

Appendix K
Water Management Strategies from Other
Regions for Brazos G

This page intentionally left blank.



Region C

Table K-1 Summary of out of region strategies adapted from Table 5.D149, 5D.355, 5C.10, & 5C.11 in 2016 Region C Water Plan

Water User Group	Strategy	1 st Year	Quantity** (acft/Yr)	Capital Costs	Unit Costs (\$/1000 gal)		Table for Detail
					With Debt Service	After Debt Service	
Bethesda WSC *	Conservation	2020	117	\$139,100	\$3.21	\$1.00	Q-10
	Additional Fort Worth	2020	3,496	\$0	\$1.96	\$1.96	None
	Supply from Arlington	2020	2,614	\$0	\$2.50	\$2.50	None
	<i>Connection to Arlington</i>	2020	2,614	\$18,698,000	\$2.16	\$0.32	Q-184
Burleson*	Conservation	2020	55	\$37,638	\$0.88	\$0.00	Q-10
	Additional Fort Worth (TRWD)	2020	10,244	\$0	\$1.96	\$1.96	None
	<i>Increase delivery infrastructure from Fort Worth</i>	2040	5,541	\$21,780,000	\$1.23	\$0.22	Q-186
Crowley	Conservation	2020	113	\$342,055	\$4.39	\$0.00	Q-10
	Additional Fort Worth (TRWD)	2020	3,588	\$0	\$1.96	\$1.96	None
	<i>Increase delivery infrastructure from Fort Worth</i>	2030	3,028	\$11,558,000	\$1.21	\$1.21	Q-187
Johnson County SUD	Conservation	2020	10	\$4,470	\$0.57	\$0.00	Q-10
	Additional Mansfield (TRWD)	2020	6,229	\$0	\$2.50	\$2.50	None
	Supply from Grand Prairie	2020	6,726	\$0	\$2.50	\$2.50	None
	<i>Connect to Grand Prairie</i>	2020	6,726	\$86,140,000	\$3.83	\$0.60	Q-188
Venus	Conservation	2020	2	\$740	\$1.13	\$0.00	Q-10
	Additional Midlothian	2020	602	\$0	\$2.50	\$2.50	None
Fort Worth	Conservation (Retail)	2020	16,721	\$80,176,073	\$4.11	\$0.48	Q-10
	Alliance Direct Reuse	2020	2,800	\$16,083,000	\$0.49	\$0.06	Q-68
	Future Direct Reuse	2020	2,688	\$129,976,000	\$4.18	\$0.82	Q-67
	Purchase from TRWD	2030	216,971	\$0	\$0.97	\$0.97	None
Files Valley WSC	Conservation	2020	7	\$2,010	\$0.52	\$0.00	Q-10
	Connect to Waxahachie (TRWD through TRA)	2030	72	See Waxahachie in Section 5.2			

Notes: Water User Groups marked with an * extend into more than one county.

** Quantities listed are for the WUG only. They do not include the WUG's customers.

Bethesda Water Supply Corporation (pp 5D.336-337 in Region C RWP)

Bethesda WSC serves an estimated 29,000 people in southern Tarrant County and northern Johnson County. (Johnson County is in the Brazos G water planning region.)

Water management strategies for Bethesda WSC include:

- Conservation implemented or enhanced by 2020 with a maximum savings of 117 acft/yr at a unit cost of \$3.21/1,000 gallons.
- Additional water from Fort Worth beginning in 2020 utilizing existing infrastructure with a unit cost of \$1.96/1,000 gallons for water purchase. Increased contractual amounts vary over the planning period up to 3,496 acft/yr.
- Connection to and purchase of water from the City of Arlington (which gets raw water from TRWD). Increased contractual amounts vary over the planning period up to 2,614 acft/yr at a unit cost of water \$2.50/1,000 gallons. The connection to Arlington will involve a capital cost of \$18,698,000 adding \$2.16/1,000 gallons to the unit cost of water from Arlington.

Burleson (pp 5D.338 -339 in Region C RWP)

Burleson is a city of about 40,000 people located in southern Tarrant County and northern Johnson County. (Johnson County is in the Brazos G water planning region.)

Water management strategies for Burleson Include:

- Conservation implemented or enhanced by 2020 with a maximum savings of 55 acft/yr at a unit cost of \$.88/1,000 gallons.
- Increased delivery Infrastructure and purchase of water from the City of Fort Worth. Increased contractual amounts vary over the planning period up to 10,244 acft/yr at a unit cost of water \$1.96/1,000 gallons. The infrastructure expansion to Fort Worth will involve a capital cost of \$21,780,000 adding \$1.23/1,000 gallons to the unit cost of water from Fort Worth.

Crowley (pp 5D.341 in Region C RWP)

Crowley is a city of about 14,000 people located in southern Tarrant County.

Water management strategies for Crowley Include:

- Conservation implemented or enhanced by 2020 with a maximum savings of 113 acft/yr at a unit cost of \$4.39/1,000 gallons.
- Increased delivery Infrastructure and purchase of water from the City of Fort Worth. Increased contractual amounts vary over the planning period up to 3,588 acft/yr at a unit cost of water \$1.96/1,000 gallons. The infrastructure expansion to Fort Worth will involve a capital cost of \$11,558,000 adding \$1.21/1,000 gallons to the unit cost of water from Fort Worth.

Venus (pp 5D.84 in Region C RWP)

Venus is a city of about 2,960 people in eastern Johnson County and western Ellis County. Most of the population is in Johnson County which is in Region G.

Water management strategies for Venus include:

- Conservation implemented or enhanced by 2020 with a maximum savings of 2 acft/yr at a unit cost of \$1.13/1,000 gallons.
- Additional water from Midlothian beginning in 2020 utilizing existing infrastructure with a unit cost of \$2.50/1,000 gallons for water purchase. Increased contractual amounts vary over the planning period up to 602 acft/yr.



City of Fort Worth (pp 5C.30-31 in Region C RWP)

The City of Fort Worth obtains raw water from the Tarrant Regional Water District (TRWD) and treats and distributes treated water to about 30 other water user groups in Tarrant County and surrounding counties.

Water management strategies for the City of Fort Worth include:

- Conservation implemented or enhanced by 2020 with a maximum savings of 16,721 acft/yr at a unit cost of \$4.11/1,000 gallons.
- Alliance Corridor Direct Reuse: This project would involve a partnership between the City of Fort Worth, Trinity River Authority and Hillwood Corporation to serve developments in the Alliance Airport area. It would use effluent supplied from the Trinity River Authority's Denton Creek Regional Wastewater System. The project is projected to provide up to 2,688 acft/yr of supply at a unit cost of \$0.49/1,000 gallons.
- Fort Worth Future Direct Reuse: Fort Worth plans to further expand its direct reuse system by constructing additional conveyance and/or treatment facilities in other areas of the City. This project would provide up to 2,688 acft/yr at a unit cost of \$4.18/1,000 gallons
- Additional water from TRWD beginning in 2030 utilizing existing infrastructure with a unit cost of \$0.97/1,000 gallons for water purchase. Increased contractual amounts vary over the planning period up to 216,971 acft/yr.

Files Valley Water Supply Corporation (pp 5C.141-142 in Region C RWP)

Files Valley WSC serves about 3,000 people in western Ellis and eastern Hill Counties. Files Valley provides water to residents in its service area as well as residents of Milford.

Water management strategies for Files Valley WSC include:

- Conservation implemented or enhanced by 2020 with a maximum savings of 7 acft/yr at a unit cost of \$0.52/1,000 gallons.
- Water purchase from Waxahachie will be made possible by 2030 as part of the Ellis County Water Supply project. The Ellis County Water Supply Corporation will include a joint delivery system to multiple wholesale customers in Southern Ellis County. Files Valley expects to receive up to 72 acft of supply from the project by 2070.

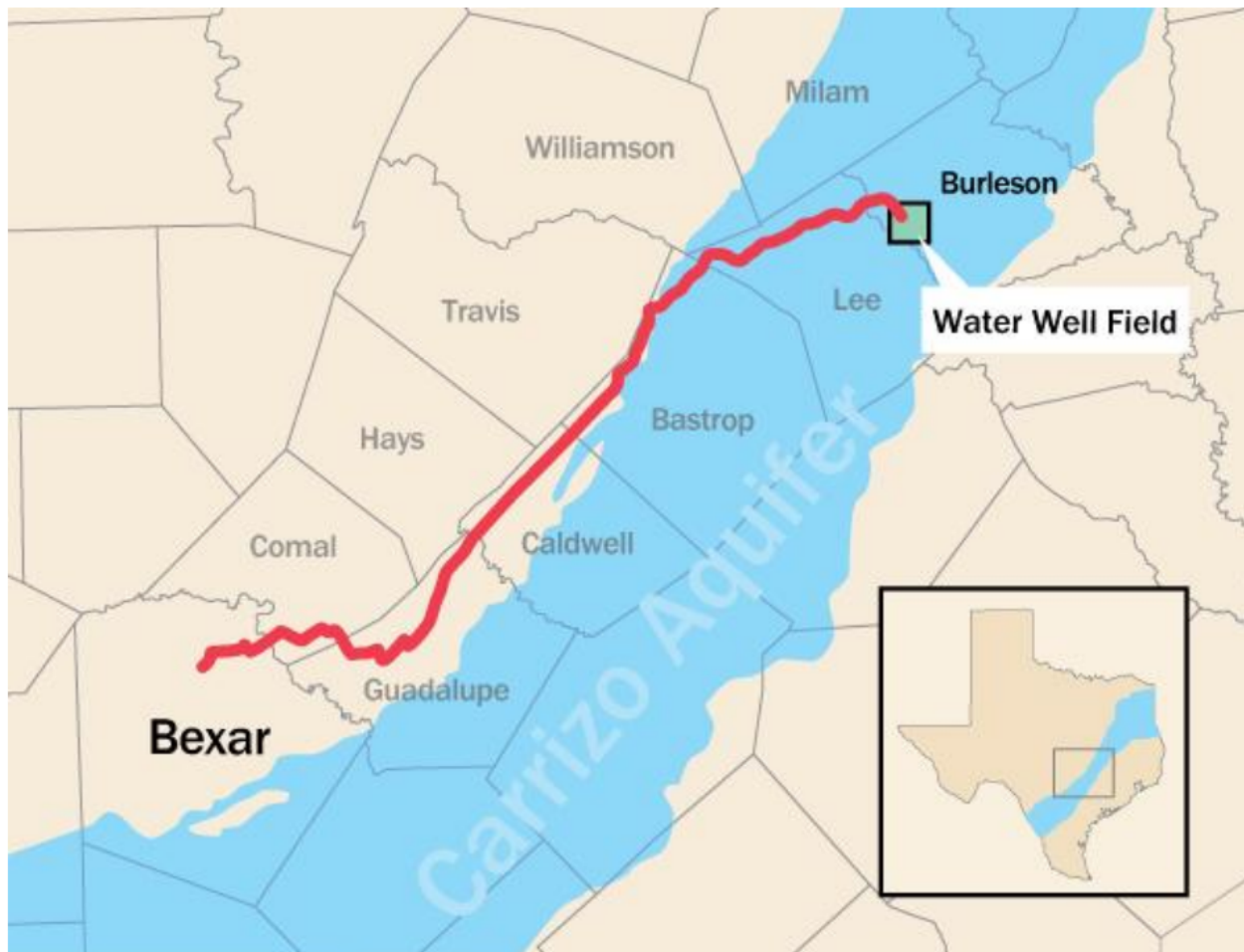
Region L

SAWS Vista Ridge Project (Chapter 5.2.23 in Region L RWP)

DESCRIPTION OF WATER MANAGEMENT STRATEGY

The San Antonio Water System (SAWS) has contracted with Vista Ridge Consortium for up to 50,000 acft/yr of groundwater supply from Burleson County, Texas. Vista Ridge holds permits from the Post Oak Savannah Groundwater Conservation District (GCD) for up to 70,000 acft/yr in the Carrizo–Wilcox Aquifer in Burleson County. The project includes a well field, collection system, treatment, and 143 miles of 54-inch and 60-inch transmission facilities, and will deliver water to northern Bexar County for eventual delivery the SAWS distribution system. The table below shows the well field location and the proposed pipeline route. In addition, SAWS will be upgrading their integration facilities to accommodate the new water. Costs associated with this integration is not included in this water management strategy, but information can be found in Facilities Expansions.

VISTA RIDGE PROJECT LOCATION





SAWS VISTA RIDGE PROJECT COST ESTIMATE – MAG-LIMITED

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Intake Pump Stations (32.8 MGD)	\$7,242,000
Transmission Pipeline (48 in dia., 143 miles)	\$264,379,000
Transmission Pump Station(s) & Storage Tank(s)	\$23,328,000
Well Fields (Wells, Pumps, and Piping)	\$34,838,000
Water Treatment Plant (32.8 MGD)	\$49,308,000
Integration, Relocations, & Other	\$10,468,000
TOTAL COST OF FACILITIES	\$389,563,000
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$123,128,000
Environmental & Archaeology Studies and Mitigation	\$3,990,000
Land Acquisition and Surveying (1772 acres)	\$9,257,000
Interest During Construction (4% for 2.5 years with a 1% ROI)	<u>\$46,020,000</u>
TOTAL COST OF PROJECT	\$571,958,000
ANNUAL COST	
Debt Service (5.5 percent, 20 years)	\$47,861,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$3,686,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$9,862,000
Pumping Energy Costs (110000740 kW-hr @ 0.09 \$/kW-hr)	\$9,900,000
Purchase of Water (34894 acft/yr @ 125 \$/acft)	<u>\$4,658,000</u>
TOTAL ANNUAL COST	\$75,967,000
Available Project Yield (acft/yr), based on a Peaking Factor of 1	34,894
Annual Cost of Water (\$ per acft)	\$2,177
Annual Cost of Water (\$ per 1,000 gallons)	\$6.68

This page intentionally left blank.