year 2070. Local groundwater currently supplies potable water for plant staff and high-quality process water for boiler feed at the Comanche Peak Steam Electric Station. When the Somervell County Water Supply Project is developed, some potable water and process water for the Comanche Peak Station will be obtained from the project.

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 Somervell County Steam-Electric.

a. Transfer Steam-Electric Supplies from Hood County

- Cost Source: zero cost for strategy as these supplies are already contracted from the BRA to Luminant
- Date to be Implemented: 2020
- Annual Cost: None

b. BRA System Operation

- Cost Source: Volume II, Chapter 7.11 and Chapter 12 Costs include Luminant Infrastructure necessary to transport the water.
  - Supply dependent on BRA obtaining the System Operations permit from TCEQ
- Date to be Implemented: 2020
- Annual Cost: $22.87 million at full implementation
- Unit Cost: $285/acft

c. Somervell County Water Supply Project – the project treats raw water from the Wheeler Branch Off-Channel Reservoir and transmits the treated water to customers of the Somervell County Water District. Potable water for plant staff and high-quality process water for boiler feed at the Comanche Peak Steam Electric Station is currently provided from local groundwater. The Somervell County Water Supply Project will provide some potable water and process water for the plant. Phases 1-4 of the project are complete and are located in the immediate vicinity of the plant.

- Cost Source: Volume II, Chapter 8.3
- Date to be Implemented: by 2060
- Annual Cost: $317,700 (based on current cost of service for highest rate tier ($3.25/1000 gal) published by the Somervell County WSD[2]) for Phases 1 – 4

  $185,840 (based on unit costs of Phases 9 – 17 after debt service retired)

Conservation was not applied to this plan because the shortage results from the construction of new steam-electric facilities, which are assumed to be built with technologies minimizing water use as much as practicable.

[2] http://www.scwd.com/uploads/1/2/8/1/12818560/scwd_service_policy_5-14.pdf

Table 5.30-4. Recommended Plan Costs by Decade for Somervell County – Steam-Electric

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(35,496)*	*(35,508)*	*(35,521)*	*(35,534)*	*(35,546)*	*(35,559)*
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost ($/yr)	—	—	—	—	—	—
Projected Surplus/(Shortage) after Conservation (acft/yr)	*(35,496)*	*(35,508)*	*(35,521)*	*(35,534)*	*(35,546)*	*(35,559)*
Transfer Steam-Electric Supplies from Hood County to Somervell County						
Supply From Plan Element (acft/yr)	27,133	27,133	27,133	27,133	27,133	27,133
Annual Cost ($/yr)	—	—	—	—	—	—
Unit Cost ($/acft)	—	—	—	—	—	—
BRA System Operation						
Supply From Plan Element (acft/yr)	76,120	76,120	76,120	76,120	76,120	76,120
Annual Cost ($/yr)	$22,866,000	$22,866,000	$12,142,000	$12,142,000	$12,142,000	$12,142,000
Unit Cost ($/acft)	$285	$285	$160	$160	$160	$160
Somervell County Water Supply Project Phases 1-4						
Supply From Plan Element (acft/yr)	300	300	300	300	300	300
Annual Cost ($/yr)	$317,700	$317,700	$317,700	$317,700	$317,700	$317,700
Unit Cost ($/acft)	$1,059	$1,059	$1,059	$1,059	$1,059	$1,059
Somervell County Water Supply Project Phases 7A and 9-17						
Supply From Plan Element (acft/yr)	—	—	184	184	184	184
Annual Cost ($/yr)	—	—	$1,090,752	$185,840	$185,840	$185,840
Unit Cost ($/acft)	—	—	$5,928	$1,010	$1,010	$1,010

5.30.5 Mining

Description of Supply

Mining operations in Somervell County are supplied by Trinity Groundwater. Demands for Mining are projected to increase significantly resulting in 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 Somervell County-Mining.

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

b. Groundwater Development – Trinity Aquifer
   - Cost Source: Volume II, Chapter 12
   - Date to be Implemented: before 2020
   - Project Cost: $3,502,000
   - Unit Cost: Max of $583/acft (2020)

Table 5.30-5. Recommended Plan Costs by Decade for Somervell County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(407)*	*(574)*	*(441)*	*(355)*	*(293)*	*(266)*
Conservation						
Supply From Plan Element (acft/yr)	33	64	80	74	70	68
Annual Cost ($/yr)	ND	ND	ND	ND	ND	ND
Projected Surplus/(Shortage) after Conservation (acft/yr)	*(374)*	*(510)*	*(361)*	*(281)*	*(223)*	*(198)*
Groundwater Well Development – Trinity Aquifer						
Supply From Plan Element (acft/yr)	550	550	550	550	550	550
Annual Cost ($/yr)	$320,542	$320,542	$27,542	$27,542	$27,542	$27,542
Unit Cost ($/acft)	$583	$583	$50	$50	$50	$50

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

5.30.6 Irrigation

Somervell County Irrigation is projected to have a surplus of water through the year 2070. No changes in water supply are recommended.

5.30.7 Livestock

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