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)		Comment
	2040 (acft/yr)	2070 (acft/yr)	
City of Glen Rose	(90)	(179)	Projected shortage - see plan below.
Somervell County Water District	1,402	1,379	Projected surplus
County-Other	(92)	(183)	Projected shortage - see plan below.
Manufacturing	4	4	Projected surplus
Steam-Electric	(35,579)	(35,867)	Projected shortage - see plan below.
Mining	(455)	(280)	Projected shortage - see plan below.
Irrigation	172	172	Projected surplus
Livestock	0	0	No projected surplus or shortage

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 2030 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. Conservation is recommended to reduce usage to a goal of 140 gpcd.

a. Conservation:

- Cost Source: Volume II
- Date to be Implemented: before 2030
- Annual Cost: maximum of $103,132 in 2070

b. 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
- Date to be Implemented: by 2035
- Annual Cost: $52,950 (based on current cost of service for highest rate tier ($3.25/1000 gal) published by the Somervell County WSD

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)	*8*	*(50)*	*(90)*	*(123)*	*(154)*	*(179)*
Conservation						
Supply From Plan Element (acft/yr)	0	52	108	169	179	184
Annual Cost ($/yr)	$0	$28,898	$60,585	$94,655	$100,198	$103,132
Projected Surplus/(Shortage) after Conservation (acft/yr)	*8*	*2*	*18*	*46*	*25*	*5*
Alternative: Somervell County Water Supply Project						
Supply From Plan Element (acft/yr)	—	50	50	50	50	50
Annual Cost ($/yr)	—	$52,950	$52,950	$52,950	$52,950	$52,950
Unit Cost ($/acft)	—	$1,059	$1,059	$1,059	$1,059	$1,059

5.30.2 Somervell County Water District

Description of Supply

Somervell County Water District obtains its supply through groundwater from the Trinity Aquifer and from the Wheeler Off-Channel Reservoir. No shortages are projected for the Somervell County Water District.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategy is recommended for Somervell County Water District to help meet the needs of adjacent water users, including County-Other entities and the City of Glen Rose. Conservation was considered; however, the entity's usage is below the selected goal of 140 gpcd.

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. Phases 1 – 4 are complete and provide 1,400 acft/yr of supply. Remaining phases will supply an additional 600 acft/yr.
- Cost Source: Volume II
- Date to be Implemented: by 2030
- Total Project Cost (Phases 7A and 9 – 17): $36,250,000
- Annual Cost: $3,546,000

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.

Table 5.30-3. Recommended Plan Costs by Decade for Somervell County Water District

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*1,424*	*1,411*	*1,402*	*1,394*	*1,386*	*1,379*
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost ($/yr)	—	—	—	—	—	—
Projected Surplus/(Shortage) after Conservation	*1,424*	*1,411*	*1,402*	*1,394*	*1,386*	*1,379*
Somervell County Water Supply Project						
Supply From Plan Element (acft/yr)	—	600	600	600	600	600
Annual Cost ($/yr)	—	$3,546,000	$3,546,000	$995,000	$995,000	$995,000
Unit Cost ($/acft)	—	$5,910	$5,910	$1,658	$1,658	$1,658

5.30.3 County-Other

Description of Supply

Somervell County-Other obtains its water supply from groundwater from the Trinity Aquifer, and water supply shortages are projected beginning in 2030. However, the Somervell County Water District has completed the Wheeler Branch Off-Channel Reservoir, and is implementing infrastructure to utilize that resource throughout the county. Phases 1 – 4 are complete and provide 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. Conservation was considered; however, the entity's usage is below the selected goal of 140 gpcd.

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

- Date to be Implemented: by 2035
- Annual Cost: $193,800 (based on current cost of service for highest rate tier ($3.25/1000 gal)

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

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*0*	*(54)*	*(92)*	*(125)*	*(156)*	*(183)*
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost ($/yr)	—	—	—	—	—	—
Projected Surplus/(Shortage) after Conservation	0	(54)	(92)	(125)	(156)	(183)
Somervell County Water Supply Project						
Supply From Plan Element (acft/yr)	—	183	183	183	183	183
Annual Cost ($/yr)	—	$193,800	$193,800	$193,800	$193,800	$193,800
Unit Cost ($/acft)	—	$1,059	$1,059	$1,059	$1,059	$1,059

5.30.4 Manufacturing

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

5.30.5 Steam-Electric

Description of Supply

Somervell County Steam-Electric obtains water supply from the 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. Conservation was not applied to this plan because the steam-electric facilities are assumed to be built with technologies minimizing water use as much as practicable.

a. Somervell County Water Supply Project

- Cost Source: Volume II
- Date to be Implemented: fully phased by 2035
- Annual Cost: $741,300 (based on current cost of service for highest rate tier ($3.25/1000 gal) published by the Somervell County WSD[1])

b. Leave Needs Unmet

- Significant demand is associated with the plan to expand the Comanche Peak Steam Electric Station, however there are no longer plans to move forward with this expansion. Therefore, these needs should be left unmet.
- Cost Source: Cost of not meeting needs – see Appendix G
- Date to be Implemented: 2020

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

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(35,387)*	*(35,483)*	*(35,579)*	*(35,675)*	*(35,771)*	*(35,867)*
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost ($/yr)	—	—	—	—	—	—
Projected Surplus/(Shortage) after Conservation (acft/yr)	*(35,387)*	*(35,483)*	*(35,579)*	*(35,675)*	*(35,771)*	*(35,867)*
Somervell County Water Supply Project						
Supply From Plan Element (acft/yr)	—	700	700	700	700	700
Annual Cost ($/yr)	—	$45,137,000	$45,137,000	$1,160,600	$1,160,600	$1,160,600
Unit Cost ($/acft)	—	$5,910	$5,910	$1,658	$1,658	$1,658
Leave Needs Unmet (acft/yr)	*(35,387)*	*(34,773)*	*(34,879)*	*(34,975)*	*(35,071)*	*(35,167)*

5.30.6 Mining

Description of Supply

Mining operations in Somervell County are supplied by Trinity Aquifer groundwater. Demands for Mining are projected to increase significantly resulting in shortages beginning in 2020.

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

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. Conservation is recommended.

a. Conservation
   - Cost Source: Volume II
   - Date to be Implemented: before 2030
   - Annual Cost: not determined

b. Groundwater Development – Trinity Aquifer
   - Cost Source: Volume II
   - Date to be Implemented: before 2030
   - Project Cost: $876,000
   - Unit Cost: Max of $200/acft (2020)

c. BRA System Operations
   - Cost Source: Volume II
   - Date to be Implemented: before 2030
   - Project Cost: $4,104
   - Unit Cost: $76

d. Leave Needs Unmet
   - Cost Source: Cost of not meeting needs – see Appendix G
   - Date to be Implemented: 2030 – 2039

Table 5.30-6. Recommended Plan Costs by Decade for Somervell County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(421)*	*(588)*	*(455)*	*(369)*	*(307)*	*(280)*
Conservation						
Supply From Plan Element (acft/yr)	33	64	80	74	70	68
Annual Cost ($/yr)	ND	ND	ND	ND	ND	ND
Projected Surplus/(Shortage) after Conservation (acft/yr)	*(388)*	*(524)*	*(375)*	*(295)*	*(237)*	*(212)*
BRA System Operations						
Supply From Plan Element (acft/yr)	54	54	54	54	54	54
Annual Cost ($/yr)	$4,104	$4,104	$4,104	$4,104	$4,104	$4,104
Unit Cost ($/acft)	$76	$76	$76	$76	$76	$76

Table 5.30-6. Recommended Plan Costs by Decade for Somervell County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
Groundwater Well Development – Trinity Aquifer						
Supply From Plan Element (acft/yr)	426	426	426	426	426	426
Annual Cost ($/yr)	$85,000	$85,000	$23,000	$23,000	$23,000	$23,000
Unit Cost ($/acft)	$200	$200	$54	$54	$54	$54
Leave Needs Unmet (acft/yr)	—	(44)	—	—	—	—

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

5.30.7 Irrigation

Somervell County Irrigation is projected to have a surplus of 172 acft/yr through the year 2070. No changes in water supply are recommended.

5.30.8 Livestock

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

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