5B.7 Coryell County Water Supply Plan

Table 5B.7-1 lists each water user group in Coryell 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.

Table 5B.7-1.
Coryell County Surplus/(Shortage)

Water User Group	Surplus/(Shortage)[1]		Comment
	2030 (acft/yr)	2050 (acft/yr)	
City of Copperas Cove	(426)	(3,296)	Projected shortage – see plan below
Fort Gates	0	0	No projected needs
Fort Hood	(2,365)	(2,365)	Projected shortage – see plan below
City of Gatesville	(6,102)	(8,121)	Projected shortage – see plan below
County-Other	(541)	(437)	Projected shortage – see plan below
Manufacturing	(15)	(17)	Projected shortage – see plan below
Steam-Electric	0	0	No projected needs
Mining	8	0	Projected surplus
Irrigation	903	951	Projected surplus
Livestock	555	555	Projected surplus

[1] From Tables 4-13 and 4-14, Section 4 – Comparison of Water Demands with Water Supplies to Determine Needs.

5B.7.1 City of Copperas Cove

5B.7.1.1 Description of Supply

- Source: Surface Water – Contract with Bell County WCID No.1 from Lake Belton
- Estimated Reliable Supply: 7,824 acft per year
- System Description: The City of Copperas Cove purchases treated water from Bell County WCID No.1 through a transmission pipeline.

5B.7.1.2 Options Considered

The City of Copperas Cove has a shortage of 426 acft per year in 2030, which is about 5 percent of demand. Table 5B.7-2 lists the water management strategies, references to the report

section discussing the strategy, total project cost, and unit costs that were considered for meeting the City of Copperas Cove's shortage.

Table 5B.7-2.
Water Management Strategies Considered for the City of Copperas Cove

Option	Yield (acft/yr)	Approximate Cost[1]	
		Total	Unit ($/acft)
Additional Water Conservation (Section 5A.2)	413	$237,000/year	$574[2]
Wastewater Reuse (Section 5A.3)	420	$1,696,000	$326[3]
Voluntary Redistribution	8,000	$5,200,000[4]	$650[4]
No Action	-	$40,555,000*	$95,201*

[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.
[2] Source of Cost Estimate: Section 5A.2.
[3] Source of Cost Estimate: Table 5A.3.
[4] Cost Dependent upon specific project location, size, participants. The unit cost is an estimated wholesale water rate.
* Economic impact of not meeting shortage (i.e., "no action" alternative) in 2030 as estimated by TWDB.

5B.7.1.3 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 Copperas Cove:

- Voluntary Redistribution from Bell County entity

5B.7.1.4 Costs

Costs of the Recommended Plan for the City of Copperas Cove.

a. Voluntary Redistribution:
   - Cost Source: Estimate of the wholesale water rate
   - Date to be Implemented: Year 2025
   - Annual Cost: $2,275,000 per year

     The annual cost of $2,275,000 per year was calculated by multiplying the City of Copperas Cove need of 3500 acft per year by an estimated wholesale water of $650 per acft.

Table 5B.7-3.
Recommended Plan Costs by Decade for the City of Copperas Cove

Plan Element	*2000*	*2010*	*2020*	*2030*	*2040*	*2050*
Voluntary Redistribution						
Projected Surplus/(Shortage) (acft/yr)	3,267	2,137	937	(426)	(1,741)	(3,296)
Supply From Plan Element (acft/yr)	-	-	-	3,500	3,500	3,500
Annual Cost ($/yr)	-	-	-	$2,275,000	$2,275,000	$2,275,000
Unit Cost ($/acft)	-	-	-	$650	$650	$650

5B.7.2 Fort Gates

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

5B.7.3 Fort Hood

The U.S. Department of the Army (Fort Hood) has a water right to store and divert 12,000 acft in Lake Belton. Technically, the Army could, in any single year, divert up to 12,000 acft, however, the yield available from their permitted storage volume is 3,336 acft/yr. This water supply has been divided evenly between Coryell County and Bell County and the Army contracts with the City of Gatesville and Bell County WCID No. 1 to divert, treat, and deliver this water to Fort Hood. Based on their firm water supply, shortages are shown for Fort Hood in each county. The shortages are based on projected demands with full staffing level and reserve units called to active duty, which will probably be an infrequent event and temporary duration. In which case, the Army should be able to arrange to purchase additional treated water through the City of Gatesville and Bell County WCID No. 1 using raw water supplies contracted to other entities.

5B.7.4 City of Gatesville

5B.7.4.1 Description of Supply

- Source: Surface Water – From Lake Belton
- Estimated Reliable Supply: 1,044 acft/yr
- System Description: The City of Gatesville owns and operates a regional treatment plant. Raw water is transferred from a raw water intake site at Lake Belton through

- approximately 8 miles of transmission line to the regional treatment plant from which the water enters the distribution system.

5B.1.4.2 Options Considered

The City of Gatesville has a shortage of 6,102 acft/yr in 2030, which is about 83 percent of demand. Of the 6,102 acft/yr shortage, 4,000 acft/yr is a contract with BRA that expires in 2021. Table 5B.7-4 lists the water management strategies, references to the report section discussing the strategy, total project cost, and unit costs that were considered for meeting the City of Gatesville's shortage.

Table 5B.7-4.
Water Management Strategies Considered for the City of Gatesville

Option	Yield (acft/yr)	Approximate Cost[1]	
		Total	Unit ($/acft)
Additional Water Conservation (Section 5A.2)	370	$212,000/year	$574[2]
Wastewater Reuse (Section 5A.3)	246	$993,000	$326[3]
Voluntary Redistribution	8,000	$5,200,000	$650[4]
Renew Contract with BRA	4,000	$92,000	$23[5]
No Action	-	$266,367,000*	$43,652*

[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.
[2] Source of Cost Estimate: Section 5A.2.
[3] Source of Cost Estimate: Table 5A.3.
[4] Cost Dependent upon specific project location, size, participants. The unit cost is an estimated wholesale water rate.
[5] Source of Cost Estimate: BRA System rate.
* Economic impact of not meeting shortage (i.e., "no action" alternative) in 2030 as estimated by TWDB.

5B.7.4.3 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 City of Gatesville:

- Renew Contract with BRA
- Voluntary Redistribution From Bell County Entity (Treated Water Cost)

With this supply plan the City of Gatesville has an unmet need of 1,921 acft/yr in 2050. Further planning is needed to determine whether this long-term need will be met from voluntary redistribution or possible new supplies to be developed in Coryell County.

5B.7.4.4 Costs

Costs of the recommended plan for the City of Gatesville to meet 2030 shortages are:

a. Renew Contract with BRA:
   - Cost Source: BRA System Rate
   - Date to be Implemented: By Year 2015
   - Annual Cost: $92,000 per year

     The annual cost of $92,000 per year was calculated by multiplying the City of Gatesville need of 4,000 acft per year by the BRA system rate, $23 per acft

b. Voluntary Redistribution From Bell County Entity (Treated Water Cost):
   - Cost Source: Estimate of wholesale water rate
   - Date to be Implemented: By Year 2030
   - Annual Cost: $1,430,000 per year

     The annual cost of $1,430,000 per year was calculated by multiplying the City of Gatesville need of 2,200 acft per year by estimated wholesale water rate, $650 per acft

Table 5B.7-5.
Recommended Plan Costs by Decade for the City of Gatesville

Plan Element	*2000*	*2010*	*2020*	*2030*	*2040*	*2050*
Renew Contract with BRA						
Projected Surplus/(Shortage) (acft/yr)	1,970	813	(606)	(6,102)	(6,937)	(8,121)
Supply From Plan Element (acft/yr)	-	-	4,000	4,000	4,000	4,000
Annual Cost ($/yr)	-	-	$92,000	$92,000	$92,000	$92,000
Unit Cost ($/acft)	-	-	$23	$23	$23	$23
Voluntary Redistribution						
Supply From Plan Element (acft/yr)	-	-	-	2,200	2,200	2,200
Annual Cost ($/yr)	-	-	-	$1,430,000	$1,430,000	$1,430,000
Unit Cost ($/acft)	-	-	-	$650	$650	$650

5B.7.5 County-Other

5B.7.5.1 Options Considered

County-Other has a shortage of 541 acft per year in 2030, which is about 27 percent of demand. Table 5B.7-6 lists the water management strategies, references to the report section discussing the strategy, total project cost, and unit costs that were considered for meeting the County-Other shortage.

Table 5B.7-6.
Water Management Strategies Considered for Coryell County-Other

Option	*Yield (acft/yr)*	*Approximate Cost*[1]	
		Total	*Unit ($/acft)*
Additional Water Conservation (Section 5A.2)	100	$57,371/year	$574[2]
Voluntary Redistribution[1]	8,000	$6,500,000	$812[3]
No Action	-	$9,782,000*	$18,080*

[1] Water could be purchased from McLennan or Bell County entity, or BRA if new supplies are developed. Treatment and distribution could occur through Kempner WSC or other existing entity.
[2] Source of Cost Estimate: Section 5A.2.
[3] Cost Dependent upon specific project location, size, participants. The unit cost is an estimated wholesale treated water rate.
* Economic impact of not meeting shortage (i.e., "no action" alternative) in 2030 as estimated by TWDB.

5B.7.5.2 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 County-Other:

- Voluntary redistribution - water could be purchased from McLennan or Bell County entity, or BRA if new supplies are developed. Treatment and distribution could occur through Kempner WSC or other existing entity.

5B.7.5.3 Costs

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

- Voluntary redistribution at an estimated wholesale treated water rate of $812 per acft.

Table 5B.7-7.
Recommended Plan Costs by Decade for Coryell County-Other

Plan Element	*2000*	*2010*	*2020*	*2030*	*2040*	*2050*
Voluntary Redistribution						
Projected Shortage (acft/yr)	(501)	(521)	(551)	(541)	(491)	(437)
Supply From Plan Element (acft/yr)	560	560	560	560	560	560
Annual Cost ($/yr)	$455,000	$455,000	$455,000	$455,000	$455,000	$455,000
Unit Cost ($/acft)	$812	$812	$812	$812	$812	$812

5B.7.6 Manufacturing

The Manufacturing category shows no water supply and small projected demands. The recommended plan to meet manufacturing needs is to reallocate municipal supply to manufacturing use. There would be no cost associated with this plan.

5B.7.7 Steam-Electric

Coryell County has no current or projected future demand for Steam-Electric; therefore, no recommendations have been made.

5B.7.8 Mining

No shortages are projected for Coryell County Mining and no changes in water supply are recommended.

5B.7.9 Irrigation

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

5B.7.10 Livestock

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