

5B.26 Nolan County Water Supply Plan

Table 5B.26-1 lists each water user group in Nolan 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. Nolan 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.26-1.
Nolan 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 Roscoe	612	620	Projected surplus
City of Sweetwater	2,325	3,039	Projected surplus – see plan below
County-Other	(155)	(89)	Projected shortage – see plan below
Manufacturing	(697)	(835)	Projected shortage – see plan below
Steam-Electric	0	0	No demand or supply
Mining	32	34	Projected surplus
Irrigation	141	229	Projected surplus
Livestock	0	0	Supply equals demand

¹ From Tables 4-51 and 4-52, Section 4 – Comparison of Water Demands with Water Supplies to Determine Needs.

5B.26.1 The City of Roscoe

5B.26.1.1 Description of Supply

The City of Roscoe obtains surface water from local sources and groundwater from the Dockum and Edwards-Trinity (Plateau) aquifers. No current or future shortages are projected. Therefore, no change in water supply uses are projected or recommended.

5B.26.2 The City of Sweetwater

5B.26.2.1 Description of Supply

The City of Sweetwater receives surface water from Lake Sweetwater, Lake Trammell, and Oak Creek Reservoir, along with groundwater from the Dockum and Edwards-Trinity (Plateau) aquifers. A water supply plan was developed due to the fact that if all existing contracts are renewed and the manufacturing deficit is covered as recommended, the city will have projected shortages. In addition, the city has emphasized that it prefers it’s planning to be done with safe yield rather than firm yield. If this is done and all existing contracts are renewed, then the city’s projected deficit would be 1,778 acft/yr in 2030.

5B.26.2.2 Options Considered

Table 5B.26-2 lists the water management strategies, reports section references discussing the strategy, total project cost, and unit costs that were considered for meeting the City of Sweetwater’s shortages.

**Table 5B.26-2.
Water Management Strategies Considered for the City of Sweetwater**

Option	Yield (acft/yr)	Approximate Cost ¹	
		Total	Unit (\$/acft)
Wastewater reuse (Section 5A.3)	900	\$5,100,000	\$500
Diversion to Lake Sweetwater (Section 5A.7.3)	790	\$3,000,000	\$400
Champion Well Field ⁽²⁾	2,200	\$6,400,000	\$400
Voluntary redistribution from Lake Alan Henry	2,000	\$4,500,000/yr	\$2,250
No Action	-	*	*

¹ Unless otherwise noted, costs are Total Project Cost and Unit Cost (\$/acft per year) for treated water delivered to the water supply entity or entities. Unit cost is for full utilization of project capacity. Operation and maintenance of existing facilities is not included.

² Has water quality concerns, will require additional treatment.

* Under firm yield conditions, no shortage exists.

5B.26.2.3 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 City of Sweetwater:

- Wastewater reuse
- Diversion to Lake Sweetwater
- Champion Well Field

5B.26.2.4 Costs

Costs of the Recommended Plan for the City of Sweetwater.

- a. Wastewater reuse:
 - Cost Source: Wastewater Reuse Feasibility Study, prepared for TWDB and City of Sweetwater by Freese and Nichols, 1993.
 - Date to be Implemented: before 2010
 - Total Project Cost: \$5,100,000
 - Total Annual Cost: \$500/acft
- b. Additional Conservation
 - Cost Source: Section 5A.2
 - Date to be Implemented: before 2010
 - Total Project Cost: \$224,000/yr
 - Total Annual Cost: \$574/acft
- c. Diversion to Lake Sweetwater
 - Cost Source: Section 5A.7.3
 - Date to be Implemented: before 2040
 - Total Project Cost: \$3,000,000
 - Total Annual Cost: \$400/acft
- d. Champion Well Field
 - Cost Source: *Champion Well Field Collection and Transmission Study*, Freese and Nichols, 1988.
 - Date to be Implemented: before 2010
 - Total Project Cost: \$6,700,000
 - Total Unit Cost: \$230/acft

5B.26.3 County-Other Category**5B.26.3.1 Description of Supply**

County-Other water supply is limited after 2010 by expiring contracts with the City of Sweetwater. Groundwater sources are the Dockum and Edwards-Trinity (Plateau) aquifers.

5B.26.3.2 Options Considered

Table 5B.26-4 lists the water management strategies, report section references discussing the strategy, total project cost, and unit costs that were considered for meeting the County-Other category.

**Table 5B.26-3.
Recommended Plan Costs by Decade for City of Sweetwater**

Plan Element	2000	2010	2020	2030	2040	2050
Projected Surplus/(Shortage) (acft/yr) ⁽¹⁾	(1,798)	(1,826)	(1,817)	(1,778)	(1,721)	(1,723)
Wastewater Reuse						
Supply From Plan Element (acft/yr)	0	900	900	900	900	900
Annual Cost (\$/yr)	\$0	\$450,000	\$450,000	\$450,000	\$42,000	\$42,000
Unit Cost (\$/acft)	\$0	\$500	\$500	\$500	\$47	\$47
Conservation						
Supply From Plan Element (acft/yr)	0	390	390	390	390	390
Annual Cost (\$/yr)	\$0	\$224,000	\$224,000	\$224,000	\$224,000	\$224,000
Unit Cost (\$/acft)	\$0	\$574	\$574	\$574	\$574	\$574
Champion Well Field						
Supply From Plan Element (acft/yr)	0	4,000	4,000	4,000	4,000	4,000
Annual Cost (\$/yr)	\$0	\$920,000	\$920,000	\$920,000	\$180,000	\$180,000
Unit Cost (\$/acft)	\$0	\$230	\$230	\$230	\$45	\$45
Diversion to Lake Sweetwater						
Supply From Plan Element (acft/yr)	0	0	0	0	790	790
Annual Cost (\$/yr)	\$0	\$0	\$0	\$0	\$79,000	\$79,000
Unit Cost (\$/acft)	\$0	\$0	\$0	\$0	\$400	\$400
Total New Supply (acft/yr)	0	5,290	5,290	5,290	6,080	6,080

¹ Assumes safe yield, extension of all existing contracts, and provisions for manufacturing use deficit.

**Table 5B.26-4.
Water Management Strategies Considered for Nolan County-Other**

Option	Yield (acft/yr)	Approximate Cost¹	
		Total	Unit (\$/acft)
Voluntary Redistribution from Municipal Supply of the City of Sweetwater	155	\$100,750/yr	\$650 ²
No Action	-	\$2,802,000*	\$18,080*

¹ Unless otherwise noted, costs are Total Project Cost and Unit Cost (\$/acft per year) for treated water delivered to the water supply entity or entities. Unit cost is for full utilization of project capacity. Operation and maintenance of existing facilities is not included.

² Estimated wholesale rate of treated water.

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

5B.26.3.3 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 County-Other category:

- Voluntary Redistribution from Municipal Supply of the City of Sweetwater

5B.26.3.4 Costs

Costs of the recommended plan for County-Other to meet 2030 shortages are:

- a. Voluntary Redistribution from Municipal Supply of the City of Sweetwater:
 - Estimated wholesale rate of \$650/acft for treated water
 - Date to be Implemented: In place
 - Total Annual Cost: \$100,750

5B.26.4 Manufacturing

5B.26.4.1 Description of Supply

The current water supply for Manufacturing consists of 50 acft/yr of groundwater, leaving large shortages.

5B.26.4.2 Options Considered

Table 5B.26-5 lists the water management strategies, report section references discussing the strategy, total project cost, and unit costs that were considered for meeting the Manufacturing category’s shortages.

**Table 5B.26-5.
Water Management Strategies Considered for Nolan County Manufacturing**

Option	Yield (acft/yr)	Approximate Cost ¹	
		Total	Unit (\$/acft)
Voluntary redistribution from Municipal Supply	697	\$453,000/yr	\$650
No Action	-	\$140,924,000*	\$202,187*

¹ Unless otherwise noted, costs are Total Project Cost and Unit Cost (\$/acft per year) for treated water delivered to the water supply entity or entities. Unit cost is for full utilization of project capacity. Operation and maintenance of existing facilities is not included.
* Economic impact of not meeting shortage (i.e., “no action” alternative) in 2030 as estimated by TWDB.

5B.26.4.3 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 Manufacturing category:

- Voluntary redistribution from Municipal Supply

5B.26.4.4 Costs

Costs of the Recommended Plan for Manufacturing:

- a. Voluntary redistribution from Municipal Supply:
- Cost Source: Estimated wholesale rate of \$650/acft for treated water
 - Date to be Implemented: In place
 - Total Annual Cost: \$453,000

5B.26.5 Steam-Electric

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

5B.26.6 Mining

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

5B.26.7 Irrigation

No shortages are projected for Irrigation and no changes in water supply are recommended.

5B.26.8 Livestock

No shortages are projected for Livestock and no changes in water supply are recommended.