



5.26 Nolan County Water Supply Plan

Table 5.26-1 lists each water user group in Nolan County and their corresponding surplus or shortage in years 2040 and 2070. For each water user group with a projected shortage, a water supply plan has been developed and is presented in the following subsections.

Table 5.26-1. Nolan County Surplus/(Shortage)

Water User Group	Surplus/(Shortage) ¹		Comment
	2040 (acft/yr)	2070 (acft/yr)	
Bitter Creek WSC	406	392	Projected surplus
City of Roscoe	79	62	Projected surplus
City of Sweetwater	(1,410)	(1,576)	Projected shortage – see plan below
County-Other	(108)	(125)	Projected shortage – see plan below
Manufacturing	(1,260)	(1,770)	Projected shortage – see plan below
Steam-Electric	(23,916)	(23,916)	Projected shortage – see plan below
Mining	(200)	(141)	Projected shortage – see plan below
Irrigation	(2,094)	(1,567)	Projected shortage – see plan below
Livestock	0	0	Demand equals Supply

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

5.26.1 Bitter Creek WSC

The Bitter Creek WSC obtains its water supply from the Dockum Aquifer and purchases treated water from the City of Sweetwater. This WUG is located in multiple counties (Nolan and Fisher). The surplus shown in Table 5.26-1 represents the cumulative totals for Bitter Creek WSC in both counties. No current or future shortages are projected and no changes in water supply uses are projected or recommended. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.26.2 City of Roscoe

The City of Roscoe obtains surface water from local sources and groundwater from the Dockum Aquifer. A surplus is projected for the City of Roscoe through 2070. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.26.3 City of Sweetwater

The recommended water supply plan for the City of Sweetwater is included in Chapter 5.38 with the wholesale water providers.

5.26.4 County-Other

Description of Supply

Entities in Nolan County-Other obtain their water from the City of Sweetwater and the Edwards-Trinity Aquifer. The supplies from Sweetwater are associated with Oak Creek Reservoir which has zero yield without subordination. Sweetwater strategies will firm up this contract amount. Shortages are projected through 2070. Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd.

Water Supply Plan

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

a. Water Supply from Sweetwater

- Cost Source: Costs applied to City of Sweetwater (Volume II, Chapter 6.2)
- Date to be Implemented: 2020
- Project Cost: Existing infrastructure assumed sufficient
- Unit Cost: \$1,031/acft (Sweetwater Wholesale Rate)

Table 5.26-2. Recommended Plan Costs by Decade for Nolan County – Other

Plan Element	2020	2030	2040	2050	2070	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(104)	(107)	(108)	(113)	(119)	(125)
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost (\$/yr)	—	—	—	—	—	—
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(104)	(107)	(108)	(113)	(119)	(125)
Additional Water from Sweetwater to meet Contract						
Supply From Plan Element (acft/yr)	168	168	168	168	168	168
Annual Cost (\$/yr)	\$173,208	\$173,208	\$173,208	\$173,208	\$173,208	\$173,208
Unit Cost (\$/acft)	\$1,031	\$1,031	\$1,031	\$1,031	\$1,031	\$1,031

5.26.5 Manufacturing

Description of Supply

Nolan County Manufacturing obtains its water supply from the City of Sweetwater and from the Edwards-Trinity (Plateau) Aquifer. Manufacturing is projected to have a shortage beginning in year 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 Nolan County-Manufacturing.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: 2020
- Annual Cost: not determined

b. Additional Water Supply from Sweetwater

- Cost Source: Volume II, Chapter 12
- Date to be Implemented: 2020
- Project Cost: N/A. Infrastructure assumed sufficient
- Unit Cost: \$1031/acft

Table 5.26-3. Recommended Plan Costs by Decade for Nolan County – Manufacturing

Plan Element	2020	2030	2040	2050	2070	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(881)	(1,072)	(1,260)	(1,426)	(1,591)	(1,770)
Conservation						
Supply From Plan Element (acft/yr)	43	81	126	138	149	162
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(838)	(991)	(1,134)	(1,288)	(1,442)	(1,608)
Purchase from Sweetwater						
Supply From Plan Element (acft/yr)	838	991	1,134	1,288	1,442	1,608
Annual Cost (\$/yr)	\$863,978	\$1,021,721	\$1,169,154	\$1,327,928	\$1,486,702	\$1,657,848
Unit Cost (\$/yr)	\$1,031	\$1,031	\$1,031	\$1,031	\$1,031	\$1,031

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

5.26.6 Steam-Electric

Description of Supply

Nolan County Steam-Electric is projected to have a shortage beginning in year 2020. Conservation is not a viable option as these are new demands where conservation measures are anticipated to already be reflected in the demands.

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 Nolan County-Steam Electric.

- a. Purchase from Abilene
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2030
 - Project Cost: Not enough information to cost delivery
 - Unit Cost: \$100/acft (Abilene wholesale rate only)
- b. Reallocate Supplies from Jones County-SE
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: Capital cost unknown, as demands vary geographically.
 - Unit Cost: Assumed \$250/acft as purchase price of supply
- c. Reduce Demand through Alternative Cooling Technology

Steam-Electric cooling is often water-intensive, and the water demands provided by the TWDB reflect this. Alternative technologies that utilize air cooling or other less water intensive methods could be substituted. Costs shown are for the additional costs for implementation of these more advanced technologies for cooling.

- Cost Source: Volume II, Chapter 12
- Date to be Implemented: 2060
- Project Cost: Undetermined. Technologies will vary.

Table 5.26-4. Recommended Plan Costs by Decade for Nolan County – Steam-Electric

Plan Element	2020	2030	2040	2050	2070	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(13,526)	(23,916)	(23,916)	(23,916)	(23,916)	(23,916)
Conservation Table 5.26-1. Nolan County Surplus/(Shortage)						
Supply From Plan Element (acft/yr)	—	—	—	—	—	—
Annual Cost (\$/yr)	—	—	—	—	—	—
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(13,526)	(23,916)	(23,916)	(23,916)	(23,916)	(23,916)
Purchase from Abilene						
Supply From Plan Element (acft/yr)	—	9,999	9,298	7,901	6,602	5,383
Annual Cost (\$/yr)	—	\$1,000,000	\$929,800	\$790,100	\$670,200	\$538,400
Unit Cost (\$/yr)	—	\$100	\$100	\$100	\$100	\$100
Reallocate from Jones County- Steam Electric						
Supply From Plan Element (acft/yr)	8,247	11,837	11,837	11,837	11,837	11,837
Annual Cost (\$/yr)	\$2,062,000	\$2,959,000	\$2,959,000	\$2,959,000	\$2,959,000	\$2,959,000
Unit Cost (\$/yr)	\$250	\$250	\$250	\$250	\$250	\$250



Table 5.26-4. Recommended Plan Costs by Decade for Nolan County – Steam-Electric

Plan Element	2020	2030	2040	2050	2070	2070
Reduce Demand through Alternative Cooling Technology						
Supply From Plan Element (acft/yr)	5,279	5,279	5,279	5,279	5,477	6,696
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
Unit Cost (\$/yr)	ND	ND	ND	ND	ND	ND

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

5.26.7 Mining

Description of Supply

Nolan County Mining obtains its water supply from the Dockum and Edwards-Trinity (Plateau) Aquifers. Based on the available groundwater supply, Nolan County Mining is projected to have a shortage between 2020 and 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 Nolan County-Mining.

- a. Conservation
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: 2020
 - Annual Cost: not determined
- b. Development of Groundwater - Edwards-Trinity (Plateau)
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: \$2,448,000
 - Unit Cost: Max of \$1,018/acft (2020)

Table 5.26-5. Recommended Plan Costs by Decade for Nolan County – Mining

Plan Element	2020	2030	2040	2050	2070	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(225)	(222)	(200)	(178)	(158)	(141)
Conservation						
Supply From Plan Element (acft/yr)	7	11	14	12	11	10
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(218)	(211)	(186)	(166)	(147)	(131)

Table 5.26-5. Recommended Plan Costs by Decade for Nolan County – Mining

Plan Element	2020	2030	2040	2050	2070	2070
Development of Edwards-Trinity (Plateau)						
Supply From Plan Element (acft/yr)	220	220	220	220	220	220
Annual Cost (\$/yr)	\$223,861	\$223,861	\$18,861	\$18,861	\$18,861	\$18,861
Unit Cost (\$/acft)	\$1,018	\$1,018	\$86	\$86	\$86	\$86

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

5.26.8 Irrigation

Description of Supply

Nolan County Irrigation obtains its water supply from the Dockum and Edwards Trinity Aquifer and run-of-river diversions from the Brazos River. Based on the available supply, Nolan County Irrigation is projected to have a shortage between 2020 and 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 Nolan County-Irrigation.

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: before 2020
- Annual Cost: \$113,000 in 2040
- Unit Cost: \$230/acft

b. Leave Needs Unmet

New supplies for irrigation would be cost prohibitive to develop and most farms would switch to dry-land crops or allow fields to go fallow during a prolonged drought.

- Cost Source: Cost of not meeting needs – will be provided by TWDB
- Date to be Implemented: 2020



Table 5.26-6. Recommended Plan Costs by Decade for Nolan County – Irrigation

Plan Element	2020	2030	2040	2050	2070	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(2,483)	(2,287)	(2,094)	(1,912)	(1,733)	(1,567)
Conservation						
Supply From Plan Element (acft/yr)	222	361	492	479	466	455
Annual Cost (\$/yr)	\$51,150	\$82,996	\$113,086	\$110,156	\$107,274	\$104,602
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(2,261)	(1,926)	(1,602)	(1,433)	(1,267)	(1,112)
Leave Needs Unmet						
Supply From Plan Element (acft/yr)	2,261	1,926	1,602	1,433	1,267	1,112
Annual Cost (\$/yr)	—	—	—	—	—	—
Unit Cost (\$/acft)	—	—	—	—	—	—

5.26.9 Livestock

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

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