

5.12 Grimes County Water Supply Plan

Table 5.12-1 lists each water user group in Grimes 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 5.12-1. Grimes County Surplus/(Shortage)

Water User Group	Surplus/(Shortage) ¹		Comment
	2040 (acft/yr)	2070 (acft/yr)	
Dobbin-Plantersville WSC	154	101	Projected surplus
G&W WSC	0	0	Demand equals supply
City of Navasota	643	502	Projected surplus
Wickson Creek SUD			See Brazos County
County-Other	211	66	Projected surplus
Manufacturing	59	0	Projected surplus
Steam-Electric	(14,738)	(23,243)	Projected shortage – see plan below
Mining	(438)	(95)	Projected shortage – see plan below
Irrigation	585	585	Projected surplus
Livestock	0	0	Demand equals supply

1 – From Tables C-23 and C-24, Appendix C – Comparison of Water Demands with Water Supplies to Determine Needs.

5.12.1 Dobbin-Plantersville WSC

Dobbin Plantersville WSC provides water supply in Grimes and Montgomery counties. The majority of the demand for the entity is in Montgomery County which is part of Region H. This section will only deal with the supply, demands and strategies that are within Grimes County and the Brazos G Area. Dobbin-Plantersville WSC obtains water supply in Grimes County from the Gulf Coast Aquifer and is projected to have a surplus of water through the year 2070. No changes in water supply are recommended. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.12.2 G&W WSC

G&W WSC provides water supply in Grimes and Waller counties. The majority of the demand for the entity is in Waller County which is part of Region H. This section will only deal with the supply, demands and strategies that are within Grimes County and the Brazos G Area. G & W WSC obtains water supply in Grimes County from the Gulf Coast Aquifer and supplies in Region H sufficient to meet its demands in Grimes County. No changes in water supply are recommended. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.12.3 City of Navasota

Description of Supply

The City of Navasota obtains its water supply from groundwater from the Gulf Coast Aquifer. The existing production capacity of the wells and groundwater availability is adequate to supply the needs of the City of Navasota through the year 2070. The city provides a portion of supply to Grimes County Manufacturing.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategy is recommended for City of Navasota.

- a. Conservation:
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: 2020
 - Annual Cost: \$110,000 in 2070
 - Unit Cost: \$470/acft

Table 5.12-2. Recommended Plan Costs by Decade for City of Navasota

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	661	650	643	623	572	502
Conservation						
Supply From Plan Element (acft/yr)	55	158	238	229	231	235
Annual Cost (\$/yr)	\$26,000	\$74,000	\$112,000	\$107,000	\$109,000	\$110,000
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	716	807	881	851	803	737

5.12.4 County-Other

Entities comprising Grimes County-Other obtain water supply from groundwater in the county. County-Other entities are projected to have a surplus of supply through 2070. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.12.5 Manufacturing

Description of Supply

Water supplies for manufacturing in Grimes County is obtained from nearby WUGs, run of river water rights, and Gulf Coast Aquifer wells operated by the manufacturing entity. Manufacturing is projected to have a shortage of water beginning in the year 2060.



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 Grimes County Manufacturing.

- a. Conservation
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: 2060
 - Annual Cost: not determined

Table 5.12-3 Recommended Plan Costs by Decade for Grimes County – Manufacturing

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	154	107	59	17	(0)	(0)
Conservation						
Supply From Plan Element (acft/yr)	—	—	—	—	38	41
Annual Cost (\$/yr)	—	—	—	—	ND	ND
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	154	107	59	17	38	41

5.12.6 Steam-Electric

Description of Supply

Grimes County Steam-Electric obtains water supply Gibbons Creek Reservoir, Lake Livingston, reuse supplies from the City of Huntsville, and groundwater from the Gulf Coast Aquifer. Grimes County Steam-Electric is projected to have shortages beginning in year 2020 and continuing through year 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 Grimes County Steam-Electric.

- a. Conservation:
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: 2020
 - Annual Cost: Not determined
- b. Gibbons Creek Reservoir Expansion:
 - Cost Source: Volume II, Chapter 7.4
 - Date to be Implemented: 2020
 - Total Project Cost: \$12,979,000

- Unit Cost: \$359/acft
- c. Purchase reuse water from the Cities of College Station and Bryan:
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: none
 - Unit Cost: \$304/acft
- d. Groundwater Development – Gulf Coast Aquifer
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: \$22,459,000
 - Unit Cost: Max of \$423/acft (2020)
- e. Groundwater Development – Brackish Carrizo-Wilcox Aquifer
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: \$8,182,000
 - Unit Cost: Max of \$2,971/acft/yr (2020)

Table 5.12-4. Recommended Plan Costs by Decade for Grimes County – Steam-Electric

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/ (Shortage) (acft/yr)</i>	(11,666)	(13,152)	(14,738)	(16,825)	(19,911)	(23,243)
Conservation						
Supply From Plan Element (acft/yr)	953	1,658	2,426	2,566	2,776	3,003
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
<i>Projected Surplus/ (Shortage) after Conservation (acft/yr)</i>	(10,713)	(11,494)	(12,312)	(14,259)	(17,135)	(20,239)
Reuse Supply from Bryan and College Station						
Supply From Plan Element (acft/yr)	1,529	2,310	3,128	5,075	7,951	11,056
Annual Cost (\$/yr)	\$464,816	\$702,240	\$950,912	\$1,542,800	\$2,417,104	\$3,361,024
Unit Cost (\$/acft)	\$304	\$304	\$304	\$304	\$304	\$304
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(8,841)	(8,841)	(8,841)	(8,841)	(8,841)	(8,840)
Gibbons Creek Reservoir Expansion						
Supply From Plan Element (acft/yr)	2,605	2,605	2,605	2,605	2,605	2,605
Annual Cost (\$/yr)	\$934,000	\$934,000	\$934,000	\$934,000	\$125,000	\$125,000
Unit Cost (\$/acft)	\$359	\$359	\$359	\$359	\$48	\$48



Table 5.12-4. Recommended Plan Costs by Decade for Grimes County – Steam-Electric

Plan Element	2020	2030	2040	2050	2060	2070
Groundwater Development – Gulf Coast						
Supply From Plan Element (acft/yr)	6,236	6,236	6,236	6,236	6,236	6,236
Annual Cost (\$/yr)	\$2,639,903	\$2,639,903	\$895,903	\$895,903	\$895,903	\$895,903
Unit Cost (\$/acft)	\$423	\$423	\$144	\$144	\$144	\$144
Groundwater Development – Carrizo Wilcox						
Supply From Plan Element (acft/yr)	343	343	343	343	343	343
Annual Cost (\$/yr)	\$1,018,979	\$1,018,979	\$350,979	\$350,979	\$350,979	\$350,979
Unit Cost (\$/acft)	\$2,971	\$2,971	\$1,023	\$1,023	\$1,023	\$1,023

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

5.12.7 Mining

Description of Supply

Mining operations in Grimes County are supplied by groundwater from the Gulf Coast Aquifer. Demands for Mining are projected to increase resulting in shortages 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 Grimes County-Mining.

- a. Conservation
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: before 2020
 - Annual Cost: not determined
- b. Groundwater Development - Carrizo Wilcox Aquifer
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: \$5,805,000
 - Unit Cost: Max of \$1,764 /acft (2020)

Table 5.12-5. Recommended Plan Costs by Decade for Grimes County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(290)	(569)	(438)	(307)	(176)	(95)
Conservation						
Supply From Plan Element (acft/yr)	10	30	33	24	15	9
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(281)	(539)	(405)	(284)	(162)	(86)
Groundwater Development – Carrizo Wilcox						
Supply From Plan Element (acft/yr)	300	550	550	300	300	100
Annual Cost (\$/yr)	\$529,113	\$881,856	\$395,856	\$71,856	\$71,856	\$71,856
Unit Cost (\$/acft)	\$1,764	\$1,603	\$720	\$131	\$131	\$131

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

5.12.8 Irrigation

Grimes County Irrigation is projected to have a surplus of water through the year 2070. No changes in water supply are recommended.

5.12.9 Livestock

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