

5.24 McLennan County Water Supply Plan

Table 5.24-1 lists each water user group in McLennan 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 5.24-1. McLennan County Surplus/(Shortage)

Water User Group	Surplus/(Shortage) ¹		Comment
	2040 (acft/yr)	2070 (acft/yr)	
Axtell WSC	108	79	Projected surplus – see plan below
City of Bellmead	2,056	1,896	Projected surplus
Birome WSC			See Hill County
Bold Springs WSC	876	828	Projected surplus
City of Bruceville-Eddy	379	170	Projected surplus
Central Bosque WSC	359	359	Projected surplus
Chalk Bluff WSC	466	472	Projected surplus
Coryell City Water Supply District			See Coryell County
City of Crawford	21	17	Projected surplus
Cross Country WSC	228	212	Projected surplus
East Crawford WSC	(154)	(219)	Projected shortage - see plan below.
Elm Creek WSC			See Bell County
EOL WSC	138	97	Projected surplus – see plan below
Gholson WSC	399	316	Projected surplus
H&H WSC	94	46	Projected surplus
City of Hewitt	(1,172)	(2,262)	Projected shortage - see plan below.
Highland Park WSC			See Bosque County
Hilltop WSC	324	307	Projected surplus
City of Lacy-Lakeview	292	131	Projected surplus
Leroy Tours Gerald WSC	431	407	Projected surplus
Levi WSC	383	364	Projected surplus
City of Lorena	503	406	Projected surplus
City of Mart	(180)	(244)	Projected shortage - see plan below.
City of McGregor	1,505	1,360	Projected surplus
McLennan County WCID 2	406	356	Projected surplus
City of Moody	379	337	Projected surplus
North Bosque WSC	(190)	(522)	Projected shortage - see plan below.
Prairie Hill WSC			See Limestone County

Table 5.24-1. McLennan County Surplus/(Shortage)

Water User Group	Surplus/(Shortage) ¹		Comment
	2040 (acft/yr)	2070 (acft/yr)	
City of Riesel	144	134	Projected surplus
City of Robinson	(1,048)	(2,255)	Projected shortage - see plan below.
Ross WSC	366	307	Projected surplus
Spring Valley WSC	175	121	Projected surplus
Texas State Technical College	0	0	Demand equals supply
City of Valley Mills			See Bosque County
City of Waco	5,023	(2,908)	Projected shortage - see plan below.
City of West	922	887	Projected surplus
West Brazos WSC			See Falls County
Windsor Water	131	111	Projected surplus
City of Woodway	82	139	Projected surplus
County-Other	172	667	Projected surplus
Manufacturing	(2,463)	(1,309)	Projected shortage - see plan below.
Steam-Electric	16,453	16,405	Projected surplus
Mining	(2,322)	(3,478)	Projected shortage - see plan below.
Irrigation	955	1,195	Projected surplus
Livestock	0	0	Demand equals supply

1 – From Tables C-47 and C-48, Appendix C – Comparison of Water Demands with Water Supplies to Determine Needs.

5.24.1 Axtell WSC

Description of Supply

Axtell WSC obtains its water supply from the Trinity Aquifer at 287 ac-ft/yr. No shortages are projected for Axtell WSC. Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd. To reduce arsenic concentrations, Axtell plans to purchase treated water to blend with water purchased from the City of Waco.

Table 5.24-2. Recommended Plan Costs by Decade for Axtell WSC

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	121	115	108	100	89	79
Conservation						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–



Table 5.24-2. Recommended Plan Costs by Decade for Axtell WSC

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	121	115	108	100	89	79
Purchase water from the City of Waco for Arsenic Blending						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	121	115	108	100	89	79

5.24.2 City of Bellmead

Description of Supply

The City of Bellmead obtains its water supply from the Trinity Aquifer at 2,000 ac-ft/yr. The City of Bellmead also has contracted with the City of Waco at 1,344 ac-ft/yr for supplemental surface water supply from Lake Waco, but has no plans to utilize the contract. No shortages are projected for the City of Bellmead; however, the City of Waco and the City of Bellmead are considering alternate water supply in order to reduce Bellmead’s dependence on Trinity Aquifer groundwater. The purchase of supplemental reuse water from WMARSS is recommended to reduce demands on the Trinity Aquifer. Conservation was also 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 for the City of Bellmead.

- a. Purchase reuse water from WMARSS (Bellmead/Lacy-Lakeview Reuse). The reuse supply will reduce demands for landscape irrigation at existing or future parks, schools, ball fields, and other green spaces. Reuse water may also potentially supply existing or future industrial customers.
 - Cost Source: Volume II
 - Date to be Implemented: by 2020
 - Project Cost: None. City of Waco is the project sponsor. Entity will purchase from the City.
 - Unit Cost: \$424/ac-ft

Table 5.24-3. Recommended Plan Costs by Decade for City of Bellmead

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	2,111	2,083	2,056	2,013	1,956	1,896
Conservation						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	2,111	2,083	2,056	2,013	1,956	1,896
WMARSS Bellmead/Lacy Lakeview Reuse						
Supply From Plan Element (acft/yr)	2,240	2,240	2,240	2,240	2,240	2,240
Annual Cost (\$/yr)	\$949,760	\$949,760	\$275,520	\$275,520	\$275,520	\$275,520
Unit Cost (\$/acft)	\$424	\$424	\$123	\$123	\$123	\$123
<i>Projected Surplus/(Shortage) after Reuse (acft/yr)</i>	4,351	4,323	4,296	4,253	4,196	4,136

5.24.3 Bold Springs WSC

Bold Springs WSC obtains its water supply from the Trinity Aquifer at 613 ac-ft/yr and surface water from the City of Waco at 560 ac-ft/yr. No shortages are projected for Bold Springs WSC and no change in water supply is recommended. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.24.4 City of Bruceville-Eddy

Description of Supply

The City of Bruceville-Eddy obtains its water supply from the Trinity Aquifer at 618 ac-ft/yr and has a contract for surface water from from Bluebonnet WSC at 908 to 878 ac-ft/yr from 2020 to 2070 for supplemental water supplies. No shortages are projected for the City of Bruceville-Eddy. This WUG is located in multiple counties (McLennan and Falls). The surpluses shown in the table below represent the cumulative totals for the City of Bruceville-Eddy. Conservation is recommended to reduce Bruceville-Eddy gallons per capita per day (gpcd) usage to a goal of 140 gpcd.

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

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: before 2030
- Unit Cost: \$560/acft
- Annual Cost: maximum of \$76,802 in 2070
-



Table 5.24-4. Recommended Plan Costs by Decade for City of Bruceville-Eddy

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	496	436	379	315	243	170
Conservation						
Supply From Plan Element (acft/yr)	0	79	129	126	130	137
Annual Cost (\$/yr)	\$0	\$44,281	\$72,327	\$70,382	\$73,005	\$76,802
<i>Projected Surplus/(Shortage) after Conservation</i>	496	436	379	315	243	170

5.24.5 Central Bosque WSC

Central Bosque WSC obtains its water supply from 128 to 164 ac-ft/yr from a contract with McGregor and 359 ac-ft/yr from a contract with Waco. No shortages are projected for Central Bosque WSC and no change in water supply is recommended. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.24.6 Chalk Bluff WSC

Chalk Bluff WSC obtains its water supply from the Trinity Aquifer at 715 ac-ft/yr. No shortages are projected for the Chalk Bluff WSC. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.24.7 City of Crawford

Description of Supply

The City of Crawford obtains its water supply from the Trinity Aquifer at 167 ac-ft/yr. No shortages are projected for City of Crawford and no change in water supply is recommended. Conservation is recommended to reduce Crawford’s per-capita usage 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 for the City of Crawford.

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: before 2030
- Annual Cost: maximum of \$15,589 in 2070
- Unit Cost: \$560/acft

Table 5.24-5. Recommended Plan Costs by Decade for City of Crawford

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	19	20	21	20	19	17
Conservation						
Supply From Plan Element (acft/yr)	0	11	21	28	27	28
Annual Cost (\$/yr)	\$0	\$6,128	\$11,921	\$15,665	\$15,347	\$15,589
<i>Projected Surplus/(Shortage) after Conservation</i>	19	20	21	20	19	17

5.24.8 Cross Country WSC

Description of Supply

Cross Country WSC obtains its water supply from groundwater from the Trinity Aquifer at 780 ac-ft/yr. Cross Country WSC is projected to have a surplus through the year 2070. This WUG is located in McLennan and Bosque Counties. The surplus/shortages shown in the table below represent the cumulative totals for Cross Country WSC. Conservation is recommended to reduce Cross Country WSC gallons per capita per day (gpcd) to a goal of 140 gpcd. 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 the Cross Country WSC.

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: before 2030
- Annual Cost: maximum of \$4,390 in 2070
- Unit Cost: \$560/acft
-



Table 5.24-6. Recommended Plan Costs by Decade for Cross Country WSC

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	234	229	228	224	218	212
Conservation						
Supply From Plan Element (acft/yr)	20	24	14	10	8	8
Annual Cost (\$/yr)	\$0	\$13,048	\$7,812	\$5,222	\$4,454	\$4,390
<i>Projected Surplus/(Shortage) after Conservation</i>	234	229	228	224	218	212

5.24.9 East Crawford WSC

East Crawford WSC obtains its water supply from groundwater from the Trinity Aquifer at 215 ac-ft/yr. A shortage is projected through the year 2070. Conservation is recommended to reduce East Crawford WSC gallons per capita per day (gpcd) to a goal of 140 gpcd.

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 the East Crawford WSC.

- a. Conservation
 - Cost Source: Volume II
 - Date to be Implemented: before 2030
 - Annual Cost: maximum of \$92,035 in 2070
 - Unit Cost: \$560/acft
- b. Purchase water from City of Waco
 - Cost Source: Volume II
 - Date to be Implemented: 2020
 - Unit Cost: assumed unit cost of \$3,273/acft (\$10.15/1,000 gallons) for wholesale treated water, including transmission costs

Table 5.24-7. Recommended Plan Costs by Decade for East Crawford WSC

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(113)	(135)	(154)	(175)	(197)	(219)
Conservation						
Supply From Plan Element (acft/yr)	0	30	61	94	129	164
Annual Cost (\$/yr)	\$0	\$16,656	\$34,035	\$52,745	\$72,264	\$92,035
<i>Projected Surplus/(Shortage) after Conservation</i>	(113)	(105)	(93)	(81)	(68)	(55)

Table 5.24-7. Recommended Plan Costs by Decade for East Crawford WSC

Plan Element	2020	2030	2040	2050	2060	2070
Purchase from Waco						
Supply From Plan Element (acft/yr)	113	105	93	81	68	55
Annual Cost (\$/yr)	\$369,849	\$343,665	\$304,389	\$265,113	\$222,564	\$100,815
Unit Cost (\$/yr)	\$3,273	\$3,273	\$3,273	\$3,273	\$3,273	\$1,833

5.24.10 EOL WSC

The EOL WSC obtains its water supply from groundwater from the Trinity Aquifer at 387 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd. To reduce arsenic concentrations, Axtell plans to purchase treated water to blend with water purchased from the City of Waco.

Table 5.24-8. Recommended Plan Costs by Decade for EOL WSC

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	156	147	138	126	111	97
Conservation						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation</i>	156	147	138	126	111	97
Purchase water from the City of Waco for Arsenic Blending						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation</i>	156	147	138	126	111	97

5.24.11 Gholson WSC

The Gholson WSC obtains its water supply from groundwater from the Trinity Aquifer at 766 ac-ft/yr. Gholson WSC is split between Hill and McLennan counties, with primary demands in the McLennan County. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd.

5.24.12 H & H WSC

The H & H WSC obtains its water supply from groundwater from the Trinity Aquifer at 387 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity's current per capita use rate is below the selected target rate of 140 gpcd.

5.24.13 City of Hewitt

Description of Supply

The City of Hewitt obtains its water supply from groundwater from the Trinity Aquifer at 1,429 ac-ft/yr, and has a contract with the City of Waco at 1,120 ac-ft/yr for a supplemental supply from Lake Waco. Conservation and purchase of supplemental reuse water from WMARSS is recommended to reduce demands on water supplied from the Trinity Aquifer and by the City of Waco. Conservation is recommended to reduce Cross Country WSC gallons per capita per day (gpcd) to a goal of 140 gpcd..

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 the City of Hewitt. Associated costs are included for each strategy.

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: before 2030
- Annual Cost: maximum of \$144,415 in 2070
- Unit Cost: \$560/acft

b. Purchase reuse water from WMARSS (Bulhide Creek Reuse). The reuse supply will reduce demands for landscape irrigation at existing or future parks, schools, ball fields, and other green spaces. Reuse water may also potentially supply existing or future industrial customers.

- Cost Source: Volume II
- Date to be Implemented: 2020
- Project Cost: None. City of Waco is the project sponsor. Entity will purchase from the City.
- Unit Cost: \$543/acft

c. Purchase additional water from City of Waco

- Cost Source: Volume II
- Date to be Implemented: 2020
- Unit Cost: assumed unit cost of \$2,164/ac-ft (\$6.64/1,000 gallons) for wholesale treated water

Table 5.24-9. Recommended Plan Costs by Decade for City of Hewitt

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(480)	(844)	(1,172)	(1,522)	(1,893)	(2,262)
Conservation						
Supply From Plan Element (acft/yr)	0	247	236	227	240	258
Annual Cost (\$/yr)	\$0	\$138,568	\$131,977	\$126,958	\$134,402	\$144,415
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(480)	(597)	(936)	(1,295)	(1,653)	(2,004)
WMARSS – Bullhide Creek Reuse						
Supply From Plan Element (acft/yr)	1,233	1,233	1,233	1,233	1,233	1,233
Annual Cost (\$/yr)	\$669,519	\$669,519	\$218,241	\$218,241	\$218,241	\$218,241
Unit Cost (\$/yr)	\$543	\$543	\$177	\$177	\$177	\$177
Purchase Water from City of Waco						
Supply From Plan Element (acft/yr)	–	–	–	62	420	771
Annual Cost (\$/yr)	–	–	–	\$134,168	\$908,880	\$1,668,444
Unit Cost (\$/yr)	–	–	–	\$2,164	\$2,164	\$2,164
<i>Projected Surplus/(Shortage) after Reuse (acft/yr)</i>	753	636	297	0	0	0

5.24.14 Hilltop WSC

The Hilltop WSC obtains its water supply from groundwater from the Trinity Aquifer at 329 ac-ft/yr and a contract with Waco at 101 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.24.15 City of Lacy-Lakeview

Description of Supply

The City of Lacy-Lakeview obtains its water supply from the City of Waco at 1,120 ac-ft/yr. Based on the current contracted amount, the City of Lacy-Lakeview is projected to have a surplus of supplies. Supplemental reuse water from WMARSS is recommended to reduce demands on water supplied by the City of Waco. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd. Water Supply Plan



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

The Hilltop WSC obtains its water supply from groundwater from the Trinity Aquifer at 329 ac-ft/yr and a contract with Waco at 101 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

City of Lacy-Lakeview.

- a. Purchase reuse water from WMARSS (Bellmead/Lacy-Lakeview Reuse). The reuse supply will reduce demands for landscape irrigation at existing or future parks, schools, ball fields, and other green spaces. Reuse water may also potentially supply existing or future industrial customers.
 - Cost Source: Volume II
 - Date to be Implemented: before 2030
 - Project Cost: None. City of Waco is the project sponsor. Entity will purchase from the City.
 - Unit Cost: \$424/ac-ft

Table 5.24-10. Recommended Plan Costs by Decade for the Hilltop WSC

The Hilltop WSC obtains its water supply from groundwater from the Trinity Aquifer at 329 ac-ft/yr and a contract with Waco at 101 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

City of Lacy-Lakeview

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	375	332	292	243	188	131
Conservation						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	375	332	292	243	188	131
WMARSS – Bellmead/Lacy-Lakeview Reuse						
Supply From Plan Element (acft/yr)	2,240	2,240	2,240	2,240	2,240	2,240
Annual Cost (\$/yr)	\$949,760	\$949,760	\$275,520	\$275,520	\$275,520	\$275,520
Unit Cost (\$/yr)	\$424	\$424	\$123	\$123	\$123	\$123

Table 5.24-10. Recommended Plan Costs by Decade for the Hilltop WSC

The Hilltop WSC obtains its water supply from groundwater from the Trinity Aquifer at 329 ac-ft/yr and a contract with Waco at 101 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

City of Lacy-Lakeview

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) after Reuse (acft/yr)</i>	2,615	2,572	2,532	2,483	2,428	2,371

5.24.17 Leroy Tours Gerald WSC

The Leroy Tours Gerald WSC obtains its water supply from groundwater from the Trinity Aquifer at 383 ac-ft/yr and a contract with Waco at 196 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.24.18 Levi WSC

The Levi WSC obtains its water supply from groundwater from the Trinity Aquifer at 498 ac-ft/yr. A surplus is projected through the year 2070; and, there are no changes recommended to the water supply. Conservation was considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.24.19 City of Lorena

Description of Supply

The City of Lorena obtains its water supply from a contract with the Brazos River Authority (treated by the City of Robinson) at 1,000 ac-ft/yr, City of Robinson at 560 ac-ft/yr, and the Trinity Aquifer at 322 ac-ft/yr. No shortages are projected for the City of Lorena; however, purchase of supplemental reuse water from WMARSS is recommended to reduce demands on groundwater from the Trinity Aquifer.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended for the City of Lorena.

- a. Conservation
 - Cost Source: Volume II
 - Date to be Implemented: before 2030
 - Annual Cost: maximum of \$1,777 in 2030



- Unit Cost: \$560/acft
- b. Purchase reuse water from WMARSS (Bullhide Creek Reuse). The reuse supply will reduce demands for landscape irrigation at existing or future parks, schools, ball fields, and other green spaces. Reuse water may also potentially supply existing or future industrial customers
- Cost Source: Volume II
 - Date to be Implemented: 2020
 - Project Cost: None. City of Waco is the project sponsor. Entity will purchase from the City.
 - Unit Cost: \$543/acft

Table 5.24-11. Recommended Plan Costs by Decade for the City of Lorena

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	563	531	503	472	439	406
Conservation						
Supply From Plan Element (acft/yr)	0	3	–	–	–	–
Annual Cost (\$/yr)	\$0	\$1,777	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	563	528	503	472	439	406
WMARSS – Bullhide Creek Reuse						
Supply From Plan Element (acft/yr)	448	448	448	448	448	448
Annual Cost (\$/yr)	\$243,264	\$243,264	\$79,296	\$79,296	\$79,296	\$79,296
Unit Cost (\$/yr)	\$543	\$543	\$177	\$177	\$177	\$177
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	1,011	976	951	920	887	854

5.24.20 City of Mart

Description of Supply

The City of Mart obtains its water supply from the Trinity Aquifer at 203 ac-ft/yr Based on the available groundwater supply and no firm yield from Lake Mart, the City of Mart is projected to have a shortage through the year 2070. The City is located in multiple counties (McLennan and Limestone). The shortages shown in the table below represent the cumulative totals for the City of Mart. 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 strategies are recommended for the City of Mart.

- a. Purchase water from City of Waco

- Cost Source: Volume II
 - Date to be Implemented: 2020
 - Unit Cost: assumed unit cost of \$2,164/ac-ft (\$6.64/1,000 gallons) for wholesale treated water
- b. Trinity ASR McLennan County
- Cost Source: Volume II
 - Date to be Implemented: 2020
 - Project Cost: \$2,884,000 (City's portion)
 - Unit Cost: \$645/ac-ft

Table 5.24-12. Recommended Plan Costs by Decade for the City of Mart

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(149)	(165)	(180)	(200)	(221)	(244)
Conservation						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(149)	(165)	(180)	(200)	(221)	(244)
Purchase Water Supply from City of Waco						
Supply From Plan Element (acft/yr)	149	165	180	200	221	244
Annual Cost (\$/yr)	\$541,000	\$541,000	\$541,000	\$541,000	\$541,000	\$541,000
Unit Cost (\$/yr)	\$2,164	\$2,164	\$2,164	\$2,164	\$2,164	\$2,164
Alternative: Trinity ASR McLennan County						
Supply From Plan Element (acft/yr)	250	250	250	250	250	250
Annual Cost (\$/yr)	\$829,250	\$829,250	\$329,000	\$329,000	\$329,000	\$329,000
Unit Cost (\$/yr)	\$3,317	\$3,317	\$1,316	\$1,316	\$1,316	\$1,316

5.24.21 City of McGregor

The City of McGregor obtains its water supply from a contract with Bluebonnet WSC at 1,851 to 1,792 ac-ft/yr and BRA from 518 to 473 ac-ft/yr from 2020 to 2070, respectively. The city also sells water to Central Bosque WSC and Manufacturing entities in McLennan County. No shortages are projected for the City of McGregor 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.

5.24.22 McLennan County WCID 2

McLennan County WCID 2 obtains its water supply from the Trinity Aquifer at 705 ac-ft/yr. No shortages are projected for the City of McGregor 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.

5.24.23 City of Moody

The City of Moody obtains its water supply from the Trinity Aquifer at 211 ac-ft/yr and Bluebonnet WSC at 388 to 375 ac-ft/yr in 2020 to 2070, respectively. No shortages are projected for the City of Moody, 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.

5.24.24 North Bosque WSC

Description of Supply

North Bosque WSC obtains its water supply from the Trinity Aquifer at 605 ac-ft/yr. Based on the available groundwater supply, North Bosque WSC is projected to have a shortage through the year 2070. Conservation is recommended to reduce North Bosque gallons per capita per day (gpcd) to a goal of 140 gpcd.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended for North Bosque WSC. Associated costs are included for each strategy.

- a. Conservation
 - Cost Source: Volume II
 - Date to be Implemented: before 2030
 - Annual Cost: maximum of \$231,191 in 2070
 - Unit Cost: \$560/ac-ft
- b. Trinity ASR McLennan County
 - Cost Source: Volume II
 - Date to be Implemented: 2020
 - Project Cost: \$2,884,000 (City's portion)
 - Unit Cost: \$645/ac-ft

Table 5.24-13. Recommended Plan Costs by Decade for North Bosque WSC

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	39	(82)	(190)	(300)	(412)	(522)
Conservation						
Supply From Plan Element (acft/yr)	0	57	131	219	319	413
Annual Cost (\$/yr)	\$0	\$31,966	\$73,373	\$122,562	\$178,740	\$231,191
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	39	(25)	(59)	(81)	(93)	(109)
Trinity ASR McLennan County						
Supply From Plan Element (acft/yr)	–	200	200	200	200	200
Annual Cost (\$/yr)	–	\$395,000	\$224,000	\$224,000	\$224,000	\$224,000
Unit Cost (\$/yr)	–	\$1,975	\$1,120	\$1,120	\$1,120	\$1,120

5.24.25 City of Riesel

Description of Supply

The City of Riesel obtains its water supply from the Trinity Aquifer at 181 ac-ft/yr and County, Other McLennan at 125 ac-ft/yr. Based on the available groundwater supply, the City of Riesel is projected to have a shortage through the year 2070. No shortages are projected for the City of Riesel, and no changes in water supply are recommended. Conservation was also considered; however, the entity’s current per capita use rate is below the selected target rate of 140 gpcd.

5.24.26 City of Robinson

Description of Supply

The City of Robinson obtains its water supply from the Trinity Aquifer at 1,101 ac-ft/yr and surface water from the Brazos River at 1,126 ac-ft/yr. . The city also has a 560 acft/yr contract to provide treated supply to the City of Lorena, which utilizes Lorena’s contract with the BRA. Based on the constrained supply amounts, the City of Robinson is projected to have shortages. Although the City has sufficient raw water supply to meet its future needs, the City’s water treatment plant has an annual average capacity of 1,125 acft. Conservation is recommended to reduce City of Robinson gallons per capita per day (gpcd) to a goal of 140 gpcd.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended for the City of Robinson. Associated costs are included for each strategy.



- a. Conservation
 - Cost Source: Volume II
 - Date to be Implemented: 2030
 - Annual Cost: maximum \$376,263 in 2070
 - Unit Cost: \$560/ac-ft
- b. Expand Water Treatment Plant (4 MGD)
 - Cost Source: Volume II
 - Date to be Implemented: before 2020
 - Project Cost: \$16,813,000
 - Unit Cost: Max of \$481/ac-ft

Table 5.24-14. Recommended Plan Costs by Decade for City of Robinson

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(245)	(669)	(1,048)	(1,444)	(1,851)	(2,255)
Conservation						
Supply From Plan Element (acft/yr)	0	220	504	557	612	672
Annual Cost (\$/yr)	\$0	\$123,429	\$282,196	\$311,757	\$342,962	\$376,263
<i>Projected Surplus/(Shortage) after Conservation</i>	(245)	(449)	(544)	(887)	(1,239)	(1,583)
Expand WTP (4 MGD)						
Supply From Plan Element (acft/yr)	4,481	4,481	4,481	4,481	4,481	4,481
Annual Cost (\$/yr)	\$2,155,361	\$2,155,361	\$972,377	\$972,377	\$972,377	\$972,377
Unit Cost (\$/yr)	\$481	\$481	\$217	\$217	\$217	\$217

5.24.27 Ross WSC

The Ross WSC obtains its water supply from the Trinity Aquifer at 445 ac-ft/yr and surface water from the City of Waco at 280 ac-ft/yr. No shortages are projected for the Ross WSC, 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.

5.24.28 Spring Valley WSC

The Spring Valley WSC obtains its water supply from the Trinity Aquifer at 176 acft/yr and from Bluebonnet WSC at 291 to 282 acft/yr in 2020 to 2070, respectively. No shortages are projected for the Spring Valley WSC, 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.

5.24.29 Texas State Technical College

Texas State Technical College obtains its water supply from the City of Waco at 888 to 1,193 ac-ft/yr in 2020 to 2070, respectively. No shortages are projected for the Texas State Technical College, and no changes in water supply are recommended. Conservation is recommended to reduce Texas State Technical College gallons per capita per day (gpcd) in 2030 to a goal of 140 gpcd after the plumbing fixtures act.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended for the City of Robinson. Associated costs are included for each strategy.

- a. Conservation
 - Cost Source: Volume II
 - Date to be Implemented: 2030
 - Annual Cost: maximum \$261,221 in 2070
 - Unit Cost: \$560/ac-ft

Table 5.24-15. Recommended Plan Costs by Decade for Texas State Technical College

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	0	0	0	0	0	0
Conservation						
Supply From Plan Element (acft/yr)	0	88	180	274	370	466
Annual Cost (\$/yr)	\$0	\$49,556	\$100,841	\$153,629	\$207,027	\$261,221
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	0	0	0	0	0	0

5.24.30 City of Waco

The City of Waco obtains its water supply from surface water from Lake Waco, for which it owns water rights. The City supplies several neighboring communities with treated water. A portion of the city's treated wastewater is also contracted to irrigation and industrial customers in the County. The City is projected to have a shortage of supplies starting in 2060. Conservation is recommended to reduce City of Waco gallons per capita per day (gpcd) to a goal of 140 gpcd.

Water Supply Plan

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water management strategies are recommended for the City of Waco. Associated costs are included for each strategy.



- a. Conservation
 - Cost Source: Volume II
 - Date to be Implemented: 2030
 - Annual Cost: maximum \$6,964,137 in 2070
 - Unit Cost: \$560/ac-ft
- b. Trinity ASR McLennan County
 - Cost Source: Volume II
 - Date to be Implemented: 2020
 - Project Cost: \$2,884,000 (City's portion)
 - Unit Cost: \$645/ac-ft
- c. Waco WMARSS Reuse Projects McLennan I-84
 - Cost Source: Volume II
 - Date to be Implemented: 2020
 - Project Cost: \$28,249,000
 - Unit Cost: \$3,711/ac-ft
- d. Waco WMARSS Reuse Projects North-China Spring
 - Cost Source: Volume II
 - Date to be Implemented: 2020
 - Project Cost: \$25,888,000
 - Unit Cost: \$2,635/ac-ft

Table 5.24-16. Recommended Plan Costs by Decade for City of Waco

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	9,510	7,271	5,023	2,517	(123)	(2,908)
Conservation						
Supply From Plan Element (acft/yr)	0	2,583	5,360	8,389	11,642	12,436
Annual Cost (\$/yr)	\$0	\$1,446,640	\$3,001,593	\$4,697,693	\$6,519,450	\$6,964,137
<i>Projected Surplus/(Shortage) after Conservation</i>	9,510	7,271	5,023	2,517	11,519	9,528
Additional Demands from Recommended Strategies from Others						
Increase Contract Amount to East Crawford WSC (ac-ft/yr)	113	105	93	81	68	55
Increase Contract Amount to City of Hewitt (ac-ft/yr)	–	–	–	62	420	771

Table 5.24-16. Recommended Plan Costs by Decade for City of Waco

Plan Element	2020	2030	2040	2050	2060	2070
Increase Contract Amount to City of Mart (ac-ft/yr)	149	165	180	200	221	244
<i>Total Needs Including Recommended Strategies</i>	<i>9,248</i>	<i>7,001</i>	<i>4,750</i>	<i>2,236</i>	<i>11,230</i>	<i>9,229</i>
Trinity ASR McLennan County						
Supply From Plan Element (acft/yr)	7,750	7,550	7,550	7,550	7,550	7,550
Annual Cost (\$/yr)	\$4,998,750	\$4,869,750	\$490,750	\$490,750	\$490,750	\$490,750
Unit Cost (\$/yr)	\$645	\$645.00	\$65.00	\$65.00	\$65.00	\$65.00
Waco WMARSS Reuse Projects McLennan I-84						
Supply From Plan Element (acft/yr)	1,400	1,400	1,400	1,680	1,680	1,680
Annual Cost (\$/yr)	\$5,195,400	\$5,195,400	\$3,537,800	\$4,245,360	\$4,245,360	\$4,245,360
Unit Cost (\$/yr)	\$3,711	\$3,711	\$2,527	\$2,527	\$2,527	\$2,527
Waco WMARSS Reuse Projects North-China Spring						
Supply From Plan Element (acft/yr)	1,120	1,120	1,120	1,120	1,120	1,120
Annual Cost (\$/yr)	\$4,998,750	\$4,869,750	\$490,750	\$490,750	\$490,750	\$490,750
Unit Cost (\$/yr)	\$2,635	\$2,635	\$701	\$701	\$701	\$701
<i>Projected Surplus/(Shortage) after WMS</i>	<i>19,518</i>	<i>17,071</i>	<i>14,820</i>	<i>12,586</i>	<i>21,580</i>	<i>19,579</i>

5.24.31 City of West

Description of Supply

The City of West obtains its water supply from the Trinity Aquifer at 268 ac-ft/yr and the 1,120 ac-ft/yr from the City of Waco. Surpluses are projected through 2070. Conservation is recommended to reduce City of West gallons per capita per day (gpcd) to a goal 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 for the City of West.

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: 2030
- Annual Cost: maximum \$10,870 in 2030



- Unit Cost: \$474/acft

Table 5.24-17. Recommended Plan Costs by Decade for City of West

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	931	927	922	914	901	887
Conservation						
Supply From Plan Element (acft/yr)	0	21	12	6	5	5
Annual Cost (\$/yr)	\$7,110	\$10,902	\$6,162	\$3,318	\$2,844	\$2,844
<i>Projected Surplus/(Shortage) after Conservation</i>	931	927	922	914	901	887

5.24.32 Windsor Water

Windsor Water obtains its water supply from the Trinity Aquifer at 245 ac-ft/yr. No shortages are projected for the Windsor Water, 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.

5.24.33 City of Woodway

Description of Supply

The City of Woodway obtains its water supply from the Trinity Aquifer at 2,454 acft/yr from Lake Waco from the City of Waco at 0 to 989 acft/yr, and from Bluebonnet WSC at 1,319 to 1,275 acft/yr from 2020 to 2070. The City provides 2 acft/yr for McLennan County Manufacturing. The supply contracts are adequate to meet demands; however under drought conditions, Bluebonnet WSC may not be able to provide the full contract amount to all of its customers, including Woodway. Conservation is recommended to reduce City of Woodway gallons per capita per day (gpcd) in 2030 to a goal of 140 gpcd after the plumbing fixtures act.

Water Supply Plan

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

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: 2030
- Annual Cost: maximum \$968,857 in 2070
- Unit Cost: \$560/ac-ft
-

Table 5.24-18. Recommended Plan Costs by Decade for City of Woodway

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	308	78	82	111	119	139
Conservation						
Supply From Plan Element (acft/yr)	0	308	635	988	1,357	1,730
Annual Cost (\$/yr)	\$0	\$172,428	\$355,402	\$553,058	\$759,670	\$968,857
<i>Projected Surplus/(Shortage) after Conservation</i>	308	78	82	111	119	139

5.24.34 County-Other

Description of Supply

McLennan County-Other entities obtain water supply from groundwater from the Trinity Aquifer at 968 and surface water from a contract with H&H WSC at 78 to 99 ac-ft/yr from 2020 to 2070. Entities in County-Other provide additional supply to Riesel, and provide supply to steam-electric power and manufacturing customers in McLennan County.

Various entities are dealing with elevated levels of arsenic in groundwater supplies and have been pursuing water management strategies through the FHLM WSC. Through a TWDB sponsored study coordinated by FHLM WSC, these entities have considered a regional brackish RO WTP in Limestone County, Carrizo-Wilcox Regional Groundwater in Limestone County, Tehuacana Reservoir, and supplies from City of Marlin (Brushy Creek Reservoir), and City of Waco. The recommended strategy is to provide for arsenic treatment for individual entities. This strategy does not provide new supply. A shortage is projected for 2020 and after there are surpluses 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 strategies are recommended for McLennan County-Other.

a. Upgrade Treatment for Arsenic

Entities within County-Other for which Arsenic treatment is recommended include EOL WSC, LTG WSC, MS WSC, and RMS WSC. This is a treatment strategy and does not increase the supply available to these entities. Total treatment is estimated at 917 acft/yr.

- Cost Source: Volume II, Chapter 12.5
- Date to be Implemented: 2020
- Project Cost: \$3,811,000
- Unit Cost: \$1,021/acft



Table 5.24-19. Recommended Plan Costs by Decade for the McLennan County – Other

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(222)	14	172	349	511	667
Conservation						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	–	–	–	–	–	–
<i>Projected Surplus/(Shortage) after Conservation</i>	(222)	14	172	349	511	667
Upgrade Treatment for Arsenic						
Supply From Plan Element (acft/yr)	–	–	–	–	–	–
Annual Cost (\$/yr)	\$936,000	\$936,000	\$617,000	\$617,000	\$617,000	\$617,000
Unit Cost (\$/yr)	\$1,021	\$1,021	\$673	\$673	\$673	\$673

5.24.35 Manufacturing

Description of Supply

Water supply for manufacturing in McLennan County is obtained by purchase from a city or water supply corporation, from Trinity Aquifer wells operated by the manufacturing entity, and from run-of-river rights. McLennan County Manufacturing is projected to have shortages beginning in 2020. However, purchase of supplemental reuse water from WMARSS is recommended to reduce demands on water supplied by the run-of-river rights, Lake Waco and groundwater from the Trinity Aquifer. Conservation is recommended.

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 McLennan County Manufacturing.

a. Conservation

- Cost Source: Volume II
- Date to be Implemented: before 2030
- Annual Cost: Not determined

b. WMARSS Flat Creek Reuse Project

- Cost Source: Volume II
- Date to be Implemented: 2020
- Project Cost: None. City of Waco is the project sponsor. Entity will purchase from the City.
- Unit Cost: \$205/acft

Table 5.24-20. Recommended Plan Costs by Decade for McLennan County – Manufacturing

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(543)	(2,824)	(2,463)	(2,094)	(1,764)	(1,309)
Conservation						
Supply From Plan Element (acft/yr)	144	373	522	522	522	522
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(399)	(2,451)	(1,941)	(1,572)	(1,242)	(787)
Purchase Reuse Supplies from WMARSS – Flat Creek Project						
Supply From Plan Element (acft/yr)	2,500	2,500	2,500	2,500	2,500	2,500
Annual Cost (\$/yr)	\$875,000	\$875,000	\$340,000	\$340,000	\$340,000	\$340,000
Unit Cost (\$/acft)	\$350	\$350	\$136	\$136	\$136	\$136
<i>Projected Surplus/(Shortage) after Reuse (acft/yr)</i>	2,101	49	559	928	1,258	1,713

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

5.24.36 Steam-Electric

McLennan County Steam-Electric obtains its water supply from Tradinghouse Reservoir, Lake Creek Reservoir, the Trinity Aquifer and from WMARSS reuse. No shortage is projected for McLennan County Steam-Electric and no changes in water supply are recommended.

5.24.37 Mining

Description of Supply

Mining operations in McLennan County are supplied by Brazos River Alluvium groundwater at 735 ac-ft/yr . 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 McLennan County-Mining. Associated costs are included for each strategy.

- a. Conservation
 - Cost Source: Volume II
 - Date to be Implemented: before 2030
 - Annual Cost: not determined
- b. WMARSS Flat Creek Reuse Project
 - Cost Source: Volume II

- Date to be Implemented: before 2030
- Project Cost: None. City of Waco is the project sponsor. Entity will purchase from the City.
- Unit Cost: \$350
-

Table 5.24-21. Recommended Plan Costs by Decade for McLennan County – Mining

Plan Element	2020	2030	2040	2050	2060	2070
<i>Projected Surplus/(Shortage) (acft/yr)</i>	(1,800)	(2,262)	(2,322)	(2,770)	(3,094)	(3,478)
Conservation						
Supply From Plan Element (acft/yr)	76	150	214	246	268	295
Annual Cost (\$/yr)	ND	ND	ND	ND	ND	ND
<i>Projected Surplus/(Shortage) after Conservation (acft/yr)</i>	(1,724)	(2,112)	(2,108)	(2,524)	(2,826)	(3,183)
WMARSS Flat Creek Reuse Project						
Supply From Plan Element (acft/yr)	3,200	3,200	3,200	3,200	3,200	3,200
Annual Cost (\$/yr)	\$1,120,000	\$1,120,000	\$435,200	\$435,200	\$435,200	\$435,200
Unit Cost (\$/acft)	\$350	\$350	\$136	\$136	\$136	\$136
<i>Projected Surplus/(Shortage) after Reuse (acft/yr)</i>	1,476	1,088	1,092	676	374	17

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

5.24.38 Irrigation

Description of Supply

McLennan County Irrigation is supplied by groundwater from the Trinity Aquifer at 561 ac-ft/yr and the Brazos River Alluvium at 4,259 ac-ft/yr, and run of the river water rights at 937 to 1,337 ac-ft/yr from 2020 to 2070. No shortages are projected for Irrigation and no changes in water supply are recommended

-

5.24.39 Livestock

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

This page intentionally left blank.