



5.35 Washington County Water Supply Plan

Table 5.35-1 lists each water user group in Washington 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 5.35-1. Washington County Surplus/(Shortage)

| Water User Group | Surplus/(Shortage) ¹ | | Comment |
|------------------|---------------------------------|----------------|-------------------------------------|
| | 2040 (acft/yr) | 2070 (acft/yr) | |
| City of Brenham | (400) | (928) | Projected shortage – see plan below |
| County-Other | 114 | 5 | Projected surplus |
| Manufacturing | (192) | (399) | Projected shortage – see plan below |
| Steam-Electric | 0 | 0 | Demand equals supply |
| Mining | (703) | (264) | Projected shortage – see plan below |
| Irrigation | 151 | 151 | Projected surplus |
| Livestock | 0 | 0 | Demand equals supply |

1 – From Tables C-3 and C-4, Appendix C – Comparison of Water Demands with Water Supplies to Determine Needs.

5.35.1 City of Brenham

Description of Supply

The City of Brenham obtains its water supply through a contract with the Brazos River Authority for 4,200 acft/yr of water supply from Lake Somerville. The supply is currently restrained by water treatment plant capacity to 3,909 acft/yr, creating shortages before 2030. The city is also considering reuse strategies.

Water Supply Plan

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

a. Conservation

- Cost Source: Volume II, Chapter 2
- Date to be Implemented: before 2020
- Unit Cost: \$496/acft
- Annual Cost: maximum of \$770,288 in 2070

Table 5.35-2. Recommended Plan Costs by Decade for City of Brenham

| Plan Element | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 |
|--|----------|-----------|-----------|-----------|-----------|-----------|
| <i>Projected Surplus/(Shortage) (acft/yr)</i> | 63 | (217) | (400) | (605) | (780) | (928) |
| Conservation | | | | | | |
| Supply From Plan Element (acft/yr) | 190 | 531 | 889 | 1,272 | 1,508 | 1,553 |
| Annual Cost (\$/yr) | \$94,240 | \$263,376 | \$440,944 | \$630,912 | \$747,968 | \$770,288 |
| <i>Projected Surplus/(Shortage) after Conservation</i> | 253 | 315 | 490 | 667 | 728 | 625 |

5.35.2 County-Other

Washington County-Other is projected to have a surplus through the year 2070 and 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.

5.35.3 Manufacturing

Description of Supply

Water supply for manufacturing in Washington County is obtained by from the Gulf Coast Aquifer. Washington County Manufacturing is projected to have 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 Washington County Manufacturing.

- a. Conservation
 - Cost Source: Volume II, Chapter 2
 - Date to be Implemented: before 2020
 - Annual Cost: Not determined
- b. Gulf Coast Aquifer Development
 - Cost Source: Volume II, Chapter 12
 - Date to be Implemented: 2020
 - Project Cost: \$3,380,000
 - Unit Cost: Max of \$1,209/acft (2020)



Table 5.35-3. Recommended Plan Costs by Decade for Washington County – Manufacturing

| Plan Element | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| <i>Projected Surplus/(Shortage) (acft/yr)</i> | (62) | (127) | (192) | (249) | (321) | (399) |
| Conservation | | | | | | |
| Supply From Plan Element (acft/yr) | 21 | 38 | 58 | 62 | 67 | 72 |
| Annual Cost (\$/yr) | ND | ND | ND | ND | ND | ND |
| <i>Projected Surplus/(Shortage) after Conservation</i> | (41) | (89) | (134) | (187) | (254) | (326) |
| Gulf Coast Aquifer Development | | | | | | |
| Supply From Plan Element (acft/yr) | 41 | 89 | 134 | 187 | 254 | 326 |
| Annual Cost (\$/yr) | \$393,990 | \$393,990 | \$131,990 | \$131,990 | \$131,990 | \$131,990 |
| Unit Cost (\$/acft) | \$1,209 | \$1,209 | \$405 | \$405 | \$405 | \$405 |

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

5.35.4 Steam-Electric

No Steam-Electric demand exists nor is projected for the county.

5.35.5 Mining

Description of Supply

Mining operations in Washington County are supplied by Brazos River Alluvium groundwater. Demands for Mining are projected to increase significantly 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 Washington County-Mining.

a. Conservation

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

b. Gulf Coast Aquifer Development

- Cost Source: Volume II, Chapter 12
- Date to be Implemented: before 2020
- Project Cost: \$6,245,000
- Unit Cost: Max of \$695/acft (2020)

Table 5.35-4. Recommended Plan Costs by Decade for Washington County – Mining

| Plan Element | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 |
|--|-----------|-----------|----------|----------|----------|----------|
| <i>Projected Surplus/(Shortage) (acft/yr)</i> | (569) | (866) | (703) | (538) | (373) | (264) |
| Conservation | | | | | | |
| Supply From Plan Element (acft/yr) | 17 | 43 | 49 | 38 | 26 | 18 |
| Annual Cost (\$/yr) | ND | ND | ND | ND | ND | ND |
| <i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i> | (552) | (823) | (654) | (500) | (347) | (246) |
| Gulf Coast Aquifer Development | | | | | | |
| Supply From Plan Element (acft/yr) | 552 | 823 | 654 | 500 | 347 | 246 |
| Annual Cost (\$/yr) | \$571,931 | \$571,931 | \$47,931 | \$47,931 | \$47,931 | \$47,931 |
| Unit Cost (\$/acft) | \$695 | \$695 | \$58 | \$58 | \$58 | \$58 |

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

5.35.6 Irrigation

Irrigation is projected to have a surplus of water from available groundwater and surface water supplies and no changes in water supply are recommended.

5.35.7 Livestock

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