



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) ¹		Comment
	2040 (acft/yr)	2070 (acft/yr)	
City of Breckenridge	878	869	Projected surplus
Possum Kingdom WSC			See Palo Pinto County
Fort Belknap WSC			See Young County
Stephens Regional SUD	170	172	Projected surplus
County-Other	55	55	Projected surplus
Manufacturing	0	0	Demand equals supply
Steam-Electric	0	0	Demand equals supply
Mining	(3,458)	(1,773)	Projected shortage – see plan below
Irrigation	(27)	(24)	Projected shortage – see plan below
Livestock	0	0	Demand equals supply

1 – From Tables C-61 and C-62, Appendix C – Comparison of Water Demands with Water Supplies to Determine Needs.

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.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: 2020
- Annual Cost: maximum of \$25,296 in 2030
- Unit Cost: \$496/acft

b. Water Supply from Midway Group and WCBWDS:

- Cost Source: Volume II, Chapter 8.4
 - Supply dependent on BRA obtaining the System Operations permit from TCEQ
- Date to be Implemented: 2020
- Project Cost: \$21,148,000 (Full Implementation)
- Unit Cost: \$2,492/acft

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

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	879	871	878	880	874	869
Conservation						
Supply From Plan Element (acft/yr)	30	51	29	17	15	15
Annual Cost (\$/yr)	\$14,880	\$25,296	\$14,384	\$8,432	\$7,440	\$7,440
<i>Projected Surplus/(Shortage) after Conservation</i>	909	922	906	896	889	884
Water Supply from Midway Group and WCBWDS						
Supply From Plan Element (acft/yr)	550	550	550	550	550	550
Annual Cost (\$/yr)	\$1,370,600	\$1,370,600	\$675,400	\$675,400	\$675,400	\$675,400
Unit Cost (\$/acft)	\$2,492	\$2,492	\$1,228	\$1,228	\$1,228	\$1,228

5.31.2 Stephens Regional SUD

Description of Supply

Stephens Regional SUD is located in multiple counties (Eastland, Shackelford, Palo Pinto, Throckmorton and Stephens). The surplus shown in Table 5.31-1 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). Even though Stephens Regional SUD shows a surplus for the planning horizon, they are currently participating in a project referred to as the Midway Group. This project is comprised of multiple entities in multiple counties that aim to serve the rural portions of their counties.

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



a. Water Supply from Midway Group and WCBWDS

- Cost Source: Volume II, Chapter 8.4
 - Supply dependent on BRA obtaining the System Operations permit from TCEQ
- Date to be Implemented: 2020
- Project Cost: \$21,148,000 (Full Implementation)
- Unit Cost: \$2,492/acft

Table 5.31-3. Recommended Plan Costs by Decade for Stephens Regional SUD

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	162	165	170	174	173	172
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost (\$/yr)	—	—	—	—	—	—
<i>Projected Surplus/(Shortage) after Conservation</i>	162	165	170	174	173	172
Water Supply from Midway Group and WCBWDS						
Supply From Plan Element (acft/yr)	400	400	400	400	400	400
Annual Cost (\$/yr)	\$996,800	\$996,800	\$491,200	\$491,200	\$491,200	\$491,200
Unit Cost (\$/acft)	\$2,492	\$2,492	\$1,228	\$1,228	\$1,228	\$1,228

5.31.3 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 current per capita use rate is below the selected target rate of 140 gpcd.

5.31.4 Manufacturing

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

5.31.5 Steam-Electric

Stephens County has no current or projected future demand for Steam-Electric.

5.31.6 Mining

Description of Supply

Mining operations in Stephens County obtain supply from Possum Kingdom Reservoir through the Brazos River Authority. 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 strategies are recommended to meet water needs for Stephens County-Mining.

- a. Conservation
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: 2020
 - Annual Cost: not determined
- b. Leave needs unmet
 - Cost Source: Cost of not meeting needs – see Appendix H
 - 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
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(4,064)	(4,141)	(3,458)	(2,825)	(2,257)	(1,773)
Conservation						
Supply From Plan Element (acft/yr)	152	257	312	268	228	194
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(3,912)	(3,884)	(3,146)	(2,557)	(2,029)	(1,579)
Leave Needs Unmet						
Supply From Plan Element (acft/yr)	3,912	3,884	3,146	2,557	2,029	1,579
Annual Cost (\$/yr)	—	—	—	—	—	—
Unit Cost (\$/acft)	—	—	—	—	—	—

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

5.31.7 Irrigation

Description of Supply

Stephens County Irrigation obtains supply from local groundwater and run-of the river water rights which are not firm during a drought of record. 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.

- a. Conservation
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: 2020
 - Annual Cost: \$230/acft
- b. Groundwater Development – Other Aquifer
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: \$640,000
 - Unit Cost: Max of \$2,254/acft (2020)

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

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(30)	(29)	(27)	(26)	(25)	(24)
Conservation						
Supply From Plan Element (acft/yr)	4	6	8	8	8	8
Annual Cost (\$/yr)	\$920	\$1,380	\$1,840	\$1,840	\$1,840	\$1,840
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(26)	(23)	(19)	(18)	(17)	(16)
Groundwater Development – Other Aquifer						
Supply From Plan Element (acft/yr)	26	26	26	26	26	26
Annual Cost (\$/yr)	\$58,592	\$58,592	\$4,592	\$4,592	\$4,592	\$4,592
Unit Cost (\$/acft)	\$2,254	\$2,254	\$177	\$177	\$177	\$177

5.31.8 Livestock

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

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