5.31 Stephens County Water Supply Plan

Table 5.31-1 lists each water user group in Stephens 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 5.31-1. Stephens County Surplus/(Shortage)

Water User Group	Surplus/(Shortage)		Comment
	2040 (acft/yr)	2070 (acft/yr)	
City of Breckenridge	877	868	Projected surplus
Fort Belknap WSC			See Young County
Fort Griffin SUD	(2)	(2)	Projected shortage - see plan below.
Possum Kingdom WSC			See Palo Pinto County
Staff WSC			See Eastland County
Stephens Regional SUD	173	176	Projected surplus
County-Other	7	6	Projected surplus
Manufacturing	0	0	No projected surplus or shortage
Steam-Electric	0	0	No projected demand
Mining	(2,869)	(1,184)	Projected shortage - see plan below.
Irrigation	(121)	(121)	Projected shortage - see plan below.
Livestock	0	0	No projected surplus or shortage

5.31.1 City of Breckenridge

Description of Supply

The City of Breckenridge obtains water from Hubbard Creek Reservoir through the West Central Texas Municipal Water District and from Lake Daniel. Projections indicate a surplus of water for the City of Breckenridge, and no change in supply is recommended.

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

a. Conservation
- Cost Source: Volume II
- Date to be Implemented: by 2030
- Annual Cost: maximum of $28,388 in 2030
- Unit Cost: $560/acft

Table 5.31-2. Recommended Plan Costs by Decade for City of Breckenridge

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*882*	*871*	*877*	*879*	*878*	*868*
Conservation						
Supply From Plan Element (acft/yr)	0	51	29	16	15	14
Annual Cost ($/yr)	$0	$28,388	$16,070	$9,154	$8,221	$8,113
Projected Surplus/(Shortage) after Conservation	*882*	*922*	*906*	*895*	*893*	*882*

5.31.2 Fort Griffin SUD

Description of Supply

Fort Griffin SUD purchases treated surface water from the City of Albany and distributes to a number of counties. Of those counties, Stephens has the highest demand and is considered the SUD's primary county. The projections in Table 5.31-3 represent cumulative water supply shortages. Fort Griffin SUD also has a contract for 353 acft/yr from the BRA, but does not have infrastructure to utilize that supply.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategy is recommended for Fort Griffin SUD. Conservation was considered; however, the entity's usage is below the selected goal of 140 gpcd.

a. Purchase Treated Water Supply from the City of Albany

- Cost Source: Volume II
- Date to be Implemented: 2020
- Annual Cost: $3,878
- Unit Cost: Cost of purchase $1,939/acft

b. Alternative: Build Infrastructure to Utilize BRA Supply

- Cost: Not determined
- Date to be Implemented: by 2030

Table 5.31-3. Recommended Plan Costs by Decade for Fort Griffin SUD

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(2)*	*(2)*	*(2)*	*(2)*	*(2)*	*(2)*
Conservation						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost ($/yr)	–	–	–	–	–	–
Projected Surplus/(Shortage) after Conservation	*(2)*	*(2)*	*(2)*	*(2)*	*(2)*	*(2)*
Purchase Treated Water Supply from the City of Albany						
Supply From Plan Element (acft/yr)	2	2	2	2	2	2
Annual Cost ($/yr)	$3,878	$3,878	$3,878	$3,878	$3,878	$3,878
Unit Cost ($/acft)	$1,939	$1,939	$1,939	$1,939	$1,939	$1,939
Alternative: Build Infrastructure to Utilize BRA Supply						

5.31.3 Stephens Regional SUD

Stephens Regional SUD is located in multiple counties (Eastland, Shackelford, Palo Pinto, Throckmorton and Stephens). The surplus shown in Table 5.31-4 represents the cumulative totals for Stephens Regional SUD in all the counties it serves. The current supply comes through the Brazos River Authority for supply from Possum Kingdom Reservoir. The WUG also provides supply to the City of Woodson (Throckmorton County-Other). Since water needs are met throughout the planning period no water management strategies are recommended for Stephens Regional SUD. Conservation was considered; however, the entity's usage is below the selected goal of 140 gpcd.

5.31.4 County-Other

Water supply for county-other entities is obtained from local groundwater. Projections indicate adequate water supply and no changes are recommended. Conservation was considered; however, the entity's usage is below the selected goal of 140 gpcd.

5.31.5 Manufacturing

The City of Breckenridge provides supply to meet Stephens County Manufacturing needs. No shortage is projected and no changes in water supply are recommended.

5.31.6 Steam-Electric

Stephens County has no projected demand for Steam-Electric.

5.31.7 Mining

Description of Supply

Mining operations in Stephens County obtain supply from Possum Kingdom Reservoir through the Brazos River Authority and from the Cross Timbers Aquifer. Mining demand in Stephens County is projected to peak in 2030, and slowly decrease until 2070. A shortage of supplies is projected beginning in 2020.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management plan is recommended to meet water needs for Stephens County-Mining. Conservation is recommended.

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: by 2030
- Annual Cost: not determined

b. Leave Needs Unmet

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

Table 5.31-4. Recommended Plan Costs by Decade for Stephens County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(3,475)*	*(3,552)*	*(2,869)*	*(2,236)*	*(1,668)*	*(1,184)*
Conservation						
Supply From Plan Element (acft/yr)	152	257	312	268	228	194
Annual Cost ($/yr)	ND	ND	ND	ND	ND	ND
Projected Surplus/(Shortage) after Conservation (acft/yr)	*(3,323)*	*(3,295)*	*(2,557)*	*(1,968)*	*(1,440)*	*(990)*
Leave Needs Unmet (acft/yr)	*(3,323)*	*(3,295)*	*(2,557)*	*(1,968)*	*(1,440)*	*(990)*

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

5.31.8 Irrigation

Description of Supply

Stephens County Irrigation obtains 31 acft/yr of groundwater supply from the Cross Timbers Aquifer. Irrigation is projected to have a shortage of supply through 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 Stephens County-Irrigation. Conservation is recommended.

a. Conservation
   - Cost Source: Volume II
   - Date to be Implemented: by 2030
   - Annual Cost: maximum of $15,840
   - Unit Cost: 1,489/acft

b. Groundwater Development – Other Aquifer
   - Cost Source: Volume II
   - Date to be Implemented: by 2030
   - Project Cost: $143,000
   - Unit Cost: Max of $400/acft (2020)

c. Leave Needs Unmet
   - Cost Source: Cost of not meeting needs – see Appendix G
   - Date to be Implemented: 2020

Table 5.31-5. Recommended Plan Costs by Decade for Stephens County – Irrigation

Plan Element	2020	2030	2040	2050	2060	2070
Projected Surplus/(Shortage) (acft/yr)	*(121)*	*(121)*	*(121)*	*(121)*	*(121)*	*(121)*
Conservation						
Supply From Plan Element (acft/yr)	5	8	11	11	11	11
Annual Cost ($/yr)	$6,789	$11,314	$15,840	$15,840	$15,840	$15,840
Projected Surplus/(Shortage) after Conservation (acft/yr)	*(116)*	*(113)*	*(110)*	*(110)*	*(110)*	*(110)*
Groundwater Development – Other Aquifer						
Supply From Plan Element (acft/yr)	30	30	30	30	30	30
Annual Cost ($/yr)	$12,000	$12,000	$2,000	$2,000	$2,000	$2,000
Unit Cost ($/acft)	$400	$400	$67	$67	$67	$67
Leave Needs Unmet (acft/yr)	*(80)*	*(80)*	*(80)*	*(80)*	*(80)*	*(80)*

5.31.9 Livestock

Stephens County Livestock obtains water from local supply and is projected to meet demands through 2070. No changes in water supply are recommended.

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