

5B.29 Shackelford County Water Supply Plan

Table 5B.29-1 lists each water user group in Shackelford County and their corresponding surplus or shortage in years 2030 and 2050. For each water user group with a projected shortage, a water supply plan has been developed and is presented in the following subsections. Water supply plans are also presented for some entities that need pumping/conveyance facilities to utilize their existing water resources, or to become a regional provider. In addition, long-term considerations are provided for some entities with projected surpluses. Shackelford County, through its County Commissioner's Court, has submitted a series of resolutions supporting a variety of regional water supply planning and development initiatives. The specific resolutions are included at the end of Volume 1. The recommended plan described below either includes specific proposed projects mentioned in the resolutions, or are generally consistent with them.

**Table 5B.29-1.
Shackelford County Surplus/(Shortage)**

<i>Water User Group</i>	<i>Surplus/(Shortage)¹</i>		<i>Comment</i>
	<i>2030 (acft/yr)</i>	<i>2050 (acft/yr)</i>	
City of Albany	1,306	1,387	Projected surplus
County-Other	111	138	Projected surplus
Manufacturing	0	0	No demand or supply
Steam-Electric	0	0	No demand or supply
Mining	(333)	(340)	Projected shortage – see plan below
Irrigation	(179)	(167)	Projected shortage – see plan below
Livestock	0	0	Supply equals demand

¹ From Tables 4-57 and 4-58, Section 4 – Comparison of Water Demands with Water Supplies to Determine Needs.

5B.29.1 The City of Albany

Water supply for the City of Albany is from Hubbard Creek Reservoir, owned by the West Central Texas MWD. No future shortages are projected and no changes in water supply are recommended.

5B.29.2 County-Other Category

The water supply entities for County-Other show a projected surplus and no changes in water supply are recommended.

5B.29.3 Manufacturing

No Manufacturing demand exists or is projected for the county.

5B.29.4 Steam-Electric

No Steam-Electric demand exists or is projected for the county.

5B.29.5 Mining

5B.29.5.1 Options Considered

Table 5B.29-2 lists the water management strategies, references to the report section discussing the strategy, total project cost, and unit costs that were considered for the Mining category shortage.

**Table 5B.29-2.
Water Management Strategies Considered for Shackelford County Mining**

Option	Yield (acft/yr)	Approximate Cost	
		Total	Unit (\$/acft)
Voluntary Redistribution from Municipal Supply	333	\$0	\$0
Breckenridge Reservoir (Section 5A.14.1)	20,000	\$171,462,000	\$629
No Action	-	\$1,090,000 ¹	\$3,273 ¹

¹ Economic impact of not meeting shortage (i.e., "no action") in 2030 as estimated by TWDB.

5B.29.5.2 Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water supply plan is recommended to meet the projected 2030 shortage of the Mining category:

- Voluntary Redistribution from Municipal Supply.

The Breckenridge Reservoir has been recommended for consideration for long-term needs for the West Central Texas Municipal Water District, as a major water provider, as described in Section 5B.38. The project is much too large to be pursued by any individual

municipality, but if it is pursued by the WCTMWD, this source should be considered by local entities.

5B.29.5.3 Costs

Costs of the Recommended Plan for the Mining category to meet 2030 shortages are:

- a. Voluntary Redistribution from Municipal Supply:
 - No modifications to existing system needed.
 - Date to be Implemented: In place.
 - Total Project Cost: \$0

5B.29.6 Irrigation

5B.29.6.1 Description of Supply

Surface water for Irrigation in Shackelford County is obtained from the Clear Fork of the Brazos River. Estimated reliable supply of surface water for irrigated agriculture is 31acft/yr through the year 2050. There are no significant groundwater supplies available in the county.

5B.29.6.2 Options Considered

Table 5B.29-3 lists the water management strategies that were considered for Shackelford County Irrigation, and references the report section discussing the strategy, total project cost, and unit costs for meeting the shortage.

**Table 5B.29-3.
Water Management Strategies Considered for Shackelford County Irrigation**

Option	Yield (acft/yr)	Approximate Cost	
		Total	Unit (\$/acft)
Irrigation System Conversion ¹	46	\$5,474/yr	\$119
Brush Control	(*)	(*)	(*)
Weather Modification ²	(*)	\$500,000 to \$850,000/yr	(*)
No Action	--	\$26,000 ³	\$144 ³

¹ Source of Cost Estimate: Texas Agriculture Experiment Station
² Source of Cost Estimate: Section 5B.10.
³ Economic impact of not meeting shortage (i.e., "no action") in 2030 as estimated by TWDB.
* Definitive yield and/or cost cannot be determined.

5B.29.6.3 Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water supply plan is recommended to meet the projected 2030 shortage of the Irrigation category.

No new water supplies are economically feasible to meet this projected shortage. Water conservation strategies in the form of conversion to irrigation systems with increased efficiency could partially meet the projected shortages. The irrigation systems in Shackelford County are relatively efficient. Options are upgrade of side roll systems to center pivots and possibly some renozzling of older center pivots. Cultural practices such as crop selection, deficit irrigation, and conversion to dryland will account for the remainder of the water conserved (i.e., water not used). Brush control and weather modification may also be used to enhance soil moisture.

As shown in Table 5B.29-4, conservation practices can meet about 46 acft/yr of the projected shortage. Apart from the conservation options presented, it is not economically feasible to meet projected Irrigation shortages listed as unmet demand in Shackelford County.

5B.29.6.4 Costs

Costs of the Recommended Plan for Shackelford County Irrigation supply are outlined in Table 5B.6.3. Costs for some options, such as brush control and weather modification, can not be directly quantified due to lack of specific data. Costs for these options have been estimated based on generally available data outlined in the corresponding chapter in Section 5B. Irrigation system upgrade of 200 of the 300 irrigated acres would provide a maximum of 46 acft/yr at a cost of \$119/acft.

5B.29.7 Livestock

No future shortages are projected in the Livestock category and no changes in water supply are recommended.

**Table 5B.29-4.
Recommended Plan Costs by Decade for Shackelford County Irrigation¹**

<i>Plan Element</i>	<i>2000</i>	<i>2010</i>	<i>2020</i>	<i>2030</i>	<i>2040</i>	<i>2050</i>
Irrigation System Conversion²						
Projected Shortage (acft/yr) ³	(199)	(192)	(185)	(179)	(173)	(167)
Supply from Plan Element acft/yr)	46	46	46	46	46	46
Annual Cost (\$/yr)	\$5,474	\$5,474	\$5,474	\$5,474	\$5,474	\$5,474
Unit Cost (\$/acft)	\$119	\$119	\$119	\$119	\$119	\$119
Weather Modification⁴						
Supply from Plan Element (acft/yr)	(*)	(*)	(*)	(*)	(*)	(*)
Annual Cost (\$/yr)	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000
Unit Cost (\$/acft)	(*)	(*)	(*)	(*)	(*)	(*)
Brush Control						
Supply from Plan Element (acft/yr)	(*)	(*)	(*)	(*)	(*)	(*)
Annual Cost (\$/yr)	(*)	(*)	(*)	(*)	(*)	(*)
Unit Cost (\$/acft)	(*)	(*)	(*)	(*)	(*)	(*)
Sum of Supply from Plan Elements (acft/yr)	46	46	46	46	46	46
Unmet Demand⁵	(153)	(146)	(139)	(133)	(127)	(121)
¹ Unless otherwise noted, costs are Total Project Cost and Unit Cost (\$/acft per year) for water conserved through management practices. Unit cost is for full utilization of project capacity. ² Source of Cost Estimate: Texas Agriculture Experiment Station. ³ Total projected irrigation shortages are presented. ⁴ Source of Cost Estimate: Section 5B.10. ⁵ Apart from the conservation options presented, it is not economically feasible to meet projected irrigation shortages listed as unmet demand in Shackelford County. * Definitive yield and/or cost estimate cannot be determined.						