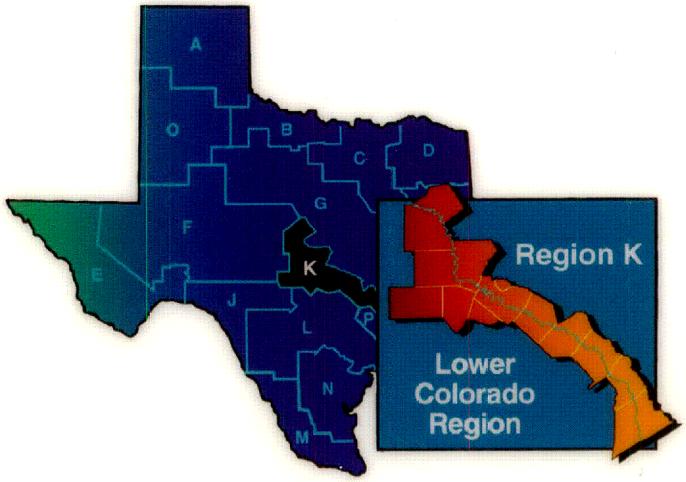
November
2015



Adopted

2016 Region K Water Plan

for the Lower Colorado Regional Water Planning Group

Volume 1 of 2

prepared by
Lower Colorado Regional
Water Planning Group

with funding assistance from
Texas Water Development Board

prepared for
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with assistance from
AECOM Technical Services, Inc.
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ES. EXECUTIVE SUMMARY

ES.1 INTRODUCTION

Following the guidelines provided by the Texas Water Development Board (TWDB), the Lower Colorado Regional Water Planning Group (LCRWPG) developed this *Initially Prepared 2016 Region K Water Plan* for the Lower Colorado Regional Water Planning Area (LCRWPA) covering the 2020 to 2070 time period. This plan has been submitted to the TWDB for review and integration into a statewide water plan.

The Plan includes a description of the region, population and water demand projections, water supply analyses, water management strategies for ensuring supplies during drought-of-record (DOR) conditions, water conservation and drought management plans, consistency with the state's long-term resource protection goals, policy recommendations related to improving water management and preserving the environment, and public involvement activities. The LCRWPG, representing the twelve (12) TWDB-required interest groups and one (1) additional regional interest group, was responsible for the development of the Initially Prepared 2016 Region K Water Plan

Plan data developed for the 2016 Region K Water Plan was entered into the TWDB database DB17. Summaries of the DB17 report tables are included as appendices to this executive summary. The following information is included in *Appendix ES.A* through *ES.F*:

Appendix ES.A – Summary of population projections, water demand projections, existing water supplies, and identified water needs by Water User Group (WUG) category by decade

Appendix ES.B – Summary of identified water needs by WUG category and decade after implementation of conservation and direct reuse strategies

Appendix ES.C – Remaining availability of each water source in the region after existing water supplies are allocated (may not show over-allocation)

Appendix ES.D – Summary of unmet needs by category and decade

Appendix ES.E – Summary of recommended water management strategies by WUG; Summary of recommended water management strategies with capital costs

Appendix ES.F – Summary of alternative water management strategies by WUG; Summary of alternative water management strategies with capital costs

SCOPE OF WORK

The scope of work was prepared through a public process and is reflected in the tasks below.

ES.1.1 Task 1 – Planning Area Description

Task 1 was intended to collect data and to provide a physical, social, and economic description of the Lower Colorado Regional Water Planning Area. The geographical boundaries of the LCRWPA, designated as Region K, are shown in *Figure 1.2* in Chapter 1. The Lower Colorado Region consists of all or parts of 14 counties roughly consistent with the Lower Colorado River Basin.

This area relies primarily on the Colorado River; the Gulf Coast, Carrizo-Wilcox, Edwards, Trinity, and Edwards-Trinity (Plateau) aquifers; and several minor aquifers for its water supply. The majority of the region lies within the Colorado River Basin, but small portions of the Brazos, Guadalupe, and Lavaca River Basins, and the Brazos-Colorado and Colorado-Lavaca Coastal Basins also lie within the region.

The system of Highland Lakes administered by the Lower Colorado River Authority (LCRA) is a major hydrologic feature of the region that provides flood control, power generation, water supply, and recreational benefits.

ES.1.2 Task 2A and 2B – Non-Population Related Water Demand Projections and Population and Population-Related Water Demand Projections

Task 2 was intended to prepare population and water demand projections for Region K. Chapter 2 summarizes this data and discusses the procedures used to obtain revised population and demand projections.

The Lower Colorado Region has experienced rapid population expansion in recent decades and this trend is expected to continue over the planning horizon. Total regional population projections estimate a near-doubling of population to more than 3.2 million people by 2070. The vast majority of the population growth is expected in the following counties: Bastrop, Blanco, Burnet, Fayette, Hays, Travis, and Williamson counties.

Total water demand for the Lower Colorado Region is projected to increase 24 percent to approximately 1.45 million acre-feet per year by 2070 as shown in *Table ES.1*. While demands such as municipal, manufacturing, and steam-electric generation are anticipated to increase due to population growth and economic activity, other water demand categories are projected to decline. The distribution of water demands in the region for all decades is shown in *Table ES.1*, as projected for the years 2020 through 2070.

Table ES.1 Water Demand Projections for the Lower Colorado Region (acre-feet/year)

Regional Projections	2020	2030	2040	2050	2060	2070
Municipal Water Demand (ac-ft/yr)	306,560	359,194	411,761	458,588	505,009	558,949
Manufacturing Water Demand (ac-ft/yr)	56,019	70,050	86,259	96,283	106,487	117,851
Irrigation Water Demand (ac-ft/yr)	607,433	590,740	574,530	558,789	543,507	528,715
Steam-Electric Water Demand (ac-ft/yr)	178,453	185,235	187,410	194,802	200,413	207,319
Mining Water Demand (ac-ft/yr)	20,848	26,104	27,991	29,757	31,893	34,961
Livestock Demand (ac-ft/yr)	14,012	14,012	14,012	14,012	14,012	14,012
TOTAL WATER DEMAND	**1,183,325**	**1,245,335**	**1,301,963**	**1,352,231**	**1,401,321**	**1,461,807**

ES.1.3 Task 3 – Water Supply Analyses

The availability of surface water and groundwater supplies were determined in Task 3.

Water supplies in the LCRWPA are available from eleven (11) aquifer systems and alluvial groundwater and six (6) river and coastal basins.

The Colorado River Basin makes up the single largest source of surface water for the region with large volumes of water available from both run-of-river (ROR) diversion rights and water stored in reservoirs. Surface water supplies for DOR conditions for the Colorado River Basin were determined using a modified version of the Texas Commission on Environmental Quality (TCEQ) WAM (Water Availability Model) Run 3 that was developed during the 2011 planning cycle and has been updated for use in the 2016 planning cycle and is referred to as the Region K Cutoff Model. This conservative model predicts water availability under DOR conditions and assumes maximum surface water diversions with no return flows to streams.

Groundwater supplies were developed from the best information available from Groundwater Management Areas (GMAs), Groundwater Availability Models (GAMs), local information from Groundwater Conservation Districts (GCDs), or information from the 2011 Region K Plan. Early in the 2011-2016 regional water planning cycle, the GMAs in the region adopted their Desired Future Condition (DFC) for their aquifers and the TWDB established the Modeled Available Groundwater (MAG) values for such aquifers. If a MAG has been established for a particular aquifer, the TWDB requires that the MAG be considered the maximum amount of groundwater available for the regional water planning process. In cases where a MAG is not established for an aquifer, the local GCD or GMA representative was consulted regarding an appropriate availability volume.

The TWDB guidelines for regional water planning process require that a summary of the water sources available to the region be presented. This information is presented graphically in *Figure ES.1* and is summarized in *Table ES.2*. As indicated, under current conditions, a total of approximately 1.3 million ac-ft of water is available annually to the LCRWPA under DOR conditions. Of this amount, approximately 74 percent is from surface water sources and 26 percent is from groundwater sources.

Figure ES.1: Total Water Available in Region K During a Drought of Record

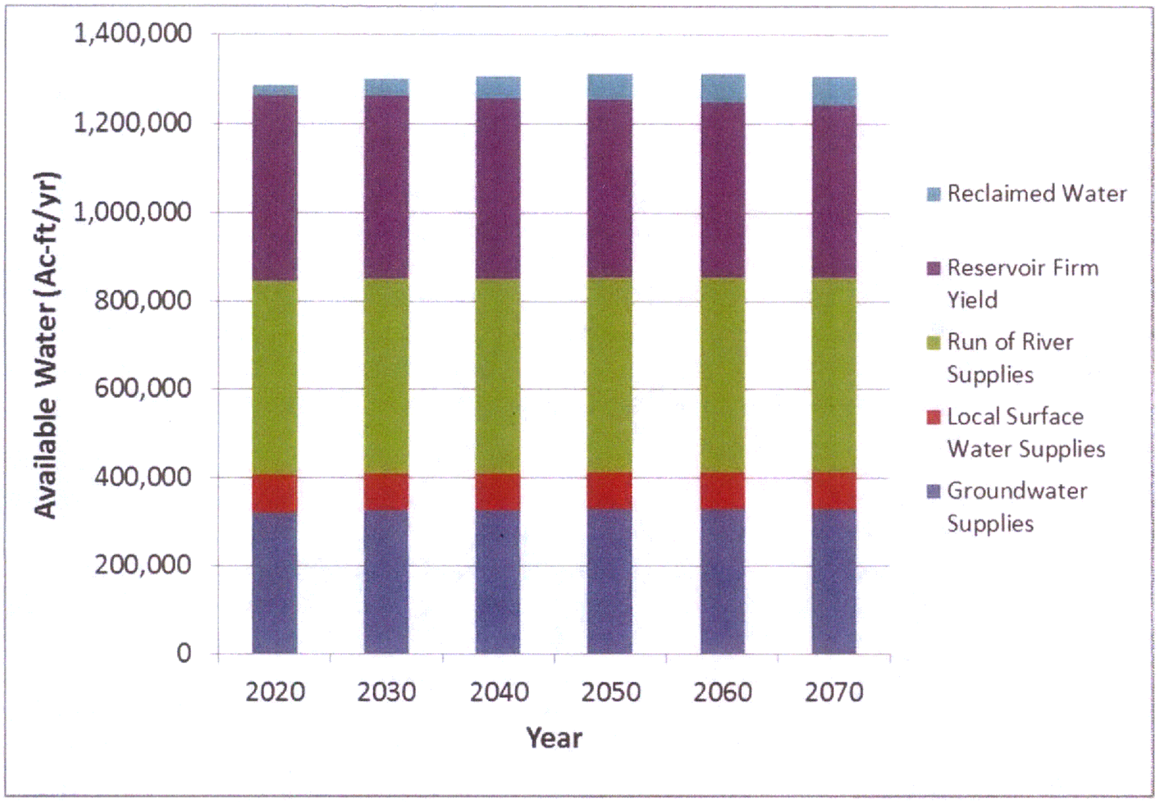


Table ES.2 Total Water Available in the Lower Colorado Regional Planning Area During a Drought of Record (ac-ft/yr)

Water Source	2020	2030	2040	2050	2060	2070
City of Austin - ROR Municipal [1]	201,374	201,374	201,374	201,374	201,387	201,441
City of Austin - ROR Steam Electric [1]	10,938	10,938	10,938	10,938	10,938	10,938
LCRA - Garwood ROR	123,822	123,822	123,822	123,822	123,822	123,822
LCRA - Gulf Coast ROR	13,524	13,524	13,524	13,524	13,524	13,524
LCRA - Lakeside ROR	5,692	5,692	5,692	5,692	5,692	5,692
LCRA - Pierce Ranch ROR	2,912	2,912	2,912	2,912	2,912	2,912
STP Nuclear Operating Co. ROR	44,397	44,397	44,397	44,397	44,397	44,397
San Bernard ROR	597	597	597	597	597	597
Highland Lakes [2]	418,812	413,298	407,774	401,744	395,201	389,125
Goldthwaite Reservoir	0	0	0	0	0	0
Llano Reservoir	417	417	417	417	417	417
Blanco Reservoir	596	596	596	596	596	596
Reclaimed Water (Reuse)	23,526	37,483	49,674	59,624	64,874	64,874
Irrigation Local Supply	38,687	38,687	38,687	38,687	38,687	38,687
Livestock Local Supply [3]	14,012	14,012	14,012	14,012	14,012	14,012
Other Local Supply	31,126	31,126	31,126	31,126	31,126	31,126
Carrizo-Wilcox Aquifer	20,979	21,666	25,833	29,018	29,498	29,498
Edwards (BFZ)Aquifer	9,452	9,452	9,452	9,452	9,452	9,452
Edwards-Trinity Aquifer (Plateau)	2,514	2,514	2,514	2,514	2,514	2,514
Ellenburger-San Saba Aquifer	27,907	27,907	27,907	27,907	27,907	27,907
Gulf Coast Aquifer	182,662	182,494	182,484	182,475	182,445	182,445
Hickory Aquifer	8,525	8,525	8,525	8,525	8,525	8,525
Marble Falls Aquifer	13,302	13,302	13,302	13,302	13,302	13,302
Queen City Aquifer	1,531	3,243	1,544	1,588	1,592	1,592
Sparta Aquifer	5,505	8,641	5,331	5,302	5,312	5,312
Trinity Aquifer	30,134	30,114	30,101	30,085	30,056	30,056
Yegua-Jackson Aquifer	5,762	5,762	5,762	5,762	5,762	5,762
Other Aquifer	14,093	14,093	14,093	14,093	14,093	14,093
Garwood (Corpus Christi) ROR	35,000	35,000	35,000	35,000	35,000	35,000
Region K Totals	**1,287,798**	**1,301,588**	**1,307,390**	**1,314,485**	**1,313,640**	**1,307,618**

Notes: Downstream water availability does not include return flows.
The water availability numbers in this table reflect water that is physically present in the region. This does not necessarily mean that this water is available to WUGs for immediate use as defined in *Table 3.31*.
Groundwater availabilities are discussed in *Section 3.2.2*.
[1] Refer to *Table 3.3* and *Table 3.27* for a breakdown of what is included in the COA ROR rights.
[2] Refer to *Table 3.1* for a breakdown of the Highland Lakes.
[3] Local Supply Sources are presented in *Tables 3.4, 3.5, 3.6, 3.7, 3.8,* and *3.9*.

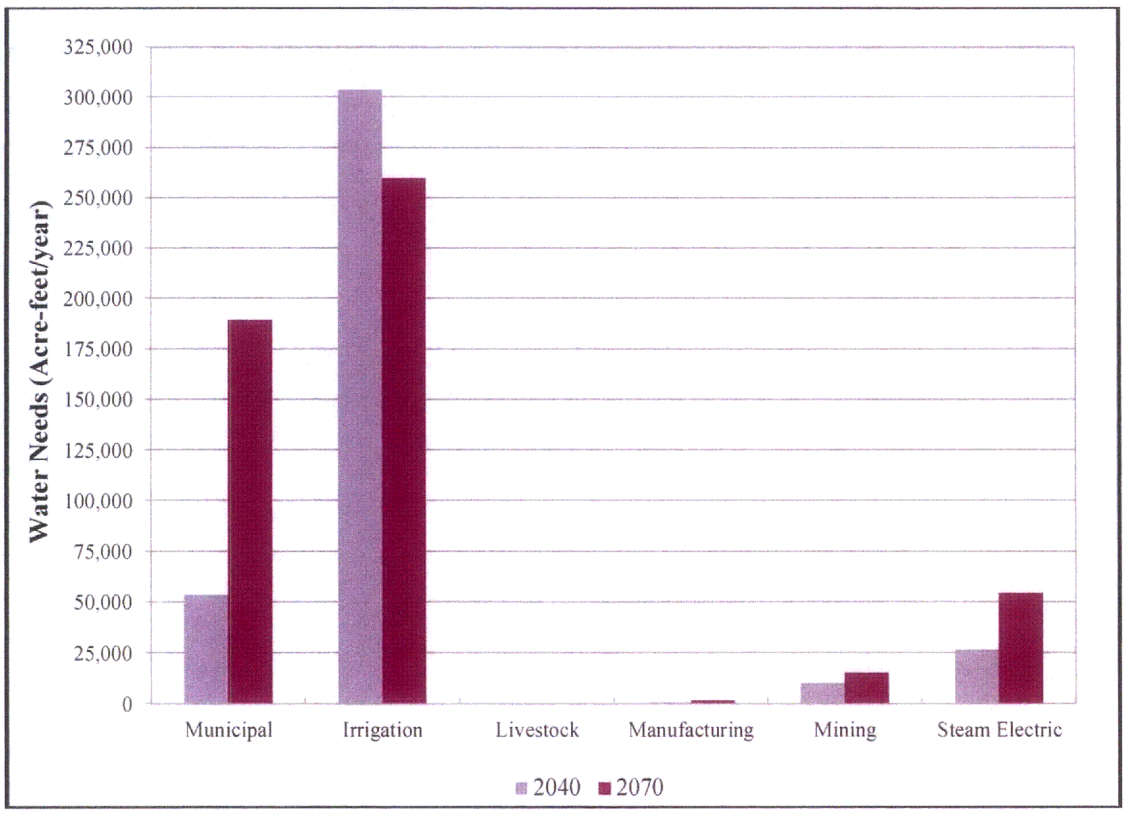
ES.1.4 Task 4 – Identification of Water Needs

Task 4 was to determine the surpluses and shortages resulting from the division of available resources performed for Task 3. Chapter 4 summarizes the comparison of water demands to the water supplies in two (2) different ways: 1) a comparison of water demands and supplies on a county-by-county basis, and 2) a comparison of the water demands and supplies for the two (2) designated wholesale water providers within Region K.

The comparison demands identified 75 separate WUGs that have projected water supply shortages, or "needs," by the year 2040, and an additional 15 WUGs with projected water supply shortages before the year 2070. The estimated water need is approximately 397,000 acre-feet per year (ac-ft/yr) in 2040 and 523,000 ac-ft/yr in 2070. This identified shortage is based on conservative water availability estimates, which assume (1) only water that is available during a repeat of the historical drought of record (DOR), (2) that all water rights in the basin are being fully and simultaneously utilized, and (3) excludes both water available from the LCRA on an interruptible basis and water projected to be available as a result of municipal return flows to the Colorado River.

Based upon these assumptions, water needs have been identified in five of the six (6) water use categories. *Figure ES.2* shows the magnitude of the identified needs by water use category for the years 2040 and 2070.

Figure ES.2: Identified Amount of Water Needs in Region K (Acre-feet/year)



ES.1.5 Task 5 – Evaluation and Recommendation of Water Management Strategies and Water Conservation Recommendations

A process for identifying and evaluating the feasibility of strategy implementation was developed in Task 5. Potential strategies were presented in a form so that potential alternatives were identified and evaluated in accordance with local desires and needs. Water management strategies were recommended to provide for the majority of water needs identified as part of the Task 4 effort. Many of the shortages were met by reducing demands using conservation, drought management, and reuse, while many others involved the expansion of existing contracts or creation of new contracts. Other strategies are more extensive and will require the implementation the construction of additional infrastructure. If a project sponsor wishes to be considered for certain types of State funding, the project that the funding is requested for must be included in the Regional and State Water Plan.

Further discussion of recommended and alternative water management strategies is included in Chapter 5. In addition, a section was included in Chapter 5 to discuss recommended conservation strategies. Water conservation plans are required for any entity seeking a TWDB loan, a new or amended surface water right, or current holders of existing surface water diversion permits under certain circumstances.

Recommended Water Management Strategies are described in Chapter 5 in the following categories:

- Return Flows
- Conservation
- Wholesale Water Provider Management Strategies
- Regional Water Management Strategies
- Municipal Water Management Strategies
- Irrigation Water Management Strategies
- Manufacturing Water Management Strategies
- Mining Water Management Strategies
- Steam Electric Power Water Management Strategies

In addition, alternative water management strategies are identified, and discussion of strategies that were considered, but were ultimately not recommended occurred.

ES.1.6 Task 6 – Impacts of the Regional Water Plan

The purpose of Task 6 was to determine the effects of water management strategies on water resources, agricultural resources, and natural resources. In addition, determination of social and economic impacts resulting from voluntary redistribution of water from rural regions to population centers was discussed. This activity was part of a consensus-based planning effort to include local concerns in the statewide water supply planning process.

For the 2016 Region K Plan, many of the recommended water management strategies that impact the Colorado River and Matagorda Bay utilize water under existing water rights, or utilize water such as wastewater effluent that was already assumed to be used 100 percent under the required surface water availability modeling guidelines. Thus, it is difficult to determine quantifiable impacts of those strategies.

Return flows are likely to show the largest impact to the instream flows and bay and estuary inflows. They provide a consistent source of flow in the river, even when a portion of the return flows are reused.

Return flows are a source of flow that is not included in the surface water availability modeling, and so would show a positive impact to the system as a water management strategy.

The recommendation by the LCRWPG of strategies such as conservation, reuse, and drought management will reduce demands, which will help to maintain springflows in the region, especially during times of drought. In addition, recommended strategies such as off-channel reservoirs and aquifer storage and recovery may aid in balancing peak demands for surface water and groundwater, which could also help maintain spring flows in the region.

ES.1.7 Task 7 – Drought Response Information, Activities, and Recommendations

Chapter 7 presents all necessary requirements for drought response, management and contingency plans. Drought Contingency Plans (DCPs) are required of certain water right owners and applicants. These documents have become integral to providing a reliable supply of water throughout the State.

The TCEQ, in accordance with the Texas Administrative Code (TAC), requires all wholesale public water suppliers, retail public supplier, and irrigation districts to prepare and submit DCPs meeting the requirements of 30 TAC Chapter§288(b) and to update these plans at least every five (5) years. A drought management efforts survey was created and distributed to 104 water systems and entities in October 2013, with 49 entities responding. The survey aimed at collecting information on voluntary and mandatory measures used by each water system. As a voluntary measure, nine (9) entities discontinued monthly flushing of water lines, 23 put restrictions on public landscaping irrigation, 24 water systems limited residential landscaping irrigations, and 19 entities implemented commercial irrigations.

The LCRWPG acknowledges that the Wholesale Water Providers in Region K have extensive knowledge regarding surface water sources in the region, and they may play a leadership role developing appropriate drought response actions for themselves and their customers. One area the LCRWPG feels could potentially be improved upon is the coordination and uniformity of Drought Stage levels for all users of a particular source. It has been acknowledged that there can be some confusion when two (2) water users of the same water source are at different Drought Stage levels, even if they are implementing similar drought responses.

Throughout the region, the DCPs for groundwater users are developed specifically to their use and location. Aquifer characteristics can vary across the region and it can be difficult to require the same triggers for all users of a particular groundwater source that covers several counties. The LCRWPG acknowledges that the municipalities and water utilities that rely upon groundwater should have the best knowledge to develop their Drought Contingency Plan triggers and responses. Even so, the LCRWPG encourages ongoing coordination between groundwater users, Groundwater Conservation Districts, and the Groundwater Management Areas to monitor local conditions for necessary modifications to the Drought Contingency Plans.

ES.1.8 Task 8 – Unique Stream Segments, Reservoir Sites, and Legislative Recommendations

Task 8 presents the RWPG's unique stream segments, unique reservoir sites, and legislative, administrative, and regulatory recommendations.

The unique ecological stream segments recommended by the LCRWPG in the 2006 Plan continue to be recommended for this planning cycle.

No potential reservoir sites are recommended by the LCRWPG for this planning cycle.

Several policy issues have been adopted by the LCRWPG concerning regulatory and legislative issues. These recommendations are listed below and are described in detail in Chapter 8.

- Management of Surface Water Resources: Inter-Basin Transfers and Model Linking
- Environmental – Sustainable Growth, Including Impacts of Growth
- Groundwater
- Protection of Agricultural and Rural Water Supplies
- Agricultural Water Conservation
- Municipal/Industrial Conservation
- Reuse (including basin-specific assessment of reuse potential and impacts)
- Brush Control
- Inflows to Highland Lakes
- Coordination of Planning Cycles for Determination of Desired Future Conditions by GCDs and Generation of the Regional Water Plan by RWPGs
- Recommended Improvements to the Regional Planning Process (SB 1 – 75th Legislature)
- Radionuclides in the Hickory and Marble Falls Aquifers

ES.1.9 Task 9 – Water Infrastructure Financing Recommendations

Task 9 includes information on how sponsors of the recommended water management strategies propose to finance projects. In SB 2 of the 77th Texas Legislature, the preparation of an infrastructure financing report was added to the regional planning process. Chapter 9 of the 2016 Region K Water Plan identifies the following:

- The number of WUGs with identified needs that will be unable to finance their water infrastructure needs
- The amount of infrastructure costs in the RWPs that cannot be financed by the local political subdivisions
- Funding options, including state funding, that are proposed by the political subdivisions to finance water infrastructure costs that cannot be financed locally
- Additional roles the RWPG proposes for the state in financing the recommended water supply projects

ES.1.10 Task 10 – Public Participation

The LCRWPG made a commitment to conducting public outreach as a part of their duties as Planning Group members. Major aspects of this effort included:

- Holding 21 open regular meetings of the Planning Group
- Holding a public meeting to receive input by the public on the scope of work
- Holding a public hearing and two public meetings throughout the region to receive public comments on the Initially Prepared Plan (IPP)
- Making the Initially Prepared Plan available to the public through the Region K website and placing copies of the IPP in libraries and county clerk offices throughout the region
- Serving as speakers at various civic and interest group meetings

- Conducting surveys
- Maintaining a web page
- Forming a Population and Water Demand Committee
- Developing policy statements

All of these efforts made information and updates on the regional water planning process available to thousands of people throughout the entire region. Additional information concerning public involvement can be found in Chapter 10.

ES.1.11 Task 11 – Implementation and Comparison to the Previous Regional Water Plan

Chapter 11 presents a discussion and survey of water management strategy projects that were recommended in the 2011 Regional Water Plan and have since been implemented, as well as providing a summary comparison of the 2016 Regional Water Plan to the 2011 Regional Water Plan with respect to population, demands, water availability and supplies, water needs, and water management strategies.

APPENDIX ES.A

TWDB DB17 REPORT
WUG Category Summary

Water User Group (WUG) Category Summary

REGION K	2020	2030	2040	2050	2060	2070
MUNICIPAL						
POPULATION	1,514,759	1,824,168	2,130,512	2,395,084	2,656,986	2,961,084
DEMANDS (acre-feet per year)	276,690	327,589	379,309	424,868	470,315	522,746
EXISTING SUPPLIES (acre-feet per year)	405,910	393,647	380,645	373,001	364,946	354,801
NEEDS (acre-feet per year)*	(7,111)	(27,130)	(44,014)	(63,984)	(115,080)	(175,892)
COUNTY-OTHER						
POPULATION	222,468	240,354	251,437	263,408	271,414	282,043
DEMANDS (acre-feet per year)	29,870	31,605	32,452	33,720	34,694	36,203
EXISTING SUPPLIES (acre-feet per year)	52,051	52,776	52,649	52,541	52,367	52,521
NEEDS (acre-feet per year)*	(770)	(1,046)	(1,869)	(3,375)	(4,808)	(6,281)
MANUFACTURING						
DEMANDS (acre-feet per year)	56,019	70,050	86,259	96,283	106,487	117,851
EXISTING SUPPLIES (acre-feet per year)	61,383	74,303	89,451	98,584	107,374	117,223
NEEDS (acre-feet per year)*	(570)	(692)	(810)	(913)	(1,059)	(1,216)
MINING						
DEMANDS (acre-feet per year)	20,848	26,104	27,991	29,757	31,893	34,961
EXISTING SUPPLIES (acre-feet per year)	17,428	18,263	19,159	19,992	20,916	21,974
NEEDS (acre-feet per year)*	(4,260)	(8,618)	(9,747)	(10,719)	(12,153)	(14,164)
STEAM ELECTRIC POWER						
DEMANDS (acre-feet per year)	178,453	185,235	187,410	194,802	200,413	207,319
EXISTING SUPPLIES (acre-feet per year)	168,968	168,954	168,930	164,731	158,201	152,692
NEEDS (acre-feet per year)*	(25,363)	(26,751)	(26,775)	(31,974)	(42,212)	(54,627)
LIVESTOCK						
DEMANDS (acre-feet per year)	14,012	14,012	14,012	14,012	14,012	14,012
EXISTING SUPPLIES (acre-feet per year)	16,232	16,232	16,232	16,232	16,232	16,232
NEEDS (acre-feet per year)*	0	0	0	0	0	0
IRRIGATION						
DEMANDS (acre-feet per year)	607,433	590,740	574,530	558,789	543,507	528,715
EXISTING SUPPLIES (acre-feet per year)	276,895	276,785	276,692	276,608	276,535	276,486
NEEDS (acre-feet per year)*	(335,489)	(319,584)	(304,106)	(289,044)	(274,387)	(260,124)
REGION TOTALS						
POPULATION	1,737,227	2,064,522	2,381,949	2,658,492	2,928,400	3,243,127
DEMANDS (acre-feet per year)	1,183,325	1,245,335	1,301,963	1,352,231	1,401,321	1,461,807
EXISTING SUPPLIES (acre-feet per year)	998,867	1,000,960	1,003,758	1,001,689	996,571	991,929
NEEDS (acre-feet per year)*	(373,563)	(383,821)	(387,321)	(400,009)	(449,699)	(512,304)

*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Category Summary report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

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APPENDIX ES.B

TWDB DB17 REPORT
WUG Second-Tier Identified Water Need Summary

Water User Group (WUG) Second-Tier Identified Water Need Summary

REGION K

	2020	2030	2040	2050	2060	2070
MUNICIPAL	959	6,211	9,922	17,295	26,925	42,579
COUNTY-OTHER	151	189	249	1,043	1,893	2,787
MANUFACTURING	570	692	810	913	1,059	1,216
MINING	4,260	8,618	9,247	10,219	11,653	13,664
STEAM ELECTRIC POWER	25,363	25,377	25,401	25,431	32,712	44,127
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	214,375	178,442	141,153	107,636	78,682	54,428

*Second-tier needs are WUG split needs adjusted to include the implementation of recommended demand reduction and direct reuse water management strategies.

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APPENDIX ES.C

TWDB DB17 REPORT
Source Water Balance

Source Water Balance (Availability- WUG Supply)

REGION K									
				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
GROUNDWATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
CARRIZO-WILCOX AQUIFER	BASTROP	BRAZOS	FRESH	4,773	3,922	4,406	4,202	4,281	4,281
CARRIZO-WILCOX AQUIFER	BASTROP	COLORADO	FRESH	1,064	1,253	1,590	2,323	2,024	1,124
CARRIZO-WILCOX AQUIFER	BASTROP	GUADALUPE	FRESH	0	0	689	1,359	1,386	1,386
CARRIZO-WILCOX AQUIFER	FAYETTE	COLORADO	FRESH	683	683	683	683	683	683
CARRIZO-WILCOX AQUIFER	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	FRESH	0	0	0	0	0	0
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	SALINE	9	9	9	9	9	9
EDWARDS-BFZ AQUIFER	TRAVIS	BRAZOS	FRESH	140	140	140	140	140	140
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH	2,256	2,256	2,256	2,256	2,256	2,256
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	SALINE	699	699	699	699	699	699
EDWARDS-BFZ AQUIFER	TRAVIS	GUADALUPE	SALINE	39	39	39	39	39	39
EDWARDS-BFZ AQUIFER	WILLIAMSON	BRAZOS	FRESH	6	6	6	6	6	6
EDWARDS-BFZ AQUIFER	WILLIAMSON	COLORADO	FRESH	4	4	4	4	4	4
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	COLORADO	FRESH	913	913	913	913	913	913
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	GUADALUPE	FRESH	46	46	46	46	46	46
ELLENBURGER-SAN SABA AQUIFER	BLANCO	COLORADO	FRESH	1,938	1,938	1,938	1,938	1,938	1,938
ELLENBURGER-SAN SABA AQUIFER	BLANCO	GUADALUPE	FRESH	6	6	6	6	6	6
ELLENBURGER-SAN SABA AQUIFER	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
ELLENBURGER-SAN SABA AQUIFER	BURNET	COLORADO	FRESH	1,785	1,785	1,785	1,785	1,785	1,785
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	COLORADO	FRESH	1,238	1,238	1,238	1,238	1,238	1,238
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	GUADALUPE	FRESH	1	1	1	1	1	1
ELLENBURGER-SAN SABA AQUIFER	LLANO	COLORADO	FRESH	1,850	1,850	1,850	1,850	1,850	1,850
ELLENBURGER-SAN SABA AQUIFER	MILLS	BRAZOS	FRESH	5	5	5	5	5	5
ELLENBURGER-SAN SABA AQUIFER	MILLS	COLORADO	FRESH	400	400	400	400	400	400
ELLENBURGER-SAN SABA AQUIFER	SAN SABA	COLORADO	FRESH	9,104	9,104	9,104	9,104	9,104	9,104
GULF COAST AQUIFER	COLORADO	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
GULF COAST AQUIFER	COLORADO	COLORADO	FRESH	226	226	226	226	226	226
GULF COAST AQUIFER	COLORADO	LAVACA	FRESH	0	0	0	0	0	0
GULF COAST AQUIFER	FAYETTE	BRAZOS	FRESH	17	17	17	17	17	17
GULF COAST AQUIFER	FAYETTE	COLORADO	FRESH	4,579	4,417	4,412	4,408	4,380	4,380
GULF COAST AQUIFER	FAYETTE	LAVACA	FRESH	1,593	1,587	1,582	1,577	1,575	1,575
GULF COAST AQUIFER	MATAGORDA	BRAZOS-COLORADO	FRESH	137	137	137	137	137	137
GULF COAST AQUIFER	MATAGORDA	COLORADO	FRESH	2,418	2,418	2,418	2,418	2,418	2,418

Source Water Balance (Availability- WUG Supply)

REGION K									
				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
GROUNDWATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
GULF COAST AQUIFER	MATAGORDA	COLORADO-LAVACA	FRESH	185	185	185	185	185	185
GULF COAST AQUIFER	WHARTON	BRAZOS-COLORADO	FRESH	603	603	603	603	603	603
GULF COAST AQUIFER	WHARTON	COLORADO	FRESH	162	162	162	162	162	162
GULF COAST AQUIFER	WHARTON	COLORADO-LAVACA	FRESH	171	171	171	171	171	171
GULF COAST AQUIFER	WHARTON	LAVACA	FRESH	1,669	1,669	1,669	1,669	1,669	1,669
HICKORY AQUIFER	BLANCO	COLORADO	FRESH	1,086	1,086	1,086	1,086	1,086	1,086
HICKORY AQUIFER	BLANCO	GUADALUPE	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	BURNET	COLORADO	FRESH	1,862	1,862	1,862	1,862	1,862	1,862
HICKORY AQUIFER	GILLESPIE	COLORADO	FRESH	183	183	183	183	183	183
HICKORY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	LLANO	COLORADO	FRESH	1,293	1,293	1,293	1,293	1,293	1,293
HICKORY AQUIFER	MILLS	BRAZOS	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	MILLS	COLORADO	FRESH	35	35	35	35	35	35
HICKORY AQUIFER	SAN SABA	COLORADO	FRESH	902	902	902	902	902	902
HICKORY AQUIFER	TRAVIS	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	TRAVIS	COLORADO	FRESH	22	22	22	22	22	22
MARBLE FALLS AQUIFER	BLANCO	COLORADO	FRESH	261	261	261	261	261	261
MARBLE FALLS AQUIFER	BURNET	BRAZOS	FRESH	93	93	93	93	93	93
MARBLE FALLS AQUIFER	BURNET	COLORADO	FRESH	1,711	1,711	1,711	1,711	1,711	1,711
MARBLE FALLS AQUIFER	SAN SABA	COLORADO	FRESH	5,156	5,156	5,156	5,156	5,156	5,156
OTHER AQUIFER	BURNET	BRAZOS	FRESH	1,230	1,000	758	539	287	0
OTHER AQUIFER	TRAVIS	GUADALUPE	FRESH	0	0	0	0	0	0
OTHER AQUIFER | ALLUVIUM	BURNET	COLORADO	FRESH	363	363	363	363	363	363
OTHER AQUIFER | ALLUVIUM	LLANO	COLORADO	FRESH	30	30	30	30	30	30
OTHER AQUIFER | CITY OF BASTROP	BASTROP	COLORADO	FRESH	831	831	831	831	831	831
OTHER AQUIFER | COUNTY-OTHER, IRRIGATION	TRAVIS	COLORADO	FRESH	112	112	112	112	112	112
OTHER AQUIFER | FAYETTE WSC, COUNTY-OTHER	FAYETTE	COLORADO	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	BASTROP	BRAZOS	FRESH	194	548	169	166	166	166
QUEEN CITY AQUIFER	BASTROP	COLORADO	FRESH	244	1,211	184	176	175	175
QUEEN CITY AQUIFER	BASTROP	GUADALUPE	FRESH	116	465	137	140	140	140
QUEEN CITY AQUIFER	FAYETTE	COLORADO	FRESH	436	478	513	565	570	570
QUEEN CITY AQUIFER	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	BASTROP	BRAZOS	FRESH	65	170	58	55	55	55
SPARTA AQUIFER	BASTROP	COLORADO	FRESH	1,172	4,017	949	871	864	864
SPARTA AQUIFER	BASTROP	GUADALUPE	FRESH	53	194	45	42	41	41
SPARTA AQUIFER	FAYETTE	COLORADO	FRESH	1,534	1,579	1,599	1,651	1,667	1,667

Source Water Balance (Availability- WUG Supply)

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
SPARTA AQUIFER	FAYETTE	GUADALUPE	FRESH	73	73	72	75	77	77
TRINITY AQUIFER	BLANCO	COLORADO	FRESH	587	587	587	587	587	587
TRINITY AQUIFER	BLANCO	GUADALUPE	FRESH	204	204	204	204	204	204
TRINITY AQUIFER	BURNET	BRAZOS	FRESH	207	207	207	207	207	207
TRINITY AQUIFER	BURNET	COLORADO	FRESH	121	121	121	121	121	121
TRINITY AQUIFER	GILLESPIE	COLORADO	FRESH	178	178	178	178	178	178
TRINITY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	HAYS	COLORADO	FRESH	2,631	2,628	2,627	2,627	2,627	2,627
TRINITY AQUIFER	MILLS	BRAZOS	FRESH	333	333	333	333	333	333
TRINITY AQUIFER	MILLS	COLORADO	FRESH	480	480	480	480	480	480
TRINITY AQUIFER	TRAVIS	BRAZOS	FRESH	8	8	8	8	8	8
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH	9,956	9,939	9,927	9,911	9,882	9,882
TRINITY AQUIFER	TRAVIS	GUADALUPE	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	WILLIAMSON	BRAZOS	FRESH	151	151	151	151	151	151
TRINITY AQUIFER	WILLIAMSON	COLORADO	FRESH	61	61	61	61	61	61
YEGUA-JACKSON AQUIFER	FAYETTE	COLORADO	FRESH	3,771	3,771	3,771	3,771	3,771	3,771
YEGUA-JACKSON AQUIFER	FAYETTE	GUADALUPE	FRESH	429	429	429	429	429	429
YEGUA-JACKSON AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
GROUNDWATER TOTAL SOURCE WATER BALANCE				**76,895**	**80,663**	**76,899**	**77,869**	**77,379**	**76,192**

REGION K

REUSE	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
DIRECT REUSE	LLANO	COLORADO	FRESH	0	0	0	0	0	0
DIRECT REUSE	TRAVIS	COLORADO	FRESH	12,864	26,821	39,012	48,962	54,212	54,212
DIRECT REUSE | CITY OF BUDA WWTP/SUNFIELD SUBDIVISION	HAYS	COLORADO	FRESH	2,240	2,240	2,240	2,240	2,240	2,240
DIRECT REUSE | CITY OF MARBLE FALLS WWTP/ CITY PARKS ; CITY OF BURNET WWTP/ REC CENTER	BURNET	COLORADO	FRESH	0	0	0	0	0	0
REUSE TOTAL SOURCE WATER BALANCE				**15,104**	**29,061**	**41,252**	**51,202**	**56,452**	**56,452**

REGION K

SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BLANCO LAKE/RESERVOIR	RESERVOIR	GUADALUPE	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	BASTROP	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	MILLS	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	WILLIAMSON	BRAZOS	FRESH	1	1	1	1	1	1

Source Water Balance (Availability- WUG Supply)

REGION K									
SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
				2020	2030	2040	2050	2060	2070
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	BRAZOS-COLORADO	FRESH	164	164	164	164	164	164
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	BRAZOS-COLORADO	FRESH	335	335	335	335	335	335
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	222	222	222	222	222	222
BRAZOS-COLORADO OTHER LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
BRAZOS-COLORADO RUN-OF-RIVER	MATAGORDA	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
BRAZOS-COLORADO RUN-OF-RIVER	WHARTON	BRAZOS-COLORADO	FRESH	2,000	2,000	2,000	2,000	2,000	2,000
BRAZOS-COLORADO RUN-OF-RIVER | SAN BERNARD	WHARTON	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	BASTROP	COLORADO	FRESH	660	660	660	660	660	660
COLORADO LIVESTOCK LOCAL SUPPLY	BLANCO	COLORADO	FRESH	334	334	334	334	334	334
COLORADO LIVESTOCK LOCAL SUPPLY	BURNET	COLORADO	FRESH	314	314	314	314	314	314
COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	COLORADO	FRESH	62	62	62	62	62	62
COLORADO LIVESTOCK LOCAL SUPPLY	FAYETTE	COLORADO	FRESH	157	157	157	157	157	157
COLORADO LIVESTOCK LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	515	515	515	515	515	515
COLORADO LIVESTOCK LOCAL SUPPLY	HAYS	COLORADO	FRESH	28	28	28	28	28	28
COLORADO LIVESTOCK LOCAL SUPPLY	LLANO	COLORADO	FRESH	337	337	337	337	337	337
COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	106	106	106	106	106	106
COLORADO LIVESTOCK LOCAL SUPPLY	MILLS	COLORADO	FRESH	263	263	263	263	263	263
COLORADO LIVESTOCK LOCAL SUPPLY	SAN SABA	COLORADO	FRESH	291	291	291	291	291	291
COLORADO LIVESTOCK LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO	FRESH	162	162	162	162	162	162
COLORADO OTHER LOCAL SUPPLY	BASTROP	COLORADO	FRESH	2	3	3	1	1	1
COLORADO OTHER LOCAL SUPPLY	BLANCO	COLORADO	FRESH	8	2	0	1	1	1
COLORADO OTHER LOCAL SUPPLY	COLORADO	COLORADO	FRESH	16,883	16,883	16,883	16,883	16,883	16,883
COLORADO OTHER LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	5,000	5,000	5,000	5,000	5,000	5,000
COLORADO OTHER LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	4,892	4,286	3,632	3,020	2,348	1,577
COLORADO RUN-OF-RIVER	BASTROP	COLORADO	FRESH	786	786	786	786	786	786

Source Water Balance (Availability- WUG Supply)

REGION K									
				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SURFACE WATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
COLORADO RUN-OF-RIVER	BLANCO	COLORADO	FRESH	67	67	67	67	67	67
COLORADO RUN-OF-RIVER	BURNET	COLORADO	FRESH	1,175	1,175	1,175	1,175	1,175	1,175
COLORADO RUN-OF-RIVER	COLORADO	COLORADO	FRESH	37,679	37,679	37,679	37,679	37,679	37,679
COLORADO RUN-OF-RIVER	FAYETTE	COLORADO	FRESH	534	534	534	534	534	534
COLORADO RUN-OF-RIVER	GILLESPIE	COLORADO	FRESH	880	880	880	880	880	880
COLORADO RUN-OF-RIVER	HAYS	COLORADO	FRESH	41	41	41	41	41	41
COLORADO RUN-OF-RIVER	LLANO	COLORADO	FRESH	1	1	1	1	1	1
COLORADO RUN-OF-RIVER	MATAGORDA	COLORADO	FRESH	12,925	12,525	12,125	10,925	11,325	10,925
COLORADO RUN-OF-RIVER	MILLS	COLORADO	FRESH	1	1	1	1	1	1
COLORADO RUN-OF-RIVER	SAN SABA	COLORADO	FRESH	6,790	6,790	6,790	6,790	6,790	6,790
COLORADO RUN-OF-RIVER	TRAVIS	COLORADO	FRESH	1	1	1	1	1	1
COLORADO RUN-OF-RIVER	WHARTON	COLORADO	FRESH	1,175	1,175	1,175	1,175	1,175	1,175
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO-LAVACA	FRESH	493	493	493	493	493	493
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO-LAVACA	FRESH	6	6	6	6	6	6
COLORADO-LAVACA RUN-OF-RIVER	MATAGORDA	COLORADO-LAVACA	FRESH	0	0	0	0	0	0
GOLDTHWAITE LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	BASTROP	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	BLANCO	GUADALUPE	FRESH	28	28	28	28	28	28
GUADALUPE LIVESTOCK LOCAL SUPPLY	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	GILLESPIE	GUADALUPE	FRESH	19	19	19	19	19	19
GUADALUPE LIVESTOCK LOCAL SUPPLY	TRAVIS	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	BLANCO	GUADALUPE	FRESH	0	0	0	0	0	0
HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	RESERVOIR	COLORADO	FRESH	58,710	53,546	48,757	47,223	47,023	46,889
LAVACA LIVESTOCK LOCAL SUPPLY	COLORADO	LAVACA	FRESH	288	288	288	288	288	288
LAVACA LIVESTOCK LOCAL SUPPLY	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
LAVACA RUN-OF-RIVER	COLORADO	LAVACA	FRESH	0	0	0	0	0	0
LAVACA RUN-OF-RIVER	FAYETTE	LAVACA	FRESH	20	20	20	20	20	20

Source Water Balance (Availability- WUG Supply)

REGION K									
				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SURFACE WATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
LLANO LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	0	0	0	0	0	0
SURFACE WATER TOTAL SOURCE WATER BALANCE				154,355	148,180	142,335	138,988	138,516	137,211
REGION K TOTAL SOURCE WATER BALANCE				246,354	257,904	260,486	268,059	272,347	269,855

APPENDIX ES.D

TWDB DB17 REPORT
WUG Unmet Needs Summary

Water User Group (WUG) Unmet Needs Summary

REGION K

	2020	2030	2040	2050	2060	2070
MUNICIPAL	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	622	4,356	5,006	5,731	6,512	7,377
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	120,822	113,478	102,187	76,539	55,295	27,924

*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The unmet needs shown in the WUG Unmet Needs Summary report are calculated by first deducting the WUG split's projected demand from the sum of its total existing water supply volume and all associated recommended water management strategy water volumes. If the WUG split has a greater future supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with unmet needs in the decade are included with the Needs totals. Unmet needs water volumes are shown as absolute values.

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APPENDIX ES.E

TWDB DB17 REPORTS

Recommended WUG Water Management Strategies

Recommended Water Management Strategy Projects with Capital Costs

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Primary Region: K

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
AQUA WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,549	1,960	2,502	3,248	4,254	5,639	$50	$50
AQUA WSC	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	2,500	2,500	4,000	4,000	4,000	4,000	$259	$259
AQUA WSC	K	LCRA - PRAIRIE SITE RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIR (2030 DECADE)	0	0	5,000	5,000	10,000	15,000	N/A	$1414
AQUA WSC	K	MUNICIPAL CONSERVATION - AQUA WSC	DEMAND REDUCTION	704	1,006	1,066	1,235	1,623	2,130	$352	$352
AUSTIN	K	CITY OF AUSTIN - AQUIFER STORAGE AND RECOVERY	K | TRINITY AQUIFER ASR | TRAVIS COUNTY	10,000	25,000	25,000	50,000	50,000	50,000	$604	$604
AUSTIN	K	CITY OF AUSTIN - CAPTURE LOCAL INFLOWS TO LADY BIRD LAKE	K | COLORADO RUN-OF-RIVER	1,000	1,000	1,000	1,000	1,000	1,000	$297	$297
AUSTIN	K	CITY OF AUSTIN - CONSERVATION	DEMAND REDUCTION	22,969	24,559	28,317	31,220	33,822	36,899	$342	$342
AUSTIN	K	CITY OF AUSTIN - DIRECT REUSE	K | DIRECT REUSE	5,429	10,429	20,429	22,929	25,429	27,929	$1347	$1347
AUSTIN	K	CITY OF AUSTIN - INDIRECT POTABLE REUSE THROUGH LADY BIRD LAKE	K | COLORADO INDIRECT REUSE	20,000	20,000	20,000	20,000	20,000	20,000	$180	$180
AUSTIN	K	CITY OF AUSTIN - LAKE AUSTIN OPERATIONS	K | COLORADO RUN-OF-RIVER	2,500	2,500	2,500	2,500	2,500	2,500	$10	$10
AUSTIN	K	CITY OF AUSTIN - LAKE LONG ENHANCED STORAGE	K | LAKE LONG/RESERVOIR	20,000	20,000	20,000	20,000	20,000	20,000	$187	$187
AUSTIN	K	CITY OF AUSTIN - LONGHORN DAM OPERATION IMPROVEMENTS	K | COLORADO RUN-OF-RIVER	3,000	3,000	3,000	3,000	3,000	3,000	$29	$29
AUSTIN	K	CITY OF AUSTIN - OTHER REUSE	K | DIRECT REUSE	1,000	1,000	1,500	2,000	2,500	3,000	$1022	$1022
AUSTIN	K	CITY OF AUSTIN - RAINWATER HARVESTING	K | RAINWATER HARVESTING	83	828	4,141	8,282	12,423	16,564	$3487	$3487
AUSTIN	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	19,258	17,749	22,990	22,874	26,759	30,312	$0	$0
AUSTIN	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	16,516	19,260	22,206	24,484	26,524	28,937	$50	$50
BARTON CREEK WEST WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	65	64	64	63	63	63	$50	$50
BARTON CREEK WEST WSC	K	MUNICIPAL CONSERVATION - BARTON CREEK WEST WSC	DEMAND REDUCTION	42	77	108	122	137	152	$282	$282
BASTROP	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	300	300	300	300	300	0	$937	N/A
BASTROP	K	DIRECT REUSE - BASTROP	K | DIRECT REUSE	0	0	300	600	1,120	1,120	N/A	$448
BASTROP	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	294	390	517	692	930	1,248	$50	$50
BASTROP	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	2,500	2,500	2,500	N/A	$2361
BASTROP	K	MUNICIPAL CONSERVATION - BASTROP	DEMAND REDUCTION	195	440	688	1,084	1,459	1,958	$303	$303
BASTROP COUNTY WCID #2	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	19	27	38	53	74	102	$50	$50
BASTROP COUNTY WCID #2	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	0	0	0	0	550	550	N/A	$369
BAY CITY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	568	579	582	591	599	606	$50	$50
BAY CITY	K	MUNICIPAL CONSERVATION - BAY CITY	DEMAND REDUCTION	252	199	114	94	95	96	$336	$336
BEE CAVE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	355	409	459	516	567	614	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
BEE CAVE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	300	300	600	600	800	800	$0	$0
BEE CAVE	K	MUNICIPAL CONSERVATION - BEE CAVE VILLAGE	DEMAND REDUCTION	175	374	608	863	1,136	1,323	$272	$272
BERTRAM	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	62	73	83	93	102	109	$50	$50
BERTRAM	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	180	180	180	180	180	180	$1044	$1044
BERTRAM	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	500	884	884	884	884	884	$952	$952
BERTRAM	K	MUNICIPAL CONSERVATION - BERTRAM	DEMAND REDUCTION	41	64	91	126	164	204	$292	$292
BLANCO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	55	63	68	71	73	74	$50	$50
BLANCO	K	MUNICIPAL CONSERVATION - BLANCO	DEMAND REDUCTION	19	32	28	26	27	27	$378	$378
BRIARCLIFF	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	26	30	33	37	40	44	$50	$50
BUDA	K	DIRECT REUSE - BUDA	K | DIRECT REUSE	2,240	2,240	1,740	1,740	1,740	1,740	$264	$264
BUDA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	177	251	342	456	586	734	$50	$50
BUDA	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	600	600	600	600	600	N/A	$1291
BUDA	K	HCPUA PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	667	1,690	2,467	2,467	2,467	N/A	$1926
BUDA	K	MUNICIPAL CONSERVATION - BUDA	DEMAND REDUCTION	88	206	434	552	709	888	$374	$374
BUDA	K	SALINE EDWARDS ASR	K | EDWARDS AQUIFER ASR FRESH/BRACKISH | TRAVIS COUNTY	0	100	100	100	100	100	N/A	$2031
BUDA	K	SALINE EDWARDS ASR (SALINE)	K | EDWARDS-BFZ AQUIFER SALINE | TRAVIS COUNTY	0	400	400	400	400	400	N/A	$2031
BURNET	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	370	441	500	559	612	658	$50	$50
BURNET	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	1,000	2,000	2,000	2,000	2,000	2,000	$952	$952
BURNET	K	MUNICIPAL CONSERVATION - BURNET	DEMAND REDUCTION	184	282	405	571	740	917	$291	$291
COLUMBUS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	170	175	178	185	191	197	$50	$50
COLUMBUS	K	MUNICIPAL CONSERVATION - COLUMBUS	DEMAND REDUCTION	112	206	296	347	404	464	$282	$282
COTTONWOOD SHORES	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	45	54	61	68	74	80	$50	$50
COTTONWOOD SHORES	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	376	700	700	700	700	700	$1517	$1517
COTTONWOOD SHORES	K	MUNICIPAL CONSERVATION - COTTONWOOD SHORES	DEMAND REDUCTION	22	21	20	19	21	23	$322	$322
COUNTY-OTHER, BASTROP	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	281	338	413	517	657	845	$50	$50
COUNTY-OTHER, BASTROP	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	60	60	60	60	60	0	$3267	N/A
COUNTY-OTHER, BASTROP	K	MUNICIPAL CONSERVATION - BASTROP COUNTY-OTHER	DEMAND REDUCTION	92	196	344	414	527	677	$374	$374
COUNTY-OTHER, BLANCO	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, BLANCO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	144	166	179	185	190	193	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
COUNTY-OTHER, BLANCO	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	0	0	0	55	55	55	N/A	$1382
COUNTY-OTHER, BLANCO	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - HICKORY AQUIFER	K | HICKORY AQUIFER | BLANCO COUNTY	0	0	0	55	55	55	N/A	$2182
COUNTY-OTHER, BURNET	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, BURNET	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	526	566	550	593	646	711	$50	$50
COUNTY-OTHER, BURNET	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	2,235	3,813	3,813	3,813	3,813	3,813	$1308	$1308
COUNTY-OTHER, BURNET	K	MUNICIPAL CONSERVATION - BURNET COUNTY-OTHER	DEMAND REDUCTION	60	93	83	80	87	94	$0	$0
COUNTY-OTHER, COLORADO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	221	223	223	229	237	245	$50	$50
COUNTY-OTHER, COLORADO	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | COLORADO COUNTY	226	226	226	226	226	226	$602	$602
COUNTY-OTHER, FAYETTE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	186	202	213	225	234	242	$50	$50
COUNTY-OTHER, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	639	639	639	639	639	639	$667	$667
COUNTY-OTHER, GILLESPIE	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, GILLESPIE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	273	284	295	310	327	343	$50	$50
COUNTY-OTHER, HAYS	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, HAYS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	466	554	693	852	987	1,121	$50	$50
COUNTY-OTHER, HAYS	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	200	200	200	200	200	N/A	$1291
COUNTY-OTHER, HAYS	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	2,000	2,000	2,000	2,000	2,000	N/A	$708
COUNTY-OTHER, HAYS	K	SALINE EDWARDS ASR	K | EDWARDS AQUIFER ASR FRESH/BRACKISH | TRAVIS COUNTY	0	100	100	100	100	100	N/A	$2031
COUNTY-OTHER, HAYS	K	SALINE EDWARDS ASR (SALINE)	K | EDWARDS-BFZ AQUIFER SALINE | TRAVIS COUNTY	0	100	100	100	100	100	N/A	$2031
COUNTY-OTHER, HAYS	L	GBRA - MBWSP - SURFACE WATER W/ ASR (OPTION 3C)	L | GUADALUPE RUN-OF-RIVER	0	0	0	0	2,029	7,220	N/A	$596
COUNTY-OTHER, HAYS	L	TWA REGIONAL CARRIZO AQUIFER DEVELOPMENT	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	0	0	1,169	4,685	4,388	N/A	$2490
COUNTY-OTHER, HAYS	L	TWA TRINITY AQUIFER DEVELOPMENT	L | TRINITY AQUIFER | COMAL COUNTY	0	0	0	0	0	1,263	N/A	$704
COUNTY-OTHER, HAYS	L	VISTA RIDGE PROJECT	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	3,781	5,000	5,000	5,000	5,000	5,000	$680	$611
COUNTY-OTHER, LLANO	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, LLANO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	31	28	28	28	27	25	$50	$50
COUNTY-OTHER, MATAGORDA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	81	81	81	81	81	83	$50	$50
COUNTY-OTHER, MILLS	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, MILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	77	77	75	78	81	84	$50	$50
COUNTY-OTHER, SAN SABA	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
COUNTY-OTHER, SAN SABA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	47	48	47	46	47	48	$50	$50
COUNTY-OTHER, TRAVIS	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, WHARTON	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	299	306	310	322	333	343	$50	$50
CREEDMOOR-MAHA WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	30	34	38	42	46	51	$50	$50
CREEDMOOR-MAHA WSC	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	400	400	400	400	400	N/A	$151
CREEDMOOR-MAHA WSC	K	SALINE EDWARDS ASR	K | EDWARDS AQUIFER ASR FRESH/BRACKISH | TRAVIS COUNTY	0	101	101	101	101	101	N/A	$2031
CREEDMOOR-MAHA WSC	K	SALINE EDWARDS ASR (SALINE)	K | EDWARDS-BFZ AQUIFER SALINE | TRAVIS COUNTY	0	199	199	199	199	199	N/A	$2031
DRIPPING SPRINGS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	96	107	122	141	163	188	$50	$50
DRIPPING SPRINGS	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	0	0	0	134	407	N/A	$0
DRIPPING SPRINGS	K	MUNICIPAL CONSERVATION - DRIPPING SPRINGS	DEMAND REDUCTION	48	67	98	141	195	262	$293	$293
DRIPPING SPRINGS	K	WATER PURCHASE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	0	31	104	198	173	0	N/A	N/A
DRIPPING SPRINGS WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	107	136	172	218	271	330	$50	$50
DRIPPING SPRINGS WSC	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	1,000	1,000	1,000	866	593	N/A	$708
DRIPPING SPRINGS WSC	K	MUNICIPAL CONSERVATION - DRIPPING SPRINGS WSC	DEMAND REDUCTION	54	124	152	187	232	283	$313	$313
EAGLE LAKE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	78	79	79	82	85	87	$50	$50
EAST BERNARD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	57	59	61	63	65	67	$50	$50
EAST BERNARD	K	MUNICIPAL CONSERVATION - EAST BERNARD	DEMAND REDUCTION	19	29	42	56	78	97	$395	$395
ELGIN	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	233	301	386	500	650	844	$50	$50
ELGIN	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	300	300	0	0	0	0	$667	N/A
ELGIN	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	3,500	3,500	3,500	3,500	3,500	N/A	$2718
FAYETTE WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	113	125	133	141	148	152	$50	$50
FLATONIA	K	DIRECT REUSE - FLATONIA	K | DIRECT REUSE	134	149	159	168	176	182	$821	$821
FLATONIA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	51	56	59	63	65	68	$50	$50
FLATONIA	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	100	100	100	100	100	100	$2060	$2060
FLATONIA	K	MUNICIPAL CONSERVATION - FLATONIA	DEMAND REDUCTION	17	29	43	60	84	105	$356	$356
FREDERICKSBURG	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	472	499	521	551	580	609	$50	$50
FREDERICKSBURG	K	MUNICIPAL CONSERVATION - FREDERICKSBURG	DEMAND REDUCTION	317	599	733	916	1,094	1,301	$284	$284
GOLDTHWAITE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	53	53	53	55	57	59	$50	$50
GOLDTHWAITE	K	MUNICIPAL CONSERVATION - GOLDTHWAITE	DEMAND REDUCTION	10	13	24	38	54	58	$449	$449
GRANITE SHOALS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	33	38	43	48	53	57	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
GRANITE SHOALS	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	250	250	250	N/A	$151
HORSESHOE BAY	K	DIRECT REUSE - HORSESHOE BAY	K | DIRECT REUSE	100	100	100	100	100	100	$0	$0
HORSESHOE BAY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	651	748	810	860	930	994	$50	$50
HORSESHOE BAY	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	200	550	550	1,050	1,050	N/A	$151
HORSESHOE BAY	K	MUNICIPAL CONSERVATION - HORSESHOE BAY	DEMAND REDUCTION	264	554	852	1,157	1,501	1,839	$257	$257
IRRIGATION, COLORADO	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	0	0	466	336	485	0	N/A	N/A
IRRIGATION, COLORADO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	29,542	28,746	27,974	27,221	26,489	25,776	$163	$163
IRRIGATION, COLORADO	K	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	3,521	4,441	5,287	6,049	6,717	7,281	$162	$162
IRRIGATION, COLORADO	K	IRRIGATION CONSERVATION - OPERATION CONVEYANCE IMPROVEMENTS	DEMAND REDUCTION	916	2,904	4,791	6,527	8,092	9,364	$200	$200
IRRIGATION, COLORADO	K	IRRIGATION CONSERVATION - SPRINKLER	DEMAND REDUCTION	251	1,221	2,362	2,845	2,845	2,845	$36	$36
IRRIGATION, COLORADO	K	LCRA - INTERRUPTIBLE WATER FOR AGRICULTURE (LCRA WMP AMENDMENTS)	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	25,007	18,363	8,775	4,387	0	0	$50	N/A
IRRIGATION, MATAGORDA	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	8,832	9,326	11,356	13,011	14,876	17,560	$0	$0
IRRIGATION, MATAGORDA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	37,244	36,228	35,238	34,276	33,340	32,429	$649	$649
IRRIGATION, MATAGORDA	K	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	9,947	13,109	16,369	19,741	23,234	26,865	$162	$162
IRRIGATION, MATAGORDA	K	IRRIGATION CONSERVATION - OPERATION CONVEYANCE IMPROVEMENTS	DEMAND REDUCTION	2,587	8,572	14,836	21,300	27,986	34,548	$200	$200
IRRIGATION, MATAGORDA	K	IRRIGATION CONSERVATION - SPRINKLER	DEMAND REDUCTION	711	3,604	7,316	9,286	9,286	9,286	$36	$36
IRRIGATION, MATAGORDA	K	LCRA - INTERRUPTIBLE WATER FOR AGRICULTURE (LCRA WMP AMENDMENTS)	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	36,997	23,109	9,221	4,611	0	0	$50	N/A
IRRIGATION, MILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	125	95	65	36	7	0	$123	N/A
IRRIGATION, MILLS	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | MILLS COUNTY	480	480	480	480	480	480	$1619	$1619
IRRIGATION, WHARTON	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	6,361	6,494	7,216	7,546	7,546	8,484	$0	$0
IRRIGATION, WHARTON	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	27,855	27,106	26,376	25,666	24,976	24,305	$260	$260
IRRIGATION, WHARTON	K	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	6,533	8,450	10,343	12,211	14,049	15,853	$162	$162
IRRIGATION, WHARTON	K	IRRIGATION CONSERVATION - OPERATION CONVEYANCE IMPROVEMENTS	DEMAND REDUCTION	1,698	5,525	9,374	13,175	16,922	20,388	$200	$200
IRRIGATION, WHARTON	K	IRRIGATION CONSERVATION - SPRINKLER	DEMAND REDUCTION	467	2,323	4,622	5,743	5,743	5,743	$36	$36
IRRIGATION, WHARTON	K	LCRA - INTERRUPTIBLE WATER FOR AGRICULTURE (LCRA WMP AMENDMENTS)	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	15,876	7,192	1,452	726	0	0	$50	N/A
IRRIGATION, WHARTON	P	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	41,338	41,338	41,338	41,338	41,338	41,338	$76	$76
IRRIGATION, WHARTON	P	IRRIGATION CONSERVATION - TAILWATER RECOVERY	DEMAND REDUCTION	8,429	8,429	8,429	8,429	8,429	8,429	$423	$423

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
IRRIGATION, WHARTON	P	LOCAL OFF-CHANNEL RESERVOIR - WHARTON COUNTY (LANE CITY)	K | COLORADO RUN-OF-RIVER	12,000	12,000	12,000	12,000	12,000	12,000	$33	$33
JOHNSON CITY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	71	82	89	92	95	96	$50	$50
JOHNSON CITY	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	175	175	175	175	175	175	$800	$800
JOHNSON CITY	K	MUNICIPAL CONSERVATION - JOHNSON CITY	DEMAND REDUCTION	18	30	30	28	26	26	$378	$378
JONESTOWN	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	82	86	90	95	99	104	$50	$50
JONESTOWN	K	MUNICIPAL CONSERVATION - JONESTOWN	DEMAND REDUCTION	20	36	51	73	96	122	$356	$356
KINGSLAND WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	47	54	53	50	56	60	$50	$50
LA GRANGE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	130	144	153	161	168	174	$50	$50
LA GRANGE	K	MUNICIPAL CONSERVATION - LA GRANGE	DEMAND REDUCTION	42	21	0	0	0	0	$396	N/A
LAGO VISTA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	374	437	498	566	628	686	$50	$50
LAGO VISTA	K	MUNICIPAL CONSERVATION - LAGO VISTA	DEMAND REDUCTION	187	301	426	604	773	972	$291	$291
LAKEWAY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,395	1,823	1,819	1,816	1,815	1,815	$50	$50
LAKEWAY	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	500	500	500	500	500	500	$570	$570
LAKEWAY	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	1,000	1,000	1,000	1,000	1,000	1,000	$0	$0
LAKEWAY	K	MUNICIPAL CONSERVATION - LAKEWAY	DEMAND REDUCTION	702	1,652	2,408	3,052	3,640	3,921	$272	$272
LLANO	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - HICKORY AQUIFER	K | HICKORY AQUIFER | LLANO COUNTY	200	200	200	200	200	200	$1270	$1270
LLANO	K	DIRECT REUSE - LLANO	K | DIRECT REUSE	100	100	100	100	100	100	$660	$660
LLANO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	129	134	132	128	133	137	$50	$50
LLANO	K	MUNICIPAL CONSERVATION - LLANO	DEMAND REDUCTION	88	118	143	169	209	252	$291	$291
LOOP 360 WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	176	183	190	197	204	211	$50	$50
LOOP 360 WSC	K	MUNICIPAL CONSERVATION - LOOP 360 WSC	DEMAND REDUCTION	116	224	333	441	546	648	$258	$258
LOST CREEK MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	218	214	211	211	211	211	$50	$50
LOST CREEK MUD	K	MUNICIPAL CONSERVATION - LOST CREEK MUD	DEMAND REDUCTION	108	137	171	215	254	294	$291	$291
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	20,594	18,530	19,919	19,519	19,999	22,526	$0	$0
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	CITY OF PFLUGERVILLE - DOWNSTREAM RETURN FLOWS	K | COLORADO INDIRECT REUSE - DOWNSTREAM RETURN FLOWS	5,086	5,834	6,784	8,636	8,997	10,453	$0	$0
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - ACQUIRE ADDITIONAL WATER RIGHTS	K | COLORADO RUN-OF-RIVER	250	250	250	250	250	250	$500	$0
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - EXCESS FLOWS RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	15,257	15,543	15,830	16,117	16,404	16,691	$1446	$1446
MANOR	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	171	234	294	362	422	477	$50	$50
MANOR	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	0	600	600	600	600	600	N/A	$545

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
MANUFACTURING, BASTROP	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	55	87	120	151	174	199	$995	$995
MANUFACTURING, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	391	391	391	391	391	391	$547	$547
MANUFACTURING, GILLESPIE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	626	626	626	626	626	626	$594	$594
MANVILLE WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	448	541	630	733	825	911	$50	$50
MANVILLE WSC	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	0	0	0	1,000	1,000	1,000	N/A	$537
MANVILLE WSC	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	500	2,000	2,000	N/A	$151
MARBLE FALLS	K	DIRECT REUSE - MARBLE FALLS	K | DIRECT REUSE	11	11	11	11	11	11	$0	$0
MARBLE FALLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	466	674	968	1,122	1,225	1,277	$50	$50
MARBLE FALLS	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	500	4,000	4,000	4,000	4,000	4,000	$1517	$1517
MARBLE FALLS	K	MUNICIPAL CONSERVATION - MARBLE FALLS	DEMAND REDUCTION	234	587	1,016	1,397	1,764	2,059	$286	$286
MEADOWLAKES	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	170	204	233	261	286	308	$50	$50
MEADOWLAKES	K	MUNICIPAL CONSERVATION - MEADOWLAKES	DEMAND REDUCTION	84	188	309	443	573	708	$271	$271
MINING, BASTROP	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	0	0	466	466	466	466	N/A	$689
MINING, BASTROP	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	K | QUEEN CITY AQUIFER | BASTROP COUNTY	110	306	0	0	0	0	$755	N/A
MINING, BURNET	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	1,500	1,500	1,500	1,500	1,500	1,500	$950	$950
MINING, BURNET	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - HICKORY AQUIFER	K | HICKORY AQUIFER | BURNET COUNTY	0	500	1,000	1,800	1,800	1,800	N/A	$718
MINING, BURNET	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - MARBLE FALLS AQUIFER	K | MARBLE FALLS AQUIFER | BURNET COUNTY	0	0	0	0	1,000	1,500	N/A	$469
MINING, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	1,920	1,520	1,061	618	344	344	$388	$622
MINING, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - SPARTA AQUIFER	K | SPARTA AQUIFER | FAYETTE COUNTY	66	42	13	0	0	0	$1030	N/A
MINING, HAYS	K	DIRECT REUSE - BUDA	K | DIRECT REUSE	0	0	500	500	500	500	N/A	$0
MINING, HAYS	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	100	100	100	100	100	N/A	$1291
MINING, HAYS	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | HAYS COUNTY	531	761	1,047	1,047	1,047	1,047	$436	$436
MOUNTAIN CITY	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	44	44	44	44	44	N/A	$1291
MOUNTAIN CITY	L	DROUGHT MANAGEMENT - MOUNTAIN CITY	DEMAND REDUCTION	1	0	0	0	0	0	$14	N/A
MOUNTAIN CITY	L	LOCAL TRINITY AQUIFER DEVELOPMENT	K | TRINITY AQUIFER | HAYS COUNTY	60	60	60	60	60	60	$1300	$1300
MOUNTAIN CITY	L	MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION	0	0	0	0	0	1	N/A	$770
NORTH AUSTIN MUD #1	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	128	124	121	118	118	118	$50	$50
NORTHTOWN MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	104	120	135	152	167	180	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
PALACIOS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	102	104	104	105	107	108	$50	$50
PFLUGERVILLE	K	DIRECT REUSE - PFLUGERVILLE	K | DIRECT REUSE	500	1,000	2,000	2,000	4,000	4,000	$228	$228
PFLUGERVILLE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	3,194	4,276	5,311	6,474	7,503	8,463	$50	$50
PFLUGERVILLE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - EDWARDS-BFZ AQUIFER	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	1,000	1,000	1,000	1,000	N/A	$371
PFLUGERVILLE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	3,000	3,000	4,000	N/A	$151
PFLUGERVILLE	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	0	0	2,000	N/A	$151
PFLUGERVILLE	K	MUNICIPAL CONSERVATION - PFLUGERVILLE	DEMAND REDUCTION	604	2,105	2,625	3,029	3,514	3,966	$295	$295
POINT VENTURE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	52	66	80	96	109	122	$50	$50
POINT VENTURE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	100	100	300	300	300	N/A	$151
POINT VENTURE	K	MUNICIPAL CONSERVATION - POINT VENTURE	DEMAND REDUCTION	34	82	139	191	241	301	$282	$282
ROLLINGWOOD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	58	57	56	56	56	57	$50	$50
ROLLINGWOOD	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	400	400	400	400	400	N/A	$151
ROLLINGWOOD	K	MUNICIPAL CONSERVATION - ROLLINGWOOD	DEMAND REDUCTION	38	67	79	91	104	118	$286	$286
SAN SABA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	228	236	235	230	235	240	$50	$50
SAN SABA	K	MUNICIPAL CONSERVATION - SAN SABA	DEMAND REDUCTION	114	211	302	377	463	510	$275	$275
SCHULENBURG	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	110	123	132	139	146	150	$50	$50
SCHULENBURG	K	MUNICIPAL CONSERVATION - SCHULENBURG	DEMAND REDUCTION	37	63	96	141	188	232	$343	$343
SHADY HOLLOW MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	117	114	111	110	110	110	$50	$50
SHADY HOLLOW MUD	K	MUNICIPAL CONSERVATION - SHADY HOLLOW MUD	DEMAND REDUCTION	38	16	0	0	0	0	$397	N/A
SMITHVILLE	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	K | QUEEN CITY AQUIFER | BASTROP COUNTY	0	0	0	0	0	150	N/A	$1607
SMITHVILLE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	126	161	208	273	362	480	$50	$50
SMITHVILLE	K	MUNICIPAL CONSERVATION - SMITHVILLE	DEMAND REDUCTION	44	72	76	88	117	155	$376	$376
STEAM ELECTRIC POWER, BASTROP	K	LCRA - EXPAND USE OF GROUNDWATER (CARRIZO-WILCOX AQUIFER)	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	300	300	300	300	300	300	$1517	$1517
STEAM ELECTRIC POWER, FAYETTE	K	CITY OF AUSTIN - LAKE LONG ENHANCED STORAGE	K | LAKE LONG/RESERVOIR	2,000	2,000	2,000	2,000	2,000	2,000	$187	$187
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - GROUNDWATER SUPPLY FOR FPP (OFF-SITE)	K | CARRIZO-WILCOX AQUIFER | FAYETTE COUNTY	500	500	500	500	500	500	$1113	$1113
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - GROUNDWATER SUPPLY FOR FPP (OFF-SITE)	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	2,000	2,000	2,000	2,000	2,000	2,000	$1113	$1113
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - GROUNDWATER SUPPLY FOR FPP (ON-SITE)	K | GULF COAST AQUIFER | FAYETTE COUNTY	700	700	700	700	700	700	$496	$496
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	6,000	7,000	9,000	11,000	13,000	15,000	$151	$151
STEAM ELECTRIC POWER, MATAGORDA	K	BLEND BRACKISH SURFACE WATER IN STPNOC RESERVOIR	K | GULF OF MEXICO SALINE	3,000	3,000	3,000	3,000	3,000	3,000	$0	$0

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
STEAM ELECTRIC POWER, MATAGORDA	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	770	710	766	763	764	859	$0	$0
STEAM ELECTRIC POWER, MATAGORDA	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	22,727	22,727	22,727	22,727	22,727	22,727	$151	$151
STEAM ELECTRIC POWER, TRAVIS	K	CITY OF AUSTIN - DIRECT REUSE	K | DIRECT REUSE	3,500	7,500	7,500	8,500	9,500	10,500	$1347	$1347
STEAM ELECTRIC POWER, TRAVIS	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	0	4,543	11,030	N/A	$151
STEAM ELECTRIC POWER, WHARTON	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | WHARTON COUNTY	0	0	0	0	200	200	N/A	$1035
SUNRISE BEACH VILLAGE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	4	4	4	3	3	3	$50	$50
SUNSET VALLEY	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	0	0	200	200	200	200	N/A	$1035
SUNSET VALLEY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	116	150	182	218	250	280	$50	$50
SUNSET VALLEY	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	200	200	200	200	200	N/A	$1291
SUNSET VALLEY	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	715	715	715	715	715	N/A	$151
SUNSET VALLEY	K	MUNICIPAL CONSERVATION - SUNSET VALLEY	DEMAND REDUCTION	38	90	158	241	305	366	$276	$276
THE HILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	217	217	216	216	216	216	$50	$50
THE HILLS	K	MUNICIPAL CONSERVATION - THE HILLS	DEMAND REDUCTION	144	272	386	487	581	665	$263	$263
TRAVIS COUNTY MUD #4	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	522	602	677	762	837	907	$50	$50
TRAVIS COUNTY MUD #4	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY MUD #4	DEMAND REDUCTION	262	564	912	1,302	1,705	2,114	$251	$251
TRAVIS COUNTY WCID #10	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	532	607	679	761	835	905	$50	$50
TRAVIS COUNTY WCID #10	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	3,000	3,000	3,000	3,000	3,000	N/A	$151
TRAVIS COUNTY WCID #10	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #10	DEMAND REDUCTION	213	445	707	996	1,316	1,533	$275	$275
TRAVIS COUNTY WCID #17	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,268	1,508	1,653	1,678	1,722	1,776	$50	$50
TRAVIS COUNTY WCID #17	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	1,000	2,000	2,000	2,000	2,000	2,000	$151	$151
TRAVIS COUNTY WCID #17	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #17	DEMAND REDUCTION	853	1,825	2,399	2,889	3,325	4,645	$289	$289
TRAVIS COUNTY WCID #18	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	168	190	211	236	259	280	$50	$50
TRAVIS COUNTY WCID #18	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #18	DEMAND REDUCTION	60	95	87	87	96	104	$375	$375
TRAVIS COUNTY WCID #19	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	100	99	99	99	99	99	$50	$50
TRAVIS COUNTY WCID #19	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #19	DEMAND REDUCTION	50	92	131	166	199	229	$255	$255
TRAVIS COUNTY WCID #20	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	118	117	117	117	116	116	$50	$50
TRAVIS COUNTY WCID #20	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #20	DEMAND REDUCTION	59	110	153	197	234	268	$261	$261
VOLENTE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	4	4	5	6	7	7	$50	$50
VOLENTE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	142	142	142	142	142	142	$7644	$7644
WEIMAR	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	83	85	87	90	92	96	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
WEIMAR	K	MUNICIPAL CONSERVATION - WEIMAR	DEMAND REDUCTION	56	74	90	117	144	171	$290	$290
WELLS BRANCH MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	88	86	85	84	84	84	$50	$50
WEST LAKE HILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	313	310	308	307	306	306	$50	$50
WEST LAKE HILLS	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	1,300	1,300	1,300	1,300	1,300	N/A	$151
WEST LAKE HILLS	K	MUNICIPAL CONSERVATION - WEST LAKE HILLS	DEMAND REDUCTION	157	286	398	505	609	700	$267	$267
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,292	1,696	2,170	2,757	3,400	4,120	$50	$50
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	1,000	1,000	1,000	1,000	1,000	N/A	$708
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	700	2,900	3,400	6,200	6,200	N/A	$151
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	MUNICIPAL CONSERVATION - WEST TRAVIS COUNTY PUA	DEMAND REDUCTION	639	1,575	2,873	4,665	6,874	9,574	$267	$267
WHARTON	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	250	259	265	274	283	291	$50	$50
WHARTON	K	MUNICIPAL CONSERVATION - WHARTON	DEMAND REDUCTION	168	134	176	171	176	182	$312	$312
			Region K Total RecommendedWMS Supplies	538,369	598,375	649,286	725,008	789,681	866,675		

Recommended Projects Associated with Water Management Strategies

Project Sponosr Region: K

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
AQUA WSC	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - AQUA WSC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$9,777,000	2020
AQUA WSC	N	MUNICIPAL CONSERVATION - AQUA WSC	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$1,384,870	2020
AQUA WSC	N	NEW SURFACE WATER INFRASTRUCTURE - AQUA WSC	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$127,538,000	2040
AUSTIN	Y	CITY OF AUSTIN - AQUIFER STORAGE AND RECOVERY	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; PUMP STATION; WATER TREATMENT PLANT EXPANSION	$312,316,000	2020
AUSTIN	Y	CITY OF AUSTIN - CAPTURE LOCAL INFLOWS TO LADY BIRD LAKE	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION	$2,949,000	2020
AUSTIN	Y	CITY OF AUSTIN - DIRECT REUSE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; WATER TREATMENT PLANT EXPANSION	$536,176,000	2020
AUSTIN	Y	CITY OF AUSTIN - INDIRECT POTABLE REUSE THROUGH LADY BIRD LAKE	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION	$41,970,000	2020
AUSTIN	Y	CITY OF AUSTIN - LAKE LONG ENHANCED STORAGE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$31,041,000	2020
AUSTIN	Y	CITY OF AUSTIN - LONGHORN DAM OPERATIONS IMPROVEMENTS	WATER LOSS CONTROL	$1,036,000	2020
AUSTIN	Y	CITY OF AUSTIN - OTHER REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$21,772,000	2020
AUSTIN	Y	CITY OF AUSTIN - RAINWATER HARVESTING	MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); STORAGE TANK	$690,167,000	2020
AUSTIN	Y	CITY OF AUSTIN CONSERVATION	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$41,434,437	2020
BARTON CREEK WEST WSC	N	MUNICIPAL CONSERVATION - BARTON CREEK WEST WSC	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$38,391	2020
BASTROP	N	DEVELOPMENT OF NEW CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,976,000	2020
BASTROP	N	DIRECT REUSE - BASTROP	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$4,625,000	2040
BASTROP	N	MUNICIPAL CONSERVATION - BASTROP	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$224,866	2020
BASTROP	N	NEW SURFACE WATER INFRASTRUCTURE - BASTROP	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION	$34,858,000	2050
BASTROP COUNTY WCID #2	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY WCID #2	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2060
BAY CITY	N	MUNICIPAL CONSERVATION - BAY CITY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$405,403	2020
BEE CAVE	N	MUNICIPAL CONSERVATION - BEE CAVE VILLAGE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$137,097	2020
BERTRAM	N	BUENA VISTA REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$4,523,170	2020
BERTRAM	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - BERTRAM	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,031,000	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
BERTRAM	N	MUNICIPAL CONSERVATION - BERTRAM	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$41,421	2020
BLANCO	N	MUNICIPAL CONSERVATION - BLANCO	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$47,867	2020
BUDA	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$6,818,182	2030
BUDA	N	BS/EACD SALINE EDWARDS ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$7,500,000	2030
BUDA	N	DIRECT REUSE - BUDA	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$6,075,000	2020
BUDA	N	MUNICIPAL CONSERVATION - BUDA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$221,686	2020
BURNET	N	BUENA VISTA REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$10,233,415	2020
BURNET	N	MUNICIPAL CONSERVATION - BURNET	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$184,386	2020
CEDAR PARK	Y	MUNICIPAL CONSERVATION - CEDAR PARK	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$238,695	2020
COLUMBUS	N	MUNICIPAL CONSERVATION - COLUMBUS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$100,974	2020
COTTONWOOD SHORES	N	MARBLE FALLS REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$6,099,086	2020
COTTONWOOD SHORES	N	MUNICIPAL CONSERVATION - COTTONWOOD SHORES	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$30,672	2020
COUNTY-OTHER, BASTROP	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2020
COUNTY-OTHER, BASTROP	N	MUNICIPAL CONSERVATION - BASTROP COUNTY OTHER	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$232,736	2020
COUNTY-OTHER, BLANCO	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, BLANCO	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - BLANCO COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$821,000	2050
COUNTY-OTHER, BLANCO	N	EXPANSION OF HICKORY AQUIFER SUPPLIES - BLANCO COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$1,316,000	2050
COUNTY-OTHER, BURNET	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, BURNET	N	BUENA VISTA REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$10,233,415	2020
COUNTY-OTHER, BURNET	N	EAST LAKE BUCHANAN REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$10,337,000	2020
COUNTY-OTHER, BURNET	N	MARBLE FALLS REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$7,649,996	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
COUNTY-OTHER, BURNET	N	MUNICIPAL CONSERVATION - BURNET COUNTY-OTHER	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$164,771	2020
COUNTY-OTHER, COLORADO	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - COLORADO COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$1,466,000	2020
COUNTY-OTHER, FAYETTE	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FAYETTE COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$4,558,000	2020
COUNTY-OTHER, GILLESPIE	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, HAYS	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, HAYS	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$2,272,727	2030
COUNTY-OTHER, HAYS	N	BS/EACD SALINE EDWARDS ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$3,000,000	2030
COUNTY-OTHER, HAYS	N	HAYS COUNTY PIPELINE - REGION K PORTION	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$11,739,500	2030
COUNTY-OTHER, LLANO	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, MILLS	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, SAN SABA	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, TRAVIS	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
CREEDMOOR-MAHA WSC	N	BS/EACD SALINE EDWARDS ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$4,500,000	2030
DRIPPING SPRINGS	N	MUNICIPAL CONSERVATION - DRIPPING SPRINGS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$49,510	2020
DRIPPING SPRINGS WSC	N	HAYS COUNTY PIPELINE - REGION K PORTION	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$5,869,750	2030
DRIPPING SPRINGS WSC	N	MUNICIPAL CONSERVATION - DRIPPING SPRINGS WSC	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$68,043	2020
EAST BERNARD	N	MUNICIPAL CONSERVATION - EAST BERNARD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$52,607	2020
ELGIN	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - ELGIN	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2020
ELGIN	N	NEW SURFACE WATER INFRASTRUCTURE - ELGIN	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$61,623,000	2030
FLATONIA	N	DIRECT REUSE - FLATONIA	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$1,226,000	2020
FLATONIA	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FLATONIA	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,241,000	2020
FLATONIA	N	MUNICIPAL CONSERVATION - FLATONIA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$37,553	2020
FREDERICKSBURG	N	MUNICIPAL CONSERVATION - FREDERICKSBURG	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$291,489	2020
GOLDTHWAITE	N	MUNICIPAL CONSERVATION - GOLDTHWAITE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$41,809	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
HORSESHOE BAY	N	MUNICIPAL CONSERVATION - HORSESHOE BAY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$154,204	2020
IRRIGATION, COLORADO	N	IRRIGATION CONSERVATION - ON FARM	ON FARM IRRIGATION CONSERVATION	$14,210,709	2020
IRRIGATION, COLORADO	N	IRRIGATION CONSERVATION - SPRINKLER	ON FARM IRRIGATION CONSERVATION	$1,234,855	2020
IRRIGATION, COLORADO	N	IRRIGATION OPERATIONS CONVEYANCE IMPROVEMENTS	CANAL LINING; ON FARM IRRIGATION CONSERVATION	$22,581,627	2020
IRRIGATION, MATAGORDA	N	IRRIGATION CONSERVATION - ON FARM	ON FARM IRRIGATION CONSERVATION	$52,428,108	2020
IRRIGATION, MATAGORDA	N	IRRIGATION CONSERVATION - SPRINKLER	ON FARM IRRIGATION CONSERVATION	$4,030,116	2020
IRRIGATION, MATAGORDA	N	IRRIGATION OPERATIONS CONVEYANCE IMPROVEMENTS	CANAL LINING; ON FARM IRRIGATION CONSERVATION	$83,311,250	2020
IRRIGATION, MILLS	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - MILLS COUNTY IRRIGATION	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$8,289,000	2020
IRRIGATION, WHARTON	N	IRRIGATION CONSERVATION - ON FARM	ON FARM IRRIGATION CONSERVATION	$30,939,183	2020
IRRIGATION, WHARTON	N	IRRIGATION CONSERVATION - SPRINKLER	ON FARM IRRIGATION CONSERVATION	$2,492,779	2020
IRRIGATION, WHARTON	N	IRRIGATION OPERATIONS CONVEYANCE IMPROVEMENTS	CANAL LINING; ON FARM IRRIGATION CONSERVATION	$49,164,123	2020
JOHNSON CITY	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - JOHNSON CITY	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$1,505,000	2020
JOHNSON CITY	N	MUNICIPAL CONSERVATION - JOHNSON CITY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$45,790	2020
JONESTOWN	N	MUNICIPAL CONSERVATION - JONESTOWN	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$46,456	2020
LA GRANGE	N	MUNICIPAL CONSERVATION - LA GRANGE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$117,647	2020
LAGO VISTA	N	MUNICIPAL CONSERVATION - LAGO VISTA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$187,406	2020
LAKEWAY	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - LAKEWAY	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,985,000	2020
LAKEWAY	N	MUNICIPAL CONSERVATION - LAKEWAY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$544,773	2020
LLANO	N	DEVELOPMENT OF NEW HICKORY AQUIFER SUPPLIES - LLANO	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,743,000	2020
LLANO	N	DIRECT REUSE - LLANO	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$689,000	2020
LLANO	N	MUNICIPAL CONSERVATION - LLANO	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$87,599	2020
LOOP 360 WSC	N	MUNICIPAL CONSERVATION - LOOP 360	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$71,683	2020
LOST CREEK MUD	N	MUNICIPAL CONSERVATION - LOST CREEK MUD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$108,519	2020
LOWER COLORADO RIVER AUTHORITY	Y	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - LCRA	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; STORAGE TANK	$4,564,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - ACQUIRE ADDITIONAL WATER RIGHTS	WATER RIGHT/PERMIT LEASE OR PURCHASE	$125,000	2020

Recommended Projects Associated with Water Management Strategies

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LOWER COLORADO RIVER AUTHORITY	Y	LCRA - ENHANCED MUNICIPAL AND INDUSTRIAL CONSERVATION	MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$64,099,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - EXCESS FLOWS PERMIT OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$298,000,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - GROUNDWATER SUPPLY FOR FPP (OFF-SITE)	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; STORAGE TANK	$20,107,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - GROUNDWATER SUPPLY FOR FPP (ON-SITE)	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION	$2,749,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - LANE CITY OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$218,593,000	2017
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - MID-BASIN OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$298,000,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - PRAIRIE SITE OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$376,000,000	2030
MANOR	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - MANOR	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,442,000	2030
MANUFACTURING, BASTROP	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY MANUFACTURING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2020
MANUFACTURING, FAYETTE	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FAYETTE COUNTY MANUFACTURING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,279,000	2020
MANUFACTURING, GILLESPIE	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - GILLESPIE COUNTY MANUFACTURING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,880,000	2020
MANVILLE WSC	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - MANVILLE WSC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$5,431,000	2050
MARBLE FALLS	N	MARBLE FALLS REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$34,851,918	2020
MARBLE FALLS	N	MUNICIPAL CONSERVATION - MARBLE FALLS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$221,276	2020
MEADOWLAKES	N	MUNICIPAL CONSERVATION - MEADOWLAKES	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$64,541	2020
MINING, BASTROP	N	DEVELOPMENT OF NEW CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,391,000	2040
MINING, BASTROP	N	DEVELOPMENT OF NEW QUEEN CITY AQUIFER SUPPLIES - BASTROP COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,446,000	2020
MINING, BURNET	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - BURNET COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$13,418,000	2020
MINING, BURNET	N	EXPANSION OF HICKORY AQUIFER SUPPLIES - BURNET COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$13,437,000	2030
MINING, BURNET	N	EXPANSION OF MARBLE FALLS AQUIFER SUPPLIES - BURNET COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$7,257,000	2060
MINING, FAYETTE	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FAYETTE COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$7,520,000	2020
MINING, FAYETTE	N	EXPANSION OF SPARTA AQUIFER SUPPLIES - FAYETTE COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$753,000	2020
MINING, HAYS	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$1,136,364	2030
MINING, HAYS	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - HAYS COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$4,652,000	2020
MOUNTAIN CITY	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$500,000	2030
PFLUGERVILLE	N	DIRECT REUSE - PFLUGERVILLE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK	$7,959,000	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
PFLUGERVILLE	N	EXPANSION OF EDWARDS (BFZ) AQUIFER SUPPLIES - PFLUGERVILLE	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,729,000	2040
PFLUGERVILLE	N	MUNICIPAL CONSERVATION - PFLUGERVILLE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$1,701,900	2020
POINT VENTURE	N	MUNICIPAL CONSERVATION - POINT VENTURE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$31,028	2020
ROLLINGWOOD	N	MUNICIPAL CONSERVATION - ROLLINGWOOD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$36,238	2020
ROUND ROCK	Y	MUNICIPAL CONSERVATION - ROUND ROCK	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$36,147	2020
SAN SABA	N	MUNICIPAL CONSERVATION - SAN SABA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$91,823	2020
SCHULENBURG	N	MUNICIPAL CONSERVATION - SCHULENBURG	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$78,947	2020
SHADY HOLLOW MUD	N	MUNICIPAL CONSERVATION - SHADY HOLLOW MUD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$106,952	2020
SMITHVILLE	N	DEVELOPMENT OF NEW QUEEN CITY AQUIFER SUPPLIES - SMITHVILLE	CONVEYANCE/TRANSMISSION PIPELINE; SINGLE WELL	$2,620,000	2070
SMITHVILLE	N	MUNICIPAL CONSERVATION - SMITHVILLE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$109,412	2020
STEAM ELECTRIC POWER, MATAGORDA	N	ALTERNATE CANAL DELIVERY - STPNOC	CONVEYANCE/TRANSMISSION PIPELINE	$7,669,000	2020
STEAM ELECTRIC POWER, WHARTON	N	DEVELOPMENT OF NEW GULF COAST AQUIFER SUPPLIES - WHARTON COUNTY STEAM-ELECTRIC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,237,000	2060
SUNSET VALLEY	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$2,272,727	2030
SUNSET VALLEY	N	DEVELOPMENT OF NEW TRINITY AQUIFER SUPPLIES - SUNSET VALLEY	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,228,000	2040
SUNSET VALLEY	N	MUNICIPAL CONSERVATION - SUNSET VALLEY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$31,520	2020
THE HILLS	N	MUNICIPAL CONSERVATION - THE HILLS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$97,374	2020
TRAVIS COUNTY MUD #4	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY MUD #4	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$137,248	2020
TRAVIS COUNTY WCID #10	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #10	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$171,890	2020
TRAVIS COUNTY WCID #17	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #17	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$828,248	2020
TRAVIS COUNTY WCID #18	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #18	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$147,665	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
TRAVIS COUNTY WCID #19	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #19	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$28,215	2020
TRAVIS COUNTY WCID #20	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #20	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$38,290	2020
VOLENTE	N	NEW SURFACE WATER INFRASTRUCTURE - VOLENTE	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$8,263,000	2020
WEIMAR	N	MUNICIPAL CONSERVATION - WEIMAR	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$55,778	2020
WEST LAKE HILLS	N	MUNICIPAL CONSERVATION - WEST LAKE HILLS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$112,784	2020
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	N	HAYS COUNTY PIPELINE - REGION K PORTION	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$5,869,750	2030
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	N	MUNICIPAL CONSERVATION - WEST TRAVIS COUNTY PUA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$461,454	2020
WHARTON	N	MUNICIPAL CONSERVATION - WHARTON	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$210,832	2020

Region K Total Recommended Capital Cost	**$3,772,705,672**

***Projects with a capital cost of zero are excluded from the report list.**

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APPENDIX ES.F

TWDB DB17 REPORTS
Alternative WUG Water Management Strategies
Alternative Water Management Strategy Projects with Capital Costs

Alternative Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Primary Region: K

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
AUSTIN	K	CITY OF AUSTIN - BRACKISH GROUNDWATER DESALINATION	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	5,000	5,000	5,000	5,000	5,000	N/A	$1523
AUSTIN	K	CITY OF AUSTIN - RECLAIMED WATER BANK INFILTRATION TO COLORADO ALLUVIUM	K | OTHER AQUIFER | TRAVIS COUNTY	0	15,000	20,000	25,000	30,000	30,000	N/A	$424
BUDA	K	DIRECT POTABLE REUSE	K | DIRECT REUSE (POTABLE)	2,240	2,240	2,240	2,240	2,240	2,240	$1440	$1440
BUDA	K	HCPUA PIPELINE - REGION K ALTERNATIVE	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	667	1,690	2,974	4,033	4,426	N/A	$1664
IRRIGATION, WHARTON	P	EXPAND USE OF GROUNDWATER	P | GULF COAST AQUIFER | WHARTON COUNTY	50,285	50,285	50,285	50,285	50,285	50,285	$44	$44
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - AQUIFER STORAGE AND RECOVERY	K | CARRIZO-WILCOX AQUIFER ASR | BASTROP COUNTY	0	0	5,048	5,048	5,048	5,048	N/A	$1076
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - BAYLOR CREEK RESERVOIR	K | BAYLOR CREEK RESERVOIR	0	0	18,000	18,000	18,000	18,000	N/A	$900
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - BRACKISH GROUNDWATER DESALINATION	K | GULF COAST AQUIFER | MATAGORDA COUNTY	0	0	22,400	22,400	22,400	22,400	N/A	$1035
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - ENHANCED RECHARGE AND CONJUNCTIVE USE	K | GULF COAST AQUIFER | WHARTON COUNTY	10,000	10,000	10,000	10,000	10,000	10,000	$834	$834
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - GROUNDWATER IMPORTATION	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	0	0	35,000	35,000	35,000	35,000	N/A	$1470
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - IMPORT RETURN FLOWS FROM WILLIAMSON COUNTY	G | BRAZOS RUN-OF-RIVER	25,000	25,000	25,000	25,000	25,000	25,000	$219	$219
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - SUPPLEMENT BAY AND ESTUARY INFLOWS WITH BRACKISH GROUNDWATER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	12,000	12,000	12,000	12,000	12,000	12,000	$500	$500
			Region K Total Alternative WMS Supplies	99,525	120,192	206,663	212,947	219,006	219,399		

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Alternative Projects Associated with Water Management Strategies

Project Sponsor Region: K

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
AUSTIN	Y	CITY OF AUSTIN - BRACKISH GROUNDWATER DESALINATION	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; STORAGE TANK	$54,582,000	2030
AUSTIN	Y	CITY OF AUSTIN - RECLAIMED WATER BANK INFILTRATION TO COLORADO ALLUVIUM	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; RESERVOIR CONSTRUCTION	$151,846,000	2030
BUDA	N	DIRECT POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$26,779,000	2020
HAYS CALDWELL PUA	Y	HAYS/CALDWELL PUA PROJECT - ALTERNATIVE	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$51,128,546	2030
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - AQUIFER STORAGE AND RECOVERY	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$39,590,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - BAYLOR CREEK RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$179,000,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - BRACKISH GROUNDWATER DESALINATION	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$277,006,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - ENHANCED RECHARGE AND CONJUNCTIVE USE	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$53,504,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - GROUNDWATER IMPORTATION	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION	$614,790,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - IMPORT RETURN FLOWS FROM WILLIAMSON COUNTY	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER RIGHT/PERMIT; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$54,193,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - SUPPLEMENT BAY AND ESTUARY INFLOWS WITH BRACKISH GROUNDWATER	CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE	$34,966,000	2020

Region K Total Alternative Capital Cost	**$1,537,384,546**

***Projects with a capital cost of zero are excluded from the report list.**

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CHAPTER 1.0: INTRODUCTION AND DESCRIPTION OF THE LOWER COLORADO REGIONAL WATER PLANNING AREA

1.1 INTRODUCTION TO THE PLANNING PROCESS

Sections 16.051 and *16.055* of the Texas Water Code direct the Executive Administrator of the Texas Water Development Board (TWDB) to prepare and maintain a comprehensive State Water Plan. The overall goal of the State Water Plan is to address water supply needs at the local level with the consideration of balancing affordable water supply availability and conserving the State's natural resources and serves as a flexible guide for the development and management of all water resources in Texas.

In February 1998, the TWDB adopted rules establishing 16 regional water planning areas. Each planning area is responsible for preparing a consensus-based Regional Water Plan that will provide for the water needs of its region for the next 50 years. The TWDB incorporates the resulting Regional Water Plans into the State Water Plan, which is updated in 5-year cycles. Three previous Region K Water Plans have been completed (in years 2001, 2006, 2011) and were subsequently incorporated into the 2002, 2007, and 2012 State Water Plans. It is anticipated that the current cycle of Regional Water Plans will be finalized and adopted by January 5, 2016. Subsequently, by January 5, 2017, the TWDB will prepare a new State Water Plan.

The Lower Colorado Regional Water Planning Area, initially designated by the TWDB as "Region K," encompasses all or part of 14 counties mostly within the Lower Colorado River Basin from the Hill Country to the Gulf of Mexico (*Figure 1.2*). The Lower Colorado Regional Water Planning Group (LCRWPG), representing the 11 TWDB-required interest groups, Groundwater Management Area representatives, and one additional regional interest group, is responsible for the development of the Lower Colorado Regional Water Plan (*Table 1.1*). The TWDB's guidelines require that each regional water plan include the following sections:

- Description of the region (Chapter 1)
- Population and water demand projections (Chapter 2)
- Estimates of currently available water supplies (Chapter 3)
- Identification of Water Needs (Chapter 4)
- Evaluation and selection of water management strategies, including a subsection on water conservation (Chapter 5)
- Impacts of selected water management strategies on key parameters of water quality and impacts of moving water from rural and agricultural areas (Chapter 6)
- Drought response information, activities, and recommendations (Chapter 7)
- Unique stream segments/reservoir sites and Legislative recommendations (Chapter 8)
- Report to Legislature on water infrastructure funding (Chapter 9)
- Public participation and education/input (Chapter 10)
- Report on implementation and comparison of the previous regional water plan (Chapter 11)

Figure 1.1: TWDB Designated Regional Water Planning Areas

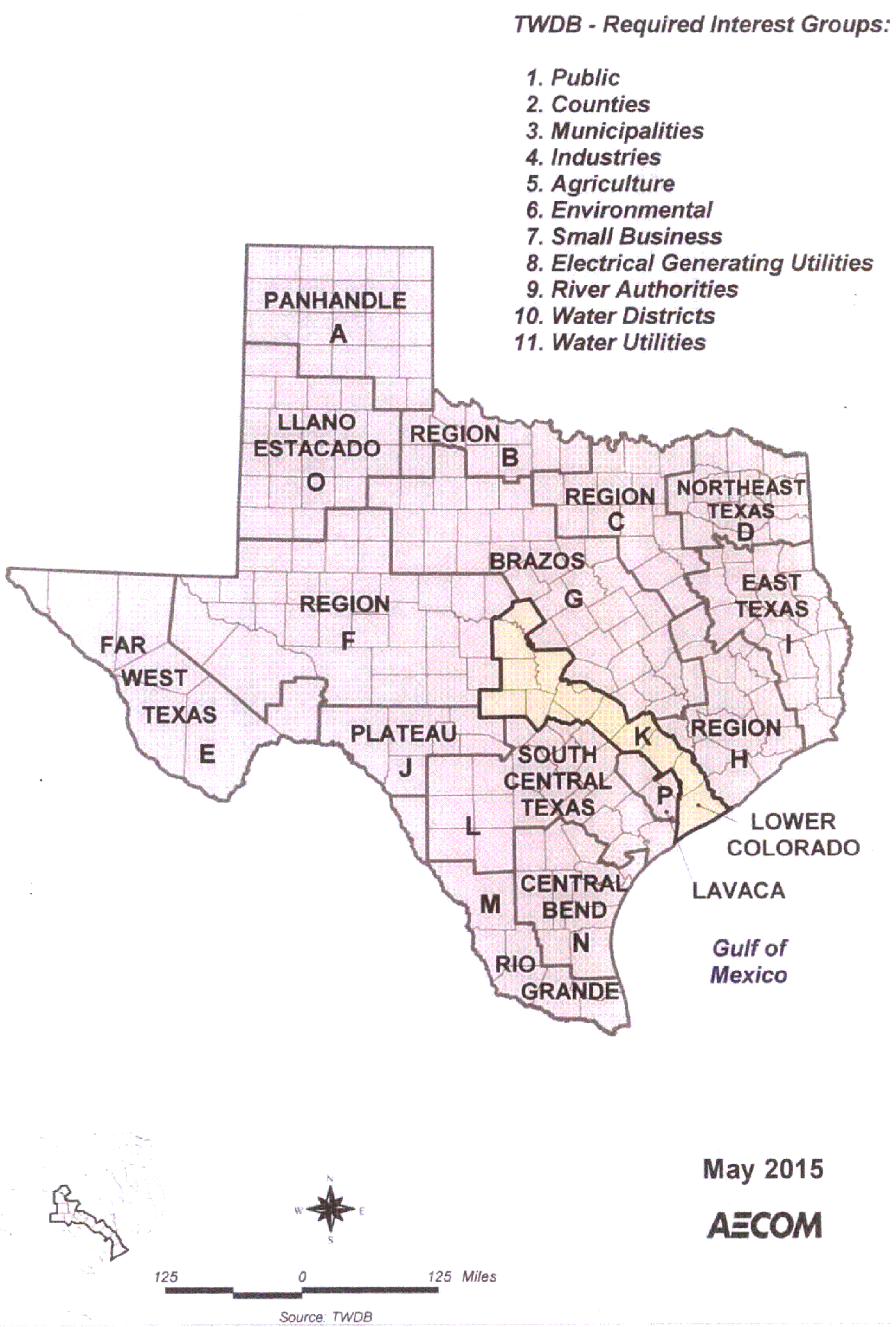


Figure 1.2: Lower Colorado Regional Water Planning Area (Region K)

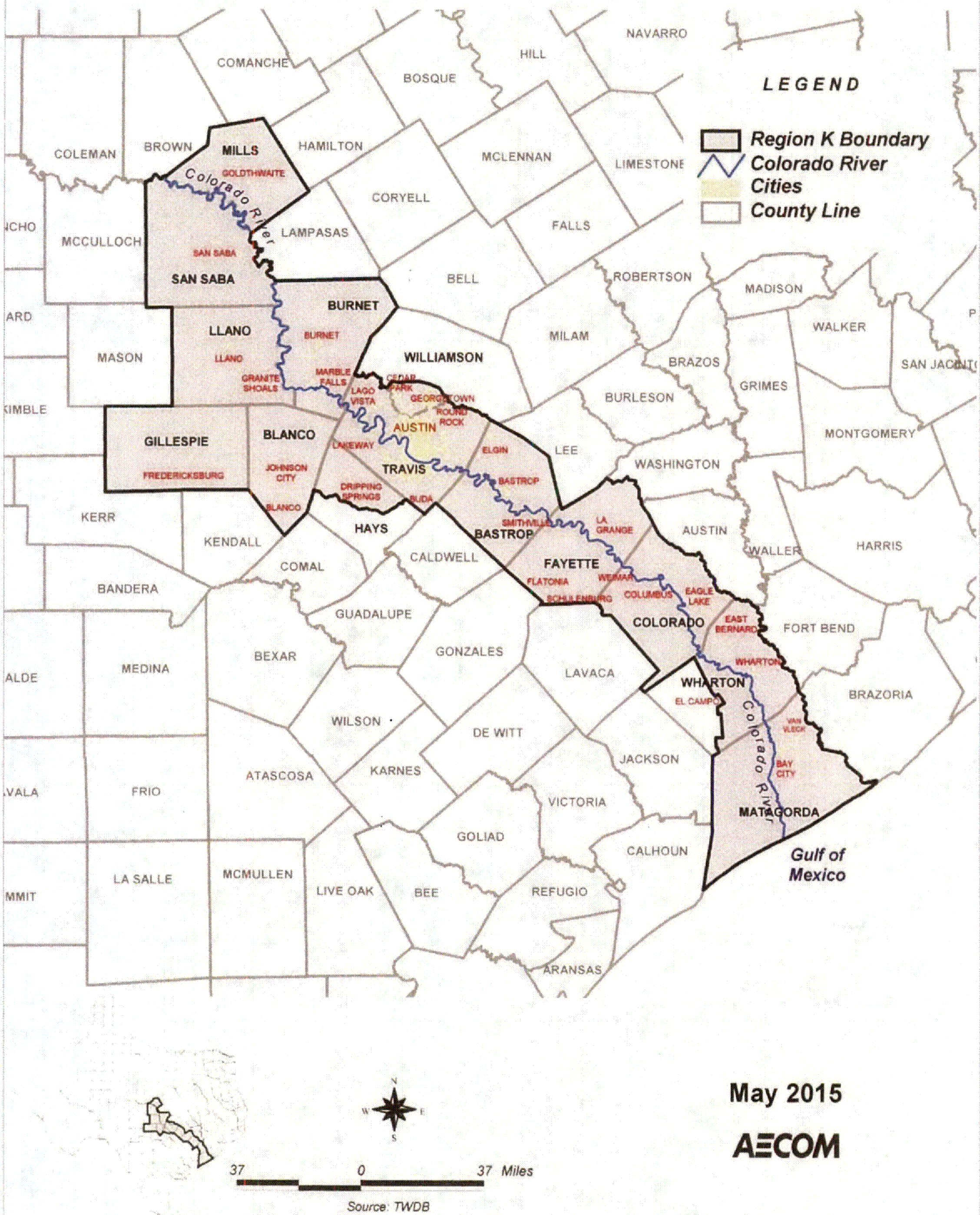


Table 1.1a The Lower Colorado Regional Water Planning Group Voting Board Members (as of November 12, 2015)

Interest	Name	Entity	County (Location of Interest)
Public	Karen Haschke	League of Women Voters	Travis
Counties	Donna Klaeger	Former Burnet County Judge	Burnet
	Byron Theodosis	San Saba County Judge	San Saba
	James Sultemeier	Blanco County Commissioners Court	Blanco
Municipalities	Mike Reagor	City of Llano	Llano
	Lauri Gillam	Pflugerville	Williamson
	Teresa Lutes	City of Austin	Travis
Industries	Barbara Johnson	Austin Area Research Organization, Inc.	Travis
Agricultural	Billy Roeder		Gillespie
	Haskell Simon	Rice Industry Rep. and Farmer	Matagorda
Environmental	Jim Barho	Protect Lakes Inks, Buchanan	Burnet
	Jennifer Walker	Sierra Club, Lone Star Chapter	Travis
Small Businesses	Ronald Gertson		Wharton
	Rob Ruggiero		Travis
Electric Generating Utilities	John Hoffman	STP Nuclear Operating Company	Matagorda
River Authorities	David Wheelock	Lower Colorado River Authority	Travis
Water Districts	David Van Dresar	Fayette County Groundwater Conservation District	Fayette
Water Utilities	John Burke		Bastrop
Recreation	Doug Powell	Emerald Point Marina	Travis
GMA 7	Paul Tybor	Hill Country Underground Conservation District	Gillespie
GMA 8	Charles Shell	Central Texas GCD	Burnet
GMA 9	Ronald G. Fieseler	Blanco-Pedernales GCD	Blanco
GMA 10	John Dupnik	Barton Springs/Edwards Aquifer Conservation District	Travis
GMA 12	Jim Totten	Lost Pines GCD	Bastrop
GMA 15	Jim Brasher	Colorado County GCD	Colorado

Table 1.1b The Lower Colorado Regional Water Planning Group Nonvoting Members

David Bradsby	Texas Parks & Wildlife Department
David T. Villareal	Texas Department of Agriculture
Temple McKinnon	Texas Water Development Board

Table 1.1c The Lower Colorado Regional Water Planning Group Alternate Members

Voy Althaus	Charlie Flatten	Dave Lindsay
Paul Babb	Jeff Fox	Peggy Matli
Brent Batchelor	Robin Gary	Cindy Smiley
Patricia Bennett	Neil Hudgins	Mitchell Sodek
Karen Bondy	Joe King	Brandon Wade
Terry Bray	Chris Liesmann	

Texas is an extremely diverse state, both in climate and economics. This diversity requires the use of a variety of water management strategies, the combination of which will be unique for each of the 16 regions. The types of strategies that may be considered include, but are not limited to:

- expected/advanced water conservation
- drought management
- water reuse
- expanded use of existing supplies
- reallocation of reservoir storage
- water marketing and inter-basin transfers
- subordination of water rights
- yield enhancement measures
- new supply development
- chloride control measures

Water availability, economics, environmental concerns, and public acceptance were considered during the process of developing water management strategies within each region. The final Regional Water Plan must comply with all existing state and federal regulations regarding existing water rights, instream flows, bay/estuary freshwater inflows, water quality, threatened/endangered species, critical habitats, and sites of historical importance.

The overall goal of the State Water Plan is to address water supply needs at the local level with the consideration of balancing affordable water supply availability and conserving the State's natural resources.

1.2 DESCRIPTION OF THE LOWER COLORADO REGIONAL WATER PLANNING AREA

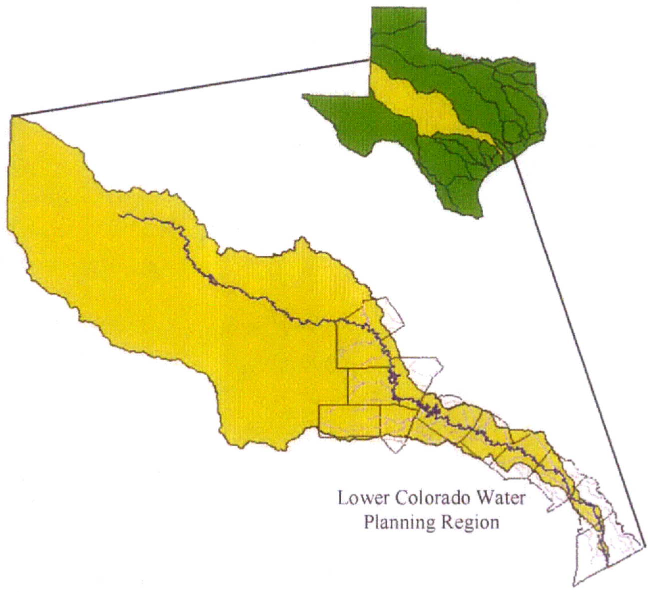
The Lower Colorado Regional Water Planning Area encompasses all or part of the following counties:

- Bastrop
- Blanco
- Burnet
- Colorado
- Fayette
- Gillespie
- Hays (partial)
- Llano
- Matagorda
- Mills
- San Saba
- Travis
- Wharton (partial)
- Williamson (partial)

Most of the Lower Colorado Region lies within the Colorado River Basin and crosses the Great Plains and the Coastal Plains physiographic provinces. The following sections provide a general description of the area's physical and socioeconomic characteristics, as well as water quality and natural resource issues of importance to the region.

1.2.1 Physical Characteristics of the Lower Colorado Regional Water Planning Area[1]

Figure 1.3: The Colorado River Basin



The headwaters of the Colorado River Basin are located in eastern New Mexico, and the basin extends approximately 900 miles to the Texas Gulf Coast, ending at Matagorda Bay as shown in *Figure 1.3*. The full extent of the basin exceeds the boundaries of the Lower Colorado Regional Planning Area. The Colorado River Basin is bordered by the Brazos River Basin to the north and east, and by the Guadalupe River and Lavaca River Basins to the south and west. The total drainage area of the Colorado River is 42,318 sq mi, 11,403 sq mi of which is considered non-contributory to the river's water supply. There are six major tributaries with drainage areas greater than 1,000 sq mi that contribute to the Colorado River: Beall's Creek and the Concho River, above the Region K boundary; and the San Saba, Llano, and Pedernales Rivers as well as Pecan Bayou. All of these major tributaries and approximately 90 percent of the entire contributing drainage for the river occur upstream of Mansfield Dam near Austin. This dam is the primary regulator of water flow from its location south to the Gulf of Mexico. Downstream of Austin, there are only two tributaries with drainage areas greater than 300 sq mi, Onion Creek in Travis County and Cummins Creek in Colorado County.

1.2.1.1 Geology of the Lower Colorado River Basin[2, 3]

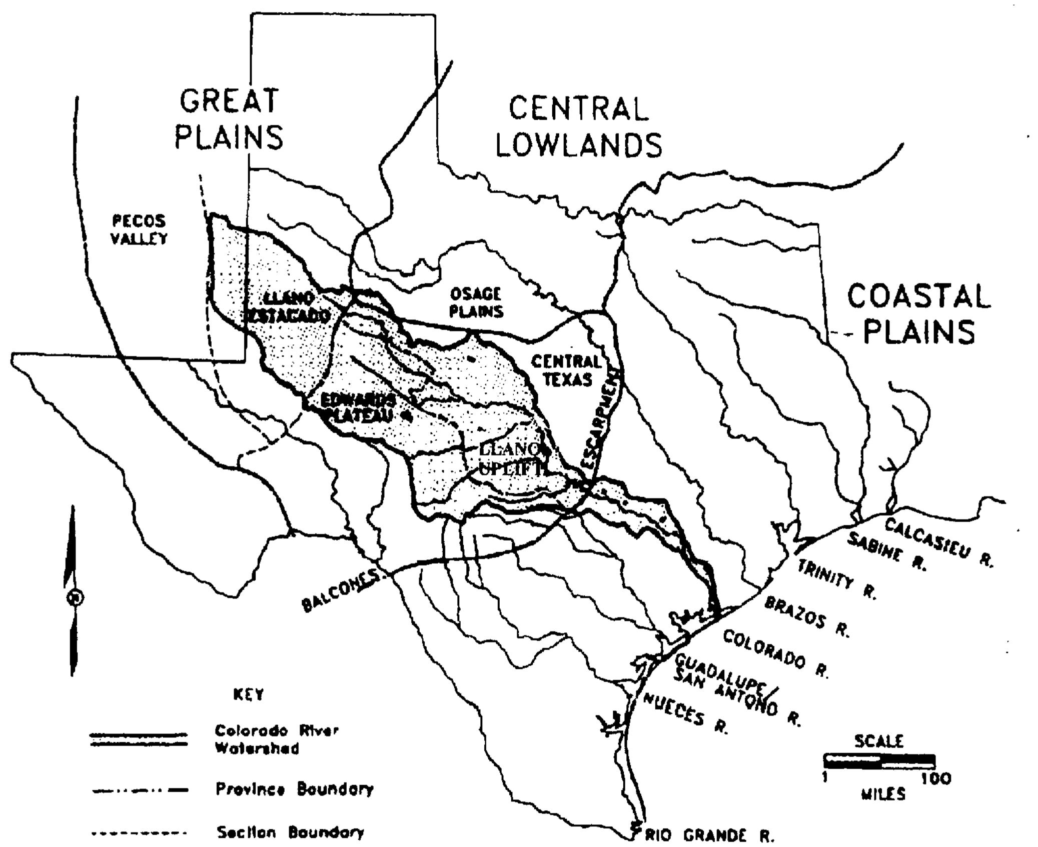
The northernmost boundary of the Lower Colorado Regional Planning Area lies in the Central Texas section of the Great Plains physiographic province (*Figure 1.4*). It is here that the Colorado River intersects the Llano Uplift; a broad, low relief but highly structured area exposing early Paleozoic and Precambrian igneous and metamorphic formations. In the northwestern portion of the region, the major southern tributaries and the Colorado River drain the Edwards Plateau section of the Great Plains province, which is characterized by Cretaceous- aged limestone formations overlain by Tertiary-aged sediments. The Colorado River meanders through these limestone deposits in relatively steep narrow

[1] Lower Colorado River Authority (LCRA), June 1992. *Instream Flows for the Lower Colorado River*, Final Report.
[2] LCRA, Op. Cit., June 1992.
[3] Texas Water Development Board (TWDB), May 1977. *Continuing Water Resource Planning and Development for Texas, Volume II.*

canyons in this area; however, there are also flat-topped remnants of the once more extensive Edwards Plateau. At the eastern edge of the Edwards Plateau, the Edwards aquifer outcrops at several locations along the Balcones Fault Zone (shown as the Balcones Escarpment on *Figure 1.4*), creating aquifer recharge zones and associated natural discharge points or springs, such as Barton Springs in Travis County. Typical soils (*Figure 1.5*) of the Llano Uplift are reddish-brown to brown, neutral to slightly acidic, calcareous, sandy loams. Soils mapped on the Edwards Plateau section typically consist of dark, deep to shallow, stony, calcareous clays.

Figure 1.4: Physiographic Provinces and Major Drainage Basins of the Western Gulf Slope

(Modified from Conner and Suttkus, 1977)

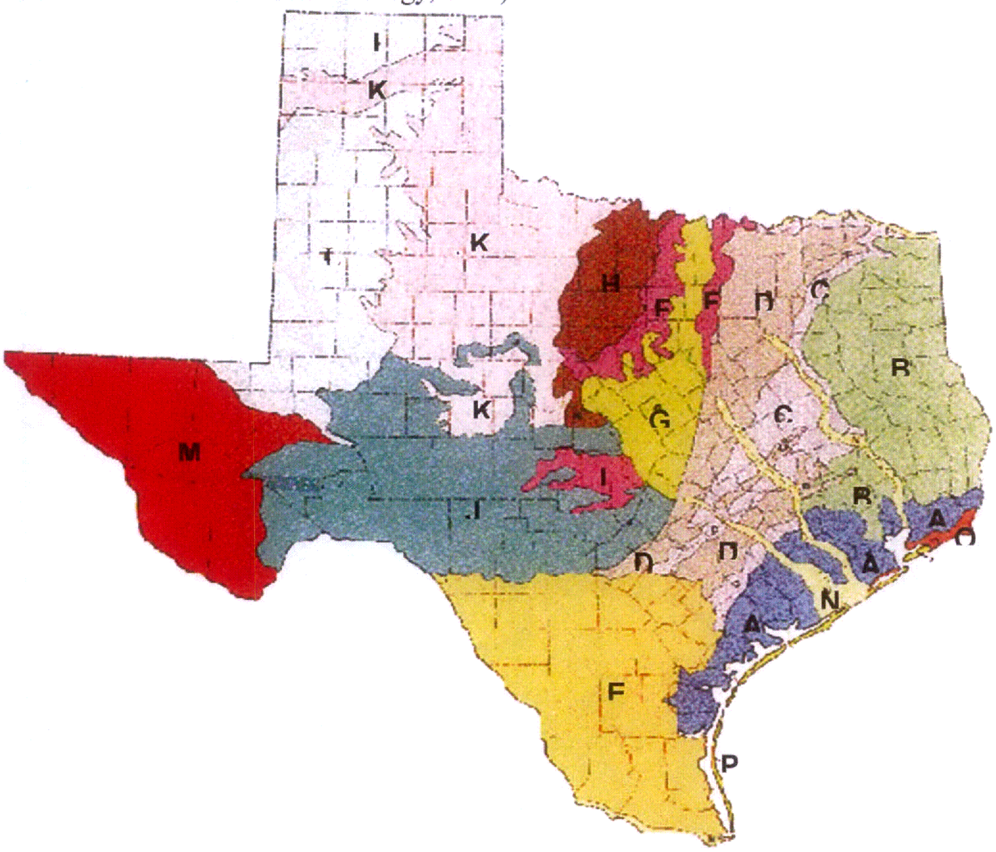


The Western Gulf Coast section of the Coastal Plains province contains the remaining 300 miles of the Colorado River south of the Balcones Fault Zone in Travis County to the Gulf of Mexico. The Western Gulf Coast section is characterized as an elevated sea bottom with low topographic relief ranging from low hills in the west to coastal flats. Surface geologic units mapped along this portion of the Colorado

River include a relatively narrow band of Upper Cretaceous formations just southeast of the Balcones Fault Zone, followed by a belt of Tertiary deposits that outcrop from Bastrop County southeast to Colorado County. The remaining geologic units, from Colorado County to the Gulf of Mexico, are mapped as Quaternary-aged deposits. Sediments in the Western Gulf Coast section are composed

Figure 1.5: Soils of Texas

(Source: Bureau of Economic Geology, 1977)



A Dark-colored, neutral to slightly acid clay loams & clays; some lighter colored sandy loams; acid soils mostly east of Trinity River.

B Light-colored, acid sandy loams, clay loams, & sands; some red soils & clays.

C Light-brown to dark-gray, acid sandy loams, clay loams, & clays.

D Dark-colored calcareous clays; some grayish-brown, acid sandy loams & clay loams along eastern edge of the major prairie & interspersed in minor prairies.

E Dark calcareous to neutral clays & clay loams; reddish-brown, neutral to slightly acid sandy loams; grayish-brown, neutral sandy loams & clay loams; some saline soils near coast.

F Light-colored, acid loamy sands & sandy loams.

G Dark-colored, deep to shallow clay loams, clays, & stony calcareous clays over limestone.

H Reddish-brown to grayish-brown, neutral to slightly acid sandy loams & clay loams; some stony soils.

I Reddish-brown to brown, neutral to slightly acid, gravelly & stony sandy loams.

J Dark, calcareous stony clays & clay loams.

K Dark-brown to reddish-brown, neutral to slightly calcareous sandy loams, clay loams, & clays.

L Dark-brown to reddish-brown neutral sands, sandy loams, & clay loams; some very shallow calcareous clay loams.

M Light reddish-brown to brown sands; clay loams & clays (mostly calcareous, some saline) & rough stony lands.

N Light-brown to reddish-brown, acid sandy loams; acid & calcareous clay loams & clays.

O Light- & dark-colored, acid sands, sandy loams, & clays.

P Tan, loose sand & shell material.

primarily of marine deposits such as limestones, marls, and shales; however, the river valley also contains significant fluvial (river) terrace deposits of granitic assemblage, quartz and quartzite, chert, limestone, sandstone, siltstone, hornblende schist, silicified wood, and rip-up clasts. Colorado Basin soils in the Western Gulf Coast section are typically dark, neutral to slightly acidic, clay loams, and clays. Near the coast, soils become light, acidic sands, and darker, loamy to clayey soils.

1.2.1.2 Climate[4, 5, 6]

The climate across the State of Texas varies considerably; however, there are no natural boundaries, and changes occur gradually from east to west. In general, average temperatures, rainfall, and the length of the growing season decrease from the east to the north and west. The upper atmospheric winds, or jetstreams, affect the large-scale weather patterns in the state. The polar jetstream affects the movement of cold arctic air masses from December through February. The moist warm air masses are brought to Texas from the Pacific Ocean by the subtropical jetstream, whose influence is most prevalent during the spring and fall.

Region K lies entirely within the warm-temperate/subtropical zone. The constant flow of warm tropical maritime air from the Gulf of Mexico produces a humid subtropical climate with hot summers across the lower third of the region. This maritime air combines with cooler and drier continental air further inland, which results in a subtropical climate with dry winters and humid summers in the remainder of the region. Winters in Region K typically are mild with frequent, short duration surges of colder continental air masses and strong northerly winds. Average annual net evaporation in Region K varies from 20 to 24 inches at the coast to approximately 44 inches in the uppermost portion of the region (*Figure 1.6*).

The amount of rainfall varies across the Lower Colorado Planning Region from an average of 48 inches at the coast to 24 inches in the northwestern portion of the region (*Figure 1.7*). The rainfall distribution pattern in this region has two peaks: spring is typically the wettest season with a peak in May, and a second peak usually occurs in September and October, coinciding with the tropical cyclone season in the late summer/early fall. The spring rains are typified by convective thunderstorms that produce high intensity, short duration precipitation events with rapid runoff. These thunderstorms are generally caused by successive frontal systems that move through the state. These weak cold air masses are overrun by warm Gulf moisture, and the line of instability that develops where the two air masses collide produces thunderstorms. The fall seasonal rains are primarily governed by tropical storms and hurricanes that originate in the Caribbean Sea or the Gulf of Mexico and make landfall on the coast from Louisiana to Mexico. As the storm moves inland, the coverage area for a single tropical cyclone event can be quite large and the storm severe, with wind and flood damage common. Fall cold fronts can also bring widespread, heavy rain events.

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[4] TWDB, Op. Cit., May 1977.

[5] Hatch, S. L., et al. July 1990. *Checklist of the Vascular Plants of Texas.* Texas Agricultural Experiment Station, College Station, Texas.

[6] Jones, B. D., 1990. *Texas Floods and Droughts. In National Water Summary 1988–1989.* U.S. Geological Survey, pp. 513–520.

Figure 1.6: Lower Colorado Regional Water Planning Area (Region K) Average Annual Net Evaporation

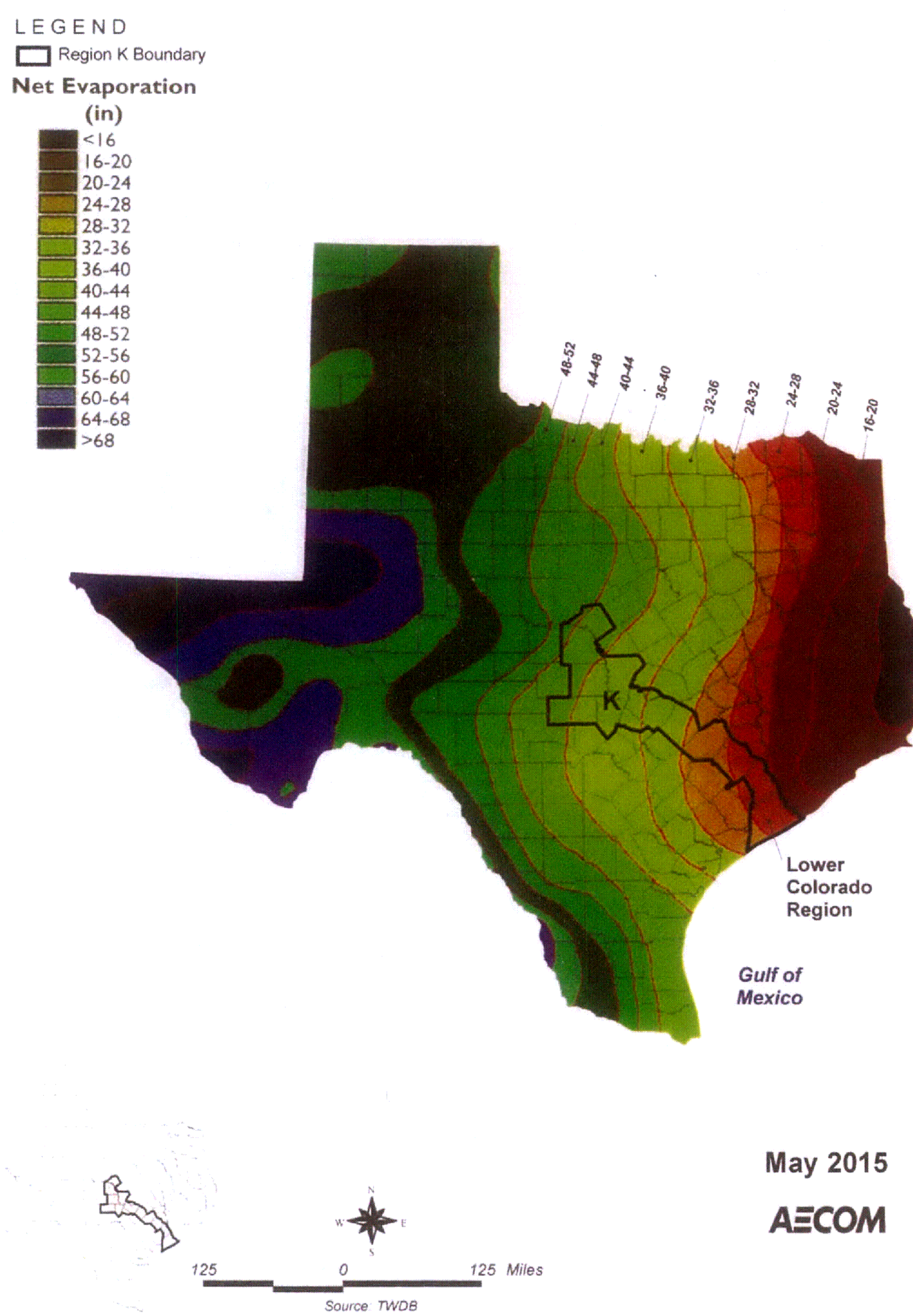
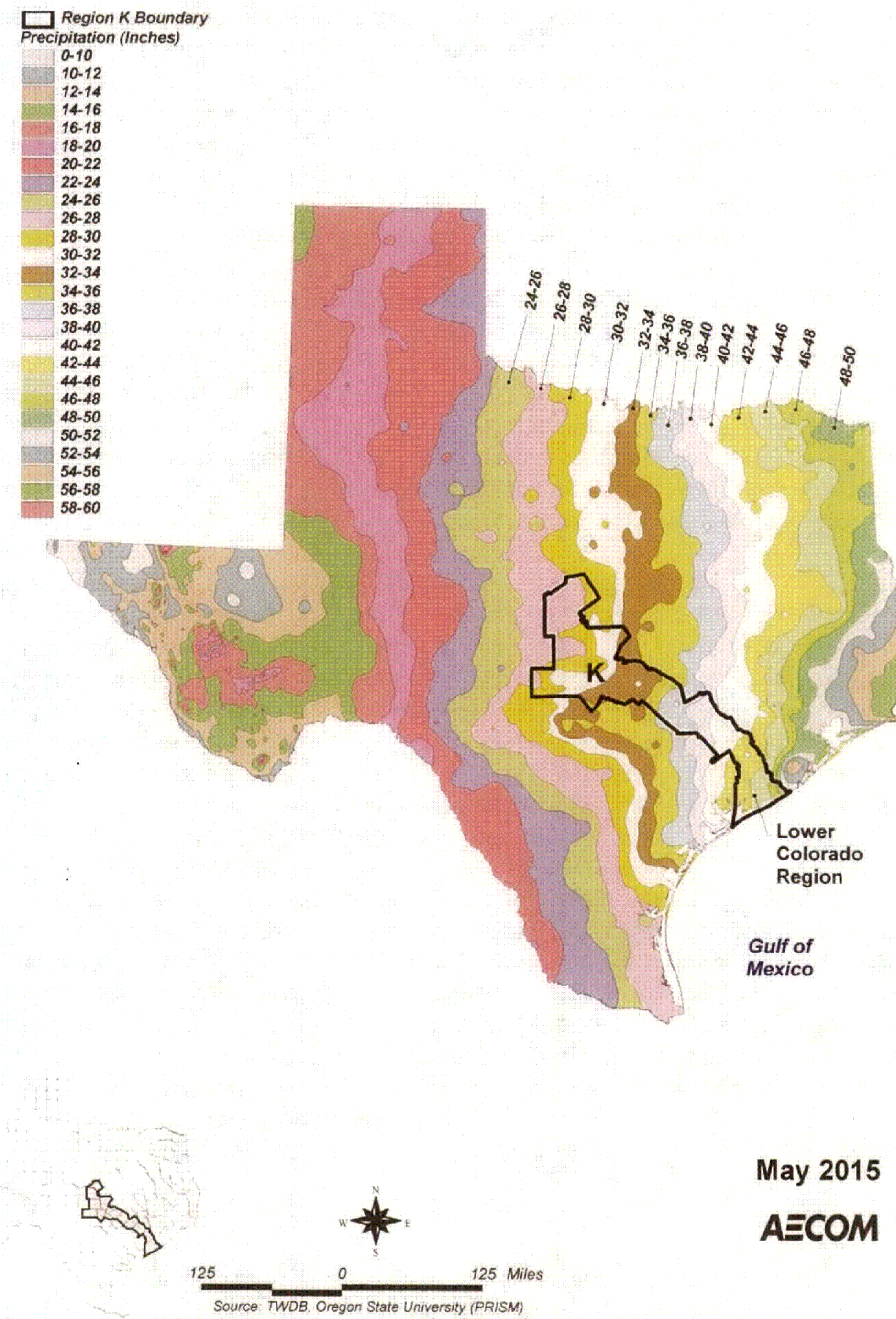


Figure 1.7: Lower Colorado Regional Water Planning Area (Region K) Average Annual Precipitation



The hydrologic characteristics of the Colorado River are closely linked to the precipitation patterns that occur in the river basin, especially the cycles of floods and droughts, which are common in Texas. Major flood and drought events are those with statistical recurrence intervals greater than 25 years and 10 years, respectively. Streamflow gaging data collection began in the early 1900s, and the data show that there has been a major drought in almost every decade of this century. Droughts in Texas are primarily the result of the presence of a strong subtropical high-pressure cell, called a Bermuda High, which becomes stationary over the state and prevents low-pressure fronts from passing through the state. Major droughts can cause stock ponds and small reservoirs to go dry and large reservoirs, such as Lake Travis, can drop their storage levels to less than one-third their capacity. The average annual runoff during the period from 1941 to 1970 ranged from 350 ac-ft/sq mi near the mouth of the Colorado River to less than 50 ac-ft/sq mi in the westernmost portion of the basin's contributing zone, which translates to an overall basin average of 81 ac-ft/sq mi. During this 30-year time period there were three major statewide droughts: 1947 to 1948, 1950 to 1957, and 1960 to 1967. These periods of drought saw average annual runoff values decrease 72 to 80 percent, to 16 to 23 ac-ft/sq mi, which resulted in record low flows in the Colorado River. The most severe of these droughts occurred from 1950 to 1957, in which 94 percent of the counties in the state were declared disaster areas. Considering the 1940 to 2013 time period, the drought of record for Region K is the period 1947 to 1957, and this drought-of-record period was used in this regional water planning effort for estimating reservoir firm yields. In some, if not all cases, the lowest single year flows in the period of record occurred in 2011 and this critical year period defines the availability of water from run-of-river water rights. The drought currently affecting Central Texas has the potential to be a new drought-of-record, and is discussed in more detail in Chapter 7 of this Plan.

The end of a drought cycle is often marked by one or more flooding events, allowing aquifers and man-made water storage facilities to recharge. The floodplains of the upper Colorado River and its tributaries are typically steep, narrow channels with rocky soils and sparse vegetative cover. During intense rain events this allows for rapid runoff, resulting in sharp-crested floods with high peak discharges and velocities. Downstream, the floodplains become wider with denser vegetation, which decreases these streamflow velocities; however, the massive volumes of water moving down the river basin can still cause a great deal of flood damage. Areas expected to be most prone to flood damage in the Lower Colorado Planning Region are along Lake Travis and Lake Austin, and the Cities of Austin, La Grange, Columbus, Wharton, and Matagorda. Historically, the coastal portion of the river basin is affected by hurricanes two of every five years. The Hill Country in Central Texas has experienced more severe flood events than any other region of the country. In fact, the continental United States record for the most intense 18-hour rainfall occurred in Williamson County in the Brazos River Basin in 1921, with 36 inches of rain. From 1843 to 1938, there were 22 major floods along the Colorado River. The most intense localized flash flood in the Lower Colorado Planning Region in recent history occurred 24 May 1981 in Austin. This storm produced a flood with a recurrence level greater than 100 years, caused $40 million in damages, and was responsible for 13 deaths. Another intense event occurred on 27 June, 2007 in Marble Falls. This storm produced a flood with a recurrence level of greater than 500 years. Most recently, the Onion Creek Watershed in Travis County experience a flood with a recurrence level greater than 100 years on October 31, 2013. The flood caused millions of dollars in damage and was responsible for several deaths.

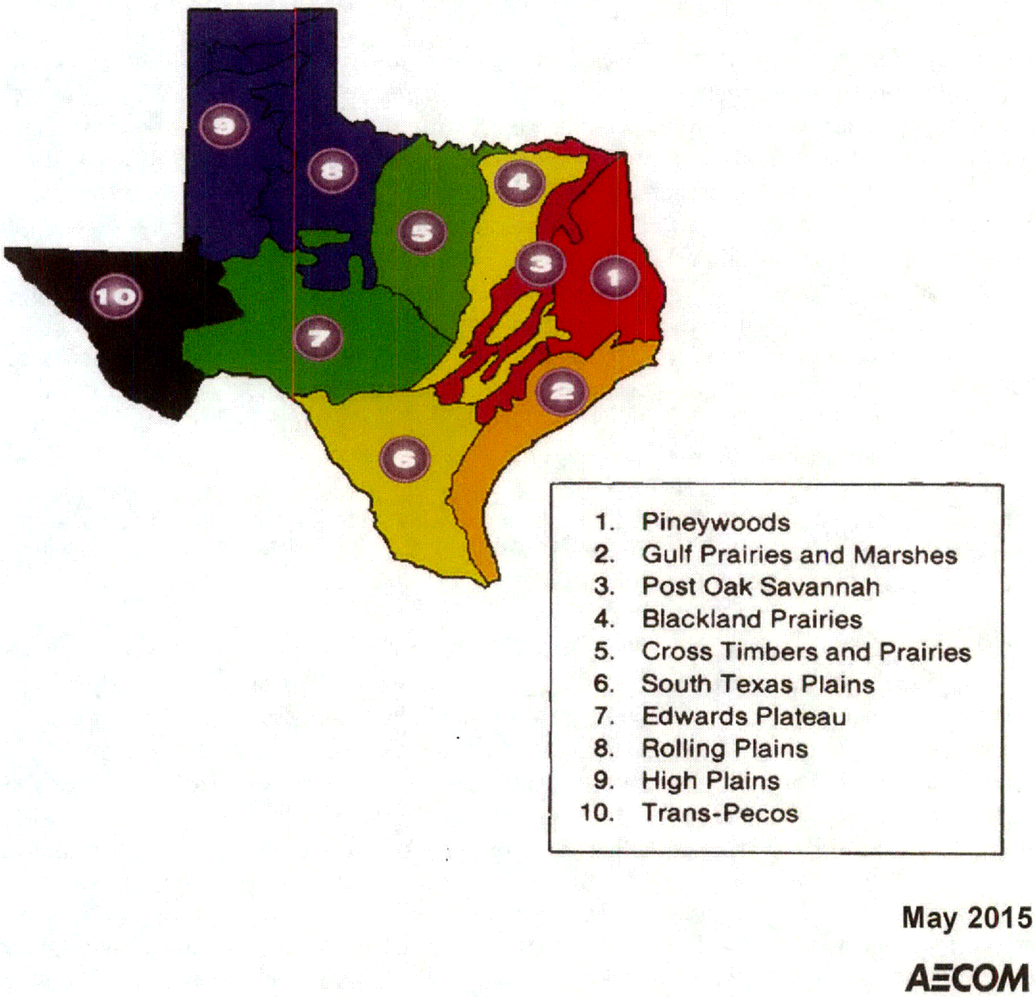
1.2.1.3 Vegetational Areas[7]

Natural regions, or vegetation areas, are based on the interaction of geology, soils, physiography, and climate. There are ten vegetational areas that cross the State of Texas and five of these intersect Region K

[7] Hatch, et al., Op. Cit., July 1990.

(*Figure 1.8*). These are the Cross Timbers and Prairies, the Edwards Plateau, the Blackland Prairies, the Post Oak Savannah, and the Gulf Prairies and Marshes. Each of these vegetation areas is described below. *Figure 1.9* shows the dominant plant species that occur in Region K.

Figure 1.8: Vegetational Areas of Texas
(Source: Dr. Stephen L. Hatch, Texas Agricultural Experiment Station)



The **Cross Timbers and Prairies** vegetational area includes all of Mills County, most of Burnet County, the north portions of San Saba and Travis Counties, and the section of Williamson County within the Lower Colorado Planning Region. This region falls within the southern extension of the Central Lowlands and the western edge of the Coastal Plains physiographic provinces. There are sharp contrasts in topography, soils, and vegetation in this region due to the wide variety of geologic formations in the area. Elevations range from 500 feet to 1,500 feet above mean sea level. Cross Timber soils are typically of the orders Mollisol and Alfisol. In the East and West Cross Timbers subregions, soils range from light, slightly acid loamy sands and sandy loams with yellowish-brown to red clayey subsoils in the upland areas to dark, neutral to calcareous clayey bottomland soils, and loamy alluvial soils along minor streambeds. The North Central Prairies subregion is interspersed with sandstone and shaley ridges and hills. Uplands are brown sandy loam to silt loam, slightly acid soils that overlay red to gray, neutral to alkaline clayey subsoils. The bottomlands have brown to dark gray, loamy, and clayey, neutral to calcareous, and alluvial soils.

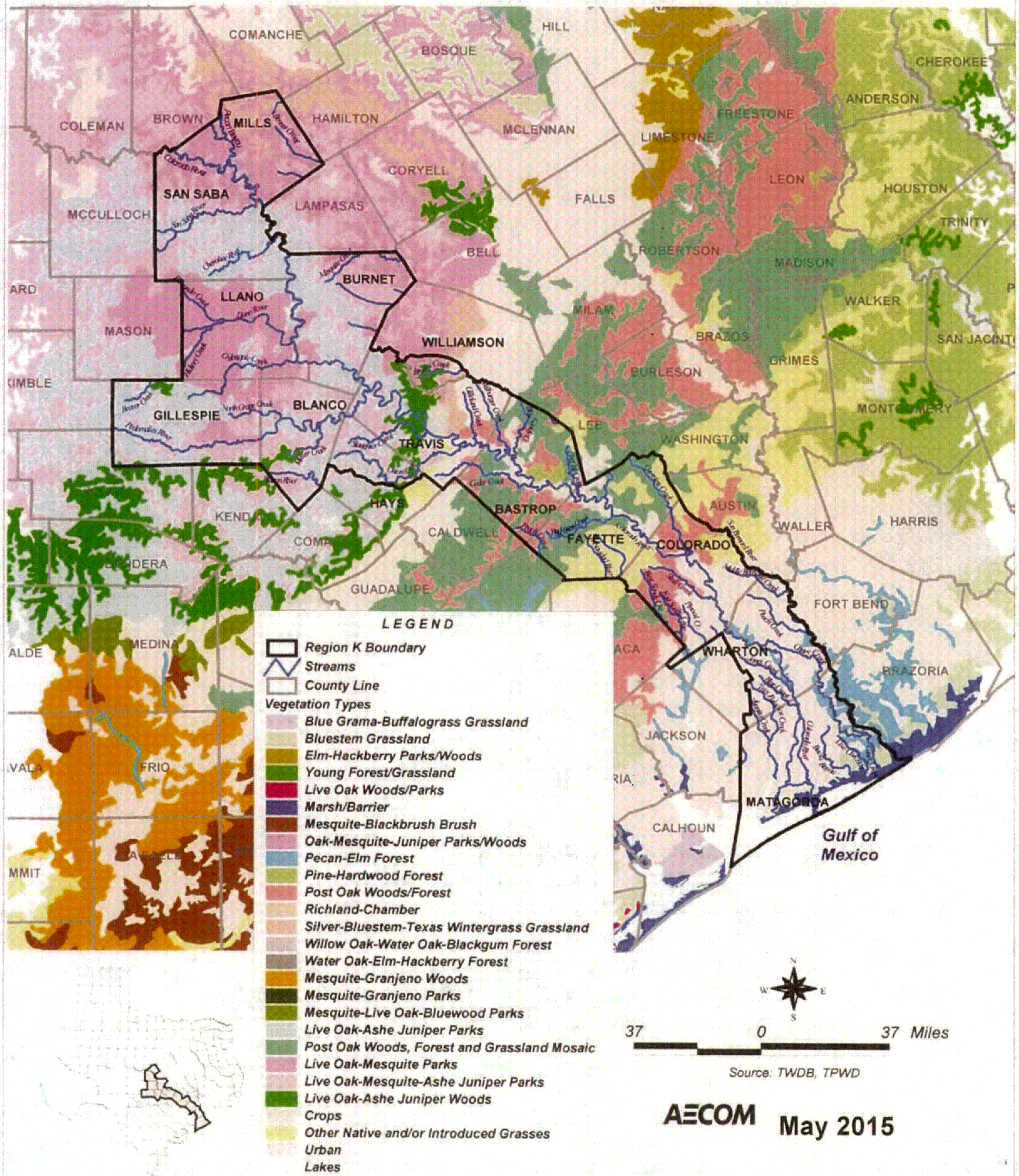
The Cross Timbers and Prairies support tallgrasses such as big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), Indiangrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), and Canada wildrye (*Elymus canadensis*), with minor populations of midgrasses and shortgrasses such as sideoats grama (*Bouteloua curtipendula*), blue grama (*B. gracilis*), hairy grama (*B. hirsuta*), Texas wintergrass (*Stipa leucotricha*), and buffalograss (*Buchloe dactyloides*). Overgrazing has allowed the midgrasses and shortgrasses to increase their range and has allowed the invasion of scrub oak (*Quercus turbinella*), honey mesquite (*Prosopis glandulosa*), and Ashe juniper (*Juniperus ashei*) in upland areas, as well as hairy tridens (*Erioneuron pilosum*), Texas grama (*Bouteloua rigidiseta*), red lovegrass (*Eragrostis secundiflora*), wild barleys (*Hordeum*), threeawns (*Aristida*), fringed-leaf paspalum (*Paspalum setaceum*), and tumble windmillgrass (*Chloris verticillata*). Bottomland trees include pecan (*Carya illinoensis*), oak (*Quercus*), and elm (*Ulmus*), with invasion of mesquite. Typical shrubs and vines include skunkbush (*Rhus aromatica*), saw greenbriar (*Smilax bona-nox*), bumelia (*Bumelia lanuginosa*), and poison ivy (*Rhus toxicodendron*).

Today, approximately 75 percent of the Cross Timbers and Prairies natural region is rangeland and pastureland. White-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), squirrel (*Sciurus spp.*), bob white quail (*Colinus virginianus*), and mourning dove (*Zenaida macroura*) are plentiful.

The **Edwards Plateau** vegetational area consists of an area of West Central Texas commonly known as the "Hill Country" and includes the entire portion of Hays County within the Lower Colorado Planning Region; all of Llano, Gillespie, and Blanco Counties; most of San Saba County; southern Burnet County; and western Travis County. The geologic formation known as the Balcones Escarpment forms the eastern and southern boundary of this region. Elevations range from 1,200 feet to over 3,000 feet above mean sea level, and the landscape is deeply dissected, hilly, rough, and well drained. Edwards Plateau soils are typically shallow Entisols, Mollisols, or Alfisols that have a variety of surface textures and are underlain by limestone.

Historically, the natural vegetation of the Edwards Plateau was grassland or open savannah-type plains with trees or brush along rocky slopes and streambeds. Tallgrasses such as cane bluestem (*Bothriochloa barbinodis*), big bluestem, little bluestem, Indiangrass, and switchgrass, are still common today along rocky outcrops and protected areas with good soil moisture. In areas with more shallow soils, tallgrasses have been replaced by midgrasses and shortgrasses such as sideoats grama, Texas grama, and buffalograss. Typical wildflowers are Engelmann daisy (*Engelmannia pinnatifida*), orange zexmania (*Wedelia hispida*), western ragweed (*Ambrosia psilostachya*), and sneezeweed (*Helenium quadridentatum*). Areas disturbed by over-grazing have been invaded by pricklypear (*Opuntia*), bitterweed (*Hymenoxys odorata*), broadleaf milkweed (*Asclepias latifolia*), smallhead sneezeweed (*H. microcephalum*), broomweeds (*Amphiachyris* and *Gutierrezia*), prairie coneflower (*Ratibida columnifera*), mealycup sage (*Salvia farinacea*), and tasajillo (*Opuntia leptocaulis*). Common woody species are live oak (*Quercus virginiana*), sand shin oak (*Quercus havardii*), post oak (*Quercus stellata*), mesquite, and juniper.

Figure 1.9: Lower Colorado Regional Water Planning Area (Region K) Vegetation Distribution



Land suitable for cultivation occurs only along narrow streams and divides within the Edwards Plateau region and in these areas tree orchards are common. The majority of the region is utilized as rangeland for the production of livestock and wildlife. This area was once one of the major wool and mohair producers in the country, providing up to 98 percent of the nation's mohair. Over the last three decades, however, many factors have contributed to the decline of the fiber industry including labor/shearer shortages, prices, changing land use, increase of predators (coyotes), and the loss of federal subsidies which had been paid by tariffs and opened foreign markets. The Edwards Plateau also supports the largest deer population in North America, and exotic big game ranches are increasing across the region.

Within Region K, the **Blackland Prairies** vegetational area occurs in eastern Travis County, several small sections of Bastrop County, western and eastern portions of Fayette County, and a minor portion of Colorado County. The characteristic topography is gently rolling hills to nearly level with well-defined contours for rapid surface drainage. Elevation varies from 250 to 700 feet above mean sea level. Major soil orders include Vertisols and Alfisols, which are naturally very productive and fertile. Upland soils are dark, calcareous, and clayey. Bottomland soils are typically reddish-brown to dark gray, slightly acid to calcareous, loamy to clayey to alluvial.

The Blackland Prairie once supported a tallgrass prairie dominated by big bluestem, little bluestem, Indiangrass, tall dropseed (*Sporobolus asper*), and Silveus dropseed (*S. silveanus*). Minor species including sideoats grama, hairy grama, Mead's sedge (*Carex meadii*), Texas wintergrass, and buffalograss have increased due to grazing pressure. Erosion and agricultural activities have decreased the productivity of these soils. Common wildflowers include asters (*Aster*), prairie bluet (*Hedyotis nigricans*), prairie-clover (*Petalostemon*), and late coneflower (*Rudbeckia serotina*). Typical legumes are snoutbeans (*Rhynchosia*), and vetch (*Vicia*). Areas disturbed by grazing and agriculture have been invaded by mesquite, huisache (*Acacia smallii*), oak, and elm trees. Oak, elm, cottonwood (*Populus deltoides*), and native pecan can be found in moist drainage areas. Isolated areas of Blackland Prairies are intermingled within the Post Oak Savannah vegetation area.

In the latter 19th and early 20th centuries, approximately 98 percent of the Blackland Prairies vegetational area had been converted to cropland. Pastureland and livestock forage cropland began to increase in the 1950s, and today only 50 percent of the area is used for cropland. Cultivated pastures make up 25 percent of the land area, and the rest is used as rangeland. Significant game species include dove, bobwhite quail, and squirrel.

The **Post Oak Savannah** vegetational area within Region K occurs in most of Bastrop and Colorado Counties and central Fayette County. The region is characterized by gently rolling, moderately dissected wooded plains with elevations between 300 feet and 800 feet above mean sea level. There are several areas of Blackland Prairie intermingled in the southern portion of the Post Oak Savannah. Typically shallow upland soils are gray, slightly acid sandy loams that overlay gray, mottled, or red, firm clayey subsoils. Infiltration-resistant claypan layers occur at varying soil depths, which impedes the percolation of moisture. Bottomland soils are reddish-brown to dark gray, slightly acid to calcareous, loamy to clayey alluvial.

Typically, short oak trees, such as post oak and blackjack oak (*Q. marilandica*), are interspersed among the tallgrass species of little bluestem, silver bluestem (*Bothriochloa saccharoides*), Indiangrass, switchgrass, and midgrass and shortgrass species of Texas wintergrass (*Stipa leucotricha*), purpletop (*Tridens flavus*), narrowleaf woodoats (*Chasmanthium sessiliflorum*), and beaked panicum (*Panicum anceps*). Elms, junipers, hickories (*Carya*), and hackberries (*Celtis*) are also common trees here. Shrubs and vines such as yaupon (*Ilex vomitoria*), American beautyberry (*Callicarpa americana*), coralberry (*Symphoricarpos orbiculatus*), greenbriar (*Smilax*), and grapes (*Vitis*) are typical. Historically, periodic wildfires have suppressed the overgrowth of brush and trees, and in their absence thickets tend to form. Wildflowers characteristic of the true prairie species include wild indigo (*Babtisia*), indigobush (*Amorpha fruticosa*), senna (*Cassia*), tickleclover (*Desmodium*), lespedezas (*Lespedeza*), prairie-clovers, western ragweed, crotons (*Croton*), and sneezeweeds.

The post oak savannah was extensively cultivated through the 1940s; however, today many acres have been returned to native habitat or tame pastureland, which have been seeded with nonnative species such as bermudagrass, bahiagrass, weeping lovegrass, and clover. The region supports game species such as deer, squirrel, and quail.

The Bastrop County Complex fire which ignited on September 4, 2011 struck Bastrop County, destroying over 1,600 residential structures and impacting 32,000 acres of land and habitat. According to Texas Parks and Wildlife officials, only 50-100 acres of the Bastrop State Park's 6,565acre premises remained undamaged following the wildfire. The endangered Houston toad was believed to have lost the vast majority of its habitat in the fire. The Lost Pines Forest, a disjunct population of loblolly pine trees thought to have originated in or before the Pleistocene era, was heavily affected by the fire.

The **Gulf Prairies and Marshes** vegetational area encompasses all of Matagorda County, the entire portion of Wharton County within Region K, and the eastern tip of Colorado County. This is a 30- to 80-mile-wide strip of lowlands adjacent to the Texas coast from the Louisiana border to the Mexico border. The landscape consists of low, wet coastal marshes, and nearly flat, undissected plains with elevations from sea level to 250 feet. Marsh soils are typically dark, poorly drained, saline and sodic, sandy loams, and clays, and light neutral sands. Prairie soils are characterized by dark, neutral to slightly acid clay loams, and clays, with a narrow belt of light acid sands and darker loamy to clayey soils along the coast. Bottomland and delta soils are typically reddish-brown to dark gray, slightly acid to calcareous, loamy to clayey alluvial.

Original Gulf Prairie vegetation consisted of tallgrasses and post oak savannah. Today, however, trees and shrubs such as honey mesquite, oaks, acacia, and bushy sea-ox-eye (*Borrichia frutescens*) have formed thickets in many areas. Characteristic tallgrasses include gulf cordgrass (*Spartina spartinae*), big bluestem, little bluestem, Indiangrass, eastern gamagrass (*Tripsacum dactyloides*), gulf muhly (*Muhlenbergia capillaris*), tanglehead (*Heteropogon contortus*), as well as *Panicum* and *Paspalum* species. Typical wildflowers include asters, Indian paintbrush (*Castilleja indivisa*), poppy mallows (*Callirhoe*), phloxs (*Phlox*), bluebonnets (*Lupinus*), and evening primroses (*Oenothera*). Common invaders such as yankeeweed (*Eupatorium compositifolium*), broomsedge bluestem (*Andropogon virginicus*), smutgrass (*Sporobolus indicus*), western ragweed, tumblegrass (*Schedonnardus paniculatus*), threeawns (*Aristida*), pricklypear, and many annual wildflowers and grasses have increased their ranges. Saline Gulf Marsh areas support species of sedges (*Carex* and *Cyperus*), rushes (*Juncus*), bulrushes (*Scirpus*), cordgrasses (*Spartina*), seashore saltgrass (*Distichlis spicata*), common reed (*Phragmites australis*), marshmillet (*Zizaniopsis miliacea*), longtom (*Paspalum lividum*), seashore dropseed (*Sporobolus virginicus*), and knotroot bristlegrass (*Setaria geniculata*). Marshmillet and maidencane (*Panicum hemitomon*) are two important freshwater grass species found in the upper coast. Typical aquatic forbs include pepperweeds (*Lepidium*), smartweeds (*Polygonum*), docks (*Rumex*), bushy seedbox (*Ludwigia alternifolia*), green parrotfeather (*Myriophyllum pinnatum*), pennyworts (*Hydrocotyle*), water lilies (*Nymphaea*), narrowleaf cattail (*Typha domingensis*), spiderworts (*Tradescantia*), and duckweeds (*Lemna*). Common halophytic herbs and shrubs found on the salty sands of the coast include spikesedges (*Eleocharis*), fimbries (*Fimbrystalis*), glassworts (*Salicornia*), sea-rockets (*Cakile*), maritime saltwort (*Batis maritima*), morning glories (*Ipomoea*), and bushy sea-ox-eye.

The low coastal marshes of the Gulf Prairies and Marshes vegetational area provide excellent habitat for upland game and waterfowl. Higher elevations of the marshes are used for livestock and wildlife production. These coastal marshes and barrier islands contain most of the State's National Seashore parks. Urban, industrial, and recreational developments have been increasing in this region and cultivation has never been of much importance due to the saline soils and recurrent flooding of the area. However, approximately one-third of the inland prairies region is cultivated. This is also the major area of irrigated crop production, consisting primarily of rice cultivation, for the entire Lower Colorado Region. Bermudagrass and several bluestem species are common in tamed pasturelands. The Gulf Prairies and Marshes region has seen more industrialization than anywhere in Texas since World War II.

1.2.1.4 Water Resources[8, 9]

The primary surface water feature of Region K is the Colorado River. *Figure 1.10* displays the surface water hydrology characteristics of the region. The major sources of dependable surface water supplies in the region are the Highland Lakes reservoir system and the run-of-the-river (ROR) water from the Colorado River. ROR water rights allow permit holders to divert water directly from a watercourse up to their permitted amounts if the water is present in the river and after downstream senior priority rights are satisfied. Tributary ROR water rights and off-channel storage are also utilized by several water user groups (WUGs). In addition, a small portion of the planning region's surface water supply comes from local supplies within adjacent river basins. There are 16 water supply reservoirs within the Region K boundaries: Goldthwaite, Blanco, Llano (2), Lometa, STP, and Cedar Creek reservoirs, Lake Bastrop, Lady Bird Lake, Lake Walter E. Long, and the Highland Lakes System (Lakes Buchanan, Inks, LBJ, Marble Falls, Travis, and Austin). The major Colorado River ROR water rights holders (based on firm yield) in Region K are the Lower Colorado River Authority (LCRA), City of Austin (COA), and STP Nuclear Operating Company. The City of Corpus Christi, located in Region N, and the Colorado River Municipal Water District, located in Region F immediately upstream of Region K, are also major water right holders on the Colorado River. Region K also has many springs, which are the transition from groundwater to surface water. Overall, there are approximately 43 major and significant springs in Region K, with 19 of those in San Saba County. Other counties with significant springs include Bastrop, Blanco, Burnet, Fayette, Gillespie, Hays, Llano, and Travis. For more information on the springs within Region K, please refer to *Texas Water Development Board Report 189: Major and Historical Springs of Texas, by Gunnar Brune, March 1975.*

Large quantities of fresh to slightly saline groundwater underlie more than 81 percent of the land in Texas. There are nine "major" aquifers that can produce large quantities of water over a large area, and 21 "minor" aquifers that yield smaller amounts of water over smaller geographic areas. At present, 56 percent of the State's annual water consumption is derived from the State's major and minor aquifers, 75 percent of which is used for agriculture. Of these 30 aquifers, five major and six minor aquifers occur within Region K. The five major aquifers are the Carrizo-Wilcox, Edwards (Balcones Fault Zone [BFZ]), Edwards-Trinity (Plateau), Gulf Coast, and Trinity (*Figure 1.11*). These aquifers tend to run in curved belts northeast to southwest across the state.

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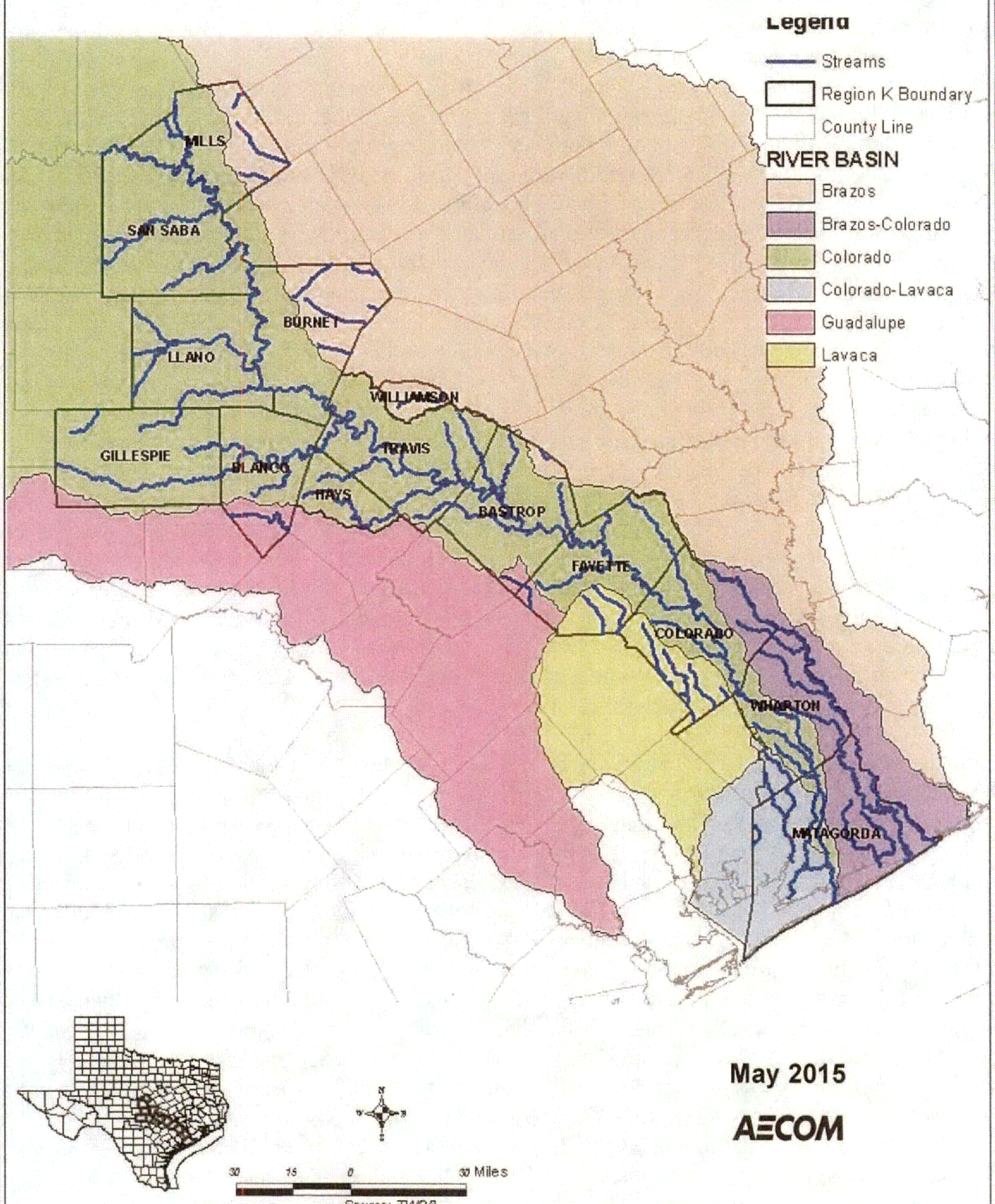
[8] Dallas Morning News, 1999. *Texas Almanac 2000-2001, 60th Edition*, Texas A&M Press.

[9] Texas Water Development Board (TWDB), November 1995. *Aquifers of Texas, Report 345.*

Figure 1.10: Lower Colorado Regional Water Planning Area (Region K) Surface Water Hydrology



The northern most major aquifer in Region K is the Trinity, which has both unconfined water-table and pressurized artesian zones, and covers portions of Mills, Burnet, Gillespie, Blanco, Travis, Hays, and Bastrop Counties. Within the region, the Trinity aquifer contains two major early Cretaceous age formations: the Antlers formation, which consists of a maximum of 900 feet of sand and gravel, with clay beds in the middle section; and the Travis Peak formation, which contains calcareous sands and silts, conglomerates, and limestones. West of the Trinity aquifer in Gillespie County is a small eastern water-table portion of the Edwards-Trinity (Plateau) aquifer. Within the planning region, the Edwards-Trinity (Plateau) aquifer contains saturated sediments of lower Cretaceous age formations and overlying limestones and dolomites. Maximum saturated thickness of the aquifer is 800 feet; however, the eastern portion of the aquifer in Gillespie County is thinner. Overlying a portion of the Trinity artesian zone is the Edwards (BFZ) aquifer, which covers portions of Hays, Travis, and Williamson Counties within Region K. In this area, the aquifer contains both unconfined and artesian zones and feeds the well-known recreational Barton Springs, which contributes an estimated average of 50 cubic feet per second (cfs) of flow to the Colorado River. The Edwards BFZ is primarily composed of early Cretaceous age limestone deposits that have a thickness ranging between 200 feet and 600 feet. This aquifer has a high permeability and transmissivity, making it heavily dependent on consistent recharge and extremely sensitive to environmental stresses. Southeast of the Trinity is the Carrizo-Wilcox aquifer in portions of Bastrop and Fayette Counties. This aquifer contains both water-table and artesian zones and consists of two hydrologically connected formations, the Wilcox Group and the overlying Carrizo formation, which are predominantly composed of Tertiary age sand that is imbedded with gravel, silt, clay, and lignite. The thickness of the artesian zone ranges from 200 feet to 3,000 feet. The southernmost and largest major aquifer within Region K is the Gulf Coast aquifer, which stretches continuously from southeastern Fayette County through Matagorda County. This portion of the aquifer is described as a leaky artesian system, which is composed of Cenozoic age complex interbedded clays, silts, sands, and gravel. In some areas near the Gulf Coast, heavy pumping has caused the intrusion of saltwater into aquifer layers that previously had good water quality. The physical characteristics of this aquifer make it susceptible to dewatering, or a permanent compaction of the clay layer and loss of water storage capacity, as a result of overuse of the aquifer. This compaction can also cause subsidence of surface land overlying the aquifer, which can contribute to flood and structural damage in the area.

The minor aquifers occurring within Region K are the Ellenburger-San Saba, Hickory, Marble Falls, Queen City, Sparta, and Yegua-Jackson (*Figure 1.12*). All six of these aquifers contain unconfined zones and pressurized artesian zones. The Ellenburger-San Saba, Hickory, and Marble Falls aquifers occur in the northwestern portion of the planning region, have discontinuous circular coverage areas, and overlap one another. The Hickory aquifer is composed of the Hickory Sandstone Member of the Cambrian Riley formation, which contains some of the oldest sedimentary rocks found in Texas. This aquifer has a maximum thickness of 480 feet. The Ellenburger-San Saba aquifer has the same general shape as the Hickory and is composed of late Cambrian age limestone and dolomite. San Saba Springs is thought to be supplied primarily by the Ellenburger-San Saba and Marble Falls aquifers, which may be hydrologically connected in some areas. The Marble Falls aquifer occurs in several disconnected outcrops of Pennsylvanian age limestone that form fractures, solution cavities, and channels. The maximum thickness of this aquifer is 600 feet. Numerous large springs are fed by the Marble Falls aquifer, which provide a substantial portion of baseflow to the San Saba and Colorado Rivers in San Saba County. The Queen City, Sparta, and Yegua-Jackson aquifers overlap one another across southeastern Bastrop and northwestern Fayette Counties. The Queen City aquifer is composed of Tertiary age sand, loosely cemented sandstone, and interbedded clay. The maximum thickness of this aquifer is less than 500 feet. The Sparta aquifer overlies the downdip portion of the Queen City aquifer and consists of

Tertiary age sand and interbedded clay. The Yegua-Jackson aquifer consists of interbedded sands, silts, and clays.

Figure 1.11: Lower Colorado Regional Water Planning Area (Region K) Major Aquifers

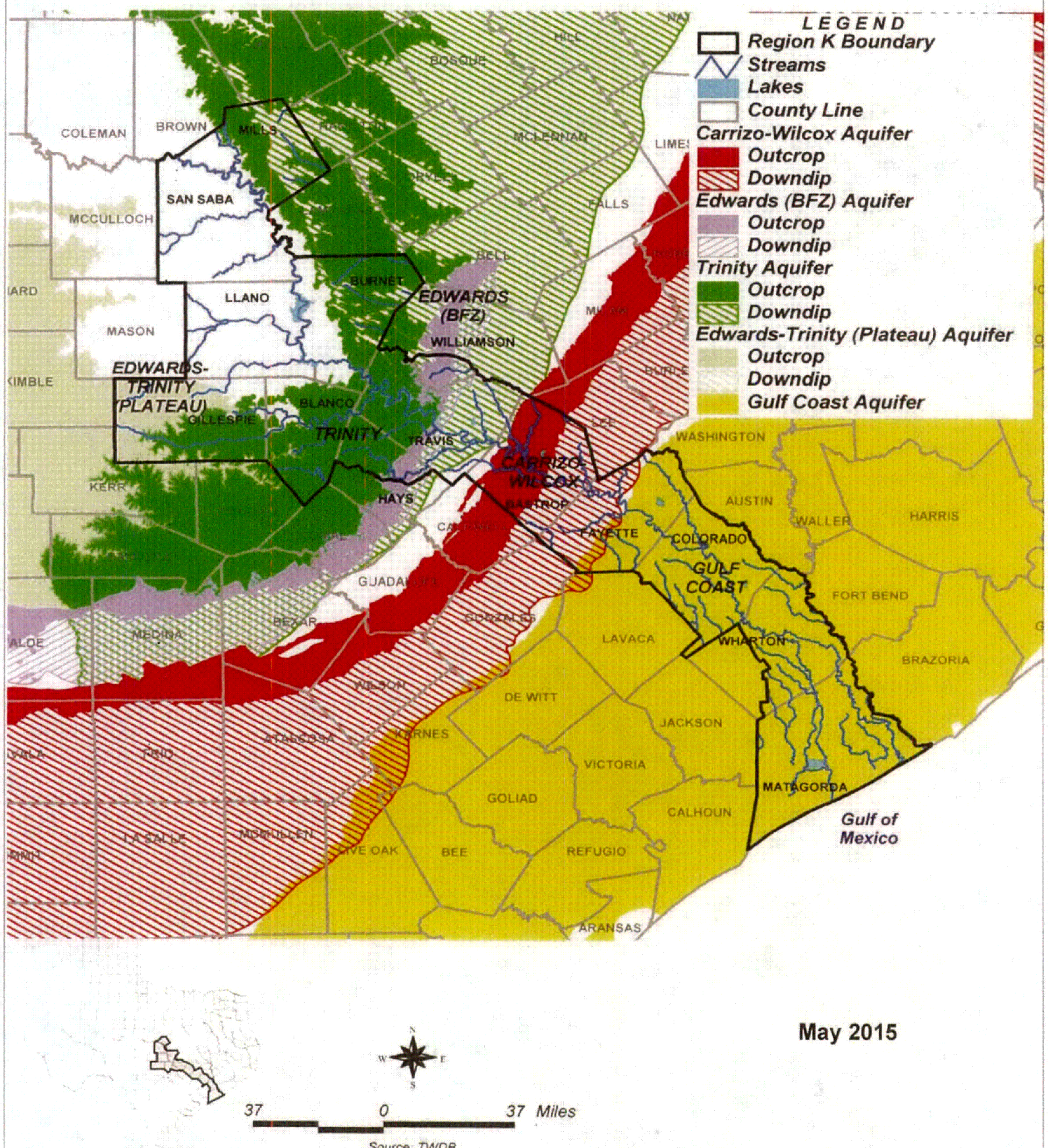
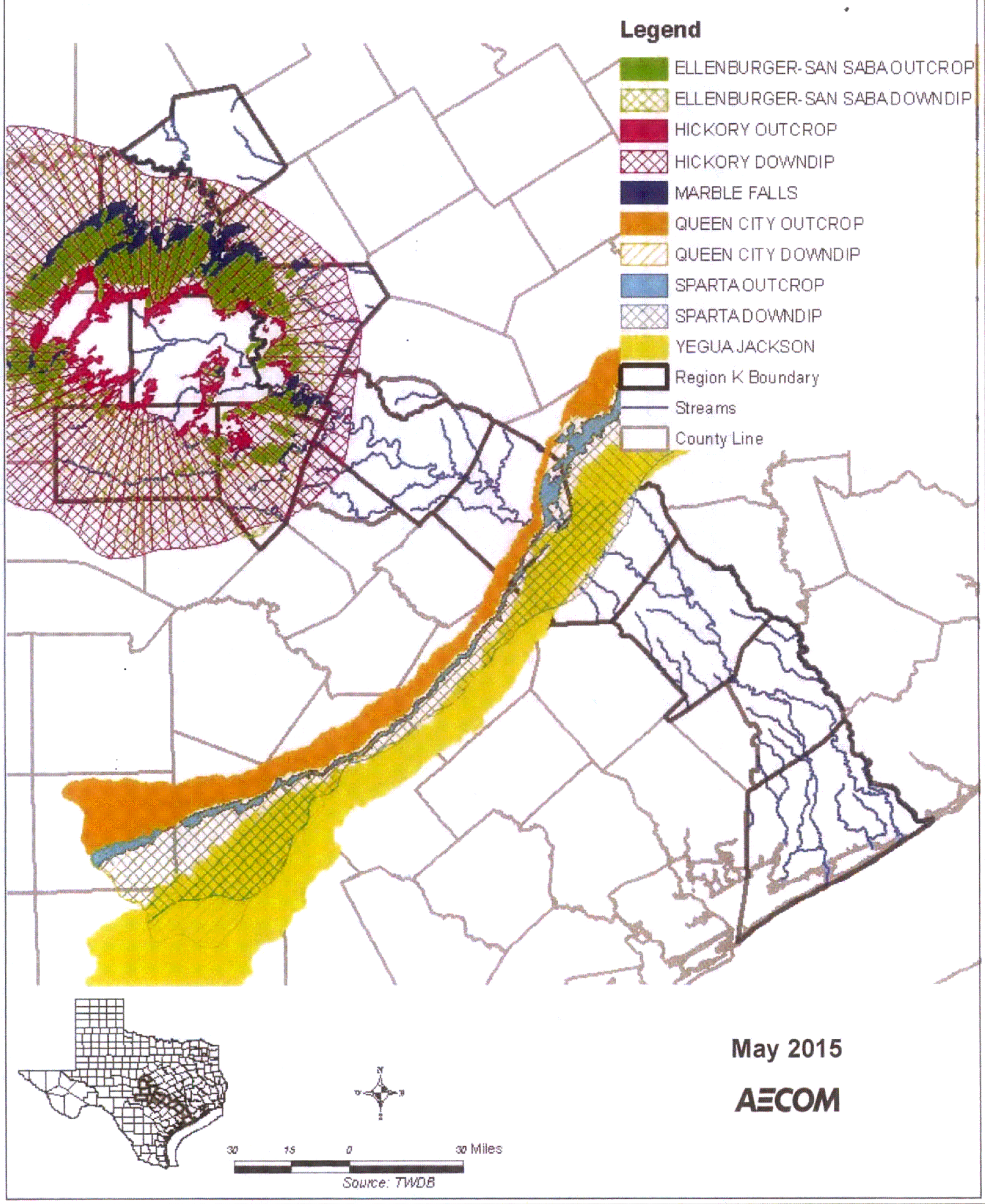


Figure 1.12: Lower Colorado Regional Water Planning Area (Region K) Minor Aquifers



Surface water and groundwater supply availabilities for Region K are discussed in Chapter 3 of this report.

1.2.1.5 Land Resources[10]

The majority of Region K falls within the Colorado River Basin and 92 percent of the region's population resides in this portion of the basin. Land use (*Figure 1.13*) in Region K consists primarily of agricultural land in Matagorda, Wharton, Colorado, Fayette, and eastern Travis Counties. Forestland runs through the middle of Colorado and Fayette Counties; western Travis and Burnet Counties; southeastern Llano County; and a significant portion of Gillespie and Hays Counties. Rangeland predominates in Mills, San Saba, northwestern Llano, and eastern Burnet Counties. Blanco County is primarily a mixture of forestland and rangeland. Bastrop County is a mixture of forestland, agricultural land, and rangeland. A significant concentration of urban land only occurs in the Austin metropolitan area.

The State of Texas has 123 state parks and 14 of these, with a total of 28,316 acres, occur within the counties of Region K (*Table 1.2*). The Texas State Park System offers a variety of recreational and educational opportunities, including camping, hiking, fishing, boating, water skiing, swimming, wildlife viewing, picnicking, and tours of nature exhibits and historical sites.

1.2.1.6 Wildlife Resources[11]

There are 17 national wildlife refuges in Texas, comprising over 470,000 acres, and four of these occur within Region K (67,468 acres). Refuges function to preserve and protect critical wildlife habitat for unique, rare, threatened, and/or endangered species. Many refuges allow bird and wildlife viewing, hunting, and fishing during specific times of the year. In addition, the Texas Parks & Wildlife Department (TPWD) currently manages 51 Wildlife Management Areas (WMAs) in the state with a total of 756,464 acres. Two WMAs lie within Region K and encompass approximately 7,500 acres. These areas preserve and manage quality wildlife habitat and can allow compatible activities such as research, hunting, fishing, hiking, camping, bicycling, and horseback riding. *Table 1.3* lists the wildlife refuges and management areas within Region K.

Region K hosts a diversity of plant and animal wildlife species. In addition to the more commonly found species, each county within Region K provides habitat for several threatened or endangered animal and plant species. Endangered species are those at risk of extinction. Threatened species are those likely to become endangered in the future. These designations are made at the state and federal level by the TPWD and the U.S. Fish and Wildlife Service (USFWS). State and federal threatened and endangered species listings for each county in Region K are presented in *Appendix 1A*. Rare species that are not listed as threatened or endangered are also included.

[10] Dallas Morning News (Texas Almanac 2004–2005).
[11] Dallas Morning News (Texas Almanac 2004–2005).

Table 1.2 State Parks Located Within the Lower Colorado Region

Name	County	Acreage	Description
Admiral Nimitz Museum and Historical Center	Gillespie	7	Established in 1969 and contains special exhibits from World War II.
Bastrop State Park	Bastrop	6,565	Established between 1933 and 1935 and contains the "Lost Pines" isolated region of loblolly pine and hardwoods. The Bastrop County Complex fire in September 2011 affected 96 percent of the park, including significant impact to the Lost Pines ecosystem and the loblolly pines.
Blanco State Park	Blanco	105	Established in 1933 along the Blanco River and has fishing for winter rainbow trout, perch, catfish, and bass.
Buescher State Park	Bastrop	1,017	Established between 1933 and 1936 and was part of Stephen F. Austin's colonial grant; an estimated 250 species of birds can be found in the park.
Colorado Bend State Park	San Saba	5,328	Established in 1984 and part is in Lampasas Co.; contains scenic Gorman Falls and is home to rare and endangered species including the bald eagle, golden-cheeked warbler, and black-capped vireo.
Enchanted Rock State Park	Gillespie and Llano	1,644	Established in 1978 along Big Sandy Creek and contains a large granite outcrop that is the second largest batholith in the U.S. Enchanted Rock is also a national natural landmark and a national historic site.
Inks Lake State Park	Burnet	1,202	Established in 1940 along Inks Lake.
Lake Bastrop S. Shore Park	Bastrop	773	Established in 1989.
Longhorn Cavern State Park	Burnet	646	Established between 1932 and 1937 and was dedicated as a natural landmark in 1971. The cave has been used as a shelter since prehistoric times.
LBJ State Historical Park	Gillespie	733	Established in 1965 along the banks of the Pedernales River; contains LBJ's home and a portion of the official Texas Longhorn herd, as well as bison, deer, and wild turkey; living-history demonstrations at the restored Sauer-Beckmann house.
Matagorda Island State Park	Matagorda	7,325	A natural accreting barrier island located offshore between Port O'Conner and Fulton and is home to a variety of migratory and resident wildlife, including 18 state or federally listed endangered species.
McKinney Falls State Park	Travis	744	Established in 1970.
Monument Hill State Historical Park/Kreische Brewery State Historical Park	Fayette	40/36	Established in 1907/1977. Memorial to the Salado Creek Battle in 1842 and the "black bean lottery" of the Mier Expedition; and one of the first breweries in the state.
Pedernales Falls State Park	Blanco	5,212	Established in 1970 and has typical Edwards Plateau terrain with live oaks, deer, turkey, and stone hills.

Figure 1.13: Lower Colorado Regional Water Planning Area (Region K) Land Use Distribution

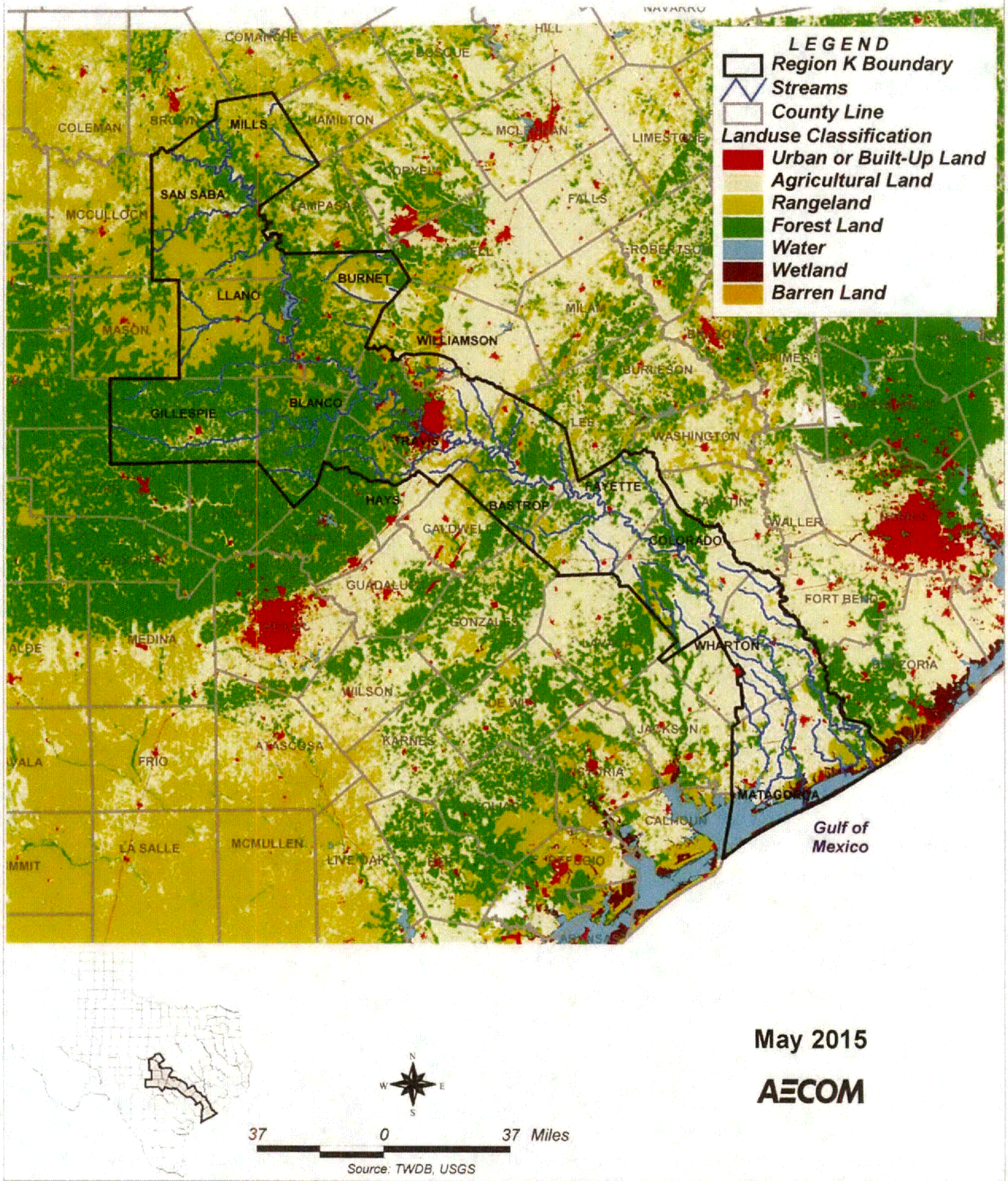


Table 1.3 Wildlife Refuges/Management Areas Located Within the Lower Colorado Region

Name	County	Acreage	Description
National Wildlife Refuges			
Attwater Prairie Chicken[1]	Colorado	10,528	Established in 1972 to preserve habitat for the endangered Attwater Prairie Chicken, which includes native tallgrass prairie, potholes, sandy knolls, marshes, and some wooded areas.
Balcones Canyonlands[2]	Travis	45,958	Established in 1992 northwest of Austin to protect the nesting habitat of two endangered bird species: golden-cheeked warbler and the black-capped vireo. The refuge will eventually encompass 46,000 acres of oak-juniper woodlands and other habitats.
Big Boggy[3]	Matagorda	5,000	Established in 1983 along the coast of Texas in southeastern Matagorda County to conserve key coastal wetlands for Neotropical migratory birds and shorebirds in spring and fall, as well as for winteringfowl and year-round wildlife.
San Bernard[4]	Matagorda	54,000	Established in 1968 near Freeport which attracts white-fronted and Canada geese and several species of duck
Wildlife Management Areas			
Mad Island[5]	Matagorda	7,281	This area allows hunting and wildlife viewing.
D. R. Wintermann WMA[6]	Wharton	246	This area has restricted access.

[1] U.S. Fish & Wildlife Service (URL: http://www.fws.gov/refuge/attwater_prairie_chicken/faqs.html)
[2] Balcones Canyonlands National Wildlife Refuge (URL: http://www.wikipedia.org)
[3] Big Boggy National Wildlife Refuge (URL: http://wikipedia.org)
[4] U.S. Fish & Wildlife Service (URL: http://www.fws.gov/refuge/San_Bernard/faqs.html)
[5] Texas Parks & Wildlife (URL: http://www.tpwd.state.tx.us/huntwild/hunt/public/lands/table_contents/media/729.pdf)
[6] Texas Parks & Wildlife (URL: http://www.tpwd.state.tx.us/huntwild/hunt/wma/find_a_wma/list/?id=44)

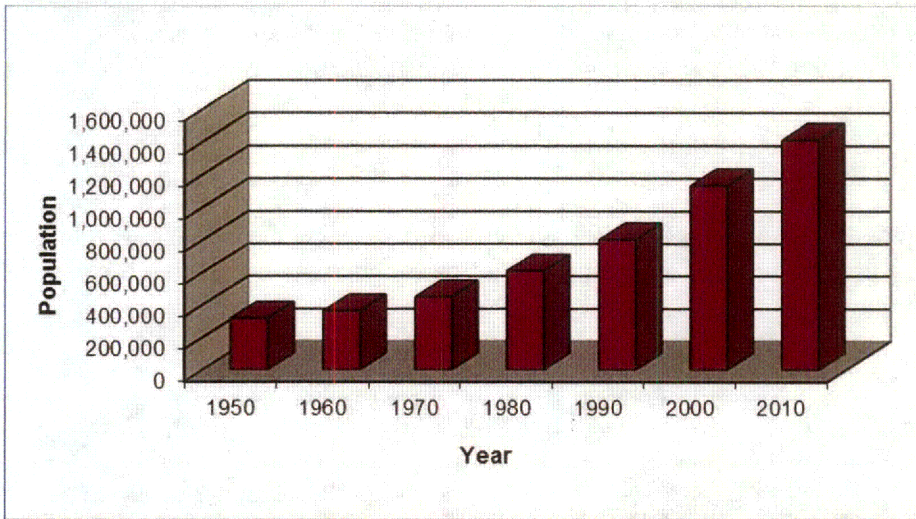
1.2.2 Socioeconomic Characteristics of the Lower Colorado Regional Water Planning Area

1.2.2.1 Historic and Current Population Trends[12]

Region K has had a steady increase in population from 1950 to the present. As *Figure 1.14* shows, in 1950 there were approximately 316,573 people, which has increased to an estimated 1,410,328 people in 2010. This corresponds to an overall 345 percent increase in the number of people living in the region during that time period. The period from 1990 to 2000 had the largest percent increase of almost 41 percent, or an addition of 331,199 people. The time period of smallest population growth occurred between 1950 and 1960, with an increase of 45,830 persons (14.5 percent). As discussed in Chapter 2, this growth trend is expected to continue for the entire State of Texas, as well as Region K. For the period 2020 to 2070, a compound annual growth rate of 1.26 percent is projected, resulting in a total regional population of 3,243,127 in 2070.

[12] Bureau of the Census, Decadal Censuses of 1950, 1960, 1970, 1980, 1990 and 2000; and Region K historic population data supplied by the Texas Water Development Board for 1980–2010. The Region K 2020 Population projections were developed utilizing year 2010 census data as a starting point with adjustments made by the LCRWPG as necessary. Populations for the Partial Region K counties of Hays, Williamson, and Wharton were estimated by determining the percent decreases observed in projections from the U.S. Census and the TWDB for 1980 and 1990; these percent decreases were then averaged and applied to the 1950, 1960, and 1970 U.S. Census partial-county populations.

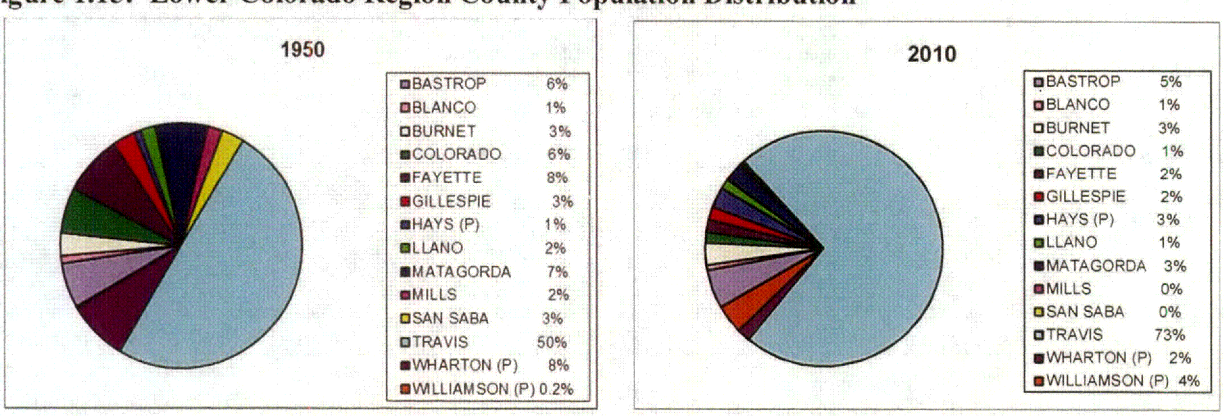
Figure 1.14: Historic Lower Colorado Regional Water Planning Area Population[1]



[1] Texas Water Development Board (URL: http://www.twdb.texas.gov/waterplanning/waterusesurvey/estimates/index.asp) (Water Planning. County Summary, 2000 and Later)

Comparison of the region's county population distribution between 1950 and 2010 (*Figure 1.15*) shows that Travis County contains the majority of the region's population. Travis County's proportion of population compared to the region has increased from 50 percent in 1950 to 73 percent in 2010 due to the rapid growth of the Austin area. Travis County's population has increased more than 500 percent between 1950 and 2010, with the addition of over 800,000 people. Hays County has also seen a large population increase with over twelve times as many people living in the county in 2010 as in 1950. The Region K portion of Williamson County has shown an even larger percent increase in population as well, with a 2010 population 85 times the size of the 1950 population. Other counties in the region have experienced much smaller growth rates, historically.

Figure 1.15: Lower Colorado Region County Population Distribution[1]



[1] Texas Water Development Board (URL: http://www.twdb.texas.gov/waterplanning/waterusesurvey/estimates/index.asp) (Water Planning. County Summary, 2000 and Later)

Recent population growth, since the year 2000, of the Austin metropolitan area has expanded from Travis County into Bastrop County, Hays County, and Williamson County. With the recent construction of the SH 130 and SH 45 corridors in Travis County, travel between counties has become easier and thus is facilitating increased population growth within a larger radius of the City of Austin. Increased development surrounding the corridors should continue for the next several decades. Areas surrounding the Highland Lakes are also seeing larger increases in population growth, specifically Burnet County and Llano County.

1.2.2.2 Primary Economic Activities[13, 14]

Economic activities in Region K include agriculture, government/services, manufacturing, mining, tourism, and trades. *Table 1.4* lists the primary economic base of each county as well as the breakdown of mining and agricultural activities.

Table 1.4 Lower Colorado Region Primary Economic Activities by County

County	Primary Economic Base	Mineral Deposits	Agriculture
Bastrop	government/services, tourism, agribusiness, bio-technology research, computer equipment	clay, oil, gas, lignite	hay, beef cattle, horses, goats, pecans, pine, oak
Blanco	tourism, agribusiness, ranch supplies and equipment manufacturing, hunting/fishing	insignificant	cattle, sheep, goats, hay, vegetables, wheat, peaches, pecans, greenhouse nurseries
Burnet	stone processing, manufacturing, tourism, hunting	granite, limestone, graphite	cattle, goats, hay, hunting,
Colorado	agribusiness, oilfield services/ equipment, manufacturing, mineral processing	gas, oil	rice, cattle, nursery, corn, poultry, hay, sorghum.
Fayette	agribusiness, tourism, electrical power generation, mineral production, small manufacturing, government/services	oil, gas, sand, gravel, bentonite, clay	beef cattle, corn, sorghum, peanuts, hay, pecans
Gillespie	agribusiness, tourism, government/ services, food processing, hunting, small manufacturing, granite processing	sand, gravel, gypsum, limestone	beef cattle, turkeys, sheep, goats, peaches, hay, sorghum, oats, wheat, grapes
Hays (p)	tourism, retirement, some manufacturing	sand, gravel, cement	beef cattle, goats, exotic wildlife, greenhouse nurseries, hay, corn, sorghum, wheat, cotton
Llano	tourism, retirement, ranch commerce center, vineyards, granite mining	granite, vermiculite, llanite	beef cattle, sheep, goats
Matagorda	petroleum operations, petrochemicals, agribusiness, varied manufacturing, significant tourism, electrical power generation	gas, oil, salt	major rice-growing area, cotton, turfgrass, grains, corn, cattle, catfish
Mills	agribusiness, hunting	insignificant	beef cattle, sheep, goats, pecans
San Saba	retail pecan industry, tourism, hunting, government/ services	Limestone, rock, quarry	cattle, sheep, goats, pecans, wheat, hay
Travis	education, state government, tourism, research, industries, conventions	Lime, stone, sand, gravel, oil, gas	cattle, nursery crops, hogs, sorghum, corn, cotton, small grains, pecans
Wharton (p)	oil, agribusiness, hunting, varied manufacturing, government/services	oil, gas	leading rice producing county, cotton, milo, corn, sorghum, soybeans, turfgrass, eggs, beef cattle, rice, aquaculture
Williamson (p)	agribusiness, varied manufacturing, government/services, education	stone, sand, gravel	beef cattle, sorghum, cotton, corn, wheat

(p) - a portion of the county lies within the REGION K boundaries

[13] Dallas Morning News (Texas Almanac 2004–2005),.
[14] Texas Comptroller of Public Accounts, Texas Economy, www.window.state.tx.us/ecodata/regional/.

Agriculture plays a major role in most of the counties in Region K. Livestock accounts for more than 60 percent of the planning region's agricultural cash receipts and important crops include rice, hay, wheat, and cotton. The counties located in the northwestern portion of the planning region depend heavily on livestock production. Rice is the major crop produced in the southernmost counties of Colorado, Wharton, and Matagorda.

The manufacturing sector consists primarily of the technology and semiconductor industries, in the mid-region counties of Bastrop, Travis, and Williamson. The largest single manufacturing industry in the coastal counties is petroleum refining and petrochemicals. Electrical generation is a notable industry in Matagorda County. The South Texas Project Electric Generating Station provides generation capacity to serve more than 2 million homes as well as being the largest employer and source of revenue for the county. At the same time, there has been significant economic growth in food processing, lumber, wood products, and construction supplies for the coastal counties. The tourism industry represents an important economic sector that is heavily dependent on water resources in Llano, Burnet, and Travis Counties. *Appendix 1B* includes background information on the history and social and economic importance of the Highland Lakes, as provided by a stakeholder interest group within Region K.

Population and economic estimates are presented in *Table 1.5* for the Lower Colorado Region by county.

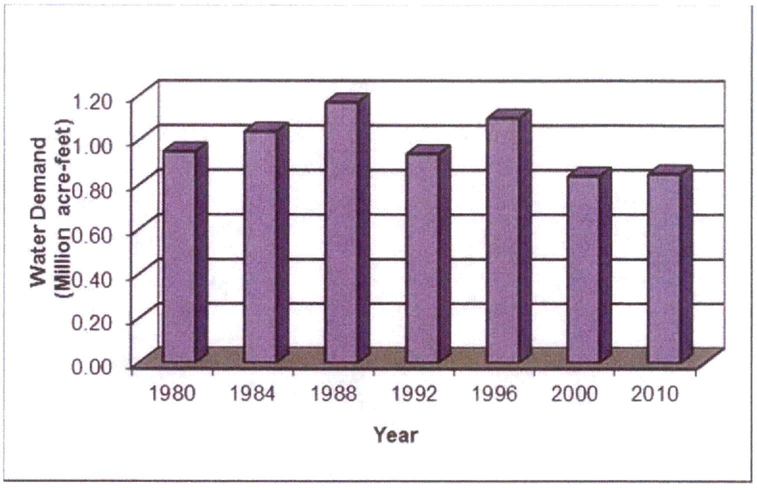
Table 1.5 Lower Colorado Region County Population and Economic Estimates

County Name	2010 Resident Population [1]	Per Capita (2012 dollars) 2008-2012 Personal Income [1]		CY 2008-2012	CY 2008-2012 Poverty [2]	Average Labor Force Employment and Unemployment [3]			
		Per Capita ($)	Total (millions $)	Median Household Income ($)[2]	Poverty Rate (%)	Labor Force	Persons Employed	Persons Un-employed	Unemploy-ment Rate (%)
Bastrop	74,171	$23,940	$1,776	$ 52,516	*14.1*	35,166	32,244	2,922	8.3
Blanco	10,497	$27,014	$284	*$46,881*	*9.3*	5,205	4,880	325	6.2
Burnet	42,750	$24,991	$1,068	$49,047	15.6	22,766	21,367	1,399	6.1
Colorado	20,874	$24,706	$516	$43,273	16.8	10,826	10,038	788	7.3
Fayette	24,554	$27,520	$676	$45,478	14.5	12,385	11,645	740	6.0
Gillespie	24,837	$29,178	$725	$55,017	9.3	13,962	13,291	671	4.8
Hays	157,107	$26,662	$4,189	$57,834	16.8	82,604	76,891	5,713	6.9
Llano	19,301	$33,905	$654	*$45,533*	*14.1*	8,512	7,863	649	7.6
Matagorda	36,702	$23,079	$847	$43,146	19.2	18,468	16,393	2,075	11.2
Mills	4,936	$19,556	$97	*$34,984*	*16.4*	2,392	2,252	140	5.9
San Saba	6,131	$18,316	$112	*$37,230*	*19.1*	2,369	2,196	173	7.3
Travis	1,024,266	$32,777	$33,572	$56,403	17.4	565,502	526,300	39,202	6.9
Wharton	41,280	$21,353	$881	$40,988	18.5	21,519	19,684	1,835	8.5
Williamson	422,679	$30,540	$12,909	$70,849	6.8	222,793	206,678	16,115	7.2
Region K [4]	1,910,085	$30525	$58,305	-	-	1,024,469	951,722	72,747	7.1
Texas	25,145,561	$25,809	$648,982	$51,563	17.4	12,287,566	11,280,558	1,007,008	8.2

[1] U.S. Bureau of the Census (URL: http://factfinder2.census.gov) (Fact Sheet for community profiles.)
[2] U.S. Bureau of the Census (URL: http://quickfacts.census.gov) (State & County QuickFacts profiles.)
[3] Texas Workforce Commission (URL: http://www.tracer2.com/)
[4] Includes all of Hays, Wharton, and Williamson Counties.

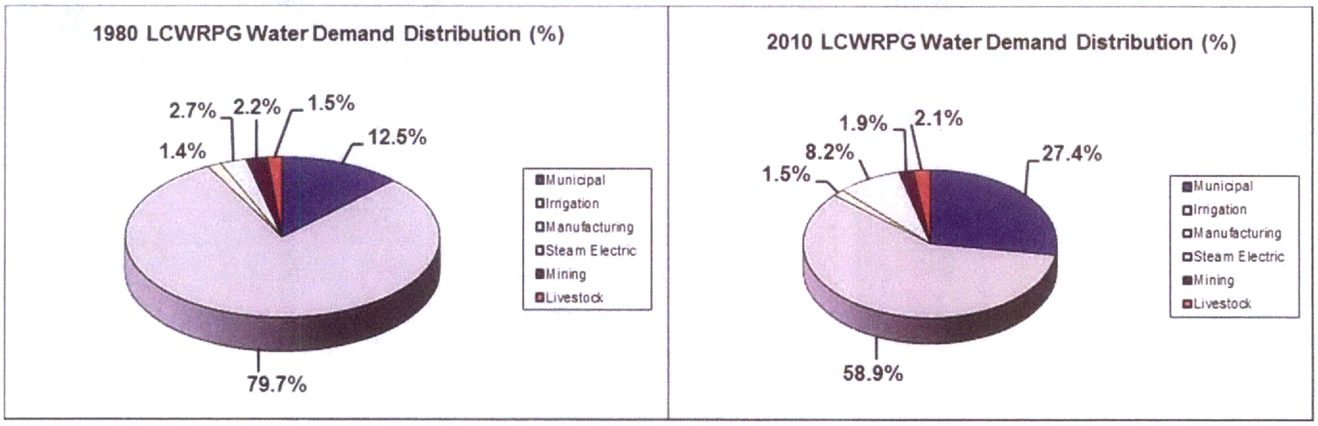
1.2.2.3 Historical Water Uses[15, 16]

Figure 1.16: Lower Colorado Regional Water Planning Area Historical Water Demand[15]



Total annual water use in the Lower Colorado Regional Planning Area has decreased approximately 10 percent from 1980 to 2010 (*Figure 1.16*). A peak water use of 1.17 million ac-ft occurred in 1988. Water demand in each year is impacted by many factors, including rainfall and can show fluctuation from year to year. Recent years have demonstrated that, as 2011 water use neared the 1988 level at 1.15 million ac-ft, due to drought conditions with corresponding high municipal and agricultural irrigation use. In 2012 water use saw a low of 0.65 million ac-ft due mostly to emergency curtailment of agricultural irrigation and implementation of municipal drought contingency plans. Relative water use distribution, by water use category, has remained relatively similar between 1980 and 2010 (*Figure 1.17*). Irrigation is the largest water use in Region K, which accounted for almost 80 percent of water use in 1980 and 59 percent in 2010. Municipal has consistently been the second largest water use since 1980, followed by steam-electric power, mining, manufacturing, and livestock water uses.

Figure 1.17: Lower Colorado Region User Group Water Demand Distribution[15, 16]



When comparing 1980 demands to 2010 demands, irrigation water demands show a 34 percent decrease, municipal demands show a 97 percent increase, livestock demands show 27 percent increase, mining demands show a 23 percent decrease, and manufacturing demands show a 6 percent decrease. Steam-electric power generation shows the largest water demand increase of 171 percent.

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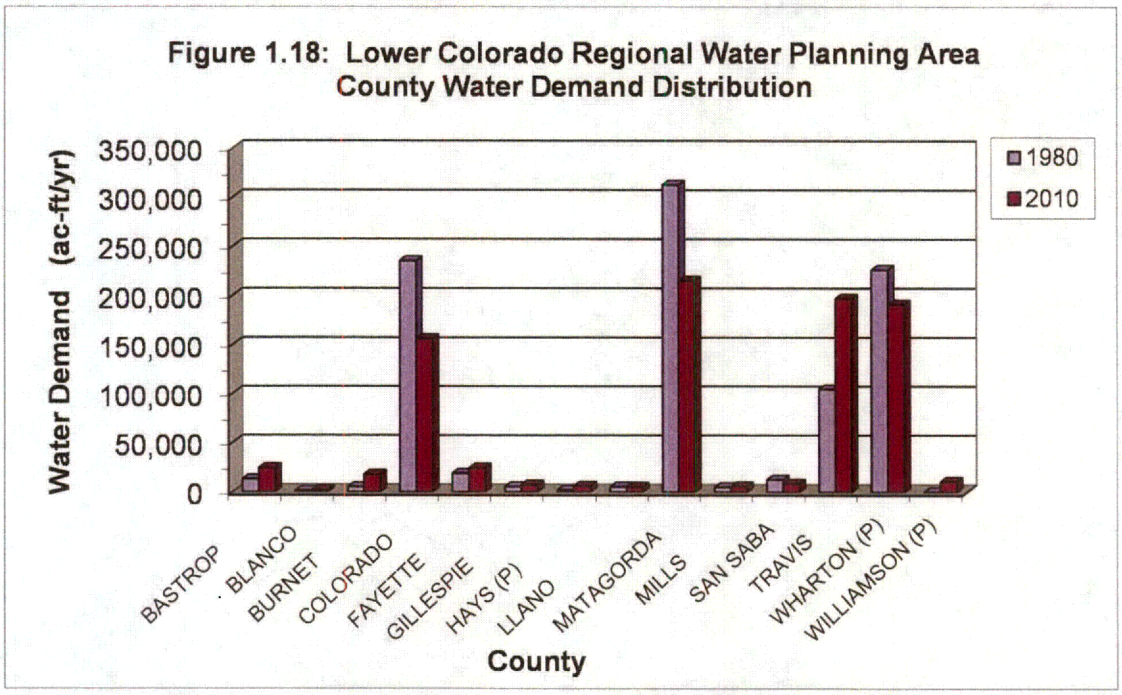
[15] Texas Water Development Board (URL: http://www.twdb.texas.gov/waterplanning/waterusessurvey/estimates/index.asp) (Water Planning. State/Planning Region (map))

[16] Texas Water Development Board (URL: http://www.twdb.texas.gov/waterplanning/waterusessurvey/estimates/index.asp) (Water Planning. County Summary, 2000 and Later)

The water demand distribution between the 14 counties in Region K shows that when comparing water demands for 1980 and 2010, demand was consistently the greatest in Matagorda County, which accounted for approximately 33 percent of the region's total water demand in 1980 and 25 percent in 2010 (*Figure 1.18*). The major water use in Matagorda County is rice irrigation. Colorado and Wharton Counties are among the largest water users in the region, which is also attributed to the extensive rice irrigation in these counties. Travis County contains the region's only major demand center, and its water use ranked fourth overall in 1980 and second overall in 2010. Overall, these four counties account for approximately 93 and 87 percent of the region's total water demand, respectively, for 1980 and 2010. Details of Region K's projected future water demands are presented in Chapter 2.

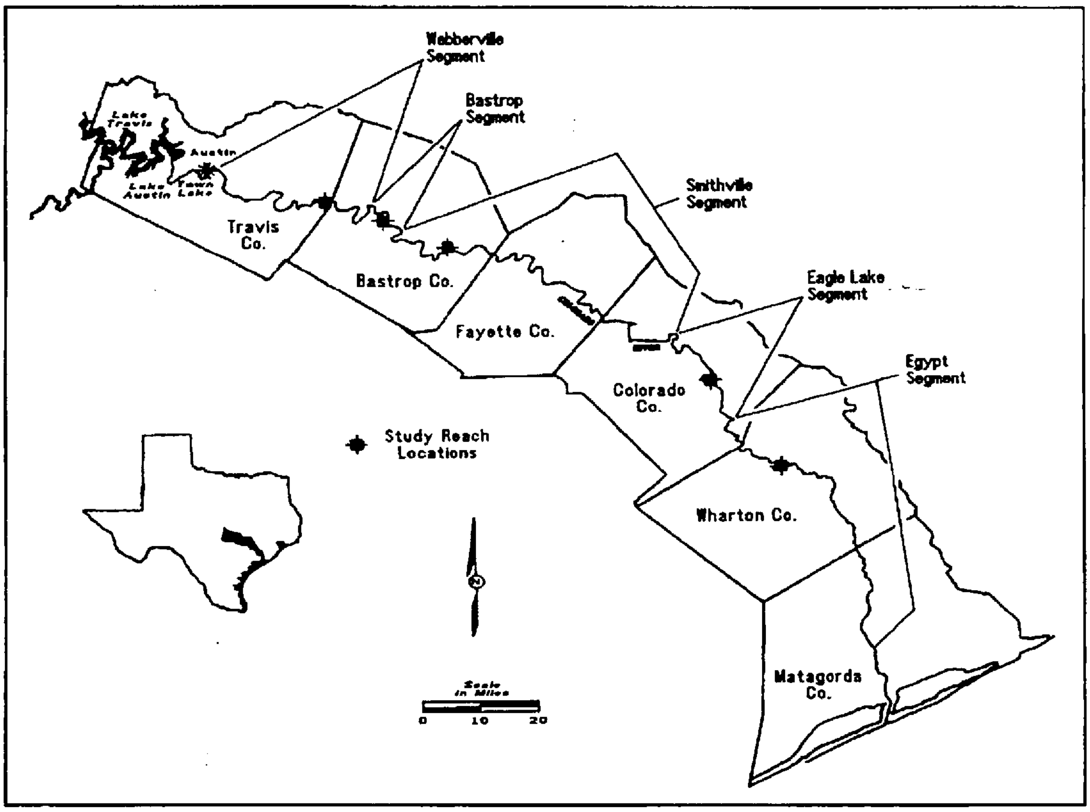
Figure 1.18: Lower Colorado Regional Water Planning Area County Water Demand Distribution[16]



Flows for the maintenance of important environmental resources are also a significant water use within the free-flowing reaches of streams in Region K. Free-flowing reaches above the Highland Lakes in San Saba and Mills Counties are dependent on rainfall, springflow and water releases from Stacy Dam at O.H. Ivie Reservoir, which is outside Region K and is under the control of the Colorado River Municipal Water District within Region F. A management plan was implemented in this area, between O. H. Ivie Reservoir and Lake Buchanan, to protect the federally endangered Concho Water Snake. Minimum continuous instream flow releases from Stacy Dam were required by the USFWS as a mitigation component to obtain a Section 404 permit from the U.S. Army Corps of Engineers (USACE) in order to build Stacy Dam. The management plan also specified that once every 2 years Stacy Dam will release a 2-day 2,500 cfs instream flow to provide channel maintenance for the water snake habitat. The Concho Water Snake has recovered under this plan and was delisted in 2011. The District agrees to maintain the above-mentioned flows, to the extent that inflows are available to the reservoir.

A 1992 instream flow study was performed by the LCRA for five contiguous reaches, which start downstream of Austin at river mile 290 (from the mouth of the Colorado River) to river mile 34 near Bay City (*Figure 1.19*). The results of the 1992 study were subsequently incorporated into the TCEQ approved LCRA Water Management Plan (WMP). The LCRA Water Management Plan is updated infrequently on an as-needed basis to reflect changing conditions in the basin. The current version of the LCRA WMP was approved by the TCEQ in January 2010. Although the latest update to the LCRA WMP was approved by the LCRA Board and submitted for approval to the TCEQ in 2014,when work began on the 2016 Region K update, the 2014 update was not approved by the TCEQ. Therefore, the information used for the 2016 Region K update is from the 2010 LCRA WMP. More details on the LCRA WMP are provided in Chapter 2.

Figure 1.19: Lower Colorado River Instream Study Reaches (Source: LCRA)



Subsistence or critical instream flows are classified as a firm demand on water resources, and instream flows have been maintained by LCRA at or above the minimum critical flow in accordance with the current WMP. Target instream flows are designed to provide an optimal range of habitat complexity to support a well-balanced, native aquatic community within a stream reach. Chapter 2 provides extensive details on critical and target instream flow recommendations for the Lower Colorado River in *Section 2.4.*

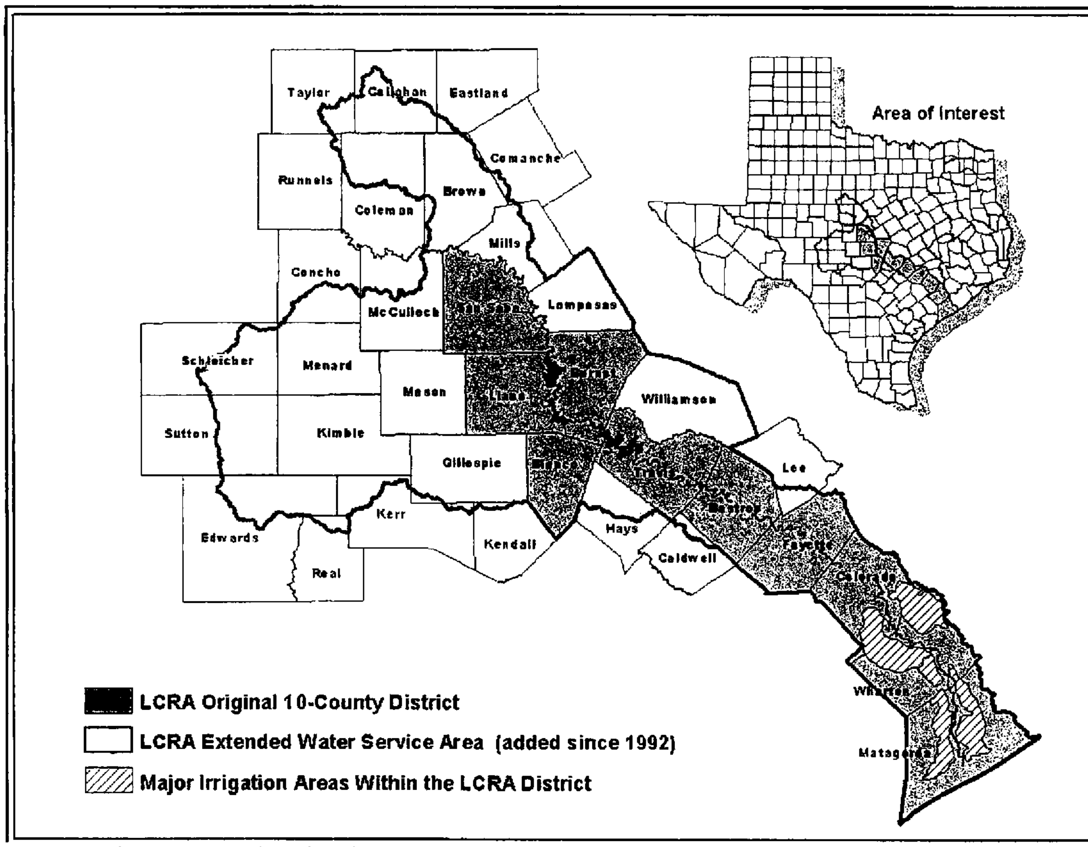
Freshwater inflow is also essential for healthy coastal estuarine ecosystems along the Texas Coast. Ninety-seven percent of the fishery species (shellfish and finfish) in the Gulf of Mexico spend all or a portion of their life cycle in estuaries. The life cycles of estuarine-dependent species vary seasonally and have different migratory patterns between the estuary and the Gulf. The Matagorda Bay system is the second largest estuary in the state, and this system receives freshwater inflow from the Colorado River, the Lavaca River, and surface runoff from the contributing drainage basin areas. On average, Matagorda Bay annually receives approximately 560 billion gallons (more than 1.7 million ac-ft) of freshwater from the Colorado River and basin. This corresponds to about 69 percent of the river's available water supply from surface runoff inflow. Chapter 2 provides extensive details on Bay and Estuary freshwater inflows for Matagorda Bay in *Section 2.4*.

1.2.2.4 Wholesale Water Providers

The TWDB guidelines allow each RWPG to identify and designate "wholesale water provider(s)" for each region. These guidelines define a wholesale water provider as an entity ". . . which delivers and sells a significant amount of raw or treated water for municipal and/or manufacturing use on a wholesale basis." The intent of these TWDB guidelines is to ensure that there is an adequate future supply of water for each entity that receives all or a significant portion of its current water supply from another entity.

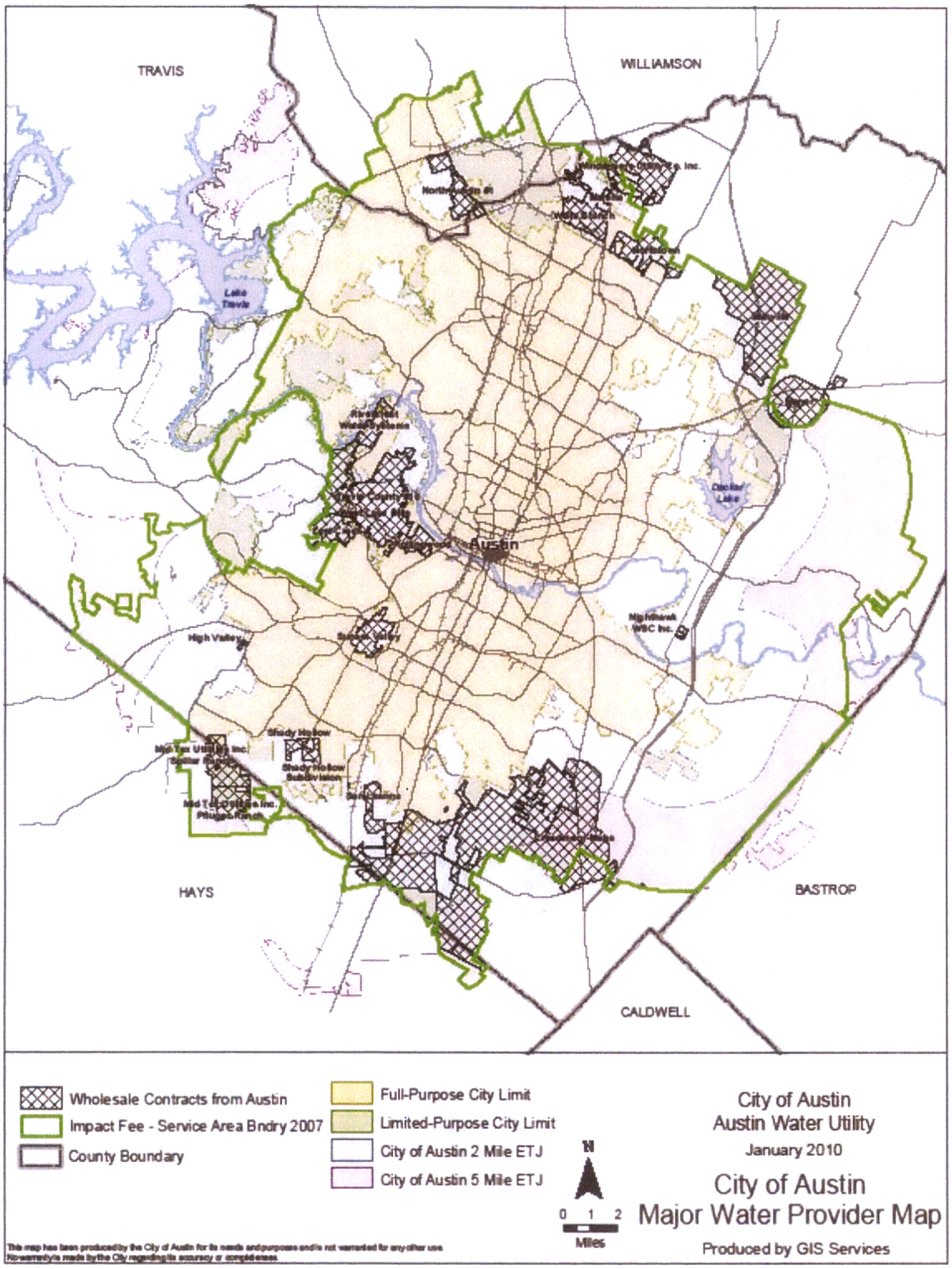
As discussed in Chapter 2, the LCRWPG has officially designated the LCRA and the City of Austin (COA) as wholesale water providers. The LCRA provides water for municipal, agricultural (irrigation), manufacturing, steam-electric, mining and other uses within all or part of a 36-county service area. LCRA's current service area allows it to provide water to entities in each of the 14 counties within the Lower Colorado Regional Planning Area (*Figure 1.20*). The COA supplies water for municipal, manufacturing, and steam-electric uses. The City's water planning area encompasses portions of Travis, Williamson, and Hays Counties (*Figure 1.21*).

Figure 1.20: Lower Colorado River Authority Water Supply Service Area



Source: The Lower Colorado River Authority (March 2000)

Figure 1.21: City of Austin Water Supply Service Area



1.2.3 Water Quality in the Colorado River Basin[17, 18, 19]

The chemical characteristics of and the State Water Quality Criteria assigned to the Colorado River vary along its length (900 river miles) from the upper basin that is mainly within the West Texas Regional Water Planning Area (Region F) to the mouth of the river at Matagorda Bay in the Lower Colorado Regional Planning Area (Region K) (*Table 1.6*). The water quality differences of the various stream segments of the Colorado River are due to variations in both natural and man-made influences affecting each segment's drainage area. In addition, water flowing from upstream segments of the Colorado River and its tributaries also contribute to each downstream segment's water quality characteristics.

The Colorado River is divided into 18 mainstream classified stream segments, which are defined by the Texas Commission on Environmental Quality (TCEQ), which was formerly the Texas Natural Resource Conservation Commission (TNRCC), as:

> Surface waters of an approved planning area exhibiting common biological, chemical, hydrological, natural, and physical characteristics and processes. Segments will normally exhibit common reactions to external stresses (e.g., discharge or pollutants). Segmented waters include most rivers and their major tributaries, major reservoirs and lakes, and marine waters, which have designated physical boundaries, specific uses, and specific numerical physicochemical criteria. Segments are classified in the water identification system utilized by the TNRCC Office of Water Resources Management (OWRM) and are the management unit to which water quality standards and regulations are applicable under the Clean Water Act.

Approximately 70 percent of the Colorado River mainstream segments are located within Region K. There are also 16 classified stream segments that are tributaries of the Colorado River, and almost 40 percent of these are within Region K.

The TNRCC initiated the Texas Clean Rivers Program (CRP) in 1991 to address the Texas Clean Rivers Act. The State Legislature passed this act in response to concerns within the state that water quality issues were being addressed in an uncoordinated fashion. The CRP established a watershed management approach to identify and evaluate water quality issues, as well as to set priorities for the improvement of water quality throughout the state. The CRP set up a partnership in each river basin that consisted of the TNRCC, other state agencies, river authorities, local governments, and private citizens. Each river basin is to provide the TNRCC with updated regional water quality data, and the TNRCC is required to summarize these basin-wide assessments into a statewide report every 2 years.

In 1996, the TNRCC published two reports that updated water quality information for each river basin and stream segment in the state: *The State of Texas Water Quality Inventory* and *Texas Water Quality: A Summary of River Basin Assessments*. The CRP's Colorado River Basin regional assessment technical report defines the "Upper Basin" of the Colorado River as the classified mainstream segments 1411–1413 and 1426 and classified tributary segments 1421–1425. These segments fall within the SB 1 Regions F and G. The "Middle Basin" contains mainstream segments 1403–1410, 1429, and 1433 and tributary segments 1414–1417, 1427, 1431, and 1432. These segments fall within SB 1 Region F and the Lower

[17] TWDB, Op. Cit., May 1977.
[18] TNRCC, December 1996. *Texas Water Quality: A Summary of River Basin Assessments*, Texas Clean Rivers Program Report SFR-46.
[19] TNRCC, October 1996. *Regional Assessment of Water Quality: Colorado River Basin & Colorado/Lavaca Coastal Basin*, Texas Clean Rivers Program Technical Report.

Table 1.6 Classified Stream Segment Uses and Water Quality Criteria in the Colorado River Basin 2014

COLORADO RIVER BASIN			USES *			STATE STREAM STANDARDS CRITERIA **						
Stream Segment #	Stream Segment Name	SB 1 Planning Region	Recreation	Aquatic Life	Water Supply	Chloride Annual Avg. (mg/L)	Sulfate Annual Avg (mg/L)	TDS Annual Avg (mg/L)	D.O. (mg/L)	pH Range	Fecal Coliform[1] (30-day geometric mean, CFU/100ml)	Temp (*F)
1401	Colorado River Tidal	K	PCR1	H					4.0	6.5–9.0	35	95
1402	Colorado River Below La Grange	K	PCR1	H	PS	100	100	500	5.0	6.5–9.0	126	95
1403	Lake Austin	K	PCR1	H	PS	100	75	400	5.0	6.5–9.0	126	90
1404	Lake Travis	K	PCR1	E	PS	100	75	400	6.0	6.5–9.0	126	90
1405	Marble Falls Lake	K	PCR1	H	PS	125	75	500	5.0	6.5–9.0	126	94
1406	Lake Lyndon B. Johnson	K	PCR1	H	PS	125	75	500	5.0	6.5–9.0	126	94
1407	Inks Lake	K	PCR1	H	PS	150	100	600	5.0	6.5–9.0	126	90
1408	Lake Buchanan	K	PCR1	H	PS	150	100	600	5.0	6.5–9.0	126	90
1409	Colorado River Above Lake Buchanan	K	PCR1	H	PS	200	200	900	5.0	6.5–9.0	126	91
1410	Colorado River Below O.H. Ivie Reservoir	K	PCR1	H	PS	500	455	1,475	5.0	6.5–9.0	126	91
1411	E. V. Spence Reservoir	F	PCR1	H	PS	440	360	1,630	5.0	6.5–9.0	126	93
1412	Colorado River Below Lake J. B. Thomas	F	PCR1	H		4,740	1,570	9,210	5.0	6.5–9.0	33	93
1413	Lake J. B. Thomas	F	PCR1	H	PS	140	250	520	5.0	6.5–9.0	126	90
1414	Pedernales River	K	PCR1	H	PS	125	75	525	5.0	6.5–9.0	126	91
1415	Llano River[2]	K	PCR1	H	PS	50	50	350	5.0	6.5–9.0	126	91
1416	San Saba River	K/G	PCR1	H	PS	50	50	425	5.0	6.5–9.0	126	90
1417	Lower Pecan Bayou	K	PCR1	H		310	120	1,025	5.0	6.5–9.0	126	90
1418	Lake Brownwood	F	PCR1	H	PS	150	100	500	5.0	6.5–9.0	126	90
1419	Lake Coleman	F	PCR1	H	PS	150	100	500	5.0	6.5–9.0	126	93
1420	Pecan Bayou Above Lake Brownwood	F	PCR1	H	PS	500	500	1,500	5.0	6.5–9.0	126	90
1421	Concho River	F	PCR1	H	PS	610	420	1,730	5.0	6.5–9.0	126	90
1422	Lake Nasworthy	F	PCR1	H	PS	450	400	1,500	5.0	6.5–9.0	126	93
1423	Twin Buttes Reservoir	F	PCR1	H	PS	200	100	700	5.0	6.5–9.0	126	90
1424	Middle Concho/SouthConcho River[3]	F	PCR1	H	PS	150	150	700	5.0	6.5–9.0	126	90
1425	O. C. Fisher Lake	F	PCR1	H	PS	150	150	700	5.0	6.5–9.0	126	90

Source: TCEQ (formerly TNRCC), 2014. URL: http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/307%60.pdf (pg 80, 81)

* Uses: PCR1 =Primary Contact Recreation 1; H = High Aquatic Life; E = Exceptional Aquatic Life; PS = Public Water Supply; AP = Aquifer Protection

** Criteria: Standards set by the TCEQ (formerly TNRCC) do not guarantee the water to be usable for municipal, domestic, irrigation, livestock, &/or industrial uses, such as segment #1412 & others; this causes the above screening process to be misleading for certain segments, especially for salinity.

[1] The indicator bacteria for freshwater is *E. coli* and for saltwater is Enterococci. The indicator bacteria for Segment 1412 is Enterococci.

[2] The critical low-flow for the South Llano River portion of Segment 1415 is calculated according to §307.8(a)(2)(B) of the Texas Administrative Code, Title 30.

[3] The critical low-flow for the South Concho River portion of Segment 1424 is calculated according to §307.8(a)(2)(B) of the Texas Administrative Code, Title 30.

Table 1.6 (Continued) Classified Stream Segment Uses and Water Quality Criteria in the Colorado River Basin 2014

COLORADO RIVER BASIN			USES *			STATE STREAM STANDARDS CRITERIA **						
Stream Segment #	**Stream Segment Name**	**SB 1 Planning Region**	**Recreation**	**Aquatic Life**	**Water Supply**	**Chloride Annual Avg. (mg/L)**	**Sulfate Annual Avg (mg/L)**	**TDS Annual Avg (mg/L)**	**D.O. (mg/L)**	**pH Range**	**Fecal Coliform[1] (30-day geometric mean, CFU/100ml)**	**Temp (*F)**
1426	Colorado River Below E. V. Spence Reservoir	F	PCR1	H	PS	1000	1,100	1,770	5.0	6.5–9.0	126	91
1427	Onion Creek	K	PCR1	H	PS/AP[4]	100[5]	100[5]	500[5]	5.0	6.5–9.0	126	90
1428	Colorado River Below Lady Bird Lake/Town Lake[7]	K	PCR1	E	PS	100	100	500	6.0[6]	6.5–9.0	126	95
1429	Lady Bird Lake/Town Lake[7]	K	PCR1	H	PS	75	75	400	5.0	6.5–9.0	126	90
1430	Barton Creek[8]	K	PCR1	H	AP[4]	50	50	500	5.0	6.5–9.0	126	90
1431	Mid Pecan Bayou	F	PCR1			410	120	1,100	2.0	6.5–9.0	126	90
1432	Upper Pecan Bayou	F	PCR1	H	PS	200	150	800	5.0	6.5–9.0	126	90
1433	O. H. Ivie Reservoir	F	PCR1	H	PS	430	330	1520	5.0	6.5–9.0	126	93
1434	Colorado River above La Grange	K	PCR1	E	PS	100	100	500	6.0	6.5–9.0	126	95

Source: TCEQ (formerly TNRCC), 2014. URL: http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/307%60.pdf (pg 80, 81)

* Uses: PCR1 =Primary Contact Recreation 1; H = High Aquatic Life; E = Exceptional Aquatic Life; PS = Public Water Supply; AP = Aquifer Protection

** Criteria: Standards set by the TCEQ (formerly TNRCC) do not guarantee the water to be usable for municipal, domestic, irrigation, livestock, &/or industrial uses, such as segment #1412 & others; this causes the above screening process to be misleading for certain segments, especially for salinity.

[4] The aquifer protection use applies to the contributing, recharge, and transiton zones of the Edwards Aquifer.

[5] The aquifer protection reach of Segment 1427 is assigned the following criteria: 50 mg/L for Cl^{-1}, 50 mg/L for $SO4^{-2}$, and 400 mg/L for TDS.

[6] Dissolved oxygen criterion of 6.0 mg/L only applies at stream flows greater than or equal to 150 cfs as measured at USGS Gauging Station 08158000 located in Travis County upstream from U.S. Highway
183. A dissolved oxygen criteria of 5.0 mg/L will applies to stream flows less than 150 cfs and greater than or equal to the 7Q2 for the segment.

[7] While Segment 1429 exhibits quality characteristics that would make it suitable for primary recreation, the use is prohibited by local regulation for reasons unrelated to water quality.

[8] The critical low-flow for Segment 1430 is calculated according to §307.8(a)(2)(A) of the Texas Administrative Code, Title 30.

Colorado Regional Water Planning Area. The Colorado River's "Lower Basin" lies wholly within Region K and includes the mainstream segments 1401, 1402, 1428, and 1434 as well as several unclassified tributary segments.

Upstream of Region K, high salinity concentrations are the primary concern in the CRP's "Upper Basin" stream segments. This is caused both by the natural characteristics of the geologic formations in the watershed as well as pollution from oil and gas activities. As *Table 1.6* shows, some of these stream segments have very high water quality criteria for salinity, or total dissolved solids (TDS), which is an aggregate measurement of various mineral concentrations including chlorides, carbonates, and sulfates. The designated uses of a stream segment, such as recreation, aquatic life, and water supply, are based on the Texas Surface Water Quality Standards, which are criteria with the force of law. Potential uses for water in segments with very high salinity criteria, such as segment 1412 below Lake J. B. Thomas, are limited by the high TDS concentrations that exist, despite the fact that the criteria are rarely exceeded. For example, the secondary drinking water standard for TDS is 1,000 milligrams per liter (mg/l).

The water quality of the "Middle Basin" and "Lower Basin" improves significantly due largely to the dilution of the upstream base flow by inflow of higher quality tributary waters. Major tributaries from the headwaters of O. H. Ivie Reservoir down through the Highland Lakes System, namely the Llano River and the San Saba River, have TDS concentrations that are generally less than 500 mg/l at their confluence with the Colorado River. Water quality of the "Lower Basin" is subject to poor quality at low flow conditions due to salt water intrusion (i.e., tidal influence).

1.2.4 Agricultural and Natural Resources Issues Within the Lower Colorado Region[20, 21, 22, 23, 24]

The primary agricultural issue in the Lower Colorado Regional Water Planning Area is the availability of sufficient quantities of irrigation water for agricultural irrigation under dry year conditions. Natural resources, on the other hand, have impacts from both water quantity and water quality issues. Classified stream segments in the Colorado River Basin are shown in *Figure 1.22* and those with water quality concerns are listed. The stream segments that have water quality concerns within the region are discussed below in *Section 1.2.4.1*. *Section 1.2.4.2* discusses threats due to water quantity issues.

1.2.4.1 Threats Within the Lower Colorado Region Due to Water Quality Issues

The primary water quality issue for all of the surface water stream segments and the major groundwater aquifers in the Lower Colorado Region is the increasing potential for water contamination due to nonpoint source pollution. Nonpoint source pollution is precipitation runoff that, as it flows over the land, picks up various pollutants that adhere to plants, soils, and man-made objects and which eventually infiltrates into the groundwater table or flows into a surface water stream. As additional land in the Colorado River watershed and aquifer recharge zones is developed, the runoff from precipitation events will pick up increasing amounts of pollution. Another nonpoint source of pollution is the accidental spill

[20] TCEQ (formerly TNRCC), Op. Cit., December 1996.
[21] TCEQ (formerly TNRCC), Op. Cit., October 1996.
[22] LCRA, March 1999, *Water Management Plan.*
[23] Texas Water Development Board (TWDB), February 2000. *A Numerical Groundwater Flow Model of the Upper and Middle Trinity aquifer, Hill Country Area*, Open-file report 00–02.
[24] TWDB, et al., April 1999. *Assessment of Groundwater Availability in the Carrizo-Wilcox aquifer in Central Texas – Results of Numerical Simulations of Six Groundwater-Withdrawal Projections (2000–2050)*, Draft Final Contract Report.

of toxic chemicals near streams or over recharge zones that will send a concentrated pulse of contaminated water through stream segments and/or aquifers. Public water supply groundwater wells that currently use only chlorination for water treatment, and domestic groundwater wells that may not treat the water before consumption, may be especially vulnerable to nonpoint source pollution, depending on how directly influenced they are by surface or near surface contamination. Habitats of threatened and endangered species that live in and near springs and certain stream segments may be vulnerable as well. Nonpoint sources of pollution are difficult to control and there has been increased awareness and research of this issue as well as interest in the initiation of abatement programs. The water management strategies recommended in this plan won't necessarily impact the water quality levels in the region, but as population growth and development occurs, more opportunities for nonpoint source pollution may exist.

The TCEQ categorizes the physical use of a stream into various defined uses such as "general use", "aquatic life use", "recreational contact use", and "public water supply use". Assessments of the basin conducted by TCEQ determine whether or not a stream segment will support its use. Segments which do not support its designated or assumed use are classified as impaired. Additionally, these assessments will identify segments which are of concern for not meeting the use, but are not at the time of the assessment considered impaired. There are 22 stream segments in Region K considered impaired as published in the 2012 303(d) List. Additionally, 44 stream segments are listed as "of concern" for exceeding the State Water Quality Criteria in Region K (*Table 1.6, Table 1.7, and Table 1.8*).

Figure 1.22: Colorado River Basin Stream Segments

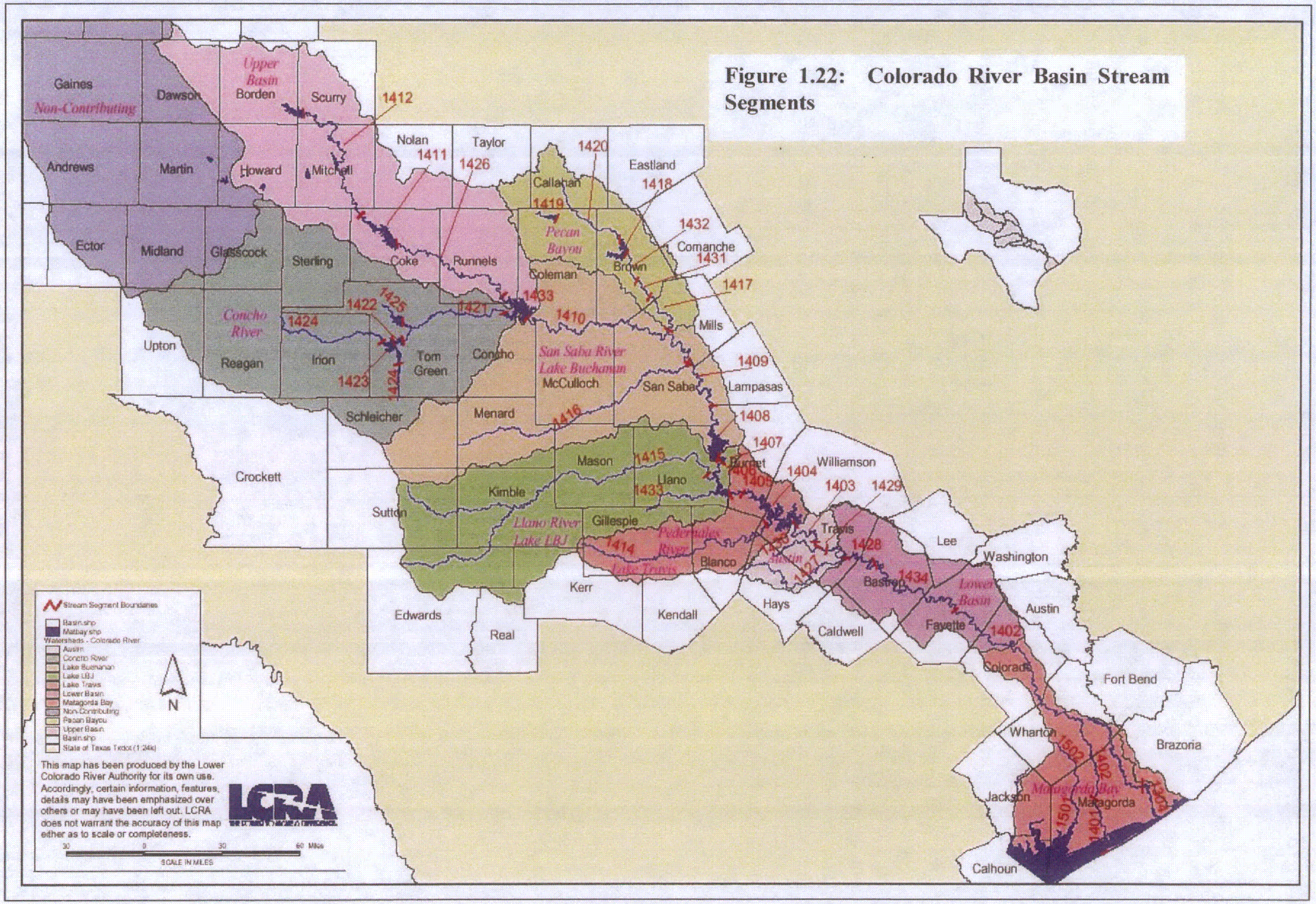


Table 1.7 Stream Segment Water Quality Impairments in the Lower Colorado Region[1,2]

Segment ID #	Segment Name	Stream Use	Impairment
1217D	North Rocky Creek (unclassified water body)	Aquatic Life	Depressed dissolved oxygen
1302	San Bernard River Above Tidal	Recreation Use	Bacteria
1302A	Gum Tree Branch (unclassified water body)	Recreation Use	Bacteria
1302B	West Bernard Creek (unclassified water body)	Aquatic Life and Recreation Use	Depressed dissolved oxygen and Bacteria
1304	Caney Creek Tidal	Recreation Use	Bacteria
1304A	Linnville Bayou (unclassified water body)	Recreation Use	Bacteria
1305	Caney Creek Above Tidal	Aquatic Life and Recreation Use	Depressed dissolved oxygen and Bacteria
1401	Colorado River Tidal	Recreation Use	Bacteria
1402C	Buckners Creek	Aquatic Life	Depressed Dissolved Oxygen
1402H	Skull Creek (unclassified water body)	Aquatic Life Use	Depressed dissolved oxygen
1403	Lake Austin	Aquatic Life Use	Depressed dissolved oxygen
1403A	Bull Creek (unclassified water body)	Aquatic Life Use	Depressed dissolved oxygen
1403J	Spicewood Tributary to Shoal Creek (unclassified water body)	Recreation Use	Bacteria
1403K	Taylor Slough South (unclassified water body)	Recreation Use	Bacteria
1407A	Clear Creek (unclassified water body)	General Use	Aluminum in water, pH, Sulfate, and Total Dissolved Solids
1416	San Saba River	Recreation Use	Bacteria
1416A	Brady Creek (unclassified water body)	Aquatic Life Use	Depressed dissolved oxygen
1427A	Slaughter Creek (unclassified water body)	General Use	Impaired Macrobenthic Community
1428B	Walnut Creek (unclassified water body)	Recreation Use	Bacteria
1429C	Waller Creek (unclassified water body)	Recreation Use	Bacteria
1501	Tres Palacios Creek Tidal	Aquatic Life and Recreation Use	Depressed dissolved oxygen and Bacteria
2441OW	East Matagorda Bay (Oyster Waters)	Recreation Use	Bacteria (oyster waters)

[1] Texas Commission on Environmental Quality (URL: http://www.tceq.state.tx.us/waterquality.assessment/305_303.html) (2012 Texas 303 (d) List).
[2] Texas Commission on Environmental Quality (URL: http://www.tceq.texas.gov/gis/segments-viewer)

Table 1.8 Stream Segment Water Quality Concerns in the Lower Colorado Region[1]

Segment ID #	Segment Name	Stream Use	Concern
1401	Colorado River Tidal	General Use	Nutrient
1402A	Cummins Creek (unclassified water body)	Aquatic Life Use	Impaired habitat and impaired macrobenthic community
1402C	Buckners Creek (unclassified water body)	General and Aquatic Life Use	Nutrient and depressed dissolved oxygen
1402G	Fayette Reservoir (unclassified water body)	General Use	Nutrient
1402H	Skull Creek (unclassified water body)	General Use	chlorophyll-a
1403	Lake Austin	General Use	Manganese in sediment
1403A	Bull Creek (unclassified water body)	Aquatic Life Use	Impaired macrobenthos community
1403D	Barrow Preserve Tributary (unclassified water body)	General Use	Nitrate
1403E	Stillhouse Hollow (unclassified water body)	General Use	Nitrate
1403J	Spicewood Tributary to Shoal Creek (unclassified water body)	Recreation Use	Bacteria
1403K	Taylor Slough South (unclassified water body)	General Use	Nitrate
1404	Lake Travis	Aquatic Life Use	Depressed dissolved oxygen
1406	Lake Lyndon B. Johnson	Aquatic Life Use	Depressed dissolved oxygen
1407	Inks Lake	Aquatic Life Use	Depressed dissolved oxygen and manganese in sediment
1407A	Clear Creek	General Use	Cadium in water
1408	Lake Buchanan	General Use	Chlorophyll-a
1411	E. V. Spence Reservoir	General Use	Chlorophyll-a and harmful algal bloom/golden alga
1412	Colorado River Below Lake J. B. Thomas	General and Aquatic Life Use	Chlorophyll-a and depressed dissolved oxygen
1412A	Lake Colorado City (unclassified water body)	General Use	Chlorophyll-a and harmful algal bloom/golden alga
1412B	Beals Creek (unclassified water body)	General and Recreation Use	Ammonia, chlorophyll-a, nitrate, orthophosphorus, selenium in water, and total phosphorus
1416A	Brady Creek (unclassified water body)	General and Aquatic Life Use	Nitrate, total phosphorus, chlorophyll-a, and orthophosphorus
1417	Lower Pecan Bayou	GeneralUse	Chlorophyll-a

Segment ID #	Segment Name	Stream Use	Concern
1418	Lake Brownwood	Aquatic Life Use	Manganese in sediment
1420	Pecan Bayou Above Lake Brownwood	General Use	Chlorophyll-a
1421	Concho River	General and Aquatic Life Use	Chlorophyll-a, Nitrate, and orthophosphorus
1421A	Dry Hollow Creek (unclassified water body)	General Use	Nitrate
1425	O. C. Fisher Lake	General Use	Ammonia, chlorophyll-a, and depressed dissolved oxygen
1425A	North Concho River (unclassified water body)	Recreation , Aquatic Life Use, and General Use	Bacteria, depressed dissolved oxygen, and chlorophyll-a
1426	Colorado River Below E. V. Spence Reservoir	General and Aquatic Life Use	Chlorophyll-a, and harmful algal bloom/golden alga
1426C	Bluff Creek (unclassified water body)	General Use	Nitrate
1426D	Coyote Creek (unclassified water body)	General Use	Nitrate
1427G	Granada Hills Tributary to Slaughter Creek (unclassified water body)	General Use	Nitrate
1428	Colorado River Below Town Lake	Recreation and Aquatic Life Use	Impaired fish, nitrate, orthophosphorus, and total phosphorus
1428B	Walnut Creek (unclassified water body)	Recreation and Aquatic Life Use	Bacteria, impaired macrobenthos community, and impaired habitat
1428C	Gilleland Creek (unclassified water body)	General Use	Nitrate, and orthophosphorus
1429	Town Lake	General Use	dibenz(a,h) anthracene in sediment
1429C	Waller Creek (unclassified water body)	General Use	Benz(a)antracene in sediment, benzo(a)pyrene in sediment, chrysene in sediment, dibenz(a,h)anthracene in sediment, fluoranthene in sediment, lead in sediment, phenanthrene in sediment, and pyrene in sediment
1429D	East Bouldin Creek (unclassified water body)	Aquatic Life Use	benz(a)antracene in sediment, cadmium in sediment, chrysene in sediment,

Segment ID #	Segment Name	Stream Use	Concern
			dibenz(a,h)anthracene in sediment, fluoranthene in sediment, lead in sediment, phenanthrene in sediment, and pyrene in sediment
1430	Barton Creek	Aquatic Life Use	Toxicity in sediment
1430A	Barton Springs (unclassified water body)	Aquatic Life Use	Depressed dissolved oxygen, and toxicity in sediment
1430B	Tributaries to Barton Creek (unclassified water bodies)	General Use	Nitrate
1431	Mid Pecan Bayou	General Use	Chlorophyll-a, nitrate, orthophosphorus, and total phosphorus
1434	Colorado River above La Grange	General Use	Orthophosphorus, and Nitrate
1434B	Cedar Creek (unclassified water body)	Aquatic Life Use	Depressed dissolved oxygen

[1] Texas Commission on Environmental Quality
(URL: https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/12twqi/2012_concerns.pdf)

A major surface water quality indicator for protection of aquatic life is dissolved oxygen (DO) and the associated biochemical oxygen demand (BOD). DO is a measure of the amount of oxygen that is available in the water for metabolism by microbes, fish, and other aquatic organisms. BOD is a measure of the amount of organic material, containing carbon and/or nitrogen, in a body of water that is available as a food source to microbial and other aquatic organisms, which require the consumption of dissolved oxygen from the water to metabolize the organic material. The basin-wide concentrations of DO that have existed in the past were indicative of relatively unpolluted waters; however, these have been changing and have become a concern in some segments of the Colorado River and its tributaries, as populations and urban development continue to increase. The primary manmade sources of BOD in bodies of water are the discharge of municipal and industrial waste, as well as nonpoint source pollution from urban and agricultural runoff. Thus, the presence of excess amounts of BOD allows increased rates of microbial and algal metabolism, which in turn depletes the dissolved oxygen concentrations in the water. Without sufficient levels of DO in the water, other aquatic organisms such as fish cannot survive. Data from 2012 indicates that there are ten classified stream segments with a concern for DO, based on the State Water Quality Criteria in the Lower Colorado Regional Water Planning Area (*Tables 1.6, 1.7,* and *1.8*).

Another set of surface water quality indicators that can deplete DO levels in surface water bodies are termed "nutrients" and includes nitrogen (Kjeldahl nitrogen, nitrite+nitrate, and ammonia nitrogen), phosphorus (phosphates, orthophosphates, and total phosphorus), sulfur, potassium, calcium, magnesium, iron, and sodium. Nutrients are monitored by the TCEQ as a part of the Texas Clean Rivers Program; however, there are no state or federal standards for screening nutrients. Currently, naturally occurring background levels reported by the U.S. Geological Survey (USGS) or historical data collected by the

TCEQ are used to determine the level of concern for nutrients. Nutrients have the same primary man-made sources as the BOD sources described above. Based on 2012 data, there are three classified stream segments with a concern in the Lower Colorado Regional Water Planning Area (*Tables 1.6, 1.7,* and *1.8*).

Fecal indicator organisms E. coli and Enterococcus are harmless bacteria that are present in human and/or animal waste. However, the presence of these organisms is an indicator for the presence of disease-causing bacteria, protozoa and viruses that are also found in human/animal wastes. Municipal waste is treated to remove most of the bacterial, protozoan and viral contaminants so that safe levels will exist in the surface water body upon discharge from the point source. Therefore, when fecal indicators are detected, the most likely source of contamination should be nonpoint source pollution, which can include agricultural runoff as well as runoff from failed septic systems. A wastewater treatment plant point source could also be the source of contamination if the system is not functioning properly. Data reported for 2012 indicate that there are a number of classified stream segments with impairments for E. coli and the tidal portion is impaired for the presence of Enterococcus, based on the State Water Quality Criteria in Region K (*Tables 1.6, 1.7,* and *1.8*).

The presence of toxic dissolved metals, such as aluminum, barium, arsenic, chromium, cadmium, copper, lead, nickel, mercury, selenium, silver, and zinc, in surface water are a concern in three classified stream segments in the Lower Colorado Regional Water Planning Area (*Tables 1.6, 1.7,* and *1.8*).

1.2.4.2 Threats Due to Water Quantity Issues

Threats are present in Region K from both too much water and from too little water. Too much water can be an issue during high river flows and during flooding episodes. The Highland Lakes provide the primary surface water storage and flood control capabilities for Region K.

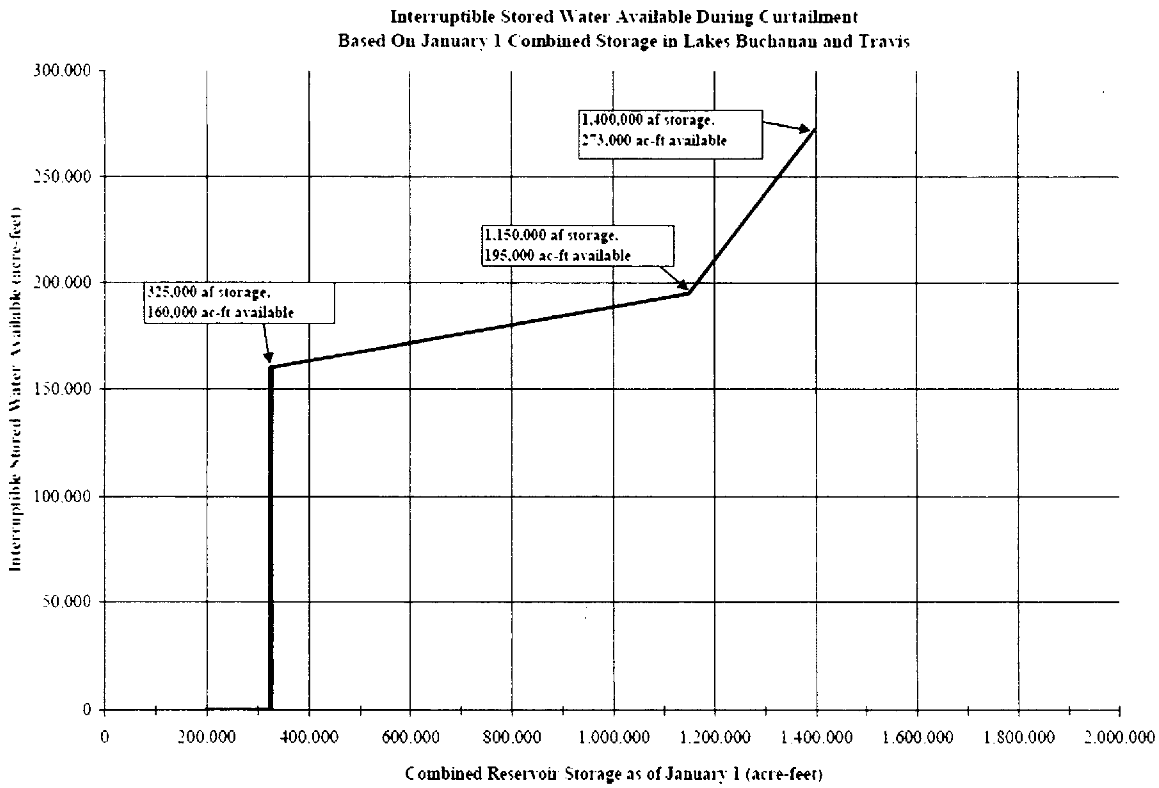
With regard to flood control, Lake Travis is the only reservoir in the Highland Lakes System with flood control storage. Currently, the LCRA must regulate the release of flood flows from Mansfield Dam so as to minimize and balance the impacts of floodwaters upstream and downstream of the dam without compromising the safety of the dam. Because development continues to encroach upon and alter the floodplain of the Lower Colorado River, the LCRA, in cooperation with the USACE, is currently studying alternative flood control measures, such as modifying current flood control operations and the possible addition of new off-channel flood control structures.

As mentioned previously, the primary threat to agriculture in Region K is water shortages for irrigation that are anticipated to occur in Matagorda, Wharton, and Colorado Counties during a repeat of the drought of record or a drought worse than the drought of record. The water supply available for irrigation is from three sources: ROR supplies, stored water from the Highland Lakes, and groundwater. When the Colorado River's natural flows are insufficient to meet irrigation demands, allocations of stored water from the Highland Lakes under the LCRA Water Management Plan can be made by to supplement the available downstream ROR supplies. The water supplied from the Highland Lakes storage is an interruptible supply and is subject to curtailment in accordance with policies and procedures specified in LCRA's Water Management Plan. Under drought conditions, there are substantial shortages of water for irrigation in Matagorda, Wharton, and Colorado Counties. The shortages will be addressed through water management strategies such as conservation, discussed in Chapter 5 of this Plan.

Water quantity is also a concern during drought conditions in terms of instream flows and freshwater inflows to Matagorda Bay. As discussed in *Section 1.2.2.3*, the reaches below the Highland Lakes downstream to the mouth of the Colorado River have been studied by the LCRA, and critical instream flows have been determined as firm demands on water resources. Instream flows have been maintained by LCRA at or above the minimum critical flow in accordance with the current WMP. Target instream flows, also determined by the LCRA study, provide flows to support an optimal range of habitat complexity for a well-balanced, native aquatic community within a stream reach. LCRA has maintained these flow regimes whenever water resources are adequate, but target flows are classified as interruptible demands that have been reduced during drought conditions. For further details, please refer to LCRA's WMP at http://www.lcra.org/water/water-supply/water-management-plan-for-lower-colorado-river-basin/Documents/lcra_wmp_june2010.pdf.

The following figure is from page 4-26 of the LCRA's 2010 Water Management Plan and summarizes the trigger levels for the allocation of interruptible supplies.

Figure 1.23: LCRA 2010 WMP Trigger Levels for Interruptible Supplies



The Highland Lakes provide the primary surface water storage and flood control capabilities for Region K. The issue of providing maintenance of these reservoirs to retain the maximum water storage capacity may become important as natural sedimentation processes decrease the volume of water each reservoir can hold.

With regard to flood control, Lake Travis is the only reservoir in the Highland Lakes with flood control storage. Releases by LCRA from the flood pool of Lake Travis are governed by rules of the U.S. Corps of Engineers (USACE). Under the rules, flood releases are determined by: specified ranges of observed or forecasted reservoir levels; the pool condition (i.e. rising or falling); the month of the year; and stage and flow criteria at three designated downstream locations. The amount of release increases with higher ranges of reservoir level and as long as downstream stage and flow limitations are not exceeded. The rules also provide that the U.S. Bureau of Reclamation will schedule flood releases as required for the safety of the dam when the reservoir level is forecast to exceed 722 feet above mean sea level. Because development continues to encroach upon and alter the floodplain of the Lower Colorado River, the LCRA, in cooperation with the USACE, the Federal Emergency Management Agency (FEMA) and over 60 local cities and counties in the Texas Colorado River Floodplain Coalition are currently studying flood damage reduction alternatives, such as modifying current flood control operations, updating floodplain maps, and the addition of new levees and off-channel flood control structures.

One of the major groundwater quantity concerns involves the Barton Springs segments of the Edwards aquifer (BFZ), which is a karst formation that responds quickly to changes in the environment due to its highly permeable and transmissive characteristics. South of the artesian zone of the Edwards aquifer there exists an interface, or "bad water line," that separates the good quality groundwater from a layer of water that is not usable for human consumption, without further treatment, due to the high TDS content. This line, which is also referred to as the saline-water line or freshwater/saline-water interface, marks the interface where the groundwater reaches a TDS concentration of 1,000 mg/l. Research is currently being conducted to determine the effects that pumping large quantities of aquifer water will have on its location. Water management strategies recommended in Chapter 5 discuss Aquifer Storage and Recovery (ASR) opportunities in this aquifer, as well as desalination of the Saline Zone.

The second major issue in the Barton Springs segments of the Edwards aquifer (BFZ) is the minimum required environmental flows discharged from the artesian zone through Barton Springs. Increased groundwater pumping from the aquifer during drought conditions decreases all spring discharges, which can potentially impact the state- and federally-listed threatened and endangered species that depend on the springs for habitat, such as the Barton Springs salamander, and can potentially affect water supply availability downstream. Recommended water management strategies stay within the Modeled Available Groundwater (MAG) volume, so impacts to the minimum springflows should be negligible.

The primary water quantity issue in the Gulf Coast aquifer is subsidence, which is the dewatering of the interlayers of clay within the aquifer as a result of continued or long-term over-pumping. The resultant compaction of the clay causes a loss of water storage capacity in the aquifer, which in turn causes the land surface to sink, or subside. Once the ability of the clay to store water is gone, it can never be restored. The implementation of water conservation practices and conversion to other sources are currently the only remedies for this situation. Saltwater intrusion from the Gulf of Mexico into the Gulf Coast aquifer is also a potential concern due to groundwater pumping rates that are greater than the recharge rates of the aquifer. Recommended water management strategies stay within the Modeled Available Groundwater (MAG) volume, and overpumping is not encouraged.

The primary water quantity concern with the Trinity aquifer is the anticipated water-level decline during drought conditions due to increased demand that will be placed on the aquifer's resources. A computer model was developed to simulate the flow of groundwater within the Trinity aquifer. The results for the portion of the aquifer that lies within Region K suggest that water levels in the Dripping Springs area of Hays County could decline more than 100 feet by the year 2040. Other portions of Hays County as well as Blanco and Travis Counties, may experience moderate water-level declines between 50 to 100 feet by the year 2020. Most of the streams gain water as they pass over the Trinity aquifer and in consequence may be affected by the declining water levels in the underlying aquifer. In addition, drought conditions may further decrease the base flow of the streams. Recommended water management strategies stay within the Modeled Available Groundwater (MAG) volume, and include an importation to the western Hays County area of groundwater from Gonzales County.

The primary water quantity concern with the Carrizo-Wilcox aquifer is the water-level decline anticipated through the year 2060 due to increased pumping. Groundwater withdrawals increased an estimated 270 percent between 1988 and 1996, from 10,100 to 37,200 ac-ft/yr, from the mostly porous and permeable sandstone aquifer. The area in and around the Carrizo-Wilcox aquifer is expected to see continued population growth and increases in water demand. The TWDB co-sponsored a study of the Central Texas portion of the Carrizo-Wilcox aquifer using a computer model to assess the availability of groundwater in the area. Six water demand scenarios were simulated in the model, which ranged from considering only the current 1999 demand to analyzing all projected future water demands through the year 2050. On the basis of the calibrated model, all withdrawal scenario water demands appear to be met by groundwater from the Carrizo-Wilcox aquifer through the year 2050. The simulations indicate that the aquifer units remain fully saturated over most of the study area. The simulated water-level declines in the Carrizo-Wilcox aquifer mainly reflect a pressure reduction within the aquifer's artesian zone. Some dewatering takes place in the center of certain pumping areas. In addition, simulations indicate that drawdown within the confined portion of the aquifer will significantly increase the movement of groundwater out of the shallow, unconfined portions to the deeper artesian portions of the aquifer. Both a pressure reduction within the artesian zone and the migration of groundwater from the unconfined portions of the aquifer may impact historical access to groundwater in the region. The relationships that currently exist between surface and groundwater may also change. Simulations indicate that the Colorado River, which currently gains water from the Carrizo-Wilcox aquifer, may begin to lose water to the aquifer by the year 2050. Recommended water management strategies stay within the Modeled Available Groundwater (MAG) volume.

The LCRWPG passed a resolution regarding the "mining of groundwater" on February 9, 2000, which strongly opposes the over-utilization of groundwater, including the mining of groundwater, within its region at rates that could lead to eventual harm to the groundwater resources, except during limited periods of extreme drought. The LCRWPG defines groundwater mining as "the withdrawal of groundwater from an aquifer at an annualized rate, which exceeds the average annualized recharge rate to an aquifer where the recharge rate can be scientifically derived with reasonable accuracy." This resolution addresses the concerns listed above for the Barton Springs segments of the Edwards (BFZ), Gulf Coast, Trinity, and Carrizo-Wilcox aquifers that are located within Region K.

1.2.5 Existing Water Planning in the Lower Colorado Regional Water Planning Area

As charged by Senate Bill 1, enacted in 1997, the LCRWPG prepared, adopted, and submitted the *2000 Region "K" Water Supply Plan* to the TWDB, which described how local entities may address future water supply needs for the next 50 years. Subsequently, a State Water Plan, Water for Texas-2002, was delivered by the TWDB to the Texas Legislature in January 2002, and incorporated the approved 2001 Regional Water Plan and contained legislative recommendations for future water policies. This cycle of planning is repeated every five years and thus far has resulted in the 2006 and 2011 *Region K Water Plans* being submitted to the TWDB by the Lower Colorado Regional Water Planning Group. These regional plan updates assisted in the creation of the 2007 and 2012 State Water Plans by the TWDB. The current cycle of regional water planning will culminate in the 2016 Lower Colorado Regional Water Plan, which the TWDB will utilize in developing the 2017 State Water Plan.

Because regional water planning is intended to be a bottom-up process, the Region K planning group used knowledge from its own members as well as publicly available local plans to develop the details of the 2016 Region K Water Plan. Documents from local planning efforts, including the *Water and Wastewater Facilities Plan for the portion of Hays County, Texas West of the I-35 Corridor*, the *Bastrop Regional Water Supply Facilities Planning Study*, and the *Burnet-Llano County Regional Water Facility Study*, helped shape the water management strategies that were recommended by the Region K planning group. These local plans also provided regionalization concepts for water and wastewater services that the Region K planning group considered during the planning process. The LCRA Water Management Plan was referenced for several chapters in the 2016 Region K Plan. Additional publicly available local plans that were referenced for the planning process are discussed below in the next few sections.

SB 1 legislation also amended Chapter 36 of the Texas Water Code to require certain water supply entities to develop water management plans (WMPs), water conservation plans (WCPs), and/or drought contingency plans (DCPs). WCPs and DCPs must be submitted to TCEQ for review and certification. TCEQ received the plans, reviewed them for minimum criteria according to TCEQ's Chapter 288 Rules that reflect SB 1 requirements. Finally, TCEQ sent the water supply entity a letter of certification that its plan contains the necessary minimum criteria components. It should be noted that TCEQ has not subjectively critiqued the quality of the water management, water conservation, or drought contingency plans; it only determined whether or not minimum criteria have been met. Each water supply entity is required to update their respective plan every five years, so that the plan will improve as the water supply entity gains experience in managing its water resources. TWDB also receives copies of each certified WCP and DCP for review with respect to TWDB's water planning efforts. However, there are no rules requiring action by TWDB.

1.2.5.1 Groundwater Conservation District Management Plans (MP)

One category of the SB 1 required plan is the Management Plan (MP), which must be developed by each Groundwater Conservation District (GCD) and surface water conservation district in the state. The intent of a MP is to conserve, preserve, prevent waste, protect, and recharge water supplies within the water conservation district. These MPs are required to be submitted to TWDB for review and administrative certification. Surface water conservation districts, primarily river authorities, are also required to submit MPs as a provision of the final adjudication of the river authority's water rights and receive administrative certification from TCEQ. *Table 1.9* shows each district in Region K and the aquifers they manage. MPs are also submitted to RWPGs for inclusion in the Regional Water Plan and to allow the regional planning groups to focus on strategies for current and future shortages that do not conflict with the management plans. *Figure 1.24* shows the groundwater conservation districts located in Region K.

Table 1.9 Groundwater Conservation Districts in Lower Colorado Region

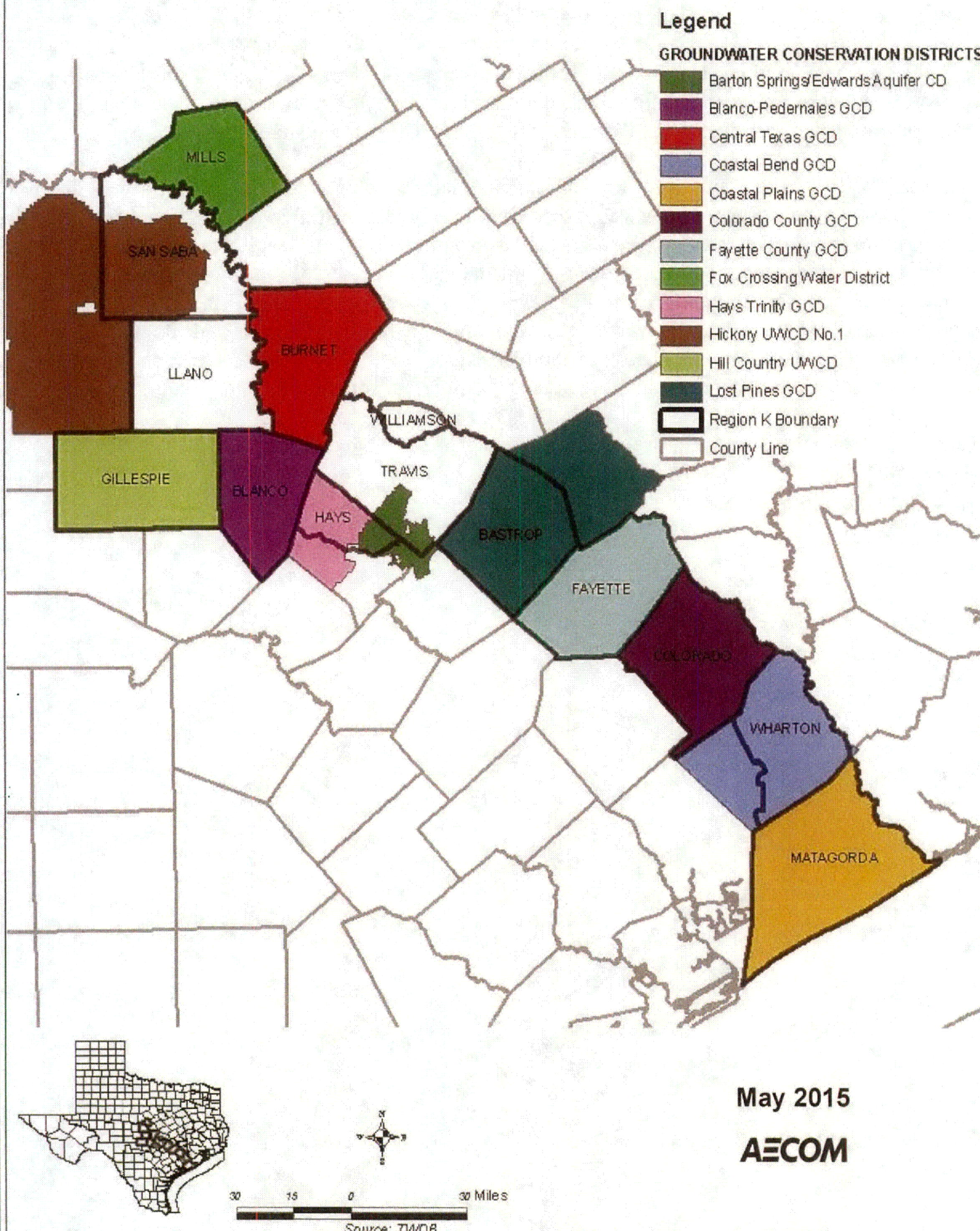
Groundwater Conservation District [1]	Lower Colorado Region County	Aquifers Managed [2]
Barton Springs/Edwards Aquifer Conservation District (BSEACD)	Hays, Travis	Edwards (BFZ) & Trinity Aquifers, & Alluvial Deposits
Blanco-Pedernales GCD	Blanco	Trinity, Edwards-Trinity, Ellenburger, Hickory and Marble Falls Aquifers
Central Texas GCD	Burnet	Trinity, Marble Falls, Ellenburger-San Saba, Hickory
Coastal Bend GCD	Wharton	Gulf Coast Aquifer
Coastal Plains GCD	Matagorda	Gulf Coast Aquifer
Colorado County GCD	Colorado	Gulf Coast Aquifer
Fayette County GCD	Fayette	Gulf Coast, Carrizo-Wilcox, Queen City, Sparta Aquifer, Yegua- Jackson and Colorado River Alluvium
Fox Crossing UWCD	Mills	Trinity Aquifer
Hays-Trinity GCD	Hays	Trinity Aquifer
Hickory UWCD #1	San Saba	Hickory Aquifer, Ellenberger-San Saba, & Marble Falls Aquifers
Hill Country UWCD	Gillespie	Edwards-Trinity, Ellenberger-San Saba, & Hickory Aquifers
Lost Pines GCD	Bastrop	Carrizo-Wilcox Aquifer

Source: TWDB

[1] UWCD = Underground Water Conservation District; GCD = Groundwater Conservation District.

[2] Water systems managed: Only portions of the indicated aquifer systems are located within a GCD's jurisdiction.

Figure 1.24: Lower Colorado Regional Water Planning Area (Region K) Groundwater Conservation Districts



1.2.5.2 Groundwater Management Areas (GMA)

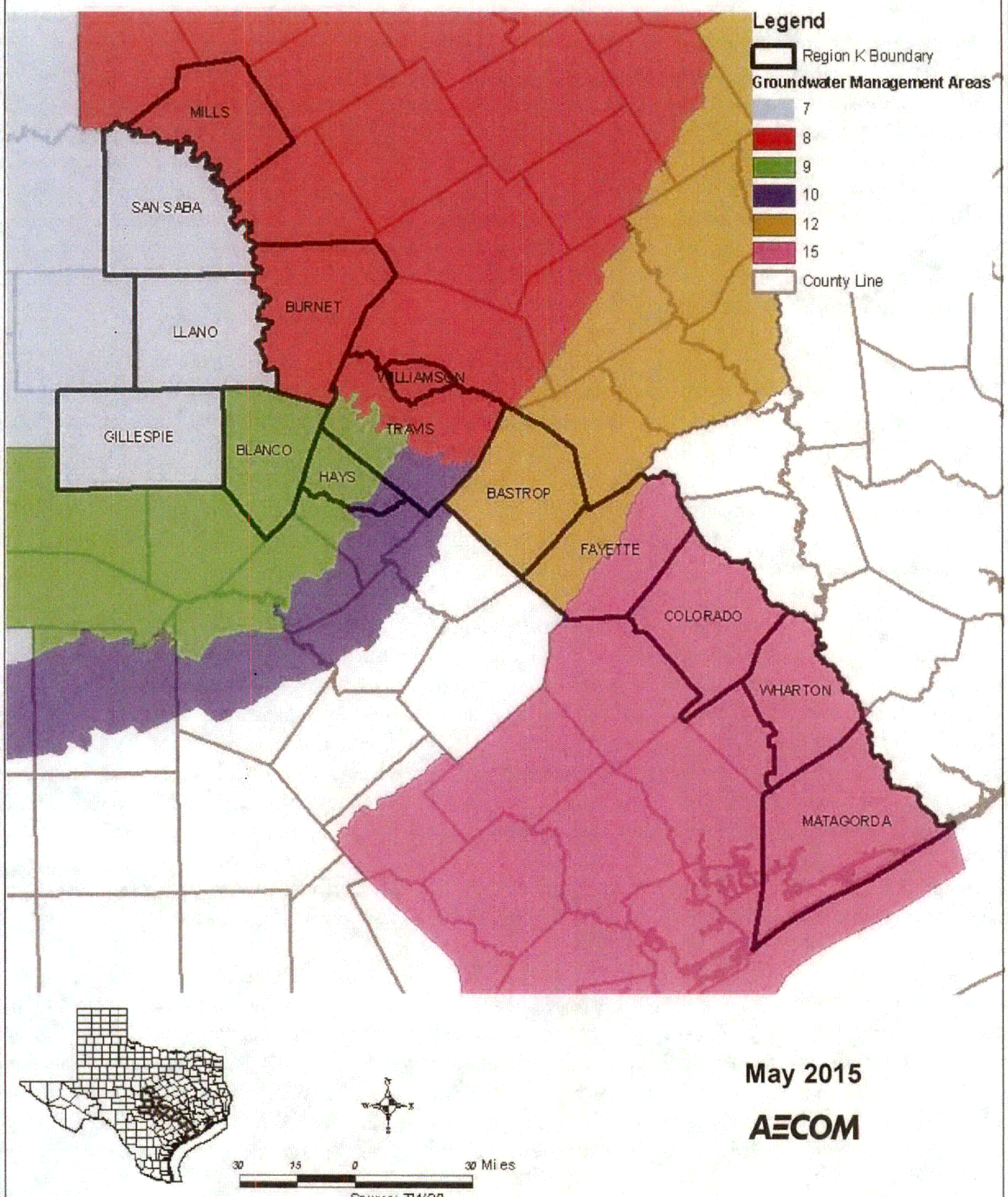
In response to legislation passed in 2001, in December 2002 the TWDB designated 16 GMAs covering the entire state. In 2005, the legislature required all GCDs located within a GMA to conduct joint planning. The new requirements indicated that.

"Not later than September 1, 2010, and every five years thereafter, the districts shall consider groundwater availability models and other data or information for the management area and shall establish desired future conditions for the relevant aquifers within the management area." .

Groundwater districts are required to meet at least annually to decide on "desired future conditions" for the aquifers within their GMA. A desired future condition is a quantifiable future groundwater condition. These conditions, called metrics, can be a particular groundwater level, level of water quality, volume of spring flow, etc. Based on the adopted desired future condition, the TWDB is responsible for providing each groundwater conservation district and regional water planning group, located wholly or partly in the management area, with a modeled available groundwater volume (MAG) that will be used for planning and groundwater management purposes. Groundwater availability models and other data or information help in establishing modeled available groundwater for the relevant aquifers within the management area.

In Region K, there are six groundwater management areas (GMAs). They include GMA-7, GMA-8, GMA-9, GMA-10, GMA-12, and GMA-15. *Figure 1.25* shows the delineation of these groundwater management areas.

Figure 1.25: Lower Colorado Regional Water Planning Area (Region K) Groundwater Management Areas



1.2.5.3 Water Conservation Plans (WCP) and Drought Contingency Plans (DCP)

SB 1 also required each entity that possesses major surface water and/or groundwater rights to develop a Water Conservation Plan (WCP). These plans are required by irrigation water rights of at least 10,000 ac-ft/yr, non-irrigation (municipal, industrial, mining, recreational) water rights of at least 1,000 ac-ft/yr, and retail public water suppliers which serve 3,300 connections or more. The intent of the WCP is to develop and implement programs that will reduce water use within each of the major WUGs listed below, primarily through utilizing advances in technology, reducing distribution system water losses, and educating customers and encouraging voluntary participation in water use efficiency efforts. Approximately 90 percent of Region K's water use occurs in the agricultural irrigation and municipal sectors, and the majority of the WCPs have targeted these two water use groups. The remainder of entities holding water rights in Region K are not required to develop or submit a WCP unless they petition TCEQ for an amendment to their water right or apply for a capital improvement loan with TWDB. In addition, Chapter 288 of the TCEQ Rules requires wholesale water supply purchasers to submit water conservation plans to their wholesale supplier. More details on Water Conservation Plans are provided in Chapter 5 of this Plan.

The third category of water resource planning effort required by SB 1 is the Drought Contingency Plan (DCP). The intent of the DCP is to specify how a water supply entity will contract and supply dependable stored water supplies to its customers during a repeat of the drought of record, which is the period 1947–1957 for Region K. Triggering conditions for water shortages during a drought must be defined, and the actions that will be taken by the water supplier to mitigate the adverse effects of these water shortages must be specified. The DCP's major goals are extending the supplies of dependable water, preserving essential water uses, protecting public health and safety, and establishing equitable distributions of water among the water supplier's customers.

The amended Title 30, Texas Administrative Code, Chapter 288 became effective on December 6, 2012. The next revision of the drought contingency plans for retail public water suppliers serving 3,300 or more connections, wholesale public water suppliers, and irrigation districts were to be submitted no later than May 1, 2014, and every five years thereafter to coincide with the regional water planning group process. Any new or revised plans must be submitted to the TCEQ within 90 days of adoption by the governing body of the entity. Drought contingency plans are to be provided to the local regional water planning group as well; however, the RWPGs do not review or certify drought contingency plans. More details on Drought Contingency Plans are provided in Chapter 7 of this Plan.

For all retail public water suppliers serving less than 3,300 connections, the drought contingency plans were to be prepared and adopted no later than May 1, 2014, and shall be available for inspection upon request.

The definition of a WUG for municipal purposes has been expanded to include entities that provide retail water service in excess of 280 ac-ft/yr, or approximately 250,000 gallons per day (gpd). Systems which serve 3,300 connections, assuming 3.2 persons per connection and 130 gallons per person per day, would be serving approximately 1.4 million gallons per day (mgd). As a result, the WUGs covered in the category of less than 3,300 connections will have water usage ranging from 250,000 gpd to 1.3 mgd, or 280 to 1,540 ac-ft/yr. Entities with less than 280 ac-ft/yr of usage are included in the County-Other Municipal WUG.

1.2.5.4 Water Audits

House Bill 3338, passed by the 78th Texas Legislature (2003), requires public utilities providing potable water to file water audits with the TWDB once every five years giving the most recent year's water loss. TWDB subsequently commissioned a study of available loss data. The results of this statewide data gathering was compiled into the "Analysis of Water Loss as Reported by Public Water Suppliers in Texas", TWDB, 24 January 2007. For the first phase of water auditing, a number of issues were identified with the data provided, and work to correct inconsistencies is ongoing. Year 2010-2013 water loss audit information was provided to the LCRWPG by TWDB.

One hundred and thirteen (113) public utilities in Region K submitted water loss audit data as part of the required 2010 submittal to TWDB. Limited data was submitted in 2011-2013, so the 2010 data is used for this report. Total loss rates for the utilities within Region K were found to vary widely, with an average total loss percentage rate of 12.3%. Losses may vary annually and could currently be higher or lower.

Total losses are not limited to loss from known leaks, although for some utilities leakage is responsible for a majority of lost water. Total loss also includes meter inaccuracy, unmetered or unauthorized water use, unidentified line leaks, and storage overflows. Real loss accounts for reported breaks and leaks, and unreported loss. Real loss rates for the utilities within Region K were also found to vary widely, with an average real loss percentage rate of 9.8%.

Figure 1.26 below summarizes the water loss audit data provided by TWDB to Region K.

Figure 1.26: Water Loss Audit Summary for Region K

Region K 113 Audits Submitted	System Input Volume 66,719,840,013	Authorized Consumption 58,543,433,092 87.7%	Billed Consumption 57,831,743,895 86.7%	Billed Metered 57,510,510,563 86.2%	Revenue Water 57,831,743,895 86.7%
				Billed Unmetered 321,233,332 0.5%	
			Unbilled Consumption 711,689,197 1.1%	Unbilled Metered 285,879,389 0.4%	Non-revenue Water 8,903,987,628 13.3%
				Unbilled Unmetered 425,809,808 0.6%	
		Water Loss 8,197,494,676 12.3%	Apparent Loss 1,682,786,409 2.5%	Unauthorized Consumption 169,661,891 0.3%	
				Customer Meter Accuracy Loss 1,435,555,946 2.2%	
				Systematic Data Handling Discrepency 77,568,572 0.1%	
			Real Loss 6,520,618,737 9.8%	Reported Breaks and Leaks 435,448,567 0.7%	
				Unreported Loss 6,086,474,612 9.1%	

Source: 2010 Summary of Water Loss Audit Data by Gallons and Percentage by Region with Statewide Totals

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APPENDIX 1A

THREATENED AND ENDANGERED SPECIES IN THE LOWER COLORADO REGIONAL WATER PLANNING AREA (Texas Parks and Wildlife Department Special Species Lists and Annotated County Lists of Rare Species)

KEY: COUNTY THREATENED OR ENDANGERED SPECIES

LE,LT	Federally Listed Endangered/Threatened
PE,PT	Federally Proposed Endangered/Threatened
SAE, SAT	Federally Endangered/Threatened by Similarity of Appearance
C1	Federal Candidate for Listing, formerly Category 1 Candidate
DL,PDL	Federally Delisted/Proposed for Delisting
NL	Not Federally Listed
E,T	State Listed Endangered/Threatened
NT	Not tracked or no longer tracked by the State
"blank"	Rare, but with no regulatory listing status

Species appearing on these lists do not all share the same probability of occurrence. Some species are migrants or wintering residents only, or may be historic or considered extirpated.

Source: Texas Parks and Wildlife Department Special Species Lists and Annotated County Lists of Rare Species (current as of November 2014)

TABLE 1A-1: THREATENED OR ENDANGERED SPECIES OF BASTROP COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****AMPHIBIANS****				
Houston Toad	*Anaxyrus houstonensis*	endemic; sandy substrate, water in pools, ephemeral pools, stock tanks; breeds in spring especially after rains; burrows in soil of adjacent uplands when inactive; breeds February-June; associated with soils of the Sparta, Carrizo, Goliad, Queen City, Recklaw, Weches, and Willis geologic formations	LE	E
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Henslow's Sparrow	*Ammodramus henslowii*	wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking		
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Wood Stork	*Mycteria americana*	forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas,		T

Common Name	Scientific Name	Description	Federal Status	State Status
		but no breeding records since 1960		
****CRUSTACEANS****				
A crayfish	*Procambarus texanus*	ponds		
****FISHES****				
Blue sucker	*Cycleptus elongatus*	larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock, perhaps in combination with hard clay, sand, and gravel; adults winter in deep pools and move upstream in spring to spawn on riffles		T
Guadalupe bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
****MAMMALS****				
Cave myotis bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Elliot's short-tailed shrew	*Blarina hylophaga hylophaga*	sandy areas in live oak mottes, grassy areas with a Loblolly pine (Pinus taeda) overstory, and grassy areas near Post oak (Quercus stellata) stands; burrows extensively under leaf litter, logs, and into soil, but ground cover is not required; needs soft damp soils for ease of burrowing		
Plains spotted skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
****MOLLUSKS****				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
****REPTILES****				
Texas garter snake	*Thamnophis sirtalis annectens*	wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		
Texas horned lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Timber rattlesnake	*Crotalus horridus*	swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black		T

Common Name	Scientific Name	Description	Federal Status	State Status
		clay; prefers dense ground cover, i.e. grapevines or palmetto		
******PLANTS******				
Green beebalm	*Monarda viridissima*	Endemic perennial herb of the Carrizo Sands; deep, well-drained sandy soils in openings of post oak woodlands; flowers white.		
Navasota ladies'-tresses	*Spiranthes parksii*	Texas endemic; openings in post oak woodlands in sandy loams along upland drainages or intermittent streams, often in areas with suitable hydrologic factors, such as a perched water table associated with the underlying claypan; flowering populations fluctuate widely from year to year, an individual plant does not flower every year; flowering late October-early November (-early December)	LE	E
Sandhill woollywhite	*Hymenopappus carrizoanus*	Texas endemic; disturbed or open areas in grasslands and post oak woodlands on deep sands derived from the Carrizo Sand and similar Eocene formations; flowering April-June		
Shinner's sunflower	*Helianthus occidentalis ssp plantagineus*	mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country		

TABLE 1A-2: THREATENED OR ENDANGERED SPECIES OF BLANCO COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****AMPHIBIANS****				
Blanco River Springs Salamander	*Eurycea pterophila*	subaquatic; springs and caves in the Blanco River drainage		
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapilla*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous & broad-leaved shrubs & trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Zone-tailed Hawk	*Buteo albonotatus*	arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions		T
****FISHES****				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		

Common Name	Scientific Name	Description	Federal Status	State Status
Headwater catfish	*Ictalurus lupus*	originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers		
******INSECTS******				
A mayfly	*Allenhyphes michaeli*	TX Hill Country; mayflies distinguished by aquatic larval stage; adult stage generally found in shoreline vegetation		
Disjunct crawling water beetle	*Haliplus nitens*	unknown, maybe shallow water		
******MAMMALS******				
Black Bear	*Ursus americanus*	bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened	T/SA; NL	T
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Gray wolf	*Canis lupus*	extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands	LE	E
Llano pocket gopher	*Geomys texensis texensis*	found in deep, brown loamy sands or gravelly sandy loams and is isolated from other species of pocket gophers by intervening shallow stony to gravelly clayey soils		
Plains spotted skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Golden orb	*Quadrula aurea*	sand and gravel in some locations and mud at others; found in lentic and lotic; Guadalupe, San Antonio, Lower San Marcos, and Nueces River basins	C	T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fatmucket	*Lampsilis bracteata*	streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
******REPTILES******				
Spot-tailed earless lizard	*Holbrookia lacerata*	central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas garter snake	*Thamnophis sirtalis annectens*	wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		
Texas horned lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive;		T

Common Name	Scientific Name	Description	Federal Status	State Status
		breeds March-September		
****PLANTS****				
Granite spiderwort	*Tradescantia pedicellata*	Texas endemic; mostly in fractures on outcrops of granite, gneiss, and similar igneous and metamorphic rocks, or in early successional grasslands or forb-dominated assemblages on well-drained, sandy to gravelly soils derived from same; flowering at least April-May		
Hill Country wild-mercury	*Argythamnia aphoroides*	Texas endemic; mostly in bluestem-grama grasslands associated with plateau live oak woodlands on shallow to moderately deep clays and clay loams over limestone on rolling uplands, also in partial shade of oak-juniper woodlands in gravelly soils on rocky limestone slopes; flowering April-May with fruit persisting until midsummer		
Llano butterweed	*Packera texensis*	Endemic to Llano Uplift of Edwards Plateau; granite sands; arises quickly from evergreen winter rosettes during January rains; flowers Feb-Mar.		

TABLE 1A-3: THREATENED OR ENDANGERED SPECIES OF BURNET COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****ARACHNIDS****				
Bee Creek Cave harvestman	*Texella reddelli*	small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties	LE	
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers, and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter, hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapilla*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio	LE	E

Common Name	Scientific Name	Description	Federal Status	State Status
		counties		
CRUSTACEANS				
An amphipod	*Stygobromus russelli*	subterranean waters, usually in caves and limestone aquifers; resident of numerous caves in ca. 10 counties of the Edwards Plateau		
Bifurcated cave amphipod	*Stygobromus bifurcatus*	found in cave pools		
FISHES				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
Headwater catfish	*Ictalurus lupus*	originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers		
INSECTS				
Disjunct crawling water beetle	*Haliplus nitens*	unknown, maybe shallow water		
Leonora's dancer damselfly	*Argia leonorae*	south central and western Texas; small streams and seepages		
Cave myotis bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Gray wolf	*Canis lupus*	extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands	LE	E
Llano pocket gopher	*Geomys texensis texensis*	found in deep, brown loamy sands or gravelly sandy loams and is isolated from other species of pocket gophers by intervening shallow stony to gravelly clayey soils		
Plains spotted skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
MOLLUSKS				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
REPTILES				
Concho water snake	*Nerodia paucimaculata*	Texas endemic; Concho and Colorado river systems; shallow fast-flowing water with a rocky or gravelly substrate preferred; adults can be found in deep water with mud bottoms; breeding March-October	DL	
Spot-tailed earless lizard	*Holbrookia lacerata*	central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other		

Common Name	Scientific Name	Description	Federal Status	State Status
		obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas garter snake	*Thamnophis sirtalis annectens*	wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		
Texas horned lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
****PLANTS****				
Basin bellflower	*Campanula reverchonii*	Texas endemic; among scattered vegetation on loose gravel, gravelly sand, and rock outcrops on open slopes with exposures of igneous and metamorphic rocks; may also occur on sandbars and other alluvial deposits along major rivers; flowering May-July		
Edwards Plateau cornsalad	*Valerianella texana*	very shallow, well-drained, but seasonally moist gravelly-sandy soils derived from igneous or metamorphic rocks, often along the downslope margin of rock outcrops, in full sun or in partial shade of oak-juniper woodlands; more likely encountered in early successional areas; population numbers fluctuate considerably from year to year, with higher numbers following winters with higher rains and/or moderate temperatures; peak flowering/fruiting mid-March–late April, stems wither and disappear by the beginning of May		
Enquist's sandmint	*Brazoria enquistii*	Texas endemic; primarily on sand banks in and along beds of streams that drain granitic or gneissic landscapes; flowering/fruiting April-June		
Granite spiderwort	*Tradescantia pedicellata*	Texas endemic; mostly in fractures on outcrops of granite, gneiss, and similar igneous and metamorphic rocks, or in early successional grasslands or forb-dominated assemblages on well-drained, sandy to gravelly soils derived from same; flowering at least April-May		
Rock quillwort	*Isoetes lithophila*	Texas endemic; rooted in sand and gravel under shallow water of seasonal pools (vernal pools) that develop during rainy seasons in small, shallow, unshaded basins on barren outcrops of granite and gneiss; sporulating in late winter and spring, and opportunistically in other seasons following heavy rainfall		

TABLE 1A-4: THREATENED OR ENDANGERED SPECIES OF COLORADO COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
AMPHIBIANS				
Houston Toad	*Anaxyrus houstonensis*	endemic; sandy substrate, water in pools, ephemeral pools, stock tanks; breeds in spring especially after rains; burrows in soil of adjacent uplands when inactive; breeds February-June; associated with soils of the Sparta, Carrizo, Goliad, Queen City, Recklaw, Weches, and Willis geologic formations	LE	E
Southern Crawfish Frog	*Lithobates areolatus areolatus*	The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland – Conifer.		
BIRDS				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Attwater's Greater Prairie-chicken	*Tympanuchus cupido attwateri*	this county within historic range; endemic; open prairies of mostly thick grass one to three feet tall; from near sea level to 200 feet along coastal plain on upper two-thirds of Texas coast; males form communal display flocks during late winter-early spring; booming grounds important; breeding February-July	LE	E
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Henslow's Sparrow	*Ammodramus henslowii*	wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking		
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
White-faced Ibis	*Plegadis chihi*	prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats		T

Common Name	Scientific Name	Description	Federal Status	State Status
White-tailed Hawk	*Buteo albicaudatus*	near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May		T
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Wood Stork	*Mycteria americana*	forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960		T
*******FISHES******				
Blue sucker	*Cycleptus elongatus*	larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock, perhaps in combination with hard clay, sand, and gravel; adults winter in deep pools and move upstream in spring to spawn on riffles		T
Guadalupe bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
*******INSECTS******				
Texas asaphomyian tabanid fly	*Asaphomyia texensis*	globally historic; adults of tabanid spp. found near slow-moving water; eggs laid in masses on leaves or other objects near or over water; larvae are aquatic and predaceous; females of tabanid spp. bite, while males chiefly feed on pollen and nectar; using sight, carbon dioxide, and odor for selection, tabanid spp. lie in wait in shady areas under bushes and trees for a host to happen by		
*******MAMMALS******				
Louisiana Black Bear	*Ursus americanus luteolus*	possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas	LT	T
Plains spotted skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
*******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
*******REPTILES******				
Texas horned lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Timber rattlesnake	*Crotalus horridus*	swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T

Common Name	Scientific Name	Description	Federal Status	State Status
****PLANTS****				
Coastal gay-feather	*Liatris bracteata*	Texas endemic; coastal prairie grasslands of various types, from salty prairie on low- lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall		
Shinner's sunflower	*Helianthus occidentalis ssp plantagineus*	mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country		

TABLE 1A-5: THREATENED OR ENDANGERED SPECIES OF FAYETTE COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
******BIRDS******				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Henslow's Sparrow	*Ammodramus henslowii*	wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking		
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Wood Stork	*Mycteria americana*	forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960		T
******FISHES******				
Blue sucker	*Cycleptus elongatus*	larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock, perhaps in combination with hard clay, sand, and gravel; adults winter in deep pools and move upstream in spring to spawn on riffles		T
Guadalupe bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
******MAMMALS******				
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		

Plains Spotted Skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red Wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
*******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
*******REPTILES******				
Texas horned lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Timber rattlesnake	*Crotalus horridus*	swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T
*******PLANTS******				
Bristle nailwort	*Paronychia setacea*	Flowering vascular plant endemic to eastern southcentral Texas, occurring in sandy soils		
Navasota ladies'-tresses	*Spiranthes parksii*	Texas endemic; openings in post oak woodlands in sandy loams along upland drainages or intermittent streams, often in areas with suitable hydrologic factors, such as a perched water table associated with the underlying claypan; flowering populations fluctuate widely from year to year, an individual plant does not flower every year; flowering late October-early November (-early December)	LE	E
Shinner's sunflower	*Helianthus occidentalis ssp plantagineus*	mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country		
Texas meadow-rue	*Thalictrum texanum*	Texas endemic; mostly found in woodlands and woodland margins on soils with a surface layer of sandy loam, but it also occurs on prairie pimple mounds; both on uplands and creek terraces, but perhaps most common on claypan savannas; soils are very moist during its active growing season; flowering/fruiting (January-) February-May, withering by midsummer, foliage reappears in late fall(November) and may persist through the winter		

TABLE 1A-6: THREATENED OR ENDANGERED SPECIES OF GILLESPIE COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
******AMPHIBIANS******				
Valdina Farms sinkhole salamander	*Eurycea troglodytes complex*	isolated, intermittent pools of a subterranean streams and sinkhole in Nueces, Frio, Guadalupe, and Pedernales watersheds within Edwards Aquifer area		
******BIRDS******				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Baird's Sparrow	*Ammodramus bairdii*	shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties		
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapilla*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Zone-tailed Hawk	*Buteo albonotatus*	arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions		T

Common Name	Scientific Name	Description	Federal Status	State Status
******FISHES******				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
Headwater catfish	*Ictalurus lupus*	originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers		
******MAMMALS******				
Black Bear	*Ursus americanus*	bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened	T/SA; NL	T
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Gray Wolf	*Canis lupus*	extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands	LE	E
Llano Pocket Gopher	*Geomys texensis texensis*	found in deep, brown loamy sands or gravelly sandy loams and is isolated from other species of pocket gophers by intervening shallow stony to gravelly clayey soils		
Plains spotted skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Golden orb	*Quadrula aurea*	sand and gravel in some locations and mud at others; found in lentic and lotic; Guadalupe, San Antonio, Lower San Marcos, and Nueces River basins	C	T
Texas fatmucket	*Lampsilis bracteata*	streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
******REPTILES******				
Spot-tailed earless lizard	*Holbrookia lacerata*	central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas horned lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
******PLANTS******				
Basin bellflower	*Campanula reverchonii*	Texas endemic; among scattered vegetation on loose gravel, gravelly sand, and rock outcrops on open slopes with exposures of igneous and metamorphic rocks; may also occur on sandbars and other alluvial deposits along major rivers; flowering May-July		
Big red sage	*Salvia pentstemonoides*	Texas endemic; moist to seasonally wet, steep limestone outcrops on seeps within canyons or along creek banks; occasionally on clayey to silty soils of creek banks and terraces, in partial shade to full sun; basal leaves conspicuous for much of the year; flowering June-October		

Common Name	Scientific Name	Description	Federal Status	State Status
Canyon rattlesnake-root	*Prenanthes carrii*	Texas endemic; rich humus soils over limestone in upper woodland canyon drainages, upper small spring fed drainages, typically near springs in deep soils around the springs and on limestone shelves, honeycomb rock (porous rock); flowering and fruiting late August-November		
Correll's false dragon-head	*Physostegia correllii*	wet, silty clay loams on streamsides, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creek in central Texas; flowering May-September		
Edwards Plateau cornsalad	*Valerianella texana*	very shallow, well-drained, but seasonally moist gravelly-sandy soils derived from igneous or metamorphic rocks, often along the downslope margin of rock outcrops, in full sun or in partial shade of oak-juniper woodlands; more likely encountered in early successional areas; population numbers fluctuate considerably from year to year, with higher numbers following winters with higher rains and/or moderate temperatures; peak flowering/fruiting mid-March–late April, stems wither and disappear by the beginning of May		
Hill Country wild-mercury	*Argythamnia aphoroides*	Texas endemic; mostly in bluestem-grama grasslands associated with plateau live oak woodlands on shallow to moderately deep clays and clay loams over limestone on rolling uplands, also in partial shade of oak-juniper woodlands in gravelly soils on rocky limestone slopes; flowering April-May with fruit persisting until midsummer		
Llano butterweed	*Packera texensis*	Endemic to Llano Uplift of Edwards Plateau; granite sands; arises quickly from evergreen winter rosettes during January rains; flowers Feb-Mar.		
Rock quillwort	*Isoetes lithophila*	Texas endemic; rooted in sand and gravel under shallow water of seasonal pools (vernal pools) that develop during rainy seasons in small, shallow, unshaded basins on barren outcrops of granite and gneiss; sporulating in late winter and spring, and opportunistically in other seasons following heavy rainfall		
Small-headed pipewort	*Eriocaulon koernickianum*	in East Texas, post-oak woodlands and xeric sandhill openings on permanently wet acid sands of upland seeps and hillside seepage bogs, usually in patches of bare sand rather than among dense vegetation or on muck; in Gillespie County, on permanently wet or moist hillside seep on decomposing granite gravel and sand among granite outcrops; flowering/fruiting late May-late June		
Warnock's coral-root	*Hexalectris warnockii*	in leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 m [6550 ft]), primarily on igneous substrates; in Terrell County under Quercus fusiformis mottes on terrraces of spring-fed perennial streams, draining an otherwise rather xeric limestone landscape; on the Callahan Divide (Taylor County), the White Rock Escarpment (Dallas County), and the Edwards Plateau in oak-juniper woodlands on limestone slopes; in Gillespie County on igneous substrates of the Llano Uplift; flowering June-September; individual plants do not usually bloom in successive years		

TABLE 1A-7: THREATENED OR ENDANGERED SPECIES OF HAYS COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****AMPHIBIANS****				
Barton Springs salamander	*Eurycea sosorum*	dependent upon water flow/quality from the Barton Springs pool of the Edwards Aquifer; known from the outlets of Barton Springs and subterranean water-filled caverns; found under rocks, in gravel, or among aquatic vascular plants and algae, as available; feeds primarily on amphipods	LE	E
Blanco Blind Salamander	*Eurycea robusta*	troglobitic; water-filled subterranean caverns; may inhabit deep levels of the Balcones aquifer to the north and east of the Blanco River		T
Blanco River Springs Salamander	*Eurycea pterophila*	subaquatic; springs and caves in the Blanco River drainage		
San Marcos Salamander	*Eurycea nana*	headwaters of the San Marcos River downstream to ca. ½ mile past IH-35; water over gravelly substrate characterized by dense mats of algae (*Lyng bya*) and aquatic moss (*Leptodictym riparium*), and water temperatures of 21-22 $^{\circ}$C; diet includes amphipods, midge larve, and aquatic snails	LT	T
Texas Blind Salamander	*Eurycea rathbuni*	troglobitic; water-filled subterranean caverns along a six mile stretch of the San Marcos Spring Fault, in the vicinity of San Marcos; eats small invertebrates, including snails, copepods, amphipods, and shrimp	LE	E
****ARACHNIDS****				
Bandit Cave spider	*Cicurina bandida*	very small, subterrestrial, subterranean obligate		
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapilla*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T

Common Name	Scientific Name	Description	Federal Status	State Status
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Zone-tailed Hawk	*Buteo albonotatus*	arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions		T
*******CRUSTACEANS******				
A cave obligate crustacean	*Monodella texana*	subaquatic, subterranean obligate; underground freshwater aquifers		
Balcones Cave amphipod	*Stygobromus balconis*	subaquatic, subterranean obligate amphipod		
Ezell's Cave Amphipod	*Stygobromus flagellatus*	known only from artesian wells		
Texas Cave Shrimp	*Palaemonetes antrorum*	subterranean sluggish streams and pools		
Texas troglobitic water slater	*Lirceolus smithii*	subaquatic, subterranean obligate, aquifer		
*******FISHES******				
Fountain Darter	*Etheostoma fonticola*	known only from the San Marcos and Comal rivers; springs and spring-fed streams in dense beds of aquatic plants growing close to bottom, which is normally mucky; feeding mostly diurnal; spawns year-round with August and late winter to early spring peaks	LE	E
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
Guadalupe Darter	*Percina sciera apristis*	Guadalupe River basin; most common over gravel or gravel and sand raceways of large streams and rivers		
Ironcolor shiner	*Notropis chalybaeus*	Big Cypress Bayou and Sabine River basins; spawns April-September, eggs sink to bottom of pool; pools and slow runs of low gradient small acidic streams with sandy substrate and clear well vegetated water; feeds mainly on small insects, ingested plant material not digested		
San Marcos Gambusia	*Gambusia georgei*	extinct; endemic; formerly known from upper San Marcos River; restricted to shallow, quiet, mud-bottomed shoreline areas without dense vegetation in thermally constant main channel	LE	E
*******INSECTS******				
Comal Springs dryopid beetle	*Stygoparnus comalensis*	dryopids usually cling to objects in a stream; dryopids are sometimes found crawling on stream bottoms or along shores; adults may leave the stream and fly about, especially at night; most dryopid larvae are vermiform and live in soil or decaying wood	LE	E
Comal Springs Riffle Beetle	*Heterelmis comalensis*	Comal and San Marcos Springs	LE	E
Edwards Aquifer Diving Beetle	*Haideoporus texanus*	habitat poorly known; known from an artesian well in Hays County		
Flint's net-spinning caddisfly	*Cheumatopsyche flinti*	very poorly known species with habitat description limited to 'a spring'		
Leonora's dancer damselfly	*Argia leonorae*	south central and western Texas; small streams and seepages		
Rawson's metalmark	*Calephelis rawsoni*	moist areas in shaded limestone outcrops in central Texas, desert scrub or oak woodland in foothills, or along rivers elsewhere; larval hosts are Eupatorium havanense, E. greggii.		
San Marcos Saddle-case Caddisfly	*Protoptila arca*	known from an artesian well in Hays County; locally very abundant; swift, well-oxygenated warm water about 1-2 m deep; larvae and pupal cases abundant on rocks		

Common Name	Scientific Name	Description	Federal Status	State Status
Texas austrotinodes caddisfly	*Austrotinodes texensis*	appears endemic to the karst springs and spring runs of the Edwards Plateau region; flow in type locality swift but may drop significantly during periods of little drought; substrate coarse and ranges from cobble and gravel to limestone bedrock; many limestone outcroppings also found along the streams		
******MAMMALS******				
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Plains Spotted Skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Golden orb	*Quadrula aurea*	sand and gravel in some locations and mud at others; found in lentic and lotic; Guadalupe, San Antonio, Lower San Marcos, and Nueces River basins	C	T
Texas fatmucket	*Lampsilis bracteata*	streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
******REPTILES******				
Cagle's Map Turtle	*Graptemys caglei*	endemic; Guadalupe River System; shallow water with swift to moderate flow and gravel or cobble bottom, connected by deeper pools with a slower flow rate and a silt or mud bottom; gravel bar riffles and transition areas between riffles and pools especially important in providing insect prey items; nests on gently sloping sand banks within ca. 30 feet of water's edge		T
Spot-tailed Earless Lizard	*Holbrookia lacerata*	central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas Garter Snake	*Thamnophis sirtalis annectens*	wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		
Texas Horned Lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
******PLANTS******				
Bracted twistflower	*Streptanthus bracteatus*	Texas endemic; shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms; several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations; populations fluctuate widely from year to year, depending on winter rainfall; flowering mid April-late May, fruit matures and foliage withers by early summer	C	
Hill country wild-mercury	*Argythamnia aphoroides*	Texas endemic; mostly in bluestem-grama grasslands associated with plateau live oak woodlands on shallow to moderately deep clays and clay loams over limestone on rolling uplands, also in partial shade of		

Common Name	Scientific Name	Description	Federal Status	State Status
		oak-juniper woodlands in gravelly soils on rocky limestone slopes; flowering April-May with fruit persisting until midsummer		
Texas wild-rice	*Zizania texana*	Texas endemic; spring-fed river, in clear, cool, swift water mostly less than 1 m deep, with coarse sandy soils rather than finer clays; flowering year-round, peaking March-June	LE	E
Warnock's coral root	*Hexalectris warnockii*	in leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 m [6550 ft]), primarily on igneous substrates; in Terrell County under Quercus fusiformis mottes on terrraces of spring-fed perennial streams, draining an otherwise rather xeric limestone landscape; on the Callahan Divide (Taylor County), the White Rock Escarpment (Dallas County), and the Edwards Plateau in oak-juniper woodlands on limestone slopes; in Gillespie County on igneous substrates of the Llano Uplift; flowering June-September; individual plants do not usually bloom in successive years		

TABLE 1A-8: THREATENED OR ENDANGERED SPECIES OF LLANO COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapillus*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous & broad-leaved shrubs & trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E

Common Name	Scientific Name	Description	Federal Status	State Status
Zone-tailed Hawk	*Buteo albonotatus*	arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions		T
****FISHES****				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
Headwater catfish	*Ictalurus lupus*	originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers		
****MAMMALS****				
Black Bear	*Ursus americanus*	bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened	T/SA; NL	T
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Gray Wolf	*Canis lupus*	extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands	LE	E
Llano Pocket Gopher	*Geomys texensis texensis*	found in deep, brown loamy sands or gravelly sandy loams and is isolated from other species of pocket gophers by intervening shallow stony to gravelly clayey soils		
Plains Spotted Skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red Wolf	*Canis Rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
****MOLLUSKS****				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fatmucket	*Lampsilis bracteata*	streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T

Common Name	Scientific Name	Description	Federal Status	State Status
****REPTILES****				
Spot-tailed Earless Lizard	*Holbrookia lacerata*	central & southern Texas & adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas Garter Snake	*Thamnophis sirtalis annectens*	wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		
Texas Horned Lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
****PLANTS****				
Basin bellflower	*Campanula reverchonii*	Texas endemic; among scattered vegetation on loose gravel, gravelly sand, and rock outcrops on open slopes with exposures of igneous and metamorphic rocks; may also occur on sandbars and other alluvial deposits along major rivers; flowering May-July		
Edwards Plateau Cornsalad	*Valerianellla texana*	very shallow, well-drained, but seasonally moist gravelly-sandy soils derived from igneous or metamorphic rocks, often along the downslope margin of rock outcrops, in full sun or in partial shade of oak-juniper woodlands; more likely encountered in early successional areas; population numbers fluctuate considerably from year to year, with higher numbers following winters with higher rains and/or moderate temperatures; peak flowering/fruiting mid-March–late April, stems wither and disappear by the beginning of May		
Elmendorf's Onion	*Allium elmendorfii*	Texas endemic; grassland openings in oak woodlands on deep, loose, well-drained sands; in Coastal Bend, on Pleistocene barrier island ridges and Holocene Sand Sheet that support live oak woodlands; to the north it occurs in post oak-black hickory-live oak woodlands over Queen City and similar Eocene formations; one anomalous specimen found on Llano Uplift in wet pockets of granitic loam; flowering March-April, May		
Enquist's sandmint	*Brazoria enquistii*	Texas endemic ; primarily on sand banks in and along beds of streams that drain granitic or gneissic landscapes; flowering/fruiting April-June		
Granite spiderwort	*Tradescantia pedicellata*	Texas endemic; mostly in fractures on outcrops of granite, gneiss, and similar igneous and metamorphic rocks, or in early successional grasslands or forb-dominated assemblages on well-drained, sandy to gravelly soils derived from same; flowering at least April-May		
Llano butterweed	*Packera texensis*	Endemic to Llano Uplift of Edwards Plateau; granite sands; arises quickly from evergreen winter rosettes during January rains; flowers Feb-March.		
Rock quillwort	*Isoetes lithophila*	Texas endemic; rooted in sand and gravel under shallow water of seasonal pools (vernal pools) that develop during rainy seasons in small, shallow, unshaded basins on barren outcrops of granite and gneiss; sporulating in late winter and spring, and opportunistically in other seasons following heavy rainfall.		

TABLE 1A-9: THREATENED OR ENDANGERED SPECIES OF MATAGORDA COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
BIRDS				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near seacoasts, rivers, and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black Rail	*Laterallus jamaicensis*	salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous year's dead grasses; nest usually hidden in marsh grass or at base of Salicornia		
Brown Pelican	*Pelecanus occidentalis*	largely coastal and near shore areas, where it roosts and nests on islands and spoil banks	DL	
Eskimo Curlew	*Numenius borealis*	historic; nonbreeding: grasslands, pastures, plowed fields, and less frequently, marshes and mudflats	LE	E
Henslow's Sparrow	*Ammodramus henslowii*	wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking		
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species	LE	E
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Piping Plover	*Charadrius melodus*	wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats	LT	T
Reddish Egret	*Egretta rufescens*	resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear		T
Snowy Plover	*Charadrius alexandrinus*	formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast		
Sooty Tern	*Sterna fuscata*	predominately 'on the wing'; does not dive, but snatches small fish and squid with bill as it flies or hovers over water; breeding April-July		T
Southeastern Snowy Plover	*Charadrius alexandrinus tenuirostris*	wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats		
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Western Snowy Plover	*Charadrius alexandrinus nivosus*	uncommon breeder in the Panhandle; potential migrant; winter along coast		

Common Name	Scientific Name	Description	Federal Status	State Status
White-faced Ibis	*Plegadis chihi*	prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats		T
White-tailed Hawk	*Buteo albicaudatus*	near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May		T
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Wood Stork	*Mycteria americana*	forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960		T
****CRUSTACEANS****				
A crayfish	*Cambarellus texanus*	shallow water; benthic, burrowing in or using soil; apparently tolerant of warmer waters; prefers standing water of ditches in which there is emergent vegetation; will burrow in dry periods; detritivore		
****FISHES****				
American Eel	*Anguilla rostrata*	coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters, metamorphose, then females move into freshwater; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes; can travel overland in wet areas; males in brackish estuaries; diet varies widely, geographically, and seasonally		
Blue sucker	*Cycleptus elongatus*	larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock, perhaps in combination with hard clay, sand, and gravel; adults winter in deep pools and move upstream in spring to spawn on riffles		T
Smalltooth sawfish	*Pristis pectinata*	different life history stages have different patterns of habitat use; young found very close to shore in muddy and sandy bottoms, seldom descending to depths greater than 32 ft (10 m); in sheltered bays, on shallow banks, and in estuaries or river mouths; adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths, feed on a variety of fish species and crustaceans	LE	E
****INSECTS****				
Gulf Coast clubtail	*Gomphus modestus*	medium river, moderate gradient,and streams with silty sand or rocky bottoms; adults forage in trees, males perch near riffles to wait for females, larvae overwinter; flight season late Apr - late Jun		
****MAMMALS****				
Louisiana Black Bear	*Ursus americanus luteolus*	possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas	LT	T
Ocelot	*Leopardus pardalis*	dense chaparral thickets; mesquite-thorn scrub and live oak mottes; avoids open areas; breeds and raises young June-November	LE	E
Plains Spotted Skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red Wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
West Indian Manatee	*Trichechus manatus*	Gulf and bay system; opportunistic, aquatic herbivore	LE	E
****MOLLUSKS****				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T

Common Name	Scientific Name	Description	Federal Status	State Status
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
*******REPTILES******				
Atlantic Hawksbill Sea Turtle	*Eretmochelys imbricata*	Gulf and bay system, warm shallow waters especially in rocky marine environments, such as coral reefs and jetties, juveniles found in floating mats of sea plants; feed on sponges, jellyfish, sea urchins, molluscs, and crustaceans, nests April through November	LE	E
Green sea turtle	*Chelonia mydas*	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches; adults are herbivorous feeding on sea grass and seaweed; juveniles are omnivorous feeding initially on marine invertebrates, then increasingly on sea grasses and seaweeds; nesting behavior extends from March to October, with peak activity in May and June	LT	T
Gulf Saltmarsh Snake	*Nerodia clarkii*	saline flats, coastal bays, & brackish river mouths		
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico; feed primarily on crabs, but also snails, clams, other crustaceans and plants, juveniles feed on sargassum and its associated fauna; nests April through August	LE	E
Leatherback Sea Turtle	*Dermochelys coriacea*	Gulf and bay systems, and widest ranging open water reptile; omnivorous, shows a preference for jellyfish; in the US portion of their western Atlantic nesting territories, nesting season ranges from March to August	LE	E
Loggerhead Sea Turtle	*Caretta caretta*	Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles; omnivorous, shows a preference for mollusks, crustaceans, and coral; nests from April through November	LT	T
Smooth Green Snake	*Liochlorophis vernalis*	Gulf Coastal Plain; mesic coastal shortgrass prairie vegetation; prefers dense vegetation		T
Texas Diamondback Terrapin	*Malaclemys terrapin littoralis*	coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive; may venture into lowlands at high tide		
Texas Horned Lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Texas scarlet snake	*Cemophora coccinea lineri*	mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September		T
Texas Tortoise	*Gopherus berlandieri*	open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November		T
Timber Rattlesnake	*Crotalus horridus*	swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T
******* PLANTS******				
Coastal Gay-Feather	*Liatris bracteata*	Texas endemic; coastal prairie grasslands of various types, from salty prairie on low- lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall		
Shinner's sunflower	*Helianthus occidentalis ssp plantagineus*	mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country		
Threeflower broomweed	*Thurovia triflora*	Texas endemic; near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay along drier upper margins of ecotone between between salty prairies and tidal flats; further inland associated with vegetated slick spots on prairie mima mounds; flowering September-November		

TABLE 1A-10: THREATENED OR ENDANGERED SPECIES OF MILLS COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapilla*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
****FISHES****				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
****MAMMALS****				
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of		

		Panhandle during winter; opportunistic insectivore		
Gray Wolf	*Canis lupus*	extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands	LE	E
Llano pocket gopher	*Geomys texensis texensis*	found in deep, brown loamy sands or gravelly sandy loams and is isolated from other species of pocket gophers by intervening shallow stony to gravelly clayey soils		
Red Wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
****MOLLUSKS****				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
****REPTILES****				
Concho Water Snake	*Nerodia Paucimaculata*	Texas endemic; Concho and Colorado river systems; shallow fast-flowing water with a rocky or gravelly substrate preferred; adults can be found in deep water with mud bottoms; breeding March-October	DL	
Texas Horned Lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
****VASCULAR PLANTS****				
Hill Country Wild-Mercury	*Argythamnia Aphoroides*	Texas endemic; mostly in bluestem-grama grasslands associated with plateau live oak woodlands on shallow to moderately deep clays and clay loams over limestone on rolling uplands, also in partial shade of oak-juniper woodlands in gravelly soils on rocky limestone slopes; flowering April-May with fruit persisting until midsummer		

TABLE 1A-11: THREATENED OR ENDANGERED SPECIES OF SAN SABA COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Baird's Sparrow	*Ammodramus bairdii*	shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties		
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapilla*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Interior Least Tern	*Sterna Antillarum Athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
Zone-tailed Hawk	*Buteo albonotatus*	arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions		T

Common Name	Scientific Name	Description	Federal Status	State Status
******CRUSTACEANS******				
Reddell's cave amphipod	*Stygobromus reddelli*	subterranean obligate; small cave streams		
******FISHES******				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
Headwater catfish	*Ictalurus lupus*	originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers		
Sharpnose shiner	*Notropis oxyrhynchus*	endemic to Brazos River drainage; also, apparently introduced into adjacent Colorado River drainage; large turbid river, with bottom a combination of sand, gravel, and clay-mud	E	
******MAMMALS******				
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Gray Wolf	*Canis lupus*	extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands	LE	E
Llano Pocket Gopher	*Geomys texensis texensis*	found in deep, brown loamy sands or gravelly sandy loams and is isolated from other species of pocket gophers by intervening shallow stony to gravelly clayey soils		
Red Wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quincuncina mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fatmucket	*Lampsilis bracteata*	streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
******REPTILES******				
Concho water snake	*Nerodia paucimaculata*	Texas endemic; Concho and Colorado river systems; shallow fast-flowing water with a rocky or gravelly substrate preferred; adults can be found in deep water with mud bottoms; breeding March-October	DL	
Spot-tailed earless lizard	*Holbrookia lacerata*	central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas horned lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T

Common Name	Scientific Name	Description	Federal Status	State Status
****PLANTS****				
Basin bellflower	*Campanula reverchonii*	Texas endemic; among scattered vegetation on loose gravel, gravelly sand, and rock outcrops on open slopes with exposures of igneous and metamorphic rocks; may also occur on sandbars and other alluvial deposits along major rivers; flowering May-July		

TABLE 1A-12: THREATENED OR ENDANGERED SPECIES OF TRAVIS COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****AMPHIBIANS****				
Austin Blind Salamander	*Eurycea waterlooensis*	mostly restricted to subterranean cavities of the Edwards Aquifer; dependent upon water flow/quality from the Barton Springs segment of the Edwards Aquifer; only known from the outlets of Barton Springs (Sunken Gardens (Old Mill) Spring, Eliza Spring, and Parthenia (Main) Spring which forms Barton Springs Pool); feeds on amphipods, ostracods, copepods, plant material, and (in captivity) a wide variety of small aquatic invertebrates	E	
Barton Springs Salamander	*Eurycea sosorum*	dependent upon water flow/quality from the Barton Springs pool of the Edwards Aquifer; known from the outlets of Barton Springs and subterranean water-filled caverns; found under rocks, in gravel, or among aquatic vascular plants and algae, as available; feeds primarily on amphipods	LE	E
Jollyville Plateau Salamander	*Eurycea tonkawae*	known from springs and waters of some caves north of the Colorado River	T	
Pedernales River Springs Salamander	*Eurycea sp. 6*	endemic; known only from springs		
****ARACHNIDS****				
Bandit Cave Spider	*Cicurina bandida*	very small, subterrestrial, subterranean obligate		
Bee Creek Cave harvestman	*Texella reddelli*	small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties	LE	
Bone Cave Harvestman	*Texella reyesi*	small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties; weakly differentiated from Texella reddelli	LE	
Tooth Cave Pseudoscorpion	*Tartarocreagris texana*	small, cave-adapted pseudoscorpion known from small limestone caves of the Edwards Plateau	LE	
Tooth Cave Spider	*Neoleptoneta myopica*	very small, cave-adapted, sedentary spider	LE	
Warton's cave meshweaver	*Cicurina wartoni*	very small, cave-adapted spider	C	
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapillus*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-	LE	E

Common Name	Scientific Name	Description	Federal Status	State Status
		leaved trees and shrubs; nesting late March-early summer		
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
******CRUSTACEANS******				
An Amphipod	*Stygobromus russelli*	subterranean waters, usually in caves & limestone aquifers; resident of numerous caves in ca. 10 counties of the Edwards Plateau		
Balcones Cave amphipod	*Stygobromus balconis*	subaquatic, subterranean obligate amphipod		
Bifurcated Cave Amphipod	*Stygobromus bifurcatus*	found in cave pools		
******FISHES******				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
Smalleye shiner	*Notropis buccula*	endemic to upper Brazos River system and its tributaries (Clear Fork and Bosque); apparently introduced into adjacent Colorado River drainage; medium to large prairie streams with sandy substrate and turbid to clear warm water; presumably eats small aquatic invertebrates	E	
******INSECTS******				
Kretschmarr Cave Mold Beetle	*Texamaurops reddelli*	small, cave-adapted beetle found under rocks buried in silt; small, Edwards Limestone caves in of the Jollyville Plateau, a division of the Edwards Plateau	LE	
Leonora's dancer damselfly	*Argia leonorae*	south central and western Texas; small streams and seepages		
Rawson's metalmark	*Calephelis rawsoni*	moist areas in shaded limestone outcrops in central Texas, desert scrub or oak woodland in foothills, or along rivers elsehwere; larval hosts are Eupatorium havanense, E. greggi.		
Tooth Cave Blind Rove Beetle	*Cylindropsis sp. 1*	one specimen collected from Tooth Cave; only known North American collection of this genus		
Tooth Cave Ground Beetle	*Rhadine persephone*	resident, small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties	LE	
******MAMMALS******				

Common Name	Scientific Name	Description	Federal Status	State Status
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Plains Spotted Skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red Wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
*******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fatmucket	*Lampsilis bracteata*	streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
*******REPTILES******				
Spot-tailed Earless Lizard	*Holbrookia lacerata*	central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas Garter Snake	*Thamnophis sirtalis annectens*	wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		
Texas Horned Lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
******* PLANTS******				
Basin bellflower	*Campanula reverchonii*	Texas endemic; among scattered vegetation on loose gravel, gravelly sand, and rock outcrops on open slopes with exposures of igneous and metamorphic rocks; may also occur on sandbars and other alluvial deposits along major rivers; flowering May-July		
Boerne bean	*Phaseolus texensis*	Narrowly endemic to rocky canyons in eastern and southern Edwards Plateau occurring on limestone soils in mixed woodlands, on limestone cliffs and outcrops, frequently along creeks.		
Bracted twistflower	*Streptanthus bracteatus*	Texas endemic; shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms; several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations; populations fluctuate widely from year to year, depending on winter rainfall; flowering mid April-late May, fruit matures and foliage withers by early summer	C	

Common Name	Scientific Name	Description	Federal Status	State Status
Correll's false dragon-head	*Physostegia correllii*	wet, silty clay loams on streamsides, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creek in central Texas; flowering May-September		
Texabama croton	*Croton alabamensis var. texensis*	Texas endemic; in duff-covered loamy clay soils on rocky slopes in forested, mesic limestone canyons; locally abundant on deeper soils on small terraces in canyon bottoms, often forming large colonies and dominating the shrub layer; scattered individuals are occasionally on sunny margins of such forests; also found in contrasting habitat of deep, friable soils of limestone uplands, mostly in the shade of evergreen woodland mottes; flowering late February-March; fruit maturing and dehiscing by early June		
Warnock's coral-root	*Hexalectris warnockii*	in leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 m [6550 ft]), primarily on igneous substrates; in Terrell County under Quercus fusiformis mottes on terraces of spring-fed perennial streams, draining an otherwise rather xeric limestone landscape; on the Callahan Divide (Taylor County), the White Rock Escarpment (Dallas County), and the Edwards Plateau in oak-juniper woodlands on limestone slopes; in Gillespie County on igneous substrates of the Llano Uplift; flowering June-September; individual plants do not usually bloom in successive years		

TABLE 1A-13: THREATENED OR ENDANGERED SPECIES OF WHARTON COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
****AMPHIBIANS****				
Southern Crawfish Frog	*Lithobates areolatus areolatus*	The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland – Conifer.		
****BIRDS****				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Attwater's Greater Prairie-chicken	*Tympanuchus cupido attwateri*	this county within historic range; endemic; open prairies of mostly thick grass one to three feet tall; from near sea level to 200 feet along coastal plain on upper two-thirds of Texas coast; males form communal display flocks during late winter-early spring; booming grounds important; breeding February-July	LE	E
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Henslow's Sparrow	*Ammodramus henslowii*	wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking		
Interior Least Tern	*Sterna antillarum athalassos*	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	LE	E
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	DL	T
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
White-faced Ibis	*Plegadis chihi*	prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats		T
White-tailed Hawk	*Buteo albicaudatus*	near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May		T
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E

Common Name	Scientific Name	Description	Federal Status	State Status
Wood Stork	*Mycteria americana*	forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960		T
******CRUSTACEANS******				
A crayfish	*Cambarellus texanus*	shallow water; benthic, burrowing in or using soil; apparently tolerant of warmer waters; prefers standing water of ditches in which there is emergent vegetation; wll burrow in dry periods; detritivore		
******FISHES******				
American Eel	*Anguilla rostrata*	coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters, metamorphose, then females move into freshwater; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes; can travel overland in wet areas; males in brackish estuaries; diet varies widely, geographically, and seasonally		
Blue sucker	*Cycleptus elongatus*	larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock, perhaps in combination with hard clay, sand, and gravel; adults winter in deep pools and move upstream in spring to spawn on riffles		T
Sharpnose shiner	*Notropis oxyrhynchus*	endemic to Brazos River drainage; also, apparently introduced into adjacent Colorado River drainage; large turbid river, with bottom a combination of sand, gravel, and clay-mud	E	
******MAMMALS******				
Louisiana Black Bear	*Ursus americanus luteolus*	possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas	LT	T
Plains Spotted Skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
******MOLLUSKS******				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins		T
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
Texas pimpleback	*Quadrula petrina*	mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	C	T
******REPTILES******				
Texas Horned Lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T

Common Name	Scientific Name	Description	Federal Status	State Status
Timber Rattlesnake	*Crotalus horridus*	swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T

TABLE 1A-14: THREATENED OR ENDANGERED SPECIES OF WILLIAMSON COUNTY

Common Name	Scientific Name	Description	Federal Status	State Status
AMPHIBIANS				
Georgetown Salamander	*Eurycea naufragia*	endemic; known from springs and waters in and around town of Georgetown in Williamson County	T	
Jollyville Plateau Salamander	*Eurycea tonkawae*	known from springs and waters of some caves north of the Colorado River	T	
Salado Springs salamander	*Eurycea chisholmensis*	endemic; surface springs and subterranean waters of the Salado Springs system along Salado Creek	T	
Southern Crawfish Frog	*Lithobates areolatus areolatus*	The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland – Conifer.		
ARACHNIDS				
Bandit Cave spider	*Cicurina bandida*	very small, subterrestrial, subterranean obligate		
Bone Cave Harvestman	*Texella reyesi*	small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties; weakly differentiated from Texella reddelli	LE	
BIRDS				
American Peregrine Falcon	*Falco peregrinus anatum*	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	
Bald Eagle	*Haliaeetus leucocephalus*	found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	DL	T
Black-capped Vireo	*Vireo atricapilla*	oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Golden-cheeked Warbler	*Setophaga chrysoparia*	juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	LE	E
Mountain Plover	*Charadrius montanus*	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous		
Peregrine Falcon	*Falco peregrinus*	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed	DL	T

Common Name	Scientific Name	Description	Federal Status	State Status
		in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.		
Sprague's Pipit	*Anthus spragueii*	only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	C	
Western Burrowing Owl	*Athene cunicularia hypugaea*	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane	*Grus americana*	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	LE	E
****CRUSTACEANS****				
An amphipod	*Stygobromus russelli*	subterranean waters, usually in caves and limestone aquifers; resident of numerous caves in ca. 10 counties of the Edwards Plateau		
Bifurcated cave amphipod	*Stygobromus bifurcatus*	found in cave pools		
Ezell's cave amphipod	*Stygobromus flagellatus*	known only from artesian wells		
****FISHES****				
Guadalupe Bass	*Micropterus treculii*	endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system		
Sharpnose Shiner	*Notropis oxyrhynchus*	endemic to Brazos River drainage; also, apparently introduced into adjacent Colorado River drainage; large turbid river, with bottom a combination of sand, gravel, and clay-mud	E	
Smalleye Shiner	*Notropis buccula*	endemic to upper Brazos River system and its tributaries (Clear Fork and Bosque); apparently introduced into adjacent Colorado River drainage; medium to large prairie streams with sandy substrate and turbid to clear warm water; presumably eats small aquatic invertebrates	E	
****INSECTS****				
A mayfly	*Pseudocentroptiloides morihari*	mayflies distinguished by aquatic larval stage; adult stage generally found in shoreline vegetation		
Coffin Cave Mold Beetle	*Batrisodes texanus*	resident, small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties	LE	
Leonora's dancer damselfly	*Argia leonorae*	south central and western Texas; small streams and seepages		
Tooth Cave Ground Beetle	*Rhadine persephone*	resident, small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties	LE	
****MAMMALS****				
Cave Myotis Bat	*Myotis velifer*	colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore		
Plains Spotted Skunk	*Spilogale putorius interrupta*	catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
Red wolf	*Canis rufus*	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	LE	E
****MOLLUSKS****				
Creeper (squawfoot)	*Strophitus undulatus*	small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins		
False spike mussel	*Quadrula mitchelli*	possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio		T

Common Name	Scientific Name	Description	Federal Status	State Status
		Grande, Brazos, Colorado, and Guadalupe (historic) river basins		
Smooth pimpleback	*Quadrula houstonensis*	small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	C	T
Texas fawnsfoot	*Truncilla macrodon*	little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	C	T
****REPTILES****				
Spot-tailed Earless Lizard	*Holbrookia lacerata*	central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground		
Texas Garter Snake	*Thamnophis sirtalis annectens*	wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		
Texas Horned Lizard	*Phrynosoma cornutum*	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Timber Rattlesnake	*Crotalus horridus*	swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T
****VASCULAR PLANTS****				
Elmendorf's onion	*Allium elmendorfii*	Texas endemic; grassland openings in oak woodlands on deep, loose, well-drained sands; in Coastal Bend, on Pleistocene barrier island ridges and Holocene Sand Sheet that support live oak woodlands; to the north it occurs in post oak-black hickory-live oak woodlands over Queen City and similar Eocene formations; one anomalous specimen found on Llano Uplift in wet pockets of granitic loam; flowering March-April, May		

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APPENDIX 1B

THE HIGHLAND LAKES: HISTORY AND SOCIAL AND ECONOMIC IMPORTANCE

This Appendix was developed by the Central Texas Water Coalition, Inc. using the following reference materials: "Lake Travis Economic Impact Report" prepared by Robert Charles Lesser & Co. for Travis County and the Lake Travis Economic Stakeholders Committee (Sept. 2011); "The Economic Impact of the Upper Highland Lakes of the Colorado River" prepared by TXP, Inc., Concept Development & Planning, LLC, and Diverse Planning and Development for Burnet and Llano Counties (Fall 2012); Multiple Listing Service reports on property sales; and County Appraisal District data on property valuations.

Brief History of the Highland Lakes System

The Highland Lakes system is comprised of two water storage reservoirs, Lakes Buchanan and Travis, and four pass-through reservoirs, Lakes Inks, LBJ, Marble Falls and Austin. During the construction of the dams and development of the Highland Lakes system, the Lower Colorado River Authority (LCRA) acquired large tracts of land that surround the reservoir system. LCRA is authorized to develop, manage, and promote the use of these lands for parks, recreational facilities and natural science laboratories and to promote the preservation of fish and wildlife. LCRA must also provide public access to, and use of, its lakes and lands for recreation.

In the early years of LCRA's existence, the predominant priorities in water resources management were to moderate and control the floods and droughts in the Lower Colorado River Basin. This was accomplished through the construction of dams in the Texas Hill Country west of Austin, which created the Highland Lakes. Due to the Highland Lakes, the ravages of floodwaters on the lower Colorado River have largely been controlled. The Highland Lakes have historically also provided a dependable source of water supply for municipal, industrial, agricultural, and mining uses. Additionally, the Highland Lakes provided the source of inexpensive, renewable electrical energy, and recreational opportunities for the citizens and communities of Central Texas. In sum, the work of LCRA in its early years provided the foundation on which much of the present day population and economy of Central Texas now depend. The rapidly-increasing population of Austin and surrounding Central Texas communities requires additional water resources for drinking water and to sustain business and industry. Tourism and recreation became significant industries, both on the Highland Lakes and lower Colorado River.

Tourism and Recreational Demands

The use of water for recreation and tourism is closely linked to the population of an area, location of the recreational opportunity and ease of access, and the value of the resource to recreational users. Recreational users are interested in qualities including: full lakes, flowing rivers, clean water, and aesthetics. In many areas, recreational uses of the waterways are increasing steadily. The entire Highland Lakes area, from Lake Austin to Lake Buchanan, receives a great deal of recreational use from boaters, park visitors, swimmers and anglers from all over Texas and the Southwestern United States.

Recreation and tourism in the Highland Lakes area are important contributors to local economies. The recreation industry associated with the Highland Lakes experienced phenomenal growth from 2000-2010 and became the major economic stability factor in many of the counties surrounding the Highland Lakes. However, the viability of this recreational industry is strongly tied to the level of water in the reservoirs. In recognition of the effect of lake levels on the recreational economy of the Highland Lakes, LCRA's 1989 Water Management Plan recommended not selling additional interruptible water if such sales would draw Lake Travis below 660 feet above mean sea level (msl) or Lake Buchanan below 1,012 feet above msl. [See *Water Management Plan for the Lower Colorado River, Vol. I (Policy and Operations)*; prepared by the Lower Colorado River Authority for Submission to the Texas Water Commission; pages 19, 45 (1989).] . In the pass through lakes—Inks, LBJ, Marble Falls, and Austin—little impact is felt from variations in the levels of Lakes Buchanan and Travis.

An expected annual cycle includes the filling of the conservation storage space in the winter and spring months of the year to be drawn down by water uses during the summer months. The recreational users of these reservoirs are accustomed to a certain amount of variation in the lake levels. However, extreme variations can have an adverse impact on recreational and tourism interests.

Lake Travis

Lake Travis is a 19,000-acre lake with over 270 miles of shoreline located in Texas within Travis and Burnet Counties. Formed in 1937 with the creation of the Marshall Ford Dam, Lake Travis has been and continues to be an important force in the economic growth and sustainability of the region. Lake Travis is the source of most of the water and some of the electricity for its surrounding communities, including but not limited to the municipalities of Briarcliff, Lakeway, Lago Vista, Jonestown, Point Venture, The Hills of Lakeway, Volente, and Austin (currently, 23 municipalities rely on Lake Travis for water). The lake is a recreational destination for boaters and other water enthusiasts throughout the state, and is an important component of the region's tourism economy. Businesses of all sizes depend upon Lake Travis for their operations, including restaurants, hotels, boat rentals, marinas, golf courses, scuba operators, and real estate brokers and developers. Companies, including Samsung, Freescale, AMD, and 3M, rely upon the City of Austin for their water supply and Austin obtains its water from the Highland Lakes. Finally, the lake is an amenity to the surrounding households. Since 1990, the size of the population living within 30 miles of Lake Travis has more than doubled to over 1.5 million people according to the U.S. Census. Communities such as Lakeway, Lago Vista, Jonestown, Point Venture, Briarcliff, and Village of the Hills were founded around Lake Travis in the 1960s and have grown to a total population of almost 22,000 as of 2010.

Lake Travis is a conservation and flood control lake, with water coming in through rainfall and inflows from area creeks, rivers, and streams, and water going out to serve the demand of surrounding cities, water utilities, irrigation needs for the downstream industrial and agricultural users, and flows sufficient to maintain downstream instream flow needs and bay and estuary health. The lake is considered full at an elevation of 681 feet ("full pool") above mean sea level (msl), and lake levels have fluctuated from a low of 614 feet in 1951 to a high of 710 feet in 1991. In addition to its use for flood control, hydroelectric power, water supply, and water quality, Lake Travis supports broad recreational tourism and diverse fish and wildlife habitats. Drought, increased water use, downstream demands, and reduced inflows all cause water levels in Lake Travis to fall. Conversely, during flood events, businesses surrounding the lake may be forced to close for extended periods of time.

An economic impact study by consulting firm RCLCO in 2011 used historical data and econometric models to assess the financial impact low lake levels or poor water quality have on the region. This study established a baseline to measure the fiscal and economic impacts associated with Lake Travis in 2010, and found that a full Lake Travis generates revenues from property, sales, hotel and mixed beverage taxes that buys ambulances, maintains schools and provides state government with needed funding.

Some key data defining the 2010 baseline of the Lake Travis economic engine include:

- $207.2 million in revenue for state and local governments from property taxes ($158.4 million), sales taxes ($45.2 million), hotel occupancy and mixed beverage taxes;
- $8.4 billion in assessed property value ($4.353 billion in lake-related homes and land property value in 2010 from Travis County Appraisal District);
- $3.6 million in hotel and mixed beverage taxes;
- 3,900 commercial businesses in study area, which contribute $45.2 million in sales taxes; and
- Lake related activity in 2010 base case:
    - Total visitor-related spending creates 1,607 jobs, $34.6 million in direct wages, and $90.5 million in value added to the local economy; and
    - Boat sales spending creates 309 jobs, $12.2 million in direct wages and $22.1 million in total value added to the economy.

The study found that adverse economic impacts begin when lake levels remain below 660 feet, and significant economic impacts occur when lake levels fall below 650 feet. Some specific effects that the study predicted include:

- 350,000 – 375,000 fewer park visits;
- 29 lost jobs for each 10% drop in park visits;
- $23.6 million to $38.8 million reductions in visitor spending; and
- Up to 241 lost jobs and $6.1 million in lost wages.

The study also found significant annual fiscal impacts could occur, including:

- $21.9 million in total fiscal revenues lost versus the 2010 base case; and
- $1.7 million lost sales tax revenues.

As a result of the extended severe drought that began in 2008 and large interruptible water releases under the Water Management Plan during the severe drought in 2011, Lake Travis lake levels fell to the 620-630 foot elevation and remained there from 2011 until May of 2015. As a result, many of the predicted impacts became reality. Public access to Lake Travis was severely impaired below 630 feet, and the lake also became much more dangerous to navigate as the lake levels fell. With loss of access, tourism greatly declined and many lake-related businesses and restaurants closed, and continue to close, including high-profile ones that have been in business for many years. Marina businesses struggled, as occupancy rates and jobs declined by 35-40%, and profitability was severely impacted.

Low lake levels also impacted the real estate sector of the economy. While the Austin metropolitan area enjoyed significant growth and increased property values, lake-related property values greatly suffered, both with homes and unimproved land values. The following results have been compiled by the real estate industry for the 2009-2014 timeframe:

- Median sales price decline of waterfront/view homes down 29.5% since 2011
- $/sq. ft. average price decline 33.9% since 2009
- Median undeveloped waterfront/view land price down 36.8% since 2009
- Real estate inventory levels are a very strong indicator of the health of a real estate market. While the residential market across the 5-county Austin metropolitan area had less than three months' supply as of December 2014, active listing inventory for homes with Lake Travis frontage will last more than two years at the Dec. 2014 pace of sales.

These declines in water-related home and land values have a significant aggregate effect, both on the homeowners and on the taxing districts that rely on property taxes. According to data provided by the Travis County Appraisal District, waterfront market values on Lake Travis were about $2.428 billion in 2010, and related subdivisions that were not waterfront accounted for about $1.925 billion in market values, or a total of $4.353 billion. Based on analysis from real estate sales data, property value declines since 2010 are in the 10-30%+ range, and as such, the total impact on lake-related properties on Lake Travis in Travis County could be in the $400 million to over $1 billion range, as of the end of 2014.

At the same time, a real estate analysis of the Austin metropolitan area shows that it has enjoyed about 40% appreciation in residential values and 50% in lot values over the past six years, in stark contrast to property with Lake Travis views and/or frontage, which have actually lost approximately 10-30% in value since 2010. As such, property tax appraisals from TCAD have not increased and the associated tax base has lost tax receipts that could have occurred on a lost potential basis, had these lake-related properties appreciated in a similar manner as the rest of the Austin area. By again utilizing the 2010 appraised value for these lake-related properties of $4.353 billion, this likely represents as much as another $1.5 to 2 billion in lost taxable appreciation values on lake-related properties, and the associated loss in tax base revenues. Combining both the loss in value and the lack of appreciation on these lake-related properties creates a total adverse property value estimated impact from very low lake levels of $2-3 billion, and the associated loss of annual property tax revenues that support schools and county services. Given the very strong and on-going population growth in the area, and the magnitude of the lost tax revenues from lake-related properties, the shortfalls will likely have to be borne by the rest of the taxpayers to meet required service needs.

Upper Highland Lakes and Burnet and Llano Counties

Located along the Colorado River, both Burnet and Llano counties have strong agricultural and ranching sectors combined with tourists seeking water-related recreational opportunities. The tourism sector is the largest employer in the region with visitors spending millions of dollars each year at hotels, restaurants, and shops. In addition, the price premium waterfront properties command creates local property tax revenue. However, in 2014, responding to the multiple years of low lake levels in Lake Buchanan and its negative impact on property values, the Burnet

County Appraisal District took action to reduce the market value of properties on Lake Buchanan by approximately $33,000,000 [Source: Chief Appraiser, Burnet County Appraisal District; March 2015].

In 2011, in a joint effort to measure the contribution of the upper Highland Lakes to the regional and state economies, Burnet and Llano Counties retained a project team to perform an economic impact analysis. The project team of TXP, Inc., Concept Development and Planning, LLC, and Diverse Planning and Development conducted the assessment for Burnet and Llano Counties that was completed in the fall of 2012. The study area for the project included Burnet and Llano Counties as well as the properties at nearby Lake Buchanan, Inks Lake, Lake LBJ, Lake Marble Falls, and Lake Travis (only the portion in Burnet County).

Over the past two decades, communities adjacent to the lakes have been the fastest growing in the two-county area. Since 2000, the majority of new homes built in the Upper Highland Lakes Region have been lake-adjacent. Nearly three-quarters of all homes built in the two counties in the past decade were within two miles of the lakes. Hotel occupancy tax revenue generated by properties in the Upper Highland Lakes Region has more than doubled since 2000. Over 81.1 percent of Burnet and Llano Counties' accommodation and lodging businesses are within two miles of the lakes.

In 2011, direct spending by all visitors to Burnet and Llano Counties resulted in the following:

- $161.3 million in direct economic activity;
- $58.9 million in earnings for employees and business owners;
- 3,125 jobs (or 25.9 percent of total regional employment);
- $3.46 million in local tax revenue excluding property taxes; and
- $9.2 million in state tax revenue.

Economic Activity & Tax Revenue Attributable to the Upper Highland Lakes

In the Upper Highland Lakes Region, the properties around the lakes are among the most valuable in the area. Lake-related properties in this region account for just 1.9 percent of the geographic area of the counties, but a disproportionately large 46.7 percent of their total taxable value. The average taxable value of a home on the lakes is substantially greater than the countywide averages – ranging from approximately 70 percent higher around Lake Buchanan to more than 3.5 times the average home price in Burnet and Llano Counties around Lake LBJ and Lake Marble Falls.

The proportion of taxable hotel room revenue attributable to lake-related hotel properties is approximately 75 percent of total Upper Highland Lakes Region hotel sector activity. Lake-related hotel activity generates about $1 million in tax revenues for the State of Texas each year.

In 2011, direct purchases (based on room capacity and hotel occupancy tax receipts) by lake-related visitors to Burnet and Llano Counties resulted in the following:

- $122.5 million in direct economic activity;
- $45.3 million in earnings for employees and businesses owners;
- 2,454 jobs;
- $2.6 million in local tax revenue excluding property taxes; and
- $7.0 million in state tax revenue.

The total economic impact in 2011 of lake-related visitor spending in the Upper Highland Lakes, including indirect positive effects on support services and businesses, were described as follows:

- $185.5 million in total economic activity;
- $81.7 million in earnings for employees and businesses owners; and
- 3,648 jobs.

Long-term Low Lake Level Implications for the Upper Highland Lakes Region

Some of the key findings from the study include:

- The Highland Lakes community's overwhelming concern is that overall economic activity in the region will not return to its pre-drought growth rate because of the prolonged low lake levels.
- Low lake levels could adversely impact development of 5,799 undeveloped, lake-related acres, with an additional 1,180 underdeveloped acres that have a potential taxable property value of $1.4 billion around the lakes. Low lake levels correspond to a significant decline in tourism and visitor spending, with the decline increasing as levels further decline.

Since the drought began in 2008, Lake Buchanan has primarily been at levels below the conservation level of 1,020 feet above msl. The situation worsened significantly in the summer of 2011, when lake levels fell below 995 feet. At these low levels, lake access was very restricted and public boat ramps were closed, and tourism around the lake was adversely impacted. Numerous tourism-related businesses suffered or closed, such as restaurants, grocery stores and resorts, and associated job losses have been significant. For example, at the time of the study, charter fishing trips were down over 80%.

APPENDIX 1C

TWDB DB17 REPORTS

Water User Group (WUG) Category Summary

REGION K	2020	2030	2040	2050	2060	2070
MUNICIPAL						
POPULATION	1,514,759	1,824,168	2,130,512	2,395,084	2,656,986	2,961,084
DEMANDS (acre-feet per year)	276,690	327,589	379,309	424,868	470,315	522,746
EXISTING SUPPLIES (acre-feet per year)	405,910	393,647	380,645	373,001	364,946	354,801
NEEDS (acre-feet per year)*	(7,111)	(27,130)	(44,014)	(63,984)	(115,080)	(175,892)
COUNTY-OTHER						
POPULATION	222,468	240,354	251,437	263,408	271,414	282,043
DEMANDS (acre-feet per year)	29,870	31,605	32,452	33,720	34,694	36,203
EXISTING SUPPLIES (acre-feet per year)	52,051	52,776	52,649	52,541	52,367	52,521
NEEDS (acre-feet per year)*	(770)	(1,046)	(1,869)	(3,375)	(4,808)	(6,281)
MANUFACTURING						
DEMANDS (acre-feet per year)	56,019	70,050	86,259	96,283	106,487	117,851
EXISTING SUPPLIES (acre-feet per year)	61,383	74,303	89,451	98,584	107,374	117,223
NEEDS (acre-feet per year)*	(570)	(692)	(810)	(913)	(1,059)	(1,216)
MINING						
DEMANDS (acre-feet per year)	20,848	26,104	27,991	29,757	31,893	34,961
EXISTING SUPPLIES (acre-feet per year)	17,428	18,263	19,159	19,992	20,916	21,974
NEEDS (acre-feet per year)*	(4,260)	(8,618)	(9,747)	(10,719)	(12,153)	(14,164)
STEAM ELECTRIC POWER						
DEMANDS (acre-feet per year)	178,453	185,235	187,410	194,802	200,413	207,319
EXISTING SUPPLIES (acre-feet per year)	168,968	168,954	168,930	164,731	158,201	152,692
NEEDS (acre-feet per year)*	(25,363)	(26,751)	(26,775)	(31,974)	(42,212)	(54,627)
LIVESTOCK						
DEMANDS (acre-feet per year)	14,012	14,012	14,012	14,012	14,012	14,012
EXISTING SUPPLIES (acre-feet per year)	16,232	16,232	16,232	16,232	16,232	16,232
NEEDS (acre-feet per year)*	0	0	0	0	0	0
IRRIGATION						
DEMANDS (acre-feet per year)	607,433	590,740	574,530	558,789	543,507	528,715
EXISTING SUPPLIES (acre-feet per year)	276,895	276,785	276,692	276,608	276,535	276,486
NEEDS (acre-feet per year)*	(335,489)	(319,584)	(304,106)	(289,044)	(274,387)	(260,124)
REGION TOTALS						
POPULATION	1,737,227	2,064,522	2,381,949	2,658,492	2,928,400	3,243,127
DEMANDS (acre-feet per year)	1,183,325	1,245,335	1,301,963	1,352,231	1,401,321	1,461,807
EXISTING SUPPLIES (acre-feet per year)	998,867	1,000,960	1,003,758	1,001,689	996,571	991,929
NEEDS (acre-feet per year)*	(373,563)	(383,821)	(387,321)	(400,009)	(449,699)	(512,304)

*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Category Summary report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

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Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
AQUA WSC	551	724	949	1,255	1,667	2,216
LEE COUNTY WSC	342	450	590	780	1,037	1,378
COUNTY-OTHER	128	169	222	293	389	516
BRAZOS BASIN TOTAL POPULATION	**1,021**	**1,343**	**1,761**	**2,328**	**3,093**	**4,110**
COLORADO BASIN						
AQUA WSC	55,253	72,656	95,275	125,920	167,313	222,345
BASTROP	9,653	13,088	17,553	23,603	31,775	42,640
BASTROP COUNTY WCID #2	3,943	5,867	8,368	11,757	16,334	22,420
CREEDMOOR-MAHA WSC	208	262	333	429	559	732
ELGIN	9,247	12,099	15,806	20,828	27,612	36,631
LEE COUNTY WSC	465	611	801	1,059	1,407	1,870
POLONIA WSC	232	296	379	491	643	845
SMITHVILLE	4,913	6,461	8,473	11,198	14,879	19,774
COUNTY-OTHER	9,974	12,180	15,049	18,936	24,183	31,159
COLORADO BASIN TOTAL POPULATION	**93,888**	**123,520**	**162,037**	**214,221**	**284,705**	**378,416**
GUADALUPE BASIN						
AQUA WSC	390	512	672	888	1,180	1,568
COUNTY-OTHER	188	184	178	171	162	150
GUADALUPE BASIN TOTAL POPULATION	**578**	**696**	**850**	**1,059**	**1,342**	**1,718**
BASTROP COUNTY TOTAL POPULATION	**95,487**	**125,559**	**164,648**	**217,608**	**289,140**	**384,244**
BLANCO COUNTY						
COLORADO BASIN						
JOHNSON CITY	2,053	2,441	2,668	2,787	2,867	2,914
COUNTY-OTHER	4,650	5,529	6,045	6,315	6,494	6,600
COLORADO BASIN TOTAL POPULATION	**6,703**	**7,970**	**8,713**	**9,102**	**9,361**	**9,514**
GUADALUPE BASIN						
BLANCO	2,156	2,563	2,802	2,927	3,010	3,060
CANYON LAKE WATER SERVICE COMPANY	1,020	1,213	1,326	1,385	1,424	1,448
COUNTY-OTHER	3,136	3,729	4,076	4,258	4,380	4,450
GUADALUPE BASIN TOTAL POPULATION	**6,312**	**7,505**	**8,204**	**8,570**	**8,814**	**8,958**
BLANCO COUNTY TOTAL POPULATION	**13,015**	**15,475**	**16,917**	**17,672**	**18,175**	**18,472**
BURNET COUNTY						
BRAZOS BASIN						
BERTRAM	1,681	2,034	2,331	2,616	2,866	3,083
BURNET	30	36	41	46	51	55
CHISHOLM TRAIL SUD	372	451	517	580	635	683
KEMPNER WSC	769	930	1,066	1,196	1,311	1,410
COUNTY-OTHER	7,599	9,195	10,542	11,829	12,959	13,939
BRAZOS BASIN TOTAL POPULATION	**10,451**	**12,646**	**14,497**	**16,267**	**17,822**	**19,170**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
BURNET COUNTY						
COLORADO BASIN						
BURNET	7,408	8,964	10,276	11,531	12,633	13,589
COTTONWOOD SHORES	1,395	1,688	1,935	2,171	2,379	2,559
GRANITE SHOALS	6,100	7,381	8,461	9,494	10,402	11,189
HORSESHOE BAY	1,192	1,683	2,097	2,493	2,841	3,142
KINGSLAND WSC	419	508	582	653	716	770
MARBLE FALLS	8,702	12,785	18,509	21,509	23,509	24,509
MEADOWLAKES	2,207	2,671	3,062	3,436	3,764	4,049
COUNTY-OTHER	15,240	15,942	14,254	15,114	16,505	18,449
COLORADO BASIN TOTAL POPULATION	**42,663**	**51,622**	**59,176**	**66,401**	**72,749**	**78,256**
BURNET COUNTY TOTAL POPULATION	**53,114**	**64,268**	**73,673**	**82,668**	**90,571**	**97,426**
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
EAGLE LAKE	1,164	1,215	1,252	1,307	1,353	1,398
COUNTY-OTHER	1,249	1,303	1,344	1,404	1,454	1,501
BRAZOS-COLORADO BASIN TOTAL POPULATION	**2,413**	**2,518**	**2,596**	**2,711**	**2,807**	**2,899**
COLORADO BASIN						
COLUMBUS	3,832	3,999	4,123	4,305	4,457	4,604
EAGLE LAKE	2,652	2,767	2,853	2,979	3,084	3,186
WEIMAR	740	772	796	831	860	889
COUNTY-OTHER	8,107	8,460	8,722	9,106	9,427	9,741
COLORADO BASIN TOTAL POPULATION	**15,331**	**15,998**	**16,494**	**17,221**	**17,828**	**18,420**
LAVACA BASIN						
WEIMAR	1,516	1,582	1,631	1,703	1,763	1,821
COUNTY-OTHER	2,624	2,738	2,823	2,947	3,051	3,153
LAVACA BASIN TOTAL POPULATION	**4,140**	**4,320**	**4,454**	**4,650**	**4,814**	**4,974**
COLORADO COUNTY TOTAL POPULATION	**21,884**	**22,836**	**23,544**	**24,582**	**25,449**	**26,293**
FAYETTE COUNTY						
COLORADO BASIN						
AQUA WSC	24	27	30	31	33	34
FAYETTE WSC	5,174	5,906	6,402	6,811	7,134	7,381
LA GRANGE	5,362	6,120	6,635	7,059	7,393	7,650
LEE COUNTY WSC	1,161	1,325	1,436	1,528	1,601	1,656
COUNTY-OTHER	7,745	8,840	9,584	10,197	10,678	11,049
COLORADO BASIN TOTAL POPULATION	**19,466**	**22,218**	**24,087**	**25,626**	**26,839**	**27,770**
GUADALUPE BASIN						
FAYETTE WSC	335	382	415	441	462	478
FLATONIA	302	345	374	397	416	431
COUNTY-OTHER	335	382	413	441	461	477
GUADALUPE BASIN TOTAL POPULATION	**972**	**1,109**	**1,202**	**1,279**	**1,339**	**1,386**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
FAYETTE COUNTY						
LAVACA BASIN						
FAYETTE WSC	607	692	751	799	836	866
FLATONIA	1,296	1,479	1,603	1,706	1,787	1,848
SCHULENBURG	3,295	3,761	4,077	4,338	4,543	4,701
COUNTY-OTHER	2,737	3,125	3,388	3,603	3,775	3,905
LAVACA BASIN TOTAL POPULATION	**7,935**	**9,057**	**9,819**	**10,446**	**10,941**	**11,320**
FAYETTE COUNTY TOTAL POPULATION	**28,373**	**32,384**	**35,108**	**37,351**	**39,119**	**40,476**
GILLESPIE COUNTY						
COLORADO BASIN						
FREDERICKSBURG	11,318	12,146	12,829	13,630	14,367	15,083
COUNTY-OTHER	14,910	16,095	17,072	18,217	19,270	20,294
COLORADO BASIN TOTAL POPULATION	**26,228**	**28,241**	**29,901**	**31,847**	**33,637**	**35,377**
GUADALUPE BASIN						
COUNTY-OTHER	567	611	647	689	728	765
GUADALUPE BASIN TOTAL POPULATION	**567**	**611**	**647**	**689**	**728**	**765**
GILLESPIE COUNTY TOTAL POPULATION	**26,795**	**28,852**	**30,548**	**32,536**	**34,365**	**36,142**
HAYS COUNTY						
COLORADO BASIN						
AUSTIN	71	760	1,489	3,776	9,100	16,468
BUDA	9,831	14,132	19,369	25,916	33,315	41,735
CIMARRON PARK WATER COMPANY	2,150	2,150	2,150	2,150	2,150	2,150
DRIPPING SPRINGS	2,031	2,311	2,652	3,078	3,560	4,108
DRIPPING SPRINGS WSC	3,037	3,938	5,035	6,407	7,957	9,721
GOFORTH SUD	789	1,246	1,803	2,499	3,285	4,180
MOUNTAIN CITY	490	490	490	490	490	490
PLUM CREEK WATER COMPANY	2,416	3,922	4,208	4,450	4,641	4,791
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	9,514	13,449	18,241	24,231	31,000	38,704
COUNTY-OTHER	25,255	30,845	39,310	48,632	56,509	64,232
COLORADO BASIN TOTAL POPULATION	**55,584**	**73,243**	**94,747**	**121,629**	**152,007**	**186,579**
HAYS COUNTY TOTAL POPULATION	**55,584**	**73,243**	**94,747**	**121,629**	**152,007**	**186,579**
LLANO COUNTY						
COLORADO BASIN						
HORSESHOE BAY	2,958	3,119	3,115	3,061	3,165	3,272
KINGSLAND WSC	8,302	9,581	9,546	9,119	9,938	10,786
LLANO	3,565	3,759	3,754	3,689	3,814	3,943
SUNRISE BEACH VILLAGE	720	724	723	721	723	726
COUNTY-OTHER	5,746	5,270	5,284	5,445	5,139	4,822
COLORADO BASIN TOTAL POPULATION	**21,291**	**22,453**	**22,422**	**22,035**	**22,779**	**23,549**
LLANO COUNTY TOTAL POPULATION	**21,291**	**22,453**	**22,422**	**22,035**	**22,779**	**23,549**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
BAY CITY	18,759	19,746	20,379	20,869	21,216	21,465
COUNTY-OTHER	7,991	8,411	8,681	8,889	9,038	9,143
BRAZOS-COLORADO BASIN TOTAL POPULATION	**26,750**	**28,157**	**29,060**	**29,758**	**30,254**	**30,608**
COLORADO BASIN						
BAY CITY	38	40	41	42	43	43
COUNTY-OTHER	1,636	1,722	1,777	1,820	1,850	1,872
COLORADO BASIN TOTAL POPULATION	**1,674**	**1,762**	**1,818**	**1,862**	**1,893**	**1,915**
COLORADO-LAVACA BASIN						
PALACIOS	5,035	5,300	5,470	5,601	5,695	5,761
COUNTY-OTHER	5,707	6,007	6,200	6,349	6,454	6,531
COLORADO-LAVACA BASIN TOTAL POPULATION	**10,742**	**11,307**	**11,670**	**11,950**	**12,149**	**12,292**
MATAGORDA COUNTY TOTAL POPULATION	**39,166**	**41,226**	**42,548**	**43,570**	**44,296**	**44,815**
MILLS COUNTY						
BRAZOS BASIN						
GOLDTHWAITE	49	50	52	54	56	58
COUNTY-OTHER	1,117	1,155	1,185	1,232	1,279	1,333
BRAZOS BASIN TOTAL POPULATION	**1,166**	**1,205**	**1,237**	**1,286**	**1,335**	**1,391**
COLORADO BASIN						
BROOKESMITH SUD	47	49	50	52	54	56
GOLDTHWAITE	1,820	1,882	1,932	2,008	2,085	2,172
COUNTY-OTHER	1,879	1,940	1,994	2,071	2,151	2,240
COLORADO BASIN TOTAL POPULATION	**3,746**	**3,871**	**3,976**	**4,131**	**4,290**	**4,468**
MILLS COUNTY TOTAL POPULATION	**4,912**	**5,076**	**5,213**	**5,417**	**5,625**	**5,859**
SAN SABA COUNTY						
COLORADO BASIN						
RICHLAND SUD	1,179	1,235	1,242	1,222	1,251	1,280
SAN SABA	3,277	3,433	3,453	3,397	3,477	3,557
COUNTY-OTHER	2,028	2,125	2,138	2,103	2,151	2,202
COLORADO BASIN TOTAL POPULATION	**6,484**	**6,793**	**6,833**	**6,722**	**6,879**	**7,039**
SAN SABA COUNTY TOTAL POPULATION	**6,484**	**6,793**	**6,833**	**6,722**	**6,879**	**7,039**
TRAVIS COUNTY						
COLORADO BASIN						
AQUA WSC	6,628	7,653	8,620	9,702	10,658	11,546
AUSTIN	930,842	1,096,053	1,258,060	1,377,379	1,477,455	1,596,216
BARTON CREEK WEST WSC	1,456	1,456	1,456	1,456	1,456	1,456
BEE CAVE	4,740	5,473	6,165	6,939	7,622	8,258
BRIARCLIFF	1,736	2,005	2,258	2,542	2,792	3,025
CEDAR PARK	9,551	10,188	10,958	10,958	10,958	10,958
CREEDMOOR-MAHA WSC	5,093	5,881	6,624	7,456	8,190	8,873

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY						
COLORADO BASIN						
ELGIN	1,788	2,578	3,323	4,157	4,893	5,578
JONESTOWN	1,987	2,125	2,255	2,400	2,528	2,647
LAGO VISTA	7,580	8,964	10,269	11,730	13,020	14,220
LAKEWAY	19,000	25,000	25,000	25,000	25,000	25,000
LEANDER	9,491	24,827	43,093	46,640	48,403	50,610
LOOP 360 WSC	1,998	2,086	2,169	2,262	2,344	2,420
LOST CREEK MUD	4,369	4,369	4,369	4,369	4,369	4,369
MANOR	8,884	12,343	15,605	19,258	22,482	25,480
MANVILLE WSC	19,152	23,593	27,780	32,469	36,607	40,456
MUSTANG RIDGE	336	353	368	385	400	414
NORTH AUSTIN MUD #1	780	780	780	780	780	780
NORTHTOWN MUD	10,272	11,860	13,359	15,036	16,517	17,894
PFLUGERVILLE	77,054	104,405	130,195	159,073	184,561	208,268
POINT VENTURE	1,181	1,524	1,847	2,209	2,528	2,825
ROLLINGWOOD	1,421	1,429	1,436	1,444	1,451	1,458
ROUND ROCK	1,649	1,907	2,150	2,422	2,662	2,885
SHADY HOLLOW MUD	4,889	4,889	4,889	4,889	4,889	4,889
SUNSET VALLEY	1,134	1,480	1,806	2,171	2,494	2,794
THE HILLS	3,000	3,000	3,000	3,000	3,000	3,000
TRAVIS COUNTY MUD #4	3,113	3,595	4,049	4,557	5,006	5,424
TRAVIS COUNTY WCID #10	6,139	7,088	7,984	8,986	9,871	10,694
TRAVIS COUNTY WCID #17	33,117	39,741	43,715	44,473	45,671	47,125
TRAVIS COUNTY WCID #18	6,657	7,686	8,657	9,745	10,704	11,597
TRAVIS COUNTY WCID #19	716	716	716	716	716	716
TRAVIS COUNTY WCID #20	1,140	1,140	1,140	1,140	1,140	1,140
VOLENTE	677	818	951	1,100	1,232	1,354
WELLS BRANCH MUD	14,989	14,989	14,989	14,989	14,989	14,989
WEST LAKE HILLS	3,699	3,699	3,699	3,699	3,699	3,699
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	5,501	6,352	7,154	8,053	8,846	9,583
WILLIAMSON-TRAVIS COUNTY MUD #1	1,173	1,173	1,173	1,173	1,173	1,173
COUNTY-OTHER	59,713	54,696	49,962	42,096	31,032	21,041
COLORADO BASIN TOTAL POPULATION	**1,272,645**	**1,507,914**	**1,732,023**	**1,896,853**	**2,032,138**	**2,184,854**
GUADALUPE BASIN						
CREEDMOOR-MAHA WSC	240	277	312	351	386	418
GOFORTH SUD	77	89	100	113	124	134
MUSTANG RIDGE	123	128	134	140	146	151
COUNTY-OTHER	175	234	291	312	326	352
GUADALUPE BASIN TOTAL POPULATION	**615**	**728**	**837**	**916**	**982**	**1,055**
TRAVIS COUNTY TOTAL POPULATION	**1,273,260**	**1,508,642**	**1,732,860**	**1,897,769**	**2,033,120**	**2,185,909**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
EAST BERNARD	2,411	2,566	2,690	2,797	2,896	2,983
WHARTON	6,186	6,583	6,900	7,174	7,428	7,652
COUNTY-OTHER	9,329	9,927	10,405	10,820	11,202	11,541
BRAZOS-COLORADO BASIN TOTAL POPULATION	**17,926**	**19,076**	**19,995**	**20,791**	**21,526**	**22,176**
COLORADO BASIN						
EL CAMPO	27	29	30	31	32	33
WHARTON	3,186	3,391	3,554	3,696	3,826	3,942
COUNTY-OTHER	4,471	4,757	4,987	5,186	5,369	5,531
COLORADO BASIN TOTAL POPULATION	**7,684**	**8,177**	**8,571**	**8,913**	**9,227**	**9,506**
COLORADO-LAVACA BASIN						
COUNTY-OTHER	1,434	1,526	1,599	1,663	1,722	1,774
COLORADO-LAVACA BASIN TOTAL POPULATION	**1,434**	**1,526**	**1,599**	**1,663**	**1,722**	**1,774**
LAVACA BASIN						
COUNTY-OTHER	140	149	157	162	168	173
LAVACA BASIN TOTAL POPULATION	**140**	**149**	**157**	**162**	**168**	**173**
WHARTON COUNTY TOTAL POPULATION	**27,184**	**28,928**	**30,322**	**31,529**	**32,643**	**33,629**
WILLIAMSON COUNTY						
BRAZOS BASIN						
AUSTIN	45,505	57,164	70,943	85,781	102,609	121,072
NORTH AUSTIN MUD #1	7,442	7,442	7,442	7,442	7,442	7,442
WELLS BRANCH MUD	1,073	1,073	1,073	1,073	1,073	1,073
COUNTY-OTHER	16,658	23,108	23,108	23,108	23,108	23,108
BRAZOS BASIN TOTAL POPULATION	**70,678**	**88,787**	**102,566**	**117,404**	**134,232**	**152,695**
WILLIAMSON COUNTY TOTAL POPULATION	**70,678**	**88,787**	**102,566**	**117,404**	**134,232**	**152,695**
REGION K TOTAL POPULATION	**1,737,227**	**2,064,522**	**2,381,949**	**2,658,492**	**2,928,400**	**3,243,127**

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
AQUA WSC	90	116	150	197	261	348
LEE COUNTY WSC	44	56	72	94	124	165
COUNTY-OTHER	24	31	40	53	69	91
MINING	173	409	450	496	545	600
LIVESTOCK	94	94	94	94	94	94
IRRIGATION	50	44	38	33	29	26
BRAZOS BASIN TOTAL DEMAND	**475**	**750**	**844**	**967**	**1,122**	**1,324**
COLORADO BASIN						
AQUA WSC	9,073	11,638	15,056	19,779	26,236	34,838
BASTROP	1,957	2,598	3,446	4,612	6,201	8,317
BASTROP COUNTY WCID #2	378	544	765	1,069	1,482	2,033
CREEDMOOR-MAHA WSC	24	28	35	44	57	74
ELGIN	1,298	1,651	2,125	2,782	3,681	4,880
LEE COUNTY WSC	59	75	97	127	169	223
POLONIA WSC	29	36	45	58	75	99
SMITHVILLE	842	1,074	1,385	1,817	2,410	3,201
COUNTY-OTHER	1,814	2,185	2,681	3,360	4,284	5,516
MANUFACTURING	184	216	249	280	303	328
MINING	2,567	6,064	6,673	7,354	8,086	8,896
STEAM ELECTRIC POWER	14,000	16,720	16,720	16,720	16,720	16,720
LIVESTOCK	1,356	1,356	1,356	1,356	1,356	1,356
IRRIGATION	761	663	580	505	439	396
COLORADO BASIN TOTAL DEMAND	**34,342**	**44,848**	**51,213**	**59,863**	**71,499**	**86,877**
GUADALUPE BASIN						
AQUA WSC	65	83	107	140	186	246
COUNTY-OTHER	35	34	32	31	29	27
MANUFACTURING	10	11	13	15	16	17
MINING	144	340	375	413	454	500
LIVESTOCK	72	72	72	72	72	72
IRRIGATION	41	35	31	27	24	21
GUADALUPE BASIN TOTAL DEMAND	**367**	**575**	**630**	**698**	**781**	**883**
BASTROP COUNTY TOTAL DEMAND	**35,184**	**46,173**	**52,687**	**61,528**	**73,402**	**89,084**
BLANCO COUNTY						
COLORADO BASIN						
JOHNSON CITY	354	411	444	461	473	481
COUNTY-OTHER	576	663	712	737	755	768
MANUFACTURING	15	15	15	15	15	15
MINING	5	5	5	5	5	5
LIVESTOCK	435	435	435	435	435	435
IRRIGATION	179	168	157	152	149	143
COLORADO BASIN TOTAL DEMAND	**1,564**	**1,697**	**1,768**	**1,805**	**1,832**	**1,847**
GUADALUPE BASIN						
BLANCO	365	423	456	473	486	494
CANYON LAKE WATER SERVICE COMPANY	128	150	163	169	174	177
COUNTY-OTHER	388	447	479	496	510	518
MANUFACTURING	5	5	5	5	5	5
LIVESTOCK	129	129	129	129	129	129

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BLANCO COUNTY						
GUADALUPE BASIN						
IRRIGATION	77	72	68	65	64	61
GUADALUPE BASIN TOTAL DEMAND	**1,092**	**1,226**	**1,300**	**1,337**	**1,368**	**1,384**
BLANCO COUNTY TOTAL DEMAND	**2,656**	**2,923**	**3,068**	**3,142**	**3,200**	**3,231**
BURNET COUNTY						
BRAZOS BASIN						
BERTRAM	410	488	554	619	677	728
BURNET	8	9	10	12	13	14
CHISHOLM TRAIL SUD	70	83	95	106	116	124
KEMPNER WSC	135	160	181	201	220	237
COUNTY-OTHER	1,166	1,380	1,558	1,736	1,896	2,038
MINING	1,123	1,353	1,595	1,814	2,066	2,353
LIVESTOCK	311	311	311	311	311	311
IRRIGATION	553	553	553	553	553	553
BRAZOS BASIN TOTAL DEMAND	**3,776**	**4,337**	**4,857**	**5,352**	**5,852**	**6,358**
COLORADO BASIN						
BURNET	1,840	2,193	2,492	2,784	3,047	3,277
COTTONWOOD SHORES	227	269	304	339	371	399
GRANITE SHOALS	653	768	868	967	1,056	1,136
HORSESHOE BAY	747	1,049	1,302	1,545	1,760	1,946
KINGSLAND WSC	46	54	62	68	75	80
MARBLE FALLS	2,332	3,369	4,839	5,609	6,127	6,386
MEADOWLAKES	849	1,021	1,167	1,307	1,430	1,538
COUNTY-OTHER	2,340	2,392	2,106	2,217	2,416	2,698
MANUFACTURING	1,109	1,248	1,384	1,502	1,636	1,782
MINING	3,367	4,059	4,784	5,441	6,197	7,059
LIVESTOCK	524	524	524	524	524	524
IRRIGATION	951	951	951	951	951	951
COLORADO BASIN TOTAL DEMAND	**14,985**	**17,897**	**20,783**	**23,254**	**25,590**	**27,776**
BURNET COUNTY TOTAL DEMAND	**18,761**	**22,234**	**25,640**	**28,606**	**31,442**	**34,134**
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
EAGLE LAKE	160	161	161	166	171	177
COUNTY-OTHER	154	155	156	159	165	170
MANUFACTURING	4	4	4	4	5	5
MINING	160	161	163	165	166	168
LIVESTOCK	203	203	203	203	203	203
IRRIGATION	49,525	48,193	46,897	45,635	44,408	43,213
BRAZOS-COLORADO BASIN TOTAL DEMAND	**50,206**	**48,877**	**47,584**	**46,332**	**45,118**	**43,936**
COLORADO BASIN						
COLUMBUS	1,135	1,165	1,186	1,230	1,272	1,313
EAGLE LAKE	363	366	367	377	390	402
WEIMAR	183	187	190	197	203	210
COUNTY-OTHER	998	1,004	1,007	1,035	1,068	1,103
MANUFACTURING	11	12	13	14	15	16
MINING	4,899	4,948	4,998	5,048	5,099	5,149
LIVESTOCK	922	922	922	922	922	922

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
COLORADO COUNTY						
COLORADO BASIN						
IRRIGATION	28,073	27,318	26,583	25,868	25,172	24,495
COLORADO BASIN TOTAL DEMAND	**36,584**	**35,922**	**35,266**	**34,691**	**34,141**	**33,610**
LAVACA BASIN						
WEIMAR	373	382	388	402	416	429
COUNTY-OTHER	323	326	326	336	346	358
MANUFACTURING	368	393	416	435	469	507
MINING	266	269	272	274	277	280
LIVESTOCK	465	465	465	465	465	465
IRRIGATION	88,248	85,874	83,564	81,316	79,129	77,000
LAVACA BASIN TOTAL DEMAND	**90,043**	**87,709**	**85,431**	**83,228**	**81,102**	**79,039**
COLORADO COUNTY TOTAL DEMAND	**176,833**	**172,508**	**168,281**	**164,251**	**160,361**	**156,585**
FAYETTE COUNTY						
COLORADO BASIN						
AQUA WSC	4	5	5	5	6	6
FAYETTE WSC	639	709	755	795	831	860
LA GRANGE	865	959	1,020	1,075	1,123	1,162
LEE COUNTY WSC	148	164	174	184	192	198
COUNTY-OTHER	885	968	1,021	1,070	1,117	1,156
MINING	2,046	1,646	1,187	744	291	284
STEAM ELECTRIC POWER	35,702	35,702	37,802	44,102	48,602	53,402
LIVESTOCK	1,903	1,903	1,903	1,903	1,903	1,903
IRRIGATION	380	355	332	311	292	276
COLORADO BASIN TOTAL DEMAND	**42,572**	**42,411**	**44,199**	**50,189**	**54,357**	**59,247**
GUADALUPE BASIN						
FAYETTE WSC	42	46	49	52	54	56
FLATONIA	64	71	76	80	83	86
COUNTY-OTHER	38	41	43	46	48	50
MINING	126	102	73	45	18	17
LIVESTOCK	108	108	108	108	108	108
IRRIGATION	62	58	55	51	48	45
GUADALUPE BASIN TOTAL DEMAND	**440**	**426**	**404**	**382**	**359**	**362**
LAVACA BASIN						
FAYETTE WSC	76	83	89	94	98	101
FLATONIA	270	301	321	339	356	368
SCHULENBURG	735	821	878	927	970	1,003
COUNTY-OTHER	313	343	361	379	396	409
MANUFACTURING	358	395	431	462	501	543
MINING	354	284	205	129	50	49
LIVESTOCK	386	386	386	386	386	386
IRRIGATION	181	170	158	149	140	132
LAVACA BASIN TOTAL DEMAND	**2,673**	**2,783**	**2,829**	**2,865**	**2,897**	**2,991**
FAYETTE COUNTY TOTAL DEMAND	**45,685**	**45,620**	**47,432**	**53,436**	**57,613**	**62,600**
GILLESPIE COUNTY						
COLORADO BASIN						
FREDERICKSBURG	3,146	3,327	3,476	3,672	3,866	4,058
COUNTY-OTHER	1,756	1,829	1,891	1,990	2,098	2,208
MANUFACTURING	1,049	1,102	1,151	1,192	1,276	1,366

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
GILLESPIE COUNTY						
COLORADO BASIN						
MINING	4	4	4	4	4	4
LIVESTOCK	1,030	1,030	1,030	1,030	1,030	1,030
IRRIGATION	2,058	2,031	2,003	1,978	1,953	1,928
COLORADO BASIN TOTAL DEMAND	**9,043**	**9,323**	**9,555**	**9,866**	**10,227**	**10,594**
GUADALUPE BASIN						
COUNTY-OTHER	67	69	71	75	79	83
LIVESTOCK	32	32	32	32	32	32
GUADALUPE BASIN TOTAL DEMAND	**99**	**101**	**103**	**107**	**111**	**115**
GILLESPIE COUNTY TOTAL DEMAND	**9,142**	**9,424**	**9,658**	**9,973**	**10,338**	**10,709**
HAYS COUNTY						
COLORADO BASIN						
AUSTIN	13	127	249	631	1,519	2,749
BUDA	1,769	2,508	3,420	4,564	5,860	7,338
CIMARRON PARK WATER COMPANY	249	241	234	230	229	229
DRIPPING SPRINGS	479	537	610	704	813	938
DRIPPING SPRINGS WSC	533	680	861	1,091	1,353	1,652
GOFORTH SUD	85	130	185	255	334	425
MOUNTAIN CITY	57	56	54	54	54	54
PLUM CREEK WATER COMPANY	163	264	283	300	312	322
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	4,093	5,758	7,795	10,343	13,226	16,508
COUNTY-OTHER	3,107	3,696	4,620	5,677	6,579	7,472
MANUFACTURING	347	398	449	495	537	583
MINING	845	1,075	1,361	1,445	1,654	1,893
LIVESTOCK	220	220	220	220	220	220
IRRIGATION	107	107	107	107	107	107
COLORADO BASIN TOTAL DEMAND	**12,067**	**15,797**	**20,448**	**26,116**	**32,797**	**40,490**
HAYS COUNTY TOTAL DEMAND	**12,067**	**15,797**	**20,448**	**26,116**	**32,797**	**40,490**
LLANO COUNTY						
COLORADO BASIN						
HORSESHOE BAY	1,854	1,943	1,934	1,897	1,960	2,026
KINGSLAND WSC	906	1,018	1,001	949	1,031	1,118
LLANO	862	892	878	856	884	913
SUNRISE BEACH VILLAGE	74	72	70	68	68	68
COUNTY-OTHER	610	554	553	567	533	500
MANUFACTURING	3	3	3	3	3	3
MINING	3	3	3	3	3	3
STEAM ELECTRIC POWER	2,500	2,500	2,500	2,500	2,500	2,500
LIVESTOCK	751	751	751	751	751	751
IRRIGATION	1,936	1,902	1,870	1,840	1,810	1,781
COLORADO BASIN TOTAL DEMAND	**9,499**	**9,638**	**9,563**	**9,434**	**9,543**	**9,663**
LLANO COUNTY TOTAL DEMAND	**9,499**	**9,638**	**9,563**	**9,434**	**9,543**	**9,663**
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
BAY CITY	2,837	2,889	2,904	2,949	2,990	3,025
COUNTY-OTHER	834	837	832	835	846	856
MANUFACTURING	650	680	707	730	771	814
MINING	53	55	41	30	19	12

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
LIVESTOCK	664	664	664	664	664	664
IRRIGATION	92,540	90,015	87,558	85,167	82,840	80,576
BRAZOS-COLORADO BASIN TOTAL DEMAND	**97,578**	**95,140**	**92,706**	**90,375**	**88,130**	**85,947**
COLORADO BASIN						
BAY CITY	6	6	6	6	7	7
COUNTY-OTHER	171	172	171	172	174	176
MANUFACTURING	15,440	16,141	16,802	17,346	18,304	19,325
MINING	8	9	7	5	3	2
STEAM ELECTRIC POWER	105,000	105,000	105,000	105,000	105,000	105,000
LIVESTOCK	131	131	131	131	131	131
IRRIGATION	13,217	12,856	12,505	12,164	11,832	11,508
COLORADO BASIN TOTAL DEMAND	**133,973**	**134,315**	**134,622**	**134,824**	**135,451**	**136,149**
COLORADO-LAVACA BASIN						
PALACIOS	679	691	694	700	710	718
COUNTY-OTHER	596	598	595	597	605	612
MANUFACTURING	163	170	177	183	192	203
MINING	35	36	27	20	13	8
LIVESTOCK	708	708	708	708	708	708
IRRIGATION	103,330	100,511	97,767	95,097	92,499	89,971
COLORADO-LAVACA BASIN TOTAL DEMAND	**105,511**	**102,714**	**99,968**	**97,305**	**94,727**	**92,220**
MATAGORDA COUNTY TOTAL DEMAND	**337,062**	**332,169**	**327,296**	**322,504**	**318,308**	**314,316**
MILLS COUNTY						
BRAZOS BASIN						
GOLDTHWAITE	10	10	10	10	11	11
COUNTY-OTHER	144	143	142	146	151	157
MINING	2	2	2	2	2	2
LIVESTOCK	321	321	321	321	321	321
IRRIGATION	1,415	1,385	1,355	1,326	1,297	1,270
BRAZOS BASIN TOTAL DEMAND	**1,892**	**1,861**	**1,830**	**1,805**	**1,782**	**1,761**
COLORADO BASIN						
BROOKESMITH SUD	8	8	8	8	8	8
GOLDTHWAITE	351	354	356	367	379	396
COUNTY-OTHER	241	239	237	244	253	263
MANUFACTURING	2	2	2	2	2	2
MINING	2	2	2	2	2	2
LIVESTOCK	623	623	623	623	623	623
IRRIGATION	1,659	1,623	1,588	1,553	1,520	1,489
COLORADO BASIN TOTAL DEMAND	**2,886**	**2,851**	**2,816**	**2,799**	**2,787**	**2,783**
MILLS COUNTY TOTAL DEMAND	**4,778**	**4,712**	**4,646**	**4,604**	**4,569**	**4,544**
SAN SABA COUNTY						
COLORADO BASIN						
RICHLAND SUD	168	172	169	165	168	172
SAN SABA	1,138	1,178	1,174	1,149	1,175	1,202
COUNTY-OTHER	316	320	314	309	315	322
MANUFACTURING	8	8	8	8	8	8
MINING	1,088	1,093	944	900	864	838

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
SAN SABA COUNTY						
COLORADO BASIN						
LIVESTOCK	1,191	1,191	1,191	1,191	1,191	1,191
IRRIGATION	5,539	5,361	5,188	5,018	4,856	4,709
COLORADO BASIN TOTAL DEMAND	**9,448**	**9,323**	**8,988**	**8,740**	**8,577**	**8,442**
SAN SABA COUNTY TOTAL DEMAND	**9,448**	**9,323**	**8,988**	**8,740**	**8,577**	**8,442**
TRAVIS COUNTY						
COLORADO BASIN						
AQUA WSC	1,089	1,226	1,363	1,524	1,672	1,810
AUSTIN	157,445	182,933	209,973	229,887	246,590	266,411
BARTON CREEK WEST WSC	432	427	424	423	422	422
BEE CAVE	1,777	2,043	2,297	2,582	2,834	3,070
BRIARCLIFF	260	295	328	368	403	436
CEDAR PARK	2,432	2,579	2,767	2,763	2,761	2,760
CREEDMOOR-MAHA WSC	565	623	681	756	828	896
ELGIN	251	352	447	556	653	744
JONESTOWN	408	428	448	473	497	521
LAGO VISTA	1,868	2,185	2,488	2,832	3,140	3,428
LAKEWAY	6,977	9,115	9,093	9,081	9,076	9,075
LEANDER	1,134	2,908	5,020	5,422	5,623	5,878
LOOP 360 WSC	1,174	1,220	1,264	1,316	1,363	1,407
LOST CREEK MUD	1,092	1,072	1,057	1,056	1,054	1,054
MANOR	1,141	1,559	1,959	2,410	2,810	3,183
MANVILLE WSC	2,984	3,604	4,201	4,885	5,499	6,074
MUSTANG RIDGE	45	46	47	48	50	51
NORTH AUSTIN MUD #1	82	79	77	75	75	75
NORTHTOWN MUD	691	798	898	1,011	1,111	1,203
PFLUGERVILLE	12,775	17,105	21,243	25,896	30,012	33,851
POINT VENTURE	347	443	534	638	729	815
ROLLINGWOOD	384	379	376	375	376	378
ROUND ROCK	265	301	336	377	414	448
SHADY HOLLOW MUD	779	758	741	731	730	730
SUNSET VALLEY	386	499	606	727	834	934
THE HILLS	1,449	1,444	1,441	1,439	1,438	1,438
TRAVIS COUNTY MUD #4	2,611	3,010	3,387	3,810	4,184	4,533
TRAVIS COUNTY WCID #10	2,128	2,428	2,715	3,044	3,341	3,619
TRAVIS COUNTY WCID #17	8,451	10,053	11,017	11,187	11,479	11,842
TRAVIS COUNTY WCID #18	1,123	1,267	1,407	1,573	1,725	1,867
TRAVIS COUNTY WCID #19	498	496	494	493	493	493
TRAVIS COUNTY WCID #20	590	587	584	583	582	582
VOLENTE	76	89	101	116	130	142
WELLS BRANCH MUD	1,638	1,602	1,577	1,563	1,559	1,558
WEST LAKE HILLS	1,564	1,550	1,539	1,533	1,532	1,532
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	2,367	2,720	3,057	3,438	3,774	4,088
WILLIAMSON-TRAVIS COUNTY MUD #1	153	149	147	147	146	146
COUNTY-OTHER	8,370	7,608	6,925	5,811	4,256	2,879
MANUFACTURING	35,790	48,710	63,858	72,991	81,781	91,630
MINING	3,467	4,067	4,714	5,320	5,986	6,749

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY						
COLORADO BASIN						
STEAM ELECTRIC POWER	18,500	22,500	22,500	23,500	24,500	26,500
LIVESTOCK	680	680	680	680	680	680
IRRIGATION	4,322	3,975	3,657	3,364	3,097	2,885
COLORADO BASIN TOTAL DEMAND	**290,560**	**345,912**	**398,468**	**436,804**	**470,239**	**508,817**
GUADALUPE BASIN						
CREEDMOOR-MAHA WSC	27	30	33	36	40	43
GOFORTH SUD	9	10	11	12	13	14
MUSTANG RIDGE	17	17	17	18	19	20
COUNTY-OTHER	25	33	41	44	45	49
MINING	35	41	48	54	60	68
LIVESTOCK	24	24	24	24	24	24
GUADALUPE BASIN TOTAL DEMAND	**137**	**155**	**174**	**188**	**201**	**218**
TRAVIS COUNTY TOTAL DEMAND	**290,697**	**346,067**	**398,642**	**436,992**	**470,440**	**509,035**
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
EAST BERNARD	380	395	406	418	432	445
WHARTON	1,103	1,140	1,169	1,205	1,246	1,283
COUNTY-OTHER	1,209	1,234	1,255	1,301	1,345	1,384
MANUFACTURING	503	537	572	601	648	699
MINING	39	41	30	23	14	9
STEAM ELECTRIC POWER	351	413	488	580	691	797
LIVESTOCK	371	371	371	371	371	371
IRRIGATION	114,604	111,520	108,521	105,602	102,761	99,997
BRAZOS-COLORADO BASIN TOTAL DEMAND	**118,560**	**115,651**	**112,812**	**110,101**	**107,508**	**104,985**
COLORADO BASIN						
EL CAMPO	6	6	6	6	6	6
WHARTON	568	588	603	622	642	661
COUNTY-OTHER	580	592	603	625	645	665
MINING	26	27	20	15	10	6
STEAM ELECTRIC POWER	2,400	2,400	2,400	2,400	2,400	2,400
LIVESTOCK	277	277	277	277	277	277
IRRIGATION	61,546	59,891	58,280	56,712	55,186	53,702
COLORADO BASIN TOTAL DEMAND	**65,403**	**63,781**	**62,189**	**60,657**	**59,166**	**57,717**
COLORADO-LAVACA BASIN						
COUNTY-OTHER	186	190	194	201	207	213
MINING	6	6	5	3	2	2
LIVESTOCK	80	80	80	80	80	80
IRRIGATION	36,079	35,109	34,164	33,245	32,351	31,480
COLORADO-LAVACA BASIN TOTAL DEMAND	**36,351**	**35,385**	**34,443**	**33,529**	**32,640**	**31,775**
LAVACA BASIN						
COUNTY-OTHER	18	18	19	20	20	21
LAVACA BASIN TOTAL DEMAND	**18**	**18**	**19**	**20**	**20**	**21**
WHARTON COUNTY TOTAL DEMAND	**220,332**	**214,835**	**209,463**	**204,307**	**199,334**	**194,498**
WILLIAMSON COUNTY						
BRAZOS BASIN						
AUSTIN	7,697	9,541	11,841	14,317	17,126	20,208

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
WILLIAMSON COUNTY						
BRAZOS BASIN						
NORTH AUSTIN MUD #1	774	748	726	714	711	711
WELLS BRANCH MUD	118	115	113	112	112	112
COUNTY-OTHER	2,586	3,504	3,467	3,451	3,444	3,441
MINING	5	3	3	3	3	3
LIVESTOCK	1	1	1	1	1	1
BRAZOS BASIN TOTAL DEMAND	**11,181**	**13,912**	**16,151**	**18,598**	**21,397**	**24,476**
WILLIAMSON COUNTY TOTAL DEMAND	**11,181**	**13,912**	**16,151**	**18,598**	**21,397**	**24,476**
REGION K TOTAL DEMAND	**1,183,325**	**1,245,335**	**1,301,963**	**1,352,231**	**1,401,321**	**1,461,807**

Source Availability

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
CARRIZO-WILCOX AQUIFER	BASTROP	BRAZOS	FRESH	4,864	4,013	4,497	4,293	4,372	4,372
CARRIZO-WILCOX AQUIFER	BASTROP	COLORADO	FRESH	15,109	16,647	19,641	22,360	22,734	22,734
CARRIZO-WILCOX AQUIFER	BASTROP	GUADALUPE	FRESH	6	6	695	1,365	1,392	1,392
CARRIZO-WILCOX AQUIFER	FAYETTE	COLORADO	FRESH	683	683	683	683	683	683
CARRIZO-WILCOX AQUIFER	FAYETTE	GUADALUPE	FRESH	317	317	317	317	317	317
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	FRESH	2,292	2,292	2,292	2,292	2,292	2,292
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	SALINE	9	9	9	9	9	9
EDWARDS-BFZ AQUIFER	TRAVIS	BRAZOS	FRESH	275	275	275	275	275	275
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH	6,128	6,128	6,128	6,128	6,128	6,128
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	SALINE	699	699	699	699	699	699
EDWARDS-BFZ AQUIFER	TRAVIS	GUADALUPE	SALINE	39	39	39	39	39	39
EDWARDS-BFZ AQUIFER	WILLIAMSON	BRAZOS	FRESH	6	6	6	6	6	6
EDWARDS-BFZ AQUIFER	WILLIAMSON	COLORADO	FRESH	4	4	4	4	4	4
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	COLORADO	FRESH	2,378	2,378	2,378	2,378	2,378	2,378
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	GUADALUPE	FRESH	136	136	136	136	136	136
ELLENBURGER-SAN SABA AQUIFER	BLANCO	COLORADO	FRESH	2,655	2,655	2,655	2,655	2,655	2,655
ELLENBURGER-SAN SABA AQUIFER	BLANCO	GUADALUPE	FRESH	6	6	6	6	6	6
ELLENBURGER-SAN SABA AQUIFER	BURNET	BRAZOS	FRESH	123	123	123	123	123	123
ELLENBURGER-SAN SABA AQUIFER	BURNET	COLORADO	FRESH	5,403	5,403	5,403	5,403	5,403	5,403
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	COLORADO	FRESH	6,270	6,270	6,270	6,270	6,270	6,270
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	GUADALUPE	FRESH	1	1	1	1	1	1
ELLENBURGER-SAN SABA AQUIFER	LLANO	COLORADO	FRESH	2,057	2,057	2,057	2,057	2,057	2,057
ELLENBURGER-SAN SABA AQUIFER	MILLS	BRAZOS	FRESH	5	5	5	5	5	5
ELLENBURGER-SAN SABA AQUIFER	MILLS	COLORADO	FRESH	494	494	494	494	494	494
ELLENBURGER-SAN SABA AQUIFER	SAN SABA	COLORADO	FRESH	10,893	10,893	10,893	10,893	10,893	10,893
GULF COAST AQUIFER	COLORADO	BRAZOS-COLORADO	FRESH	10,464	10,464	10,464	10,464	10,464	10,464
GULF COAST AQUIFER	COLORADO	COLORADO	FRESH	16,058	16,058	16,058	16,058	16,058	16,058
GULF COAST AQUIFER	COLORADO	LAVACA	FRESH	22,431	22,431	22,431	22,431	22,431	22,431
GULF COAST AQUIFER	FAYETTE	BRAZOS	FRESH	17	17	17	17	17	17
GULF COAST AQUIFER	FAYETTE	COLORADO	FRESH	6,123	5,961	5,956	5,952	5,924	5,924
GULF COAST AQUIFER	FAYETTE	LAVACA	FRESH	2,933	2,927	2,922	2,917	2,915	2,915
GULF COAST AQUIFER	MATAGORDA	BRAZOS-COLORADO	FRESH	23,055	23,055	23,055	23,055	23,055	23,055
GULF COAST AQUIFER	MATAGORDA	COLORADO	FRESH	4,179	4,179	4,179	4,179	4,179	4,179

Source Availability

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
GULF COAST AQUIFER	MATAGORDA	COLORADO-LAVACA	FRESH	18,662	18,662	18,662	18,662	18,662	18,662
GULF COAST AQUIFER	WHARTON	BRAZOS-COLORADO	FRESH	34,020	34,020	34,020	34,020	34,020	34,020
GULF COAST AQUIFER	WHARTON	COLORADO	FRESH	31,406	31,406	31,406	31,406	31,406	31,406
GULF COAST AQUIFER	WHARTON	COLORADO-LAVACA	FRESH	11,624	11,624	11,624	11,624	11,624	11,624
GULF COAST AQUIFER	WHARTON	LAVACA	FRESH	1,690	1,690	1,690	1,690	1,690	1,690
HICKORY AQUIFER	BLANCO	COLORADO	FRESH	1,162	1,162	1,162	1,162	1,162	1,162
HICKORY AQUIFER	BLANCO	GUADALUPE	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	BURNET	COLORADO	FRESH	2,148	2,148	2,148	2,148	2,148	2,148
HICKORY AQUIFER	GILLESPIE	COLORADO	FRESH	1,659	1,659	1,659	1,659	1,659	1,659
HICKORY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	LLANO	COLORADO	FRESH	2,018	2,018	2,018	2,018	2,018	2,018
HICKORY AQUIFER	MILLS	BRAZOS	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	MILLS	COLORADO	FRESH	35	35	35	35	35	35
HICKORY AQUIFER	SAN SABA	COLORADO	FRESH	1,479	1,479	1,479	1,479	1,479	1,479
HICKORY AQUIFER	TRAVIS	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	TRAVIS	COLORADO	FRESH	22	22	22	22	22	22
MARBLE FALLS AQUIFER	BLANCO	COLORADO	FRESH	261	261	261	261	261	261
MARBLE FALLS AQUIFER	BURNET	BRAZOS	FRESH	93	93	93	93	93	93
MARBLE FALLS AQUIFER	BURNET	COLORADO	FRESH	1,885	1,885	1,885	1,885	1,885	1,885
MARBLE FALLS AQUIFER	SAN SABA	COLORADO	FRESH	11,063	11,063	11,063	11,063	11,063	11,063
OTHER AQUIFER	BURNET	BRAZOS	FRESH	2,053	2,053	2,053	2,053	2,053	2,053
OTHER AQUIFER	TRAVIS	GUADALUPE	FRESH	112	112	112	112	112	112
OTHER AQUIFER | ALLUVIUM	BURNET	COLORADO	FRESH	3,672	3,672	3,672	3,672	3,672	3,672
OTHER AQUIFER | ALLUVIUM	LLANO	COLORADO	FRESH	629	629	629	629	629	629
OTHER AQUIFER | CITY OF BASTROP	BASTROP	COLORADO	FRESH	5,340	5,340	5,340	5,340	5,340	5,340
OTHER AQUIFER | COUNTY-OTHER, IRRIGATION	TRAVIS	COLORADO	FRESH	1,453	1,453	1,453	1,453	1,453	1,453
OTHER AQUIFER | FAYETTE WSC, COUNTY-OTHER	FAYETTE	COLORADO	FRESH	834	834	834	834	834	834
QUEEN CITY AQUIFER	BASTROP	BRAZOS	FRESH	244	598	219	216	216	216
QUEEN CITY AQUIFER	BASTROP	COLORADO	FRESH	659	1,626	599	591	590	590
QUEEN CITY AQUIFER	BASTROP	GUADALUPE	FRESH	192	541	213	216	216	216
QUEEN CITY AQUIFER	FAYETTE	COLORADO	FRESH	436	478	513	565	570	570
QUEEN CITY AQUIFER	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	BASTROP	BRAZOS	FRESH	65	170	58	55	55	55
SPARTA AQUIFER	BASTROP	COLORADO	FRESH	1,761	4,606	1,538	1,460	1,453	1,453
SPARTA AQUIFER	BASTROP	GUADALUPE	FRESH	87	228	79	76	75	75
SPARTA AQUIFER	FAYETTE	COLORADO	FRESH	3,161	3,206	3,226	3,278	3,294	3,294

Source Availability

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
SPARTA AQUIFER	FAYETTE	GUADALUPE	FRESH	431	431	430	433	435	435
TRINITY AQUIFER	BLANCO	COLORADO	FRESH	1,322	1,322	1,322	1,322	1,322	1,322
TRINITY AQUIFER	BLANCO	GUADALUPE	FRESH	1,251	1,251	1,251	1,251	1,251	1,251
TRINITY AQUIFER	BURNET	BRAZOS	FRESH	2,723	2,723	2,723	2,723	2,723	2,723
TRINITY AQUIFER	BURNET	COLORADO	FRESH	823	823	823	823	823	823
TRINITY AQUIFER	GILLESPIE	COLORADO	FRESH	2,482	2,482	2,482	2,482	2,482	2,482
TRINITY AQUIFER	GILLESPIE	GUADALUPE	FRESH	46	46	46	46	46	46
TRINITY AQUIFER	HAYS	COLORADO	FRESH	5,665	5,662	5,661	5,661	5,661	5,661
TRINITY AQUIFER	MILLS	BRAZOS	FRESH	1,273	1,273	1,273	1,273	1,273	1,273
TRINITY AQUIFER	MILLS	COLORADO	FRESH	1,128	1,128	1,128	1,128	1,128	1,128
TRINITY AQUIFER	TRAVIS	BRAZOS	FRESH	8	8	8	8	8	8
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH	13,188	13,171	13,159	13,143	13,114	13,114
TRINITY AQUIFER	TRAVIS	GUADALUPE	FRESH	7	7	7	7	7	7
TRINITY AQUIFER	WILLIAMSON	BRAZOS	FRESH	157	157	157	157	157	157
TRINITY AQUIFER	WILLIAMSON	COLORADO	FRESH	61	61	61	61	61	61
YEGUA-JACKSON AQUIFER	FAYETTE	COLORADO	FRESH	5,065	5,065	5,065	5,065	5,065	5,065
YEGUA-JACKSON AQUIFER	FAYETTE	GUADALUPE	FRESH	650	650	650	650	650	650
YEGUA-JACKSON AQUIFER	FAYETTE	LAVACA	FRESH	47	47	47	47	47	47
GROUNDWATER TOTAL SOURCE AVAILABILITY				**322,366**	**327,713**	**326,848**	**330,023**	**330,458**	**330,458**

REGION K

REUSE	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
DIRECT REUSE	LLANO	COLORADO	FRESH	516	516	516	516	516	516
DIRECT REUSE	TRAVIS	COLORADO	FRESH	19,500	33,457	45,648	55,598	60,848	60,848
DIRECT REUSE | CITY OF BUDA WWTP/SUNFIELD SUBDIVISION	HAYS	COLORADO	FRESH	2,240	2,240	2,240	2,240	2,240	2,240
DIRECT REUSE | CITY OF MARBLE FALLS WWTP/ CITY PARKS ; CITY OF BURNET WWTP/ REC CENTER	BURNET	COLORADO	FRESH	1,270	1,270	1,270	1,270	1,270	1,270
REUSE TOTAL SOURCE AVAILABILITY				**23,526**	**37,483**	**49,674**	**59,624**	**64,874**	**64,874**

REGION K

SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BLANCO LAKE/RESERVOIR	RESERVOIR	GUADALUPE	FRESH	596	596	596	596	596	596
BRAZOS LIVESTOCK LOCAL SUPPLY	BASTROP	BRAZOS	FRESH	94	94	94	94	94	94
BRAZOS LIVESTOCK LOCAL SUPPLY	BURNET	BRAZOS	FRESH	311	311	311	311	311	311
BRAZOS LIVESTOCK LOCAL SUPPLY	MILLS	BRAZOS	FRESH	321	321	321	321	321	321

Source Availability

REGION K

SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
				2020	2030	2040	2050	2060	2070
BRAZOS LIVESTOCK LOCAL SUPPLY	WILLIAMSON	BRAZOS	FRESH	1	1	1	1	1	1
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	BRAZOS-COLORADO	FRESH	203	203	203	203	203	203
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	BRAZOS-COLORADO	FRESH	664	664	664	664	664	664
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	371	371	371	371	371	371
BRAZOS-COLORADO OTHER LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	1,900	1,900	1,900	1,900	1,900	1,900
BRAZOS-COLORADO RUN-OF-RIVER	MATAGORDA	BRAZOS-COLORADO	FRESH	4,000	4,000	4,000	4,000	4,000	4,000
BRAZOS-COLORADO RUN-OF-RIVER	WHARTON	BRAZOS-COLORADO	FRESH	2,000	2,000	2,000	2,000	2,000	2,000
BRAZOS-COLORADO RUN-OF-RIVER | SAN BERNARD	WHARTON	BRAZOS-COLORADO	FRESH	597	597	597	597	597	597
COLORADO LIVESTOCK LOCAL SUPPLY	BASTROP	COLORADO	FRESH	1,356	1,356	1,356	1,356	1,356	1,356
COLORADO LIVESTOCK LOCAL SUPPLY	BLANCO	COLORADO	FRESH	435	435	435	435	435	435
COLORADO LIVESTOCK LOCAL SUPPLY	BURNET	COLORADO	FRESH	524	524	524	524	524	524
COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	COLORADO	FRESH	922	922	922	922	922	922
COLORADO LIVESTOCK LOCAL SUPPLY	FAYETTE	COLORADO	FRESH	1,903	1,903	1,903	1,903	1,903	1,903
COLORADO LIVESTOCK LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	1,030	1,030	1,030	1,030	1,030	1,030
COLORADO LIVESTOCK LOCAL SUPPLY	HAYS	COLORADO	FRESH	220	220	220	220	220	220
COLORADO LIVESTOCK LOCAL SUPPLY	LLANO	COLORADO	FRESH	751	751	751	751	751	751
COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	131	131	131	131	131	131
COLORADO LIVESTOCK LOCAL SUPPLY	MILLS	COLORADO	FRESH	623	623	623	623	623	623
COLORADO LIVESTOCK LOCAL SUPPLY	SAN SABA	COLORADO	FRESH	1,191	1,191	1,191	1,191	1,191	1,191
COLORADO LIVESTOCK LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	680	680	680	680	680	680
COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO	FRESH	277	277	277	277	277	277
COLORADO OTHER LOCAL SUPPLY	BASTROP	COLORADO	FRESH	58	58	58	58	58	58
COLORADO OTHER LOCAL SUPPLY	BLANCO	COLORADO	FRESH	57	57	57	57	57	57
COLORADO OTHER LOCAL SUPPLY	COLORADO	COLORADO	FRESH	16,883	16,883	16,883	16,883	16,883	16,883
COLORADO OTHER LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	158	158	158	158	158	158
COLORADO OTHER LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	5,000	5,000	5,000	5,000	5,000	5,000
COLORADO OTHER LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	7,070	7,070	7,070	7,070	7,070	7,070

Source Availability

REGION K									
SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
				2020	2030	2040	2050	2060	2070
COLORADO RUN-OF-RIVER	BASTROP	COLORADO	FRESH	786	786	786	786	786	786
COLORADO RUN-OF-RIVER	BLANCO	COLORADO	FRESH	67	67	67	67	67	67
COLORADO RUN-OF-RIVER	BURNET	COLORADO	FRESH	3,521	3,521	3,521	3,521	3,521	3,521
COLORADO RUN-OF-RIVER	COLORADO	COLORADO	FRESH	132,514	132,514	132,514	132,514	132,514	132,514
COLORADO RUN-OF-RIVER	FAYETTE	COLORADO	FRESH	534	534	534	534	534	534
COLORADO RUN-OF-RIVER	GILLESPIE	COLORADO	FRESH	880	880	880	880	880	880
COLORADO RUN-OF-RIVER	HAYS	COLORADO	FRESH	41	41	41	41	41	41
COLORADO RUN-OF-RIVER	LLANO	COLORADO	FRESH	440	440	440	440	440	440
COLORADO RUN-OF-RIVER	MATAGORDA	COLORADO	FRESH	93,821	93,821	93,821	93,821	93,821	93,821
COLORADO RUN-OF-RIVER	MILLS	COLORADO	FRESH	2,378	2,378	2,378	2,378	2,378	2,378
COLORADO RUN-OF-RIVER	SAN SABA	COLORADO	FRESH	8,800	8,800	8,800	8,800	8,800	8,800
COLORADO RUN-OF-RIVER	TRAVIS	COLORADO	FRESH	207,971	207,971	207,971	207,971	207,984	208,038
COLORADO RUN-OF-RIVER	WHARTON	COLORADO	FRESH	10,562	10,562	10,562	10,562	10,562	10,562
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO-LAVACA	FRESH	708	708	708	708	708	708
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO-LAVACA	FRESH	80	80	80	80	80	80
COLORADO-LAVACA RUN-OF-RIVER	MATAGORDA	COLORADO-LAVACA	FRESH	4,000	4,000	4,000	4,000	4,000	4,000
GOLDTHWAITE LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	BASTROP	GUADALUPE	FRESH	72	72	72	72	72	72
GUADALUPE LIVESTOCK LOCAL SUPPLY	BLANCO	GUADALUPE	FRESH	129	129	129	129	129	129
GUADALUPE LIVESTOCK LOCAL SUPPLY	FAYETTE	GUADALUPE	FRESH	108	108	108	108	108	108
GUADALUPE LIVESTOCK LOCAL SUPPLY	GILLESPIE	GUADALUPE	FRESH	32	32	32	32	32	32
GUADALUPE LIVESTOCK LOCAL SUPPLY	TRAVIS	GUADALUPE	FRESH	24	24	24	24	24	24
GUADALUPE RUN-OF-RIVER	BLANCO	GUADALUPE	FRESH	9	9	9	9	9	9
HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	RESERVOIR	COLORADO	FRESH	418,812	413,298	407,774	401,744	395,201	389,125
LAVACA LIVESTOCK LOCAL SUPPLY	COLORADO	LAVACA	FRESH	465	465	465	465	465	465
LAVACA LIVESTOCK LOCAL SUPPLY	FAYETTE	LAVACA	FRESH	386	386	386	386	386	386

Source Availability

REGION K									
				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SURFACE WATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
LAVACA RUN-OF-RIVER	COLORADO	LAVACA	FRESH	4,002	4,002	4,002	4,002	4,002	4,002
LAVACA RUN-OF-RIVER	FAYETTE	LAVACA	FRESH	20	20	20	20	20	20
LLANO LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	417	417	417	417	417	417
SURFACE WATER TOTAL SOURCE AVAILABILITY				**941,906**	**936,392**	**930,868**	**924,838**	**918,308**	**912,286**
REGION K TOTAL SOURCE AVAILABILITY				**1,287,798**	**1,301,588**	**1,307,390**	**1,314,485**	**1,313,640**	**1,307,618**

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
BASTROP COUNTY							
BRAZOS BASIN							
AQUA WSC	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	350	350	350	350	350	350
LEE COUNTY WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	138	158	189	234	292	362
LEE COUNTY WSC	G | QUEEN CITY AQUIFER | LEE COUNTY	2	2	4	3	4	6
LEE COUNTY WSC	G | SPARTA AQUIFER | LEE COUNTY	6	7	7	9	10	14
COUNTY-OTHER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	91	91	91	91	91	91
MINING		0	0	0	0	0	0
LIVESTOCK	K | BRAZOS LIVESTOCK LOCAL SUPPLY	94	94	94	94	94	94
IRRIGATION	K | QUEEN CITY AQUIFER | BASTROP COUNTY	50	50	50	50	50	50
BRAZOS BASIN TOTAL EXISTING SUPPLY		**731**	**752**	**785**	**831**	**891**	**967**
COLORADO BASIN							
AQUA WSC	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	4,775	5,218	6,147	6,805	6,805	6,805
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	1,764	1,764	1,764	1,764	1,764	1,764
BASTROP	K | OTHER AQUIFER | BASTROP COUNTY	1,927	1,927	1,927	1,927	1,927	1,927
BASTROP COUNTY WCID #2	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	659	715	834	917	917	917
BASTROP COUNTY WCID #2	K | OTHER AQUIFER | BASTROP COUNTY	472	472	472	472	472	472
CREEDMOOR-MAHA WSC	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	40	40	40	40	40	40
CREEDMOOR-MAHA WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	0	4	17	34
ELGIN	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	826	919	1,112	1,249	1,249	1,249
LEE COUNTY WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	184	211	255	317	396	489
LEE COUNTY WSC	G | QUEEN CITY AQUIFER | LEE COUNTY	4	4	4	5	6	7
LEE COUNTY WSC	G | SPARTA AQUIFER | LEE COUNTY	8	8	10	12	15	18
POLONIA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	29	36	45	58	75	99
SMITHVILLE	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	1,848	2,006	2,338	2,480	2,480	2,480
COUNTY-OTHER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	709	922	1,198	1,709	2,382	3,282
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	744	744	744	744	744	744
MANUFACTURING	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	81	81	81	81	81	81
MANUFACTURING	K | COLORADO OTHER LOCAL SUPPLY	48	48	48	48	48	48
MINING	K | COLORADO OTHER LOCAL SUPPLY	8	7	7	9	9	9
MINING	K | OTHER AQUIFER | BASTROP COUNTY	2,110	2,110	2,110	2,110	2,110	2,110
STEAM ELECTRIC POWER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	4,500	4,886	5,694	6,149	6,149	6,149
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	12,220	11,834	11,026	10,571	10,571	10,571
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	696	696	696	696	696	696
LIVESTOCK	K | QUEEN CITY AQUIFER | BASTROP COUNTY	218	218	218	218	218	218
LIVESTOCK	K | SPARTA AQUIFER | BASTROP COUNTY	442	442	442	442	442	442
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	852	742	649	565	492	443

Water User Group (WUG) Existing Water Supply

REGION K		EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	SOURCE REGION | SOURCE NAME	2020	2030	2040	2050	2060	2070
BASTROP COUNTY							
COLORADO BASIN							
IRRIGATION	K | QUEEN CITY AQUIFER | BASTROP COUNTY	197	197	197	197	197	197
IRRIGATION	K | SPARTA AQUIFER | BASTROP COUNTY	147	147	147	147	147	147
COLORADO BASIN TOTAL EXISTING SUPPLY		**35,508**	**36,394**	**38,205**	**39,736**	**40,449**	**41,438**
GUADALUPE BASIN							
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	250	250	250	250	250	250
COUNTY-OTHER	K | QUEEN CITY AQUIFER | BASTROP COUNTY	35	35	35	35	35	35
MANUFACTURING	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	12	12	12	12	12	12
MANUFACTURING	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	5	5	5	5	5	5
MINING	K | SPARTA AQUIFER | BASTROP COUNTY	34	34	34	34	34	34
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	72	72	72	72	72	72
IRRIGATION	K | QUEEN CITY AQUIFER | BASTROP COUNTY	41	41	41	41	41	41
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**449**	**449**	**449**	**449**	**449**	**449**
BASTROP COUNTY TOTAL EXISTING SUPPLY		**36,688**	**37,595**	**39,439**	**41,016**	**41,789**	**42,854**
BLANCO COUNTY							
COLORADO BASIN							
JOHNSON CITY	K | TRINITY AQUIFER | BLANCO COUNTY	306	306	306	306	306	306
COUNTY-OTHER	K | COLORADO OTHER LOCAL SUPPLY	49	55	57	56	56	56
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	249	249	249	249	249	249
COUNTY-OTHER	K | HICKORY AQUIFER | BLANCO COUNTY	76	76	76	76	76	76
COUNTY-OTHER	K | TRINITY AQUIFER | BLANCO COUNTY	332	332	332	332	332	332
MANUFACTURING	K | TRINITY AQUIFER | BLANCO COUNTY	15	15	15	15	15	15
MINING	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	5	5	5	5	5	5
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	101	101	101	101	101	101
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	255	255	255	255	255	255
LIVESTOCK	K | TRINITY AQUIFER | BLANCO COUNTY	82	82	82	82	82	82
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	208	208	208	208	208	208
COLORADO BASIN TOTAL EXISTING SUPPLY		**1,678**	**1,684**	**1,686**	**1,685**	**1,685**	**1,685**
GUADALUPE BASIN							
BLANCO	K | BLANCO LAKE/RESERVOIR	596	596	596	596	596	596
BLANCO	L | CANYON LAKE/RESERVOIR	600	600	600	600	600	600
CANYON LAKE WATER SERVICE COMPANY	L | CANYON LAKE/RESERVOIR	128	150	163	169	174	177
COUNTY-OTHER	K | TRINITY AQUIFER | BLANCO COUNTY	873	873	873	873	873	873
COUNTY-OTHER	L | CANYON LAKE/RESERVOIR	60	60	60	60	60	60
MANUFACTURING	K | TRINITY AQUIFER | BLANCO COUNTY	5	5	5	5	5	5
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	101	101	101	101	101	101
LIVESTOCK	K | TRINITY AQUIFER | BLANCO COUNTY	62	62	62	62	62	62
IRRIGATION	K | GUADALUPE RUN-OF-RIVER	9	9	9	9	9	9
IRRIGATION	K | TRINITY AQUIFER | BLANCO COUNTY	107	107	107	107	107	107

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
BLANCO COUNTY							
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**2,541**	**2,563**	**2,576**	**2,582**	**2,587**	**2,590**
BLANCO COUNTY TOTAL EXISTING SUPPLY		**4,219**	**4,247**	**4,262**	**4,267**	**4,272**	**4,275**
BURNET COUNTY							
BRAZOS BASIN							
BERTRAM	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	367	367	367	367	367	367
BERTRAM	K | TRINITY AQUIFER | BURNET COUNTY	3	3	3	3	3	3
BURNET	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	14	14	14	14	14	14
CHISHOLM TRAIL SUD	G | BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	66	79	92	103	113	121
CHISHOLM TRAIL SUD	G | EDWARDS-BFZ AQUIFER | WILLIAMSON COUNTY	4	4	3	3	3	3
KEMPNER WSC	G | BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	135	160	181	201	220	237
COUNTY-OTHER	K | TRINITY AQUIFER | BURNET COUNTY	1,578	1,578	1,578	1,578	1,578	1,578
MINING	K | OTHER AQUIFER | BURNET COUNTY	823	1,053	1,295	1,514	1,766	2,053
MINING	K | TRINITY AQUIFER | BURNET COUNTY	300	300	300	300	300	300
LIVESTOCK	K | BRAZOS LIVESTOCK LOCAL SUPPLY	311	311	311	311	311	311
LIVESTOCK	K | TRINITY AQUIFER | BURNET COUNTY	205	205	205	205	205	205
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	123	123	123	123	123	123
IRRIGATION	K | TRINITY AQUIFER | BURNET COUNTY	430	430	430	430	430	430
BRAZOS BASIN TOTAL EXISTING SUPPLY		**4,359**	**4,627**	**4,902**	**5,152**	**5,433**	**5,745**
COLORADO BASIN							
BURNET	K | DIRECT REUSE	520	520	520	520	520	520
BURNET	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	887	887	887	887	887	887
BURNET	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,226	3,226	3,226	3,226	3,226	3,226
COTTONWOOD SHORES	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	495	495	495	495	495	495
GRANITE SHOALS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	830	830	830	830	830	830
KINGSLAND WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	56	58	67	77	78	80
MARBLE FALLS	K | DIRECT REUSE	750	750	750	750	750	750
MARBLE FALLS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,000	3,000	3,000	3,000	3,000	3,000
MEADOWLAKES	K | COLORADO RUN-OF-RIVER	567	567	567	567	567	567
MEADOWLAKES	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	75	75	75	75	75	75
HORSESHOE BAY	K | DIRECT REUSE	148	148	148	148	148	148
HORSESHOE BAY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	700	700	700	700	700	700
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	1,363	1,363	1,363	1,363	1,363	1,363
COUNTY-OTHER	K | HICKORY AQUIFER | BURNET COUNTY	184	184	184	184	184	184
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,205	2,205	2,205	2,205	2,205	2,205
COUNTY-OTHER	K | MARBLE FALLS AQUIFER | BURNET COUNTY	134	134	134	134	134	134
COUNTY-OTHER	K | OTHER AQUIFER | BURNET COUNTY	958	958	958	958	958	958
COUNTY-OTHER	K | TRINITY AQUIFER | BURNET COUNTY	477	477	477	477	477	477
MANUFACTURING	K | COLORADO RUN-OF-RIVER	1,503	1,503	1,503	1,503	1,503	1,503
MANUFACTURING	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	500	500	500	500	500	500

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BURNET COUNTY							
COLORADO BASIN							
MANUFACTURING	K | TRINITY AQUIFER | BURNET COUNTY	9	9	9	9	9	9
MINING	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	1	1	1	1	1	1
MINING	K | OTHER AQUIFER | BURNET COUNTY	2,351	2,351	2,351	2,351	2,351	2,351
MINING	K | TRINITY AQUIFER | BURNET COUNTY	4	4	4	4	4	4
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	210	210	210	210	210	210
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	311	311	311	311	311	311
LIVESTOCK	K | HICKORY AQUIFER | BURNET COUNTY	10	10	10	10	10	10
LIVESTOCK	K | MARBLE FALLS AQUIFER | BURNET COUNTY	40	40	40	40	40	40
LIVESTOCK	K | TRINITY AQUIFER | BURNET COUNTY	97	97	97	97	97	97
IRRIGATION	K | COLORADO RUN-OF-RIVER	276	276	276	276	276	276
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	675	675	675	675	675	675
IRRIGATION	K | HICKORY AQUIFER | BURNET COUNTY	92	92	92	92	92	92
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	416	416	416	416	416	416
IRRIGATION	K | TRINITY AQUIFER | BURNET COUNTY	115	115	115	115	115	115
COLORADO BASIN TOTAL EXISTING SUPPLY		**23,185**	**23,187**	**23,196**	**23,206**	**23,207**	**23,209**
BURNET COUNTY TOTAL EXISTING SUPPLY		**27,544**	**27,814**	**28,098**	**28,358**	**28,640**	**28,954**
COLORADO COUNTY							
BRAZOS-COLORADO BASIN							
EAGLE LAKE	K | GULF COAST AQUIFER | COLORADO COUNTY	177	177	177	177	177	177
COUNTY-OTHER	K | GULF COAST AQUIFER | COLORADO COUNTY	210	210	210	210	210	210
MANUFACTURING	K | GULF COAST AQUIFER | COLORADO COUNTY	8	8	8	8	8	8
MINING	K | GULF COAST AQUIFER | COLORADO COUNTY	170	170	170	170	170	170
LIVESTOCK	K | BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	39	39	39	39	39	39
LIVESTOCK	K | GULF COAST AQUIFER | COLORADO COUNTY	164	164	164	164	164	164
IRRIGATION	K | COLORADO RUN-OF-RIVER	18,162	18,162	18,162	18,162	18,162	18,162
IRRIGATION	K | GULF COAST AQUIFER | COLORADO COUNTY	9,735	9,735	9,735	9,735	9,735	9,735
BRAZOS-COLORADO BASIN TOTAL EXISTING SUPPLY		**28,665**	**28,665**	**28,665**	**28,665**	**28,665**	**28,665**
COLORADO BASIN							
COLUMBUS	K | GULF COAST AQUIFER | COLORADO COUNTY	1,150	1,150	1,150	1,150	1,150	1,150
EAGLE LAKE	K | GULF COAST AQUIFER | COLORADO COUNTY	402	402	402	402	402	402
WEIMAR	K | GULF COAST AQUIFER | COLORADO COUNTY	210	210	210	210	210	210
COUNTY-OTHER	K | GULF COAST AQUIFER | COLORADO COUNTY	877	877	877	877	877	877
MANUFACTURING	K | GULF COAST AQUIFER | COLORADO COUNTY	20	20	20	20	20	20
MINING	K | COLORADO RUN-OF-RIVER	1,808	1,808	1,808	1,808	1,808	1,808
MINING	K | GULF COAST AQUIFER | COLORADO COUNTY	3,398	3,398	3,398	3,398	3,398	3,398
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	860	860	860	860	860	860
LIVESTOCK	K | GULF COAST AQUIFER | COLORADO COUNTY	127	127	127	127	127	127
IRRIGATION	K | COLORADO RUN-OF-RIVER	13,299	13,299	13,299	13,299	13,299	13,299
IRRIGATION	K | GULF COAST AQUIFER | COLORADO COUNTY	9,648	9,648	9,648	9,648	9,648	9,648
COLORADO BASIN TOTAL EXISTING SUPPLY		**31,799**	**31,799**	**31,799**	**31,799**	**31,799**	**31,799**

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
COLORADO COUNTY							
LAVACA BASIN							
WEIMAR	K | GULF COAST AQUIFER | COLORADO COUNTY	429	429	429	429	429	429
COUNTY-OTHER	K | GULF COAST AQUIFER | COLORADO COUNTY	938	938	938	938	938	938
MANUFACTURING	K | GULF COAST AQUIFER | COLORADO COUNTY	816	816	816	816	816	816
MINING	K | GULF COAST AQUIFER | COLORADO COUNTY	280	280	280	280	280	280
LIVESTOCK	K | GULF COAST AQUIFER | COLORADO COUNTY	288	288	288	288	288	288
LIVESTOCK	K | LAVACA LIVESTOCK LOCAL SUPPLY	177	177	177	177	177	177
IRRIGATION	K | COLORADO RUN-OF-RIVER	32,366	32,366	32,366	32,366	32,366	32,366
IRRIGATION	K | GULF COAST AQUIFER | COLORADO COUNTY	19,680	19,680	19,680	19,680	19,680	19,680
IRRIGATION	K | LAVACA RUN-OF-RIVER	4,002	4,002	4,002	4,002	4,002	4,002
LAVACA BASIN TOTAL EXISTING SUPPLY		**58,976**	**58,976**	**58,976**	**58,976**	**58,976**	**58,976**
COLORADO COUNTY TOTAL EXISTING SUPPLY		**119,440**	**119,440**	**119,440**	**119,440**	**119,440**	**119,440**
FAYETTE COUNTY							
COLORADO BASIN							
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	6	6	6	6	6	6
FAYETTE WSC	K | OTHER AQUIFER | FAYETTE COUNTY	675	675	675	675	675	675
FAYETTE WSC	K | SPARTA AQUIFER | FAYETTE COUNTY	230	230	230	230	230	230
LA GRANGE	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	1,294	1,294	1,294	1,294	1,294	1,294
LEE COUNTY WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	463	462	458	459	450	434
LEE COUNTY WSC	G | QUEEN CITY AQUIFER | LEE COUNTY	9	8	7	7	7	6
LEE COUNTY WSC	G | SPARTA AQUIFER | LEE COUNTY	19	18	18	17	17	16
COUNTY-OTHER	K | GULF COAST AQUIFER | FAYETTE COUNTY	526	526	526	526	526	526
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	102	102	102	102	102	102
COUNTY-OTHER	K | OTHER AQUIFER | FAYETTE COUNTY	159	159	159	159	159	159
COUNTY-OTHER	K | SPARTA AQUIFER | FAYETTE COUNTY	24	24	24	24	24	24
MINING	K | GULF COAST AQUIFER | FAYETTE COUNTY	103	103	103	103	103	103
MINING	K | SPARTA AQUIFER | FAYETTE COUNTY	367	367	367	367	367	367
STEAM ELECTRIC POWER	K | COLORADO RUN-OF-RIVER	871	871	871	871	871	871
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	45,117	45,117	45,117	45,117	45,117	45,117
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	1,746	1,746	1,746	1,746	1,746	1,746
LIVESTOCK	K | GULF COAST AQUIFER | FAYETTE COUNTY	140	140	140	140	140	140
LIVESTOCK	K | SPARTA AQUIFER | FAYETTE COUNTY	733	733	733	733	733	733
IRRIGATION	K | GULF COAST AQUIFER | FAYETTE COUNTY	775	775	775	775	775	775
IRRIGATION	K | SPARTA AQUIFER | FAYETTE COUNTY	172	172	172	172	172	172
COLORADO BASIN TOTAL EXISTING SUPPLY		**53,531**	**53,528**	**53,523**	**53,523**	**53,514**	**53,496**
GUADALUPE BASIN							
FAYETTE WSC	K | SPARTA AQUIFER | FAYETTE COUNTY	57	57	57	57	57	57
FLATONIA	K | CARRIZO-WILCOX AQUIFER | FAYETTE COUNTY	61	61	61	61	60	60
FLATONIA	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	31	31	31	31	30	30
COUNTY-OTHER	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	76	76	76	76	76	76

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
FAYETTE COUNTY							
GUADALUPE BASIN							
MINING	K | SPARTA AQUIFER | FAYETTE COUNTY	60	60	60	60	60	60
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	108	108	108	108	108	108
LIVESTOCK	K | SPARTA AQUIFER | FAYETTE COUNTY	179	179	179	179	179	179
IRRIGATION	K | SPARTA AQUIFER | FAYETTE COUNTY	62	62	62	62	62	62
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**634**	**634**	**634**	**634**	**632**	**632**
LAVACA BASIN							
FAYETTE WSC	K | SPARTA AQUIFER | FAYETTE COUNTY	101	101	101	101	101	101
FLATONIA	K | CARRIZO-WILCOX AQUIFER | FAYETTE COUNTY	256	256	256	256	257	257
FLATONIA	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	131	131	131	131	132	132
SCHULENBURG	K | GULF COAST AQUIFER | FAYETTE COUNTY	706	706	706	706	706	706
SCHULENBURG	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	30	30	30	30	30	30
COUNTY-OTHER	K | GULF COAST AQUIFER | FAYETTE COUNTY	115	115	115	115	115	115
MANUFACTURING	K | GULF COAST AQUIFER | FAYETTE COUNTY	152	152	152	152	152	152
MINING	K | GULF COAST AQUIFER | FAYETTE COUNTY	10	10	10	10	10	10
LIVESTOCK	K | GULF COAST AQUIFER | FAYETTE COUNTY	176	176	176	176	176	176
LIVESTOCK	K | LAVACA LIVESTOCK LOCAL SUPPLY	386	386	386	386	386	386
IRRIGATION	K | GULF COAST AQUIFER | FAYETTE COUNTY	181	181	181	181	181	181
LAVACA BASIN TOTAL EXISTING SUPPLY		**2,244**	**2,244**	**2,244**	**2,244**	**2,246**	**2,246**
FAYETTE COUNTY TOTAL EXISTING SUPPLY		**56,409**	**56,406**	**56,401**	**56,401**	**56,392**	**56,374**
GILLESPIE COUNTY							
COLORADO BASIN							
FREDERICKSBURG	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	3,174	3,174	3,174	3,174	3,174	3,174
FREDERICKSBURG	K | HICKORY AQUIFER | GILLESPIE COUNTY	662	662	662	662	662	662
COUNTY-OTHER	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	968	968	968	968	968	968
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	542	542	542	542	542	542
COUNTY-OTHER	K | HICKORY AQUIFER | GILLESPIE COUNTY	183	183	183	183	183	183
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	56	56	56	56	56	56
COUNTY-OTHER	K | TRINITY AQUIFER | GILLESPIE COUNTY	566	566	566	566	566	566
MANUFACTURING	K | COLORADO OTHER LOCAL SUPPLY	158	158	158	158	158	158
MANUFACTURING	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	34	34	34	34	34	34
MANUFACTURING	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	398	398	398	398	398	398
MANUFACTURING	K | HICKORY AQUIFER | GILLESPIE COUNTY	150	150	150	150	150	150
MINING	K | HICKORY AQUIFER | GILLESPIE COUNTY	5	5	5	5	5	5
MINING	K | TRINITY AQUIFER | GILLESPIE COUNTY	50	50	50	50	50	50
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	515	515	515	515	515	515
LIVESTOCK	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	300	300	300	300	300	300
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	266	266	266	266	266	266

Water User Group (WUG) Existing Water Supply

REGION K		EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	SOURCE REGION | SOURCE NAME	2020	2030	2040	2050	2060	2070
GILLESPIE COUNTY							
COLORADO BASIN							
LIVESTOCK	K | HICKORY AQUIFER | GILLESPIE COUNTY	266	266	266	266	266	266
LIVESTOCK	K | TRINITY AQUIFER | GILLESPIE COUNTY	211	211	211	211	211	211
IRRIGATION	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	163	163	163	163	163	163
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	652	652	652	652	652	652
IRRIGATION	K | HICKORY AQUIFER | GILLESPIE COUNTY	210	210	210	210	210	210
IRRIGATION	K | TRINITY AQUIFER | GILLESPIE COUNTY	1,477	1,477	1,477	1,477	1,477	1,477
COLORADO BASIN TOTAL EXISTING SUPPLY		**11,006**	**11,006**	**11,006**	**11,006**	**11,006**	**11,006**
GUADALUPE BASIN							
COUNTY-OTHER	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	90	90	90	90	90	90
COUNTY-OTHER	K | TRINITY AQUIFER | GILLESPIE COUNTY	5	5	5	5	5	5
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	13	13	13	13	13	13
LIVESTOCK	K | TRINITY AQUIFER | GILLESPIE COUNTY	41	41	41	41	41	41
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**149**	**149**	**149**	**149**	**149**	**149**
GILLESPIE COUNTY TOTAL EXISTING SUPPLY		**11,155**	**11,155**	**11,155**	**11,155**	**11,155**	**11,155**
HAYS COUNTY							
COLORADO BASIN							
AUSTIN	K | COLORADO RUN-OF-RIVER	13	127	249	631	1,519	2,749
BUDA	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	549	549	549	549	549	549
BUDA	L | CANYON LAKE/RESERVOIR	1,381	1,292	1,181	1,041	882	701
CIMARRON PARK WATER COMPANY	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	249	249	249	249	249	249
DRIPPING SPRINGS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	506	506	506	506	506	506
DRIPPING SPRINGS WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	133	280	461	691	953	1,126
DRIPPING SPRINGS WSC	K | TRINITY AQUIFER | HAYS COUNTY	400	400	400	400	400	400
MOUNTAIN CITY	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	57	56	54	54	54	54
PLUM CREEK WATER COMPANY	L | TRINITY AQUIFER | HAYS COUNTY	163	264	283	300	312	322
GOFORTH SUD	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	1	1	1	1
GOFORTH SUD	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	6	7	8	10	10	10
GOFORTH SUD	L | TRINITY AQUIFER | HAYS COUNTY	79	123	176	244	323	414
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | DIRECT REUSE	300	300	300	300	300	300
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	4,521	4,521	4,521	4,521	4,521	4,521
COUNTY-OTHER	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	829	829	829	829	829	829
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,401	1,401	1,401	1,401	1,401	1,401
COUNTY-OTHER	K | TRINITY AQUIFER | HAYS COUNTY	1,860	1,860	1,860	1,860	1,860	1,860
MANUFACTURING	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	583	583	583	583	583	583
MINING	K | TRINITY AQUIFER | HAYS COUNTY	314	314	314	314	314	314
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	192	192	192	192	192	192
LIVESTOCK	K | TRINITY AQUIFER | HAYS COUNTY	30	30	30	30	30	30

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
HAYS COUNTY							
COLORADO BASIN							
IRRIGATION	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	10	10	10	10	10	10
IRRIGATION	K | TRINITY AQUIFER | HAYS COUNTY	430	430	430	430	430	430
COLORADO BASIN TOTAL EXISTING SUPPLY		**14,006**	**14,323**	**14,587**	**15,146**	**16,228**	**17,551**
HAYS COUNTY TOTAL EXISTING SUPPLY		**14,006**	**14,323**	**14,587**	**15,146**	**16,228**	**17,551**
LLANO COUNTY							
COLORADO BASIN							
KINGSLAND WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,094	1,092	1,083	1,073	1,072	1,070
KINGSLAND WSC	K | OTHER AQUIFER | LLANO COUNTY	49	49	49	49	49	49
LLANO	K | LLANO LAKE/RESERVOIR	417	417	417	417	417	417
SUNRISE BEACH VILLAGE	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	69	69	69	69	69	69
SUNRISE BEACH VILLAGE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	200	200	200	200	200	200
HORSESHOE BAY	K | DIRECT REUSE	368	368	368	368	368	368
HORSESHOE BAY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,525	1,525	1,525	1,525	1,525	1,525
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	115	115	115	115	115	115
COUNTY-OTHER	K | HICKORY AQUIFER | LLANO COUNTY	143	143	143	143	143	143
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,586	3,586	3,586	3,586	3,586	3,586
COUNTY-OTHER	K | OTHER AQUIFER | LLANO COUNTY	412	412	412	412	412	412
MANUFACTURING	K | HICKORY AQUIFER | LLANO COUNTY	3	3	3	3	3	3
MINING	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	3	3	3	3	3	3
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,500	2,500	2,500	2,500	2,500	2,500
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	414	414	414	414	414	414
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	20	20	20	20	20	20
LIVESTOCK	K | HICKORY AQUIFER | LLANO COUNTY	179	179	179	179	179	179
LIVESTOCK	K | OTHER AQUIFER | LLANO COUNTY	138	138	138	138	138	138
IRRIGATION	K | COLORADO RUN-OF-RIVER	439	439	439	439	439	439
IRRIGATION	K | HICKORY AQUIFER | LLANO COUNTY	400	400	400	400	400	400
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,514	1,514	1,514	1,514	1,514	1,514
COLORADO BASIN TOTAL EXISTING SUPPLY		**13,588**	**13,586**	**13,577**	**13,567**	**13,566**	**13,564**
LLANO COUNTY TOTAL EXISTING SUPPLY		**13,588**	**13,586**	**13,577**	**13,567**	**13,566**	**13,564**
MATAGORDA COUNTY							
BRAZOS-COLORADO BASIN							
BAY CITY	K | GULF COAST AQUIFER | MATAGORDA COUNTY	4,715	4,715	4,715	4,715	4,714	4,714
COUNTY-OTHER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	980	980	980	980	980	980
MANUFACTURING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	823	823	823	823	823	823
MINING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	55	55	55	55	55	55
LIVESTOCK	K | BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	329	329	329	329	329	329
LIVESTOCK	K | GULF COAST AQUIFER | MATAGORDA COUNTY	335	335	335	335	335	335

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
MATAGORDA COUNTY							
BRAZOS-COLORADO BASIN							
IRRIGATION	K | BRAZOS-COLORADO RUN-OF-RIVER	4,000	4,000	4,000	4,000	4,000	4,000
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,053	2,053	2,053	2,053	2,053	2,053
IRRIGATION	K | GULF COAST AQUIFER | MATAGORDA COUNTY	16,000	16,000	16,000	16,000	16,000	16,000
BRAZOS-COLORADO BASIN TOTAL EXISTING SUPPLY		**29,290**	**29,290**	**29,290**	**29,290**	**29,289**	**29,289**
COLORADO BASIN							
BAY CITY	K | GULF COAST AQUIFER | MATAGORDA COUNTY	10	10	10	10	11	11
COUNTY-OTHER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	503	503	503	503	503	503
MANUFACTURING	K | COLORADO RUN-OF-RIVER	3,960	3,960	3,960	3,960	3,960	3,960
MANUFACTURING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	1,143	1,143	1,143	1,143	1,143	1,143
MANUFACTURING	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	14,222	14,222	14,222	14,222	14,222	14,222
MINING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	9	9	9	9	9	9
STEAM ELECTRIC POWER	K | COLORADO RUN-OF-RIVER	44,397	44,397	44,397	44,397	44,397	44,397
STEAM ELECTRIC POWER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	3,000	3,000	3,000	3,000	3,000	3,000
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	32,240	32,226	32,202	32,172	32,142	32,120
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	25	25	25	25	25	25
LIVESTOCK	K | GULF COAST AQUIFER | MATAGORDA COUNTY	106	106	106	106	106	106
IRRIGATION	K | COLORADO RUN-OF-RIVER	1,193	1,193	1,193	1,193	1,193	1,193
COLORADO BASIN TOTAL EXISTING SUPPLY		**100,808**	**100,794**	**100,770**	**100,740**	**100,711**	**100,689**
COLORADO-LAVACA BASIN							
PALACIOS	K | GULF COAST AQUIFER | MATAGORDA COUNTY	1,064	1,064	1,064	1,064	1,064	1,064
COUNTY-OTHER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	681	681	681	681	681	681
MANUFACTURING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	203	203	203	203	203	203
MINING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	36	36	36	36	36	36
LIVESTOCK	K | COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	215	215	215	215	215	215
LIVESTOCK	K | GULF COAST AQUIFER | MATAGORDA COUNTY	493	493	493	493	493	493
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,293	2,293	2,293	2,293	2,293	2,293
IRRIGATION	K | COLORADO-LAVACA RUN-OF-RIVER	4,000	4,000	4,000	4,000	4,000	4,000
IRRIGATION	K | GULF COAST AQUIFER | MATAGORDA COUNTY	13,000	13,000	13,000	13,000	13,000	13,000
COLORADO-LAVACA BASIN TOTAL EXISTING SUPPLY		**21,985**	**21,985**	**21,985**	**21,985**	**21,985**	**21,985**
MATAGORDA COUNTY TOTAL EXISTING SUPPLY		**152,083**	**152,069**	**152,045**	**152,015**	**151,985**	**151,963**
MILLS COUNTY							
BRAZOS BASIN							
GOLDTHWAITE	K | TRINITY AQUIFER | MILLS COUNTY	10	10	10	10	11	11
COUNTY-OTHER	K | TRINITY AQUIFER | MILLS COUNTY	128	128	128	128	128	128
MINING	K | TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
LIVESTOCK	K | BRAZOS LIVESTOCK LOCAL SUPPLY	321	321	321	321	321	321

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
MILLS COUNTY							
BRAZOS BASIN							
IRRIGATION	K | TRINITY AQUIFER | MILLS COUNTY	810	810	810	810	810	810
BRAZOS BASIN TOTAL EXISTING SUPPLY		**1,271**	**1,271**	**1,271**	**1,271**	**1,272**	**1,272**
COLORADO BASIN							
BROOKESMITH SUD	F | BROWNWOOD LAKE/RESERVOIR	8	8	8	8	8	8
GOLDTHWAITE	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	245	245	245	245	245	245
GOLDTHWAITE	K | TRINITY AQUIFER | MILLS COUNTY	58	58	58	58	57	57
COUNTY-OTHER	K | TRINITY AQUIFER | MILLS COUNTY	331	331	331	331	331	331
MANUFACTURING	K | TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
MINING	K | TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	360	360	360	360	360	360
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | MILLS COUNTY	94	94	94	94	94	94
LIVESTOCK	K | TRINITY AQUIFER | MILLS COUNTY	169	169	169	169	169	169
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,377	2,377	2,377	2,377	2,377	2,377
IRRIGATION	K | TRINITY AQUIFER | MILLS COUNTY	76	76	76	76	76	76
COLORADO BASIN TOTAL EXISTING SUPPLY		**3,722**	**3,722**	**3,722**	**3,722**	**3,721**	**3,721**
MILLS COUNTY TOTAL EXISTING SUPPLY		**4,993**	**4,993**	**4,993**	**4,993**	**4,993**	**4,993**
SAN SABA COUNTY							
COLORADO BASIN							
RICHLAND SUD	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	112	113	112	111	112	113
RICHLAND SUD	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	187	188	188	185	187	189
SAN SABA	K | COLORADO RUN-OF-RIVER	10	10	10	10	10	10
SAN SABA	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	1,040	1,040	1,040	1,040	1,040	1,040
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	322	322	322	322	322	322
COUNTY-OTHER	K | HICKORY AQUIFER | SAN SABA COUNTY	165	165	165	165	165	165
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	20	20	20	20	20	20
COUNTY-OTHER	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	24	24	24	24	24	24
MANUFACTURING	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	8	8	8	8	8	8
MINING	K | HICKORY AQUIFER | SAN SABA COUNTY	301	301	301	301	301	301
MINING	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	1,238	1,238	1,238	1,238	1,238	1,238
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	900	900	900	900	900	900
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	198	198	198	198	198	198
LIVESTOCK	K | HICKORY AQUIFER | SAN SABA COUNTY	111	111	111	111	111	111
LIVESTOCK	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	9	9	9	9	9	9
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,000	2,000	2,000	2,000	2,000	2,000
IRRIGATION	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	4,000	4,000	4,000	4,000	4,000	4,000
COLORADO BASIN TOTAL EXISTING SUPPLY		**10,645**	**10,647**	**10,646**	**10,642**	**10,645**	**10,648**
SAN SABA COUNTY TOTAL EXISTING SUPPLY		**10,645**	**10,647**	**10,646**	**10,642**	**10,645**	**10,648**

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
TRAVIS COUNTY							
COLORADO BASIN							
AUSTIN	K | COLORADO RUN-OF-RIVER	137,829	129,682	112,223	100,459	88,585	75,600
AUSTIN	K | DIRECT REUSE	4,571	4,571	4,571	4,571	4,571	4,571
AUSTIN	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	123,626	123,626	123,626	123,626	123,613	123,046
CEDAR PARK	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,927	1,638	1,646	1,776	1,677	1,566
ROUND ROCK	G | BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	225	203	177	146	123	102
ROUND ROCK	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	1	1	1	1	1	1
ROUND ROCK	G | DIRECT REUSE	41	37	32	28	25	22
ROUND ROCK	G | EDWARDS-BFZ AQUIFER | WILLIAMSON COUNTY	1	0	0	0	0	0
ROUND ROCK	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	1,810	1,810	1,810	1,810	1,810	1,810
BARTON CREEK WEST WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	760	760	760	760	760	760
CREEDMOOR-MAHA WSC	K | COLORADO RUN-OF-RIVER	241	241	241	241	241	241
CREEDMOOR-MAHA WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	484	441	397	344	278	210
ELGIN	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	251	251	251	251	251	251
JONESTOWN	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	315	315	315	315	315	315
LAGO VISTA	K | DIRECT REUSE	574	574	574	574	574	574
LAGO VISTA	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,451	3,451	3,451	3,451	3,451	3,451
LAKEWAY	K | DIRECT REUSE	896	896	896	896	896	896
LAKEWAY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	4,249	4,249	4,249	4,249	4,249	4,249
LAKEWAY	K | TRINITY AQUIFER | TRAVIS COUNTY	363	363	363	363	363	363
LEANDER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,202	1,684	1,738	1,269	1,079	941
LOOP 360 WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,250	1,250	1,250	1,250	1,250	1,250
LOST CREEK MUD	K | COLORADO RUN-OF-RIVER	1,092	1,072	1,057	1,056	1,054	1,054
MANOR	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	1,200	1,200	1,200	1,200	1,200	1,200
MANOR	K | COLORADO RUN-OF-RIVER	1,141	0	0	0	0	0
MANOR	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	159	159	159	159	159	159
MANOR	K | OTHER AQUIFER | TRAVIS COUNTY	661	661	661	661	661	661
MANOR	K | TRINITY AQUIFER | TRAVIS COUNTY	296	296	296	296	296	296
MANVILLE WSC	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	753	748	733	722	705	689
MANVILLE WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	2,660	2,641	2,583	2,544	2,481	2,036
MANVILLE WSC	G | OTHER AQUIFER | WILLIAMSON COUNTY	188	186	183	180	176	172
MANVILLE WSC	K | COLORADO RUN-OF-RIVER	2,240	0	0	0	0	0
MANVILLE WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	293	291	285	281	275	268
MANVILLE WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	307	305	299	295	288	281
MANVILLE WSC	K | TRINITY AQUIFER | TRAVIS COUNTY	308	306	300	295	288	282
MUSTANG RIDGE	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	22	24	26	29	32	34
MUSTANG RIDGE	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	13	12	12	11	10	9

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
TRAVIS COUNTY							
COLORADO BASIN							
MUSTANG RIDGE	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	10	10	9	8	8	8
NORTH AUSTIN MUD #1	K | COLORADO RUN-OF-RIVER	82	79	77	75	75	75
PFLUGERVILLE	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	1,856	1,856	1,856	1,856	1,856	1,856
PFLUGERVILLE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	10,314	10,314	10,314	10,313	10,284	10,254
ROLLINGWOOD	K | COLORADO RUN-OF-RIVER	384	0	0	0	0	0
SHADY HOLLOW MUD	K | COLORADO RUN-OF-RIVER	779	758	741	731	730	730
THE HILLS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,533	1,533	1,533	1,533	1,533	1,533
TRAVIS COUNTY WCID #17	K | DIRECT REUSE	122	122	122	122	122	122
TRAVIS COUNTY WCID #17	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	8,027	8,027	8,027	8,027	8,027	8,027
TRAVIS COUNTY WCID #18	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,736	1,736	1,736	1,736	1,736	1,736
TRAVIS COUNTY WCID #19	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	498	496	494	493	493	493
TRAVIS COUNTY WCID #20	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,135	1,135	1,135	1,135	1,135	1,135
WELLS BRANCH MUD	K | COLORADO RUN-OF-RIVER	1,638	1,602	1,577	1,563	1,559	1,558
WEST LAKE HILLS	K | COLORADO RUN-OF-RIVER	1,605	0	0	0	0	0
WILLIAMSON-TRAVIS COUNTY MUD #1	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	201	201	201	202	201	202
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | DIRECT REUSE	173	173	173	173	173	173
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,615	2,615	2,615	2,615	2,615	2,615
NORTHTOWN MUD	K | COLORADO RUN-OF-RIVER	691	798	898	1,011	1,111	1,203
NORTHTOWN MUD	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	339	339	339	339	339	339
TRAVIS COUNTY MUD #4	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,818	3,820	3,822	3,823	3,823	3,823
TRAVIS COUNTY WCID #10	K | COLORADO RUN-OF-RIVER	2,128	0	0	0	0	0
BEE CAVE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,552	1,552	1,552	1,552	1,552	1,552
BRIARCLIFF	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	400	400	400	400	400	400
POINT VENTURE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	360	360	360	360	360	360
SUNSET VALLEY	K | COLORADO RUN-OF-RIVER	386	499	606	727	834	934
SUNSET VALLEY	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	27	27	27	27	27	27
VOLENTE	K | TRINITY AQUIFER | TRAVIS COUNTY	76	76	76	76	76	76
COUNTY-OTHER	K | COLORADO RUN-OF-RIVER	4,520	4,108	3,740	3,138	2,298	1,555
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	14,463	14,463	14,463	14,463	14,463	14,463
MANUFACTURING	K | COLORADO RUN-OF-RIVER	35,430	48,350	63,498	72,631	81,421	91,270
MANUFACTURING	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	78	78	78	78	78	78
MANUFACTURING	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	282	282	282	282	282	282
MINING	K | COLORADO OTHER LOCAL SUPPLY	2,143	2,743	3,390	3,996	4,662	5,425
MINING	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	87	87	87	87	87	87

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
TRAVIS COUNTY							
COLORADO BASIN							
MINING	K | TRINITY AQUIFER | TRAVIS COUNTY	1,237	1,237	1,237	1,237	1,237	1,237
STEAM ELECTRIC POWER	K | COLORADO RUN-OF-RIVER	4,970	4,970	4,970	4,970	4,970	4,970
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	16,156	16,156	16,156	11,987	5,487	0
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	680	680	680	680	680	680
LIVESTOCK	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	1	1	1	1	1	1
LIVESTOCK	K | TRINITY AQUIFER | TRAVIS COUNTY	2	2	2	2	2	2
IRRIGATION	K | COLORADO RUN-OF-RIVER	755	755	755	755	755	755
IRRIGATION	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	300	300	300	300	300	300
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,596	2,596	2,596	2,596	2,596	2,596
IRRIGATION	K | OTHER AQUIFER | TRAVIS COUNTY	680	680	680	680	680	680
IRRIGATION	K | TRINITY AQUIFER | TRAVIS COUNTY	800	800	800	800	800	800
COLORADO BASIN TOTAL EXISTING SUPPLY		**423,065**	**420,760**	**418,770**	**411,689**	**401,605**	**391,772**
GUADALUPE BASIN							
CREEDMOOR-MAHA WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	27	30	33	36	40	43
MUSTANG RIDGE	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	8	9	10	11	12	13
MUSTANG RIDGE	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	5	5	4	4	4	4
MUSTANG RIDGE	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	4	3	3	3	3	3
GOFORTH SUD	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	0	0	0	0
GOFORTH SUD	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	1	1	1	0	0	0
GOFORTH SUD	L | TRINITY AQUIFER | HAYS COUNTY	8	9	10	12	13	14
COUNTY-OTHER	K | OTHER AQUIFER | TRAVIS COUNTY	112	112	112	112	112	112
COUNTY-OTHER	K | TRINITY AQUIFER | TRAVIS COUNTY	7	7	7	7	7	7
MINING	K | COLORADO OTHER LOCAL SUPPLY	35	41	48	54	60	68
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	24	24	24	24	24	24
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**231**	**241**	**252**	**263**	**275**	**288**
TRAVIS COUNTY TOTAL EXISTING SUPPLY		**423,296**	**421,001**	**419,022**	**411,952**	**401,880**	**392,060**
WHARTON COUNTY							
BRAZOS-COLORADO BASIN							
WHARTON	K | GULF COAST AQUIFER | WHARTON COUNTY	1,693	1,693	1,693	1,693	1,693	1,693
EAST BERNARD	K | GULF COAST AQUIFER | WHARTON COUNTY	457	457	457	457	457	457
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	1,851	1,851	1,851	1,851	1,851	1,851
MANUFACTURING	K | COLORADO RUN-OF-RIVER	700	700	700	700	700	700
MANUFACTURING	K | GULF COAST AQUIFER | WHARTON COUNTY	32	32	32	32	32	32
MINING	K | GULF COAST AQUIFER | WHARTON COUNTY	41	41	41	41	41	41
STEAM ELECTRIC POWER	K | BRAZOS-COLORADO RUN-OF-RIVER	597	597	597	597	597	597
LIVESTOCK	K | BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	149	149	149	149	149	149
LIVESTOCK	K | GULF COAST AQUIFER | WHARTON COUNTY	222	222	222	222	222	222
IRRIGATION	K | BRAZOS-COLORADO OTHER LOCAL SUPPLY	1,900	1,900	1,900	1,900	1,900	1,900
IRRIGATION	K | COLORADO RUN-OF-RIVER	14,168	14,168	14,168	14,168	14,168	14,168

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
WHARTON COUNTY							
BRAZOS-COLORADO BASIN							
IRRIGATION	K | GULF COAST AQUIFER | WHARTON COUNTY	29,000	29,000	29,000	29,000	29,000	29,000
BRAZOS-COLORADO BASIN TOTAL EXISTING SUPPLY		**50,810**	**50,810**	**50,810**	**50,810**	**50,810**	**50,810**
COLORADO BASIN							
EL CAMPO	P | GULF COAST AQUIFER | WHARTON COUNTY	6	6	6	6	6	6
WHARTON	K | GULF COAST AQUIFER | WHARTON COUNTY	661	661	661	661	661	661
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	1,106	1,106	1,106	1,106	1,106	1,106
COUNTY-OTHER	P | GULF COAST AQUIFER | WHARTON COUNTY	57	57	57	57	57	57
MINING	K | GULF COAST AQUIFER | WHARTON COUNTY	27	27	27	27	27	27
STEAM ELECTRIC POWER	K | GULF COAST AQUIFER | WHARTON COUNTY	2,400	2,400	2,400	2,400	2,400	2,400
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	115	115	115	115	115	115
LIVESTOCK	K | GULF COAST AQUIFER | WHARTON COUNTY	171	171	171	171	171	171
IRRIGATION	K | COLORADO RUN-OF-RIVER	15,259	15,259	15,259	15,259	15,259	15,259
IRRIGATION	K | GULF COAST AQUIFER | WHARTON COUNTY	27,000	27,000	27,000	27,000	27,000	27,000
COLORADO BASIN TOTAL EXISTING SUPPLY		**46,802**	**46,802**	**46,802**	**46,802**	**46,802**	**46,802**
COLORADO-LAVACA BASIN							
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	274	274	274	274	274	274
MINING	K | GULF COAST AQUIFER | WHARTON COUNTY	6	6	6	6	6	6
LIVESTOCK	K | COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	74	74	74	74	74	74
LIVESTOCK	K | GULF COAST AQUIFER | WHARTON COUNTY	113	113	113	113	113	113
IRRIGATION	K | COLORADO RUN-OF-RIVER	4,460	4,460	4,460	4,460	4,460	4,460
IRRIGATION	K | GULF COAST AQUIFER | WHARTON COUNTY	11,060	11,060	11,060	11,060	11,060	11,060
COLORADO-LAVACA BASIN TOTAL EXISTING SUPPLY		**15,987**	**15,987**	**15,987**	**15,987**	**15,987**	**15,987**
LAVACA BASIN							
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	21	21	21	21	21	21
LAVACA BASIN TOTAL EXISTING SUPPLY		**21**	**21**	**21**	**21**	**21**	**21**
WHARTON COUNTY TOTAL EXISTING SUPPLY		**113,620**	**113,620**	**113,620**	**113,620**	**113,620**	**113,620**
WILLIAMSON COUNTY							
BRAZOS BASIN							
AUSTIN	K | COLORADO RUN-OF-RIVER	7,697	9,691	12,161	14,834	17,693	20,208
NORTH AUSTIN MUD #1	K | COLORADO RUN-OF-RIVER	774	748	726	714	711	711
WELLS BRANCH MUD	K | COLORADO RUN-OF-RIVER	118	115	113	112	112	112
COUNTY-OTHER	K | COLORADO RUN-OF-RIVER	2,586	3,504	3,467	3,451	3,444	3,441
MINING	K | TRINITY AQUIFER | WILLIAMSON COUNTY	5	5	5	5	5	5
LIVESTOCK	K | TRINITY AQUIFER | WILLIAMSON COUNTY	1	1	1	1	1	1
BRAZOS BASIN TOTAL EXISTING SUPPLY		**11,181**	**14,064**	**16,473**	**19,117**	**21,966**	**24,478**
WILLIAMSON COUNTY TOTAL EXISTING SUPPLY		**11,181**	**14,064**	**16,473**	**19,117**	**21,966**	**24,478**
REGION K TOTAL EXISTING SUPPLY		**998,867**	**1,000,960**	**1,003,758**	**1,001,689**	**996,571**	**991,929**

Source Water Balance (Availability- WUG Supply)

REGION K									
				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
GROUNDWATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
CARRIZO-WILCOX AQUIFER	BASTROP	BRAZOS	FRESH	4,773	3,922	4,406	4,202	4,281	4,281
CARRIZO-WILCOX AQUIFER	BASTROP	COLORADO	FRESH	1,064	1,253	1,590	2,323	2,024	1,124
CARRIZO-WILCOX AQUIFER	BASTROP	GUADALUPE	FRESH	0	0	689	1,359	1,386	1,386
CARRIZO-WILCOX AQUIFER	FAYETTE	COLORADO	FRESH	683	683	683	683	683	683
CARRIZO-WILCOX AQUIFER	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	FRESH	0	0	0	0	0	0
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	SALINE	9	9	9	9	9	9
EDWARDS-BFZ AQUIFER	TRAVIS	BRAZOS	FRESH	140	140	140	140	140	140
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH	2,256	2,256	2,256	2,256	2,256	2,256
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	SALINE	699	699	699	699	699	699
EDWARDS-BFZ AQUIFER	TRAVIS	GUADALUPE	SALINE	39	39	39	39	39	39
EDWARDS-BFZ AQUIFER	WILLIAMSON	BRAZOS	FRESH	6	6	6	6	6	6
EDWARDS-BFZ AQUIFER	WILLIAMSON	COLORADO	FRESH	4	4	4	4	4	4
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	COLORADO	FRESH	913	913	913	913	913	913
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	GUADALUPE	FRESH	46	46	46	46	46	46
ELLENBURGER-SAN SABA AQUIFER	BLANCO	COLORADO	FRESH	1,938	1,938	1,938	1,938	1,938	1,938
ELLENBURGER-SAN SABA AQUIFER	BLANCO	GUADALUPE	FRESH	6	6	6	6	6	6
ELLENBURGER-SAN SABA AQUIFER	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
ELLENBURGER-SAN SABA AQUIFER	BURNET	COLORADO	FRESH	1,785	1,785	1,785	1,785	1,785	1,785
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	COLORADO	FRESH	1,238	1,238	1,238	1,238	1,238	1,238
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	GUADALUPE	FRESH	1	1	1	1	1	1
ELLENBURGER-SAN SABA AQUIFER	LLANO	COLORADO	FRESH	1,850	1,850	1,850	1,850	1,850	1,850
ELLENBURGER-SAN SABA AQUIFER	MILLS	BRAZOS	FRESH	5	5	5	5	5	5
ELLENBURGER-SAN SABA AQUIFER	MILLS	COLORADO	FRESH	400	400	400	400	400	400
ELLENBURGER-SAN SABA AQUIFER	SAN SABA	COLORADO	FRESH	9,104	9,104	9,104	9,104	9,104	9,104
GULF COAST AQUIFER	COLORADO	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
GULF COAST AQUIFER	COLORADO	COLORADO	FRESH	226	226	226	226	226	226
GULF COAST AQUIFER	COLORADO	LAVACA	FRESH	0	0	0	0	0	0
GULF COAST AQUIFER	FAYETTE	BRAZOS	FRESH	17	17	17	17	17	17
GULF COAST AQUIFER	FAYETTE	COLORADO	FRESH	4,579	4,417	4,412	4,408	4,380	4,380
GULF COAST AQUIFER	FAYETTE	LAVACA	FRESH	1,593	1,587	1,582	1,577	1,575	1,575
GULF COAST AQUIFER	MATAGORDA	BRAZOS-COLORADO	FRESH	137	137	137	137	137	137
GULF COAST AQUIFER	MATAGORDA	COLORADO	FRESH	2,418	2,418	2,418	2,418	2,418	2,418

Source Water Balance (Availability- WUG Supply)

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
GULF COAST AQUIFER	MATAGORDA	COLORADO-LAVACA	FRESH	185	185	185	185	185	185
GULF COAST AQUIFER	WHARTON	BRAZOS-COLORADO	FRESH	603	603	603	603	603	603
GULF COAST AQUIFER	WHARTON	COLORADO	FRESH	162	162	162	162	162	162
GULF COAST AQUIFER	WHARTON	COLORADO-LAVACA	FRESH	171	171	171	171	171	171
GULF COAST AQUIFER	WHARTON	LAVACA	FRESH	1,669	1,669	1,669	1,669	1,669	1,669
HICKORY AQUIFER	BLANCO	COLORADO	FRESH	1,086	1,086	1,086	1,086	1,086	1,086
HICKORY AQUIFER	BLANCO	GUADALUPE	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	BURNET	COLORADO	FRESH	1,862	1,862	1,862	1,862	1,862	1,862
HICKORY AQUIFER	GILLESPIE	COLORADO	FRESH	183	183	183	183	183	183
HICKORY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	LLANO	COLORADO	FRESH	1,293	1,293	1,293	1,293	1,293	1,293
HICKORY AQUIFER	MILLS	BRAZOS	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	MILLS	COLORADO	FRESH	35	35	35	35	35	35
HICKORY AQUIFER	SAN SABA	COLORADO	FRESH	902	902	902	902	902	902
HICKORY AQUIFER	TRAVIS	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	TRAVIS	COLORADO	FRESH	22	22	22	22	22	22
MARBLE FALLS AQUIFER	BLANCO	COLORADO	FRESH	261	261	261	261	261	261
MARBLE FALLS AQUIFER	BURNET	BRAZOS	FRESH	93	93	93	93	93	93
MARBLE FALLS AQUIFER	BURNET	COLORADO	FRESH	1,711	1,711	1,711	1,711	1,711	1,711
MARBLE FALLS AQUIFER	SAN SABA	COLORADO	FRESH	5,156	5,156	5,156	5,156	5,156	5,156
OTHER AQUIFER	BURNET	BRAZOS	FRESH	1,230	1,000	758	539	287	0
OTHER AQUIFER	TRAVIS	GUADALUPE	FRESH	0	0	0	0	0	0
OTHER AQUIFER | ALLUVIUM	BURNET	COLORADO	FRESH	363	363	363	363	363	363
OTHER AQUIFER | ALLUVIUM	LLANO	COLORADO	FRESH	30	30	30	30	30	30
OTHER AQUIFER | CITY OF BASTROP	BASTROP	COLORADO	FRESH	831	831	831	831	831	831
OTHER AQUIFER | COUNTY-OTHER, IRRIGATION	TRAVIS	COLORADO	FRESH	112	112	112	112	112	112
OTHER AQUIFER | FAYETTE WSC, COUNTY-OTHER	FAYETTE	COLORADO	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	BASTROP	BRAZOS	FRESH	194	548	169	166	166	166
QUEEN CITY AQUIFER	BASTROP	COLORADO	FRESH	244	1,211	184	176	175	175
QUEEN CITY AQUIFER	BASTROP	GUADALUPE	FRESH	116	465	137	140	140	140
QUEEN CITY AQUIFER	FAYETTE	COLORADO	FRESH	436	478	513	565	570	570
QUEEN CITY AQUIFER	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	BASTROP	BRAZOS	FRESH	65	170	58	55	55	55
SPARTA AQUIFER	BASTROP	COLORADO	FRESH	1,172	4,017	949	871	864	864
SPARTA AQUIFER	BASTROP	GUADALUPE	FRESH	53	194	45	42	41	41
SPARTA AQUIFER	FAYETTE	COLORADO	FRESH	1,534	1,579	1,599	1,651	1,667	1,667

Source Water Balance (Availability- WUG Supply)

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
SPARTA AQUIFER	FAYETTE	GUADALUPE	FRESH	73	73	72	75	77	77
TRINITY AQUIFER	BLANCO	COLORADO	FRESH	587	587	587	587	587	587
TRINITY AQUIFER	BLANCO	GUADALUPE	FRESH	204	204	204	204	204	204
TRINITY AQUIFER	BURNET	BRAZOS	FRESH	207	207	207	207	207	207
TRINITY AQUIFER	BURNET	COLORADO	FRESH	121	121	121	121	121	121
TRINITY AQUIFER	GILLESPIE	COLORADO	FRESH	178	178	178	178	178	178
TRINITY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	HAYS	COLORADO	FRESH	2,631	2,628	2,627	2,627	2,627	2,627
TRINITY AQUIFER	MILLS	BRAZOS	FRESH	333	333	333	333	333	333
TRINITY AQUIFER	MILLS	COLORADO	FRESH	480	480	480	480	480	480
TRINITY AQUIFER	TRAVIS	BRAZOS	FRESH	8	8	8	8	8	8
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH	9,956	9,939	9,927	9,911	9,882	9,882
TRINITY AQUIFER	TRAVIS	GUADALUPE	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	WILLIAMSON	BRAZOS	FRESH	151	151	151	151	151	151
TRINITY AQUIFER	WILLIAMSON	COLORADO	FRESH	61	61	61	61	61	61
YEGUA-JACKSON AQUIFER	FAYETTE	COLORADO	FRESH	3,771	3,771	3,771	3,771	3,771	3,771
YEGUA-JACKSON AQUIFER	FAYETTE	GUADALUPE	FRESH	429	429	429	429	429	429
YEGUA-JACKSON AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
GROUNDWATER TOTAL SOURCE WATER BALANCE				**76,895**	**80,663**	**76,899**	**77,869**	**77,379**	**76,192**

REGION K

REUSE	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
DIRECT REUSE	LLANO	COLORADO	FRESH	0	0	0	0	0	0
DIRECT REUSE	TRAVIS	COLORADO	FRESH	12,864	26,821	39,012	48,962	54,212	54,212
DIRECT REUSE | CITY OF BUDA WWTP/SUNFIELD SUBDIVISION	HAYS	COLORADO	FRESH	2,240	2,240	2,240	2,240	2,240	2,240
DIRECT REUSE | CITY OF MARBLE FALLS WWTP/ CITY PARKS ; CITY OF BURNET WWTP/ REC CENTER	BURNET	COLORADO	FRESH	0	0	0	0	0	0
REUSE TOTAL SOURCE WATER BALANCE				**15,104**	**29,061**	**41,252**	**51,202**	**56,452**	**56,452**

REGION K

SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BLANCO LAKE/RESERVOIR	RESERVOIR	GUADALUPE	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	BASTROP	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	MILLS	BRAZOS	FRESH	0	0	0	0	0	0
BRAZOS LIVESTOCK LOCAL SUPPLY	WILLIAMSON	BRAZOS	FRESH	1	1	1	1	1	1

Source Water Balance (Availability- WUG Supply)

REGION K

SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE WATER BALANCE (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	BRAZOS-COLORADO	FRESH	164	164	164	164	164	164
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	BRAZOS-COLORADO	FRESH	335	335	335	335	335	335
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	222	222	222	222	222	222
BRAZOS-COLORADO OTHER LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
BRAZOS-COLORADO RUN-OF-RIVER	MATAGORDA	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
BRAZOS-COLORADO RUN-OF-RIVER	WHARTON	BRAZOS-COLORADO	FRESH	2,000	2,000	2,000	2,000	2,000	2,000
BRAZOS-COLORADO RUN-OF-RIVER | SAN BERNARD	WHARTON	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	BASTROP	COLORADO	FRESH	660	660	660	660	660	660
COLORADO LIVESTOCK LOCAL SUPPLY	BLANCO	COLORADO	FRESH	334	334	334	334	334	334
COLORADO LIVESTOCK LOCAL SUPPLY	BURNET	COLORADO	FRESH	314	314	314	314	314	314
COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	COLORADO	FRESH	62	62	62	62	62	62
COLORADO LIVESTOCK LOCAL SUPPLY	FAYETTE	COLORADO	FRESH	157	157	157	157	157	157
COLORADO LIVESTOCK LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	515	515	515	515	515	515
COLORADO LIVESTOCK LOCAL SUPPLY	HAYS	COLORADO	FRESH	28	28	28	28	28	28
COLORADO LIVESTOCK LOCAL SUPPLY	LLANO	COLORADO	FRESH	337	337	337	337	337	337
COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	106	106	106	106	106	106
COLORADO LIVESTOCK LOCAL SUPPLY	MILLS	COLORADO	FRESH	263	263	263	263	263	263
COLORADO LIVESTOCK LOCAL SUPPLY	SAN SABA	COLORADO	FRESH	291	291	291	291	291	291
COLORADO LIVESTOCK LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO	FRESH	162	162	162	162	162	162
COLORADO OTHER LOCAL SUPPLY	BASTROP	COLORADO	FRESH	2	3	3	1	1	1
COLORADO OTHER LOCAL SUPPLY	BLANCO	COLORADO	FRESH	8	2	0	1	1	1
COLORADO OTHER LOCAL SUPPLY	COLORADO	COLORADO	FRESH	16,883	16,883	16,883	16,883	16,883	16,883
COLORADO OTHER LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	5,000	5,000	5,000	5,000	5,000	5,000
COLORADO OTHER LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	4,892	4,286	3,632	3,020	2,348	1,577
COLORADO RUN-OF-RIVER	BASTROP	COLORADO	FRESH	786	786	786	786	786	786

Source Water Balance (Availability- WUG Supply)

REGION K									
				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SURFACE WATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
COLORADO RUN-OF-RIVER	BLANCO	COLORADO	FRESH	67	67	67	67	67	67
COLORADO RUN-OF-RIVER	BURNET	COLORADO	FRESH	1,175	1,175	1,175	1,175	1,175	1,175
COLORADO RUN-OF-RIVER	COLORADO	COLORADO	FRESH	37,679	37,679	37,679	37,679	37,679	37,679
COLORADO RUN-OF-RIVER	FAYETTE	COLORADO	FRESH	534	534	534	534	534	534
COLORADO RUN-OF-RIVER	GILLESPIE	COLORADO	FRESH	880	880	880	880	880	880
COLORADO RUN-OF-RIVER	HAYS	COLORADO	FRESH	41	41	41	41	41	41
COLORADO RUN-OF-RIVER	LLANO	COLORADO	FRESH	1	1	1	1	1	1
COLORADO RUN-OF-RIVER	MATAGORDA	COLORADO	FRESH	12,925	12,525	12,125	10,925	11,325	10,925
COLORADO RUN-OF-RIVER	MILLS	COLORADO	FRESH	1	1	1	1	1	1
COLORADO RUN-OF-RIVER	SAN SABA	COLORADO	FRESH	6,790	6,790	6,790	6,790	6,790	6,790
COLORADO RUN-OF-RIVER	TRAVIS	COLORADO	FRESH	1	1	1	1	1	1
COLORADO RUN-OF-RIVER	WHARTON	COLORADO	FRESH	1,175	1,175	1,175	1,175	1,175	1,175
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO-LAVACA	FRESH	493	493	493	493	493	493
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO-LAVACA	FRESH	6	6	6	6	6	6
COLORADO-LAVACA RUN-OF-RIVER	MATAGORDA	COLORADO-LAVACA	FRESH	0	0	0	0	0	0
GOLDTHWAITE LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	BASTROP	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	BLANCO	GUADALUPE	FRESH	28	28	28	28	28	28
GUADALUPE LIVESTOCK LOCAL SUPPLY	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	GILLESPIE	GUADALUPE	FRESH	19	19	19	19	19	19
GUADALUPE LIVESTOCK LOCAL SUPPLY	TRAVIS	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	BLANCO	GUADALUPE	FRESH	0	0	0	0	0	0
HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	RESERVOIR	COLORADO	FRESH	58,710	53,546	48,757	47,223	47,023	46,889
LAVACA LIVESTOCK LOCAL SUPPLY	COLORADO	LAVACA	FRESH	288	288	288	288	288	288
LAVACA LIVESTOCK LOCAL SUPPLY	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
LAVACA RUN-OF-RIVER	COLORADO	LAVACA	FRESH	0	0	0	0	0	0
LAVACA RUN-OF-RIVER	FAYETTE	LAVACA	FRESH	20	20	20	20	20	20

Source Water Balance (Availability- WUG Supply)

REGION K									
				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SURFACE WATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
LLANO LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	0	0	0	0	0	0
SURFACE WATER TOTAL SOURCE WATER BALANCE				154,355	148,180	142,335	138,988	138,516	137,211
REGION K TOTAL SOURCE WATER BALANCE				246,354	257,904	260,486	268,059	272,347	269,855

Water User Group (WUG) Needs/Surplus

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
AQUA WSC	260	234	200	153	89	2
LEE COUNTY WSC	102	111	128	152	182	217
COUNTY-OTHER	67	60	51	38	22	0
MINING	(173)	(409)	(450)	(496)	(545)	(600)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	6	12	17	21	24
COLORADO BASIN						
AQUA WSC	(2,534)	(4,656)	(7,145)	(11,210)	(17,667)	(26,269)
BASTROP	(30)	(671)	(1,519)	(2,685)	(4,274)	(6,390)
BASTROP COUNTY WCID #2	753	643	541	320	(93)	(644)
CREEDMOOR-MAHA WSC	16	12	5	0	0	0
ELGIN	(472)	(732)	(1,013)	(1,533)	(2,432)	(3,631)
LEE COUNTY WSC	137	148	172	207	248	291
POLONIA WSC	0	0	0	0	0	0
SMITHVILLE	1,006	932	953	663	70	(721)
COUNTY-OTHER	(361)	(519)	(739)	(907)	(1,158)	(1,490)
MANUFACTURING	(55)	(87)	(120)	(151)	(174)	(199)
MINING	(449)	(3,947)	(4,556)	(5,235)	(5,967)	(6,777)
STEAM ELECTRIC POWER	2,720	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	435	423	413	404	397	391
GUADALUPE BASIN						
AQUA WSC	185	167	143	110	64	4
COUNTY-OTHER	0	1	3	4	6	8
MANUFACTURING	7	6	4	2	1	0
MINING	(110)	(306)	(341)	(379)	(420)	(466)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	6	10	14	17	20
BLANCO COUNTY						
COLORADO BASIN						
JOHNSON CITY	(48)	(105)	(138)	(155)	(167)	(175)
COUNTY-OTHER	130	49	2	(24)	(42)	(55)
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	3	3	3	3	3	3
IRRIGATION	29	40	51	56	59	65
GUADALUPE BASIN						
BLANCO	831	773	740	723	710	702
CANYON LAKE WATER SERVICE COMPANY	0	0	0	0	0	0
COUNTY-OTHER	545	486	454	437	423	415
MANUFACTURING	0	0	0	0	0	0
LIVESTOCK	34	34	34	34	34	34
IRRIGATION	39	44	48	51	52	55
BURNET COUNTY						
BRAZOS BASIN						
BERTRAM	(40)	(118)	(184)	(249)	(307)	(358)
BURNET	6	5	4	2	1	0

Water User Group (WUG) Needs/Surplus

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BURNET COUNTY						
BRAZOS BASIN						
CHISHOLM TRAIL SUD	0	0	0	0	0	0
KEMPNER WSC	0	0	0	0	0	0
COUNTY-OTHER	412	198	20	(158)	(318)	(460)
MINING	0	0	0	0	0	0
LIVESTOCK	205	205	205	205	205	205
IRRIGATION	0	0	0	0	0	0
COLORADO BASIN						
BURNET	2,793	2,440	2,141	1,849	1,586	1,356
COTTONWOOD SHORES	268	226	191	156	124	96
GRANITE SHOALS	177	62	(38)	(137)	(226)	(306)
HORSESHOE BAY	101	(201)	(454)	(697)	(912)	(1,098)
KINGSLAND WSC	10	4	5	9	3	0
MARBLE FALLS	1,418	381	(1,089)	(1,859)	(2,377)	(2,636)
MEADOWLAKES	(207)	(379)	(525)	(665)	(788)	(896)
COUNTY-OTHER	2,981	2,929	3,215	3,104	2,905	2,623
MANUFACTURING	903	764	628	510	376	230
MINING	(1,011)	(1,703)	(2,428)	(3,085)	(3,841)	(4,703)
LIVESTOCK	144	144	144	144	144	144
IRRIGATION	623	623	623	623	623	623
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
EAGLE LAKE	17	16	16	11	6	0
COUNTY-OTHER	56	55	54	51	45	40
MANUFACTURING	4	4	4	4	3	3
MINING	10	9	7	5	4	2
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(21,628)	(20,296)	(19,000)	(17,738)	(16,511)	(15,316)
COLORADO BASIN						
COLUMBUS	15	(15)	(36)	(80)	(122)	(163)
EAGLE LAKE	39	36	35	25	12	0
WEIMAR	27	23	20	13	7	0
COUNTY-OTHER	(121)	(127)	(130)	(158)	(191)	(226)
MANUFACTURING	9	8	7	6	5	4
MINING	307	258	208	158	107	57
LIVESTOCK	65	65	65	65	65	65
IRRIGATION	(5,126)	(4,371)	(3,636)	(2,921)	(2,225)	(1,548)
LAVACA BASIN						
WEIMAR	56	47	41	27	13	0
COUNTY-OTHER	615	612	612	602	592	580
MANUFACTURING	448	423	400	381	347	309
MINING	14	11	8	6	3	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(32,200)	(29,826)	(27,516)	(25,268)	(23,081)	(20,952)
FAYETTE COUNTY						
COLORADO BASIN						
AQUA WSC	2	1	1	1	0	0
FAYETTE WSC	266	196	150	110	74	45

Water User Group (WUG) Needs/Surplus

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
FAYETTE COUNTY						
COLORADO BASIN						
LA GRANGE	429	335	274	219	171	132
LEE COUNTY WSC	343	324	309	299	282	258
COUNTY-OTHER	(74)	(157)	(210)	(259)	(306)	(345)
MINING	(1,576)	(1,176)	(717)	(274)	179	186
STEAM ELECTRIC POWER	10,286	10,286	8,186	1,886	(2,614)	(7,414)
LIVESTOCK	716	716	716	716	716	716
IRRIGATION	567	592	615	636	655	671
GUADALUPE BASIN						
FAYETTE WSC	15	11	8	5	3	1
FLATONIA	28	21	16	12	7	4
COUNTY-OTHER	38	35	33	30	28	26
MINING	(66)	(42)	(13)	15	42	43
LIVESTOCK	179	179	179	179	179	179
IRRIGATION	0	4	7	11	14	17
LAVACA BASIN						
FAYETTE WSC	25	18	12	7	3	0
FLATONIA	117	86	66	48	33	21
SCHULENBURG	1	(85)	(142)	(191)	(234)	(267)
COUNTY-OTHER	(198)	(228)	(246)	(264)	(281)	(294)
MANUFACTURING	(206)	(243)	(279)	(310)	(349)	(391)
MINING	(344)	(274)	(195)	(119)	(40)	(39)
LIVESTOCK	176	176	176	176	176	176
IRRIGATION	0	11	23	32	41	49
GILLESPIE COUNTY						
COLORADO BASIN						
FREDERICKSBURG	690	509	360	164	(30)	(222)
COUNTY-OTHER	559	486	424	325	217	107
MANUFACTURING	(309)	(362)	(411)	(452)	(536)	(626)
MINING	51	51	51	51	51	51
LIVESTOCK	528	528	528	528	528	528
IRRIGATION	444	471	499	524	549	574
GUADALUPE BASIN						
COUNTY-OTHER	28	26	24	20	16	12
LIVESTOCK	22	22	22	22	22	22
HAYS COUNTY						
COLORADO BASIN						
AUSTIN	0	0	0	0	0	0
BUDA	161	(667)	(1,690)	(2,974)	(4,429)	(6,088)
CIMARRON PARK WATER COMPANY	0	8	15	19	20	20
DRIPPING SPRINGS	27	(31)	(104)	(198)	(307)	(432)
DRIPPING SPRINGS WSC	0	0	0	0	0	(126)
GOFORTH SUD	0	0	0	0	0	0
MOUNTAIN CITY	0	0	0	0	0	0
PLUM CREEK WATER COMPANY	0	0	0	0	0	0
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	728	(937)	(2,974)	(5,522)	(8,405)	(11,687)
COUNTY-OTHER	983	394	(530)	(1,587)	(2,489)	(3,382)
MANUFACTURING	236	185	134	88	46	0

Water User Group (WUG) Needs/Surplus

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
HAYS COUNTY						
COLORADO BASIN						
MINING	(531)	(761)	(1,047)	(1,131)	(1,340)	(1,579)
LIVESTOCK	2	2	2	2	2	2
IRRIGATION	333	333	333	333	333	333
LLANO COUNTY						
COLORADO BASIN						
HORSESHOE BAY	39	(50)	(41)	(4)	(67)	(133)
KINGSLAND WSC	237	123	131	173	90	1
LLANO	(445)	(475)	(461)	(439)	(467)	(496)
SUNRISE BEACH VILLAGE	195	197	199	201	201	201
COUNTY-OTHER	3,646	3,702	3,703	3,689	3,723	3,756
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	417	451	483	513	543	572
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
BAY CITY	1,878	1,826	1,811	1,766	1,724	1,689
COUNTY-OTHER	146	143	148	145	134	124
MANUFACTURING	173	143	116	93	52	9
MINING	2	0	14	25	36	43
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(70,487)	(67,962)	(65,505)	(63,114)	(60,787)	(58,523)
COLORADO BASIN						
BAY CITY	4	4	4	4	4	4
COUNTY-OTHER	332	331	332	331	329	327
MANUFACTURING	3,885	3,184	2,523	1,979	1,021	0
MINING	1	0	2	4	6	7
STEAM ELECTRIC POWER	(25,363)	(25,377)	(25,401)	(25,431)	(25,461)	(25,483)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(12,024)	(11,663)	(11,312)	(10,971)	(10,639)	(10,315)
COLORADO-LAVACA BASIN						
PALACIOS	385	373	370	364	354	346
COUNTY-OTHER	85	83	86	84	76	69
MANUFACTURING	40	33	26	20	11	0
MINING	1	0	9	16	23	28
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(84,037)	(81,218)	(78,474)	(75,804)	(73,206)	(70,678)
MILLS COUNTY						
BRAZOS BASIN						
GOLDTHWAITE	0	0	0	0	0	0
COUNTY-OTHER	(16)	(15)	(14)	(18)	(23)	(29)
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(605)	(575)	(545)	(516)	(487)	(460)
COLORADO BASIN						
BROOKESMITH SUD	0	0	0	0	0	0

Water User Group (WUG) Needs/Surplus

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MILLS COUNTY						
COLORADO BASIN						
GOLDTHWAITE	(48)	(51)	(53)	(64)	(77)	(94)
COUNTY-OTHER	90	92	94	87	78	68
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	794	830	865	900	933	964
SAN SABA COUNTY						
COLORADO BASIN						
RICHLAND SUD	131	129	131	131	131	130
SAN SABA	(88)	(128)	(124)	(99)	(125)	(152)
COUNTY-OTHER	215	211	217	222	216	209
MANUFACTURING	0	0	0	0	0	0
MINING	451	446	595	639	675	701
LIVESTOCK	27	27	27	27	27	27
IRRIGATION	461	639	812	982	1,144	1,291
TRAVIS COUNTY						
COLORADO BASIN						
AQUA WSC	721	584	447	286	138	0
AUSTIN	108,581	74,946	30,447	(1,231)	(29,821)	(63,194)
BARTON CREEK WEST WSC	328	333	336	337	338	338
BEE CAVE	(225)	(491)	(745)	(1,030)	(1,282)	(1,518)
BRIARCLIFF	140	105	72	32	(3)	(36)
CEDAR PARK	(505)	(941)	(1,121)	(987)	(1,084)	(1,194)
CREEDMOOR-MAHA WSC	160	59	(43)	(171)	(309)	(445)
ELGIN	0	(101)	(196)	(305)	(402)	(493)
JONESTOWN	(93)	(113)	(133)	(158)	(182)	(206)
LAGO VISTA	2,157	1,840	1,537	1,193	885	597
LAKEWAY	(1,469)	(3,607)	(3,585)	(3,573)	(3,568)	(3,567)
LEANDER	68	(1,224)	(3,282)	(4,153)	(4,544)	(4,937)
LOOP 360 WSC	76	30	(14)	(66)	(113)	(157)
LOST CREEK MUD	0	0	0	0	0	0
MANOR	2,316	757	357	(94)	(494)	(867)
MANVILLE WSC	3,765	873	182	(568)	(1,286)	(2,346)
MUSTANG RIDGE	0	0	0	0	0	0
NORTH AUSTIN MUD #1	0	0	0	0	0	0
NORTHTOWN MUD	339	339	339	339	339	339
PFLUGERVILLE	(605)	(4,935)	(9,073)	(13,727)	(17,872)	(21,741)
POINT VENTURE	13	(83)	(174)	(278)	(369)	(455)
ROLLINGWOOD	0	(379)	(376)	(375)	(376)	(378)
ROUND ROCK	3	(60)	(126)	(202)	(265)	(323)
SHADY HOLLOW MUD	0	0	0	0	0	0
SUNSET VALLEY	27	27	27	27	27	27
THE HILLS	84	89	92	94	95	95
TRAVIS COUNTY MUD #4	1,207	810	435	13	(361)	(710)
TRAVIS COUNTY WCID #10	0	(2,428)	(2,715)	(3,044)	(3,341)	(3,619)
TRAVIS COUNTY WCID #17	(302)	(1,904)	(2,868)	(3,038)	(3,330)	(3,693)
TRAVIS COUNTY WCID #18	613	469	329	163	11	(131)

Water User Group (WUG) Needs/Surplus

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY						
COLORADO BASIN						
TRAVIS COUNTY WCID #19	0	0	0	0	0	0
TRAVIS COUNTY WCID #20	545	548	551	552	553	553
VOLENTE	0	(13)	(25)	(40)	(54)	(66)
WELLS BRANCH MUD	0	0	0	0	0	0
WEST LAKE HILLS	41	(1,550)	(1,539)	(1,533)	(1,532)	(1,532)
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	421	68	(269)	(650)	(986)	(1,300)
WILLIAMSON-TRAVIS COUNTY MUD #1	48	52	54	55	55	56
COUNTY-OTHER	10,613	10,963	11,278	11,790	12,505	13,139
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	2,626	(1,374)	(1,374)	(6,543)	(14,043)	(21,530)
LIVESTOCK	3	3	3	3	3	3
IRRIGATION	809	1,156	1,474	1,767	2,034	2,246
GUADALUPE BASIN						
CREEDMOOR-MAHA WSC	0	0	0	0	0	0
GOFORTH SUD	0	0	0	0	0	0
MUSTANG RIDGE	0	0	0	0	0	0
COUNTY-OTHER	94	86	78	75	74	70
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
EAST BERNARD	77	62	51	39	25	12
WHARTON	590	553	524	488	447	410
COUNTY-OTHER	642	617	596	550	506	467
MANUFACTURING	229	195	160	131	84	33
MINING	2	0	11	18	27	32
STEAM ELECTRIC POWER	246	184	109	17	(94)	(200)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(69,536)	(66,452)	(63,453)	(60,534)	(57,693)	(54,929)
COLORADO BASIN						
EL CAMPO	0	0	0	0	0	0
WHARTON	93	73	58	39	19	0
COUNTY-OTHER	583	571	560	538	518	498
MINING	1	0	7	12	17	21
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	9	9	9	9	9	9
IRRIGATION	(19,287)	(17,632)	(16,021)	(14,453)	(12,927)	(11,443)
COLORADO-LAVACA BASIN						
COUNTY-OTHER	88	84	80	73	67	61
MINING	0	0	1	3	4	4
LIVESTOCK	107	107	107	107	107	107
IRRIGATION	(20,559)	(19,589)	(18,644)	(17,725)	(16,831)	(15,960)
LAVACA BASIN						
COUNTY-OTHER	3	3	2	1	1	0

Water User Group (WUG) Needs/Surplus

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
WILLIAMSON COUNTY						
BRAZOS BASIN						
AUSTIN	0	150	320	517	567	0
NORTH AUSTIN MUD #1	0	0	0	0	0	0
WELLS BRANCH MUD	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	2	2	2	2	2
LIVESTOCK	0	0	0	0	0	0

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Water User Group (WUG) Second-Tier Identified Water Need Summary

REGION K

	2020	2030	2040	2050	2060	2070
MUNICIPAL	959	6,211	9,922	17,295	26,925	42,579
COUNTY-OTHER	151	189	249	1,043	1,893	2,787
MANUFACTURING	570	692	810	913	1,059	1,216
MINING	4,260	8,618	9,247	10,219	11,653	13,664
STEAM ELECTRIC POWER	25,363	25,377	25,401	25,431	32,712	44,127
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	214,375	178,442	141,153	107,636	78,682	54,428

*Second-tier needs are WUG split needs adjusted to include the implementation of recommended demand reduction and direct reuse water management strategies.

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Water User Group (WUG) Second-Tier Identified Water Need

REGION K	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
AQUA WSC	0	0	0	0	0	0
LEE COUNTY WSC	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	173	409	450	496	545	600
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
COLORADO BASIN						
AQUA WSC	554	2,015	3,927	7,115	12,233	19,000
BASTROP	0	0	14	309	765	2,064
BASTROP COUNTY WCID #2	0	0	0	0	19	542
CREEDMOOR-MAHA WSC	0	0	0	0	0	0
ELGIN	277	484	694	1,116	1,880	2,899
LEE COUNTY WSC	0	0	0	0	0	0
POLONIA WSC	0	0	0	0	0	0
SMITHVILLE	0	0	0	0	0	86
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	55	87	120	151	174	199
MINING	449	3,947	4,556	5,235	5,967	6,777
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
GUADALUPE BASIN						
AQUA WSC	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	110	306	341	379	420	466
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
BLANCO COUNTY						
COLORADO BASIN						
JOHNSON CITY	0	0	19	35	46	53
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
GUADALUPE BASIN						
BLANCO	0	0	0	0	0	0
CANYON LAKE WATER SERVICE COMPANY	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
BURNET COUNTY						
BRAZOS BASIN						
BERTRAM	0	0	10	30	41	45
BURNET	0	0	0	0	0	0
CHISHOLM TRAIL SUD	0	0	0	0	0	0

Water User Group (WUG) Second-Tier Identified Water Need

REGION K	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BURNET COUNTY						
BRAZOS BASIN						
KEMPNER WSC	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	60
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
COLORADO BASIN						
BURNET	0	0	0	0	0	0
COTTONWOOD SHORES	0	0	0	0	0	0
GRANITE SHOALS	0	0	0	89	173	249
HORSESHOE BAY	0	0	0	0	0	0
KINGSLAND WSC	0	0	0	0	0	0
MARBLE FALLS	0	0	0	0	0	0
MEADOWLAKES	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	1,011	1,703	2,428	3,085	3,841	4,703
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
EAGLE LAKE	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	11,086	8,521	5,933	3,653	1,655	0
COLORADO BASIN						
COLUMBUS	0	0	0	0	0	0
EAGLE LAKE	0	0	0	0	0	0
WEIMAR	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	3	31	61
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
LAVACA BASIN						
WEIMAR	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	13,921	9,842	5,805	2,300	0	0
FAYETTE COUNTY						
COLORADO BASIN						
AQUA WSC	0	0	0	0	0	0
FAYETTE WSC	0	0	0	0	0	0
LA GRANGE	0	0	0	0	0	0
LEE COUNTY WSC	0	0	0	0	0	0

Water User Group (WUG) Second-Tier Identified Water Need

REGION K	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
FAYETTE COUNTY						
COLORADO BASIN						
COUNTY-OTHER	0	12	57	98	138	172
MINING	1,576	1,176	717	274	0	0
STEAM ELECTRIC POWER	0	0	0	0	2,614	7,414
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
GUADALUPE BASIN						
FAYETTE WSC	0	0	0	0	0	0
FLATONIA	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	66	42	13	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
LAVACA BASIN						
FAYETTE WSC	0	0	0	0	0	0
FLATONIA	0	0	0	0	0	0
SCHULENBURG	0	0	0	0	0	0
COUNTY-OTHER	151	177	192	207	222	233
MANUFACTURING	206	243	279	310	349	391
MINING	344	274	195	119	40	39
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
GILLESPIE COUNTY						
COLORADO BASIN						
FREDERICKSBURG	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	309	362	411	452	536	626
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
GUADALUPE BASIN						
COUNTY-OTHER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
HAYS COUNTY						
COLORADO BASIN						
AUSTIN	0	0	0	0	0	0
BUDA	0	0	0	226	1,394	2,726
CIMARRON PARK WATER COMPANY	0	0	0	0	0	0
DRIPPING SPRINGS	0	0	0	0	0	0
DRIPPING SPRINGS WSC	0	0	0	0	0	0
GOFORTH SUD	0	0	0	0	0	0
MOUNTAIN CITY	0	0	0	0	0	0
PLUM CREEK WATER COMPANY	0	0	0	0	0	0
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	0	0	0	0	412	711
COUNTY-OTHER	0	0	0	735	1,502	2,261
MANUFACTURING	0	0	0	0	0	0
MINING	531	761	547	631	840	1,079
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0

Water User Group (WUG) Second-Tier Identified Water Need

REGION K	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
LLANO COUNTY						
COLORADO BASIN						
HORSESHOE BAY	0	0	0	0	0	0
KINGSLAND WSC	0	0	0	0	0	0
LLANO	128	123	86	42	25	7
SUNRISE BEACH VILLAGE	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
BAY CITY	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	48,397	41,244	33,660	26,753	20,594	14,499
COLORADO BASIN						
BAY CITY	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	25,363	25,377	25,401	25,431	25,461	25,483
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	8,714	7,539	6,279	5,120	4,083	3,045
COLORADO-LAVACA BASIN						
PALACIOS	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	58,948	50,547	41,593	33,413	26,109	18,844
MILLS COUNTY						
BRAZOS BASIN						
GOLDTHWAITE	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	480	480	480	480	480	460
COLORADO BASIN						
BROOKESMITH SUD	0	0	0	0	0	0
GOLDTHWAITE	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0

Water User Group (WUG) Second-Tier Identified Water Need

REGION K	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
SAN SABA COUNTY						
COLORADO BASIN						
RICHLAND SUD	0	0	0	0	0	0
SAN SABA	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
TRAVIS COUNTY						
COLORADO BASIN						
AQUA WSC	0	0	0	0	0	0
AUSTIN	0	0	0	0	0	0
BARTON CREEK WEST WSC	0	0	0	0	0	0
BEE CAVE	0	0	0	0	0	0
BRIARCLIFF	0	0	0	0	0	0
CEDAR PARK	0	0	0	0	0	0
CREEDMOOR-MAHA WSC	0	0	9	133	268	400
ELGIN	0	48	129	222	304	381
JONESTOWN	0	0	0	0	0	0
LAGO VISTA	0	0	0	0	0	0
LAKEWAY	0	132	0	0	0	0
LEANDER	0	788	2,529	3,340	3,701	4,055
LOOP 360 WSC	0	0	0	0	0	0
LOST CREEK MUD	0	0	0	0	0	0
MANOR	0	0	0	0	72	390
MANVILLE WSC	0	0	0	0	461	1,435
MUSTANG RIDGE	0	0	0	0	0	0
NORTH AUSTIN MUD #1	0	0	0	0	0	0
NORTHTOWN MUD	0	0	0	0	0	0
PFLUGERVILLE	0	0	0	2,224	2,855	5,312
POINT VENTURE	0	0	0	0	19	32
ROLLINGWOOD	0	255	241	228	216	203
ROUND ROCK	0	27	82	144	187	223
SHADY HOLLOW MUD	0	0	0	0	0	0
SUNSET VALLEY	0	0	0	0	0	0
THE HILLS	0	0	0	0	0	0
TRAVIS COUNTY MUD #4	0	0	0	0	0	0
TRAVIS COUNTY WCID #10	0	1,376	1,329	1,287	1,190	1,181
TRAVIS COUNTY WCID #17	0	0	0	0	0	0
TRAVIS COUNTY WCID #18	0	0	0	0	0	0
TRAVIS COUNTY WCID #19	0	0	0	0	0	0
TRAVIS COUNTY WCID #20	0	0	0	0	0	0
VOLENTE	0	9	20	34	47	59
WELLS BRANCH MUD	0	0	0	0	0	0
WEST LAKE HILLS	0	954	833	721	617	526
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	0	0	0	0	0	0
WILLIAMSON-TRAVIS COUNTY MUD #1	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0

Water User Group (WUG) Second-Tier Identified Water Need

REGION K	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY						
COLORADO BASIN						
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	4,543	11,030
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
GUADALUPE BASIN						
CREEDMOOR-MAHA WSC	0	0	0	0	0	0
GOFORTH SUD	0	0	0	0	0	0
MUSTANG RIDGE	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
EAST BERNARD	0	0	0	0	0	0
WHARTON	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	94	200
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	48,964	41,369	33,470	26,349	20,024	13,875
COLORADO BASIN						
EL CAMPO	0	0	0	0	0	0
WHARTON	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	9,676	6,999	4,397	2,157	211	0
COLORADO-LAVACA BASIN						
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	14,189	11,901	9,536	7,411	5,526	3,705
LAVACA BASIN						
COUNTY-OTHER	0	0	0	0	0	0
WILLIAMSON COUNTY						
BRAZOS BASIN						
AUSTIN	0	0	0	0	0	0
NORTH AUSTIN MUD #1	0	0	0	0	0	0
WELLS BRANCH MUD	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0

Water User Group (WUG) Management Supply Factor

REGION K	WUG MANAGEMENT SUPPLY FACTOR					
	2020	2030	2040	2050	2060	2070
AQUA WSC	1.3	1.1	1.4	1.1	1.1	1.0
AUSTIN	2.4	2.1	1.9	1.8	1.7	1.6
BARTON CREEK WEST WSC	2.0	2.1	2.2	2.2	2.3	2.3
BASTROP	1.4	1.2	1.1	1.5	1.3	1.1
BASTROP COUNTY WCID #2	3.0	2.2	1.8	1.3	1.4	1.0
BAY CITY	2.0	1.9	1.9	1.8	1.8	1.8
BEE CAVE	1.3	1.3	1.4	1.4	1.4	1.4
BERTRAM	2.8	3.2	2.9	2.7	2.5	2.4
BLANCO	3.5	3.1	2.8	2.7	2.7	2.6
BRIARCLIFF	1.6	1.5	1.3	1.2	1.1	1.0
BUDA	2.3	2.3	1.9	1.6	1.3	1.1
BURNET	3.4	3.3	3.0	2.8	2.6	2.5
CIMARRON PARK WATER COMPANY	1.0	1.0	1.1	1.1	1.1	1.1
COLUMBUS	1.3	1.3	1.4	1.4	1.4	1.4
COTTONWOOD SHORES	4.1	4.7	4.2	3.8	3.5	3.3
COUNTY-OTHER, BASTROP	1.1	1.1	1.0	1.0	1.0	1.0
COUNTY-OTHER, BLANCO	2.3	2.0	1.9	1.9	1.9	1.8
COUNTY-OTHER, BURNET	2.9	3.1	3.2	3.0	2.8	2.5
COUNTY-OTHER, COLORADO	1.7	1.7	1.7	1.6	1.6	1.5
COUNTY-OTHER, FAYETTE	1.5	1.4	1.3	1.2	1.2	1.2
COUNTY-OTHER, GILLESPIE	1.7	1.6	1.6	1.5	1.5	1.4
COUNTY-OTHER, HAYS	2.7	2.9	1.9	1.6	1.3	1.2
COUNTY-OTHER, LLANO	7.7	8.5	8.5	8.3	8.8	9.4
COUNTY-OTHER, MATAGORDA	1.4	1.4	1.4	1.4	1.4	1.4
COUNTY-OTHER, MILLS	2.5	2.5	2.5	2.5	2.4	2.3
COUNTY-OTHER, SAN SABA	3.2	3.1	3.2	3.2	3.2	3.1
COUNTY-OTHER, TRAVIS	2.3	2.5	2.7	3.1	4.0	5.7
COUNTY-OTHER, WHARTON	1.7	1.6	1.6	1.5	1.5	1.4
CREEDMOOR-MAHA WSC	1.3	1.9	1.7	1.5	1.4	1.2
DRIPPING SPRINGS	1.4	1.3	1.4	1.4	1.4	1.5
DRIPPING SPRINGS WSC	1.3	2.9	2.5	2.3	2.0	1.7
EAGLE LAKE	1.3	1.2	1.2	1.2	1.2	1.2
EAST BERNARD	1.4	1.4	1.4	1.4	1.4	1.4
ELGIN	1.0	2.6	2.0	1.6	1.3	1.0
FAYETTE WSC	1.6	1.4	1.3	1.3	1.2	1.2
FLATONIA	2.3	2.2	2.1	2.1	2.1	2.1
FREDERICKSBURG	1.5	1.5	1.5	1.4	1.4	1.4
GOLDTHWAITE	1.0	1.0	1.1	1.1	1.1	1.1
GRANITE SHOALS	1.3	1.1	1.0	1.2	1.1	1.0
HORSESHOE BAY	1.4	1.5	1.6	1.6	1.7	1.7
IRRIGATION, BASTROP	1.5	1.6	1.7	1.8	1.9	2.0
IRRIGATION, BLANCO	1.3	1.4	1.4	1.5	1.5	1.6
IRRIGATION, BURNET	1.4	1.4	1.4	1.4	1.4	1.4
IRRIGATION, COLORADO	1.0	1.0	1.0	1.0	1.0	1.1
IRRIGATION, FAYETTE	1.9	2.0	2.2	2.3	2.5	2.6
IRRIGATION, GILLESPIE	1.2	1.2	1.2	1.3	1.3	1.3
IRRIGATION, LLANO	1.2	1.2	1.3	1.3	1.3	1.3
IRRIGATION, MATAGORDA	0.7	0.7	0.7	0.8	0.8	0.9
IRRIGATION, MILLS	1.3	1.3	1.3	1.3	1.3	1.4
IRRIGATION, SAN SABA	1.1	1.1	1.2	1.2	1.2	1.3

Water User Group (WUG) Management Supply Factor

REGION K	WUG MANAGEMENT SUPPLY FACTOR					
	2020	2030	2040	2050	2060	2070
IRRIGATION, TRAVIS	1.2	1.3	1.4	1.5	1.7	1.8
IRRIGATION, WHARTON	0.9	0.9	0.9	1.0	1.0	1.0
JOHNSON CITY	1.6	1.4	1.4	1.3	1.3	1.3
JONESTOWN	1.0	1.0	1.0	1.0	1.0	1.0
KINGSLAND WSC	1.3	1.2	1.2	1.2	1.1	1.1
LA GRANGE	1.7	1.5	1.4	1.4	1.3	1.3
LAGO VISTA	2.5	2.2	2.0	1.8	1.7	1.7
LAKEWAY	1.3	1.2	1.2	1.3	1.4	1.4
LIVESTOCK, BASTROP	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, BLANCO	1.1	1.1	1.1	1.1	1.1	1.1
LIVESTOCK, BURNET	1.4	1.4	1.4	1.4	1.4	1.4
LIVESTOCK, COLORADO	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, FAYETTE	1.4	1.4	1.4	1.4	1.4	1.4
LIVESTOCK, GILLESPIE	1.5	1.5	1.5	1.5	1.5	1.5
LIVESTOCK, LLANO	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, MATAGORDA	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, MILLS	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, SAN SABA	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, TRAVIS	1.0	1.0	1.0	1.0	1.0	1.0
LLANO	1.1	1.1	1.1	1.2	1.2	1.2
LOOP 360 WSC	1.3	1.4	1.4	1.4	1.5	1.5
LOST CREEK MUD	1.3	1.3	1.4	1.4	1.4	1.5
MANOR	3.2	2.0	1.6	1.4	1.2	1.1
MANUFACTURING, BASTROP	1.0	1.0	1.0	1.0	1.0	1.0
MANUFACTURING, BLANCO	1.0	1.0	1.0	1.0	1.0	1.0
MANUFACTURING, BURNET	1.8	1.6	1.5	1.3	1.2	1.1
MANUFACTURING, COLORADO	2.2	2.1	1.9	1.9	1.7	1.6
MANUFACTURING, FAYETTE	1.5	1.4	1.3	1.2	1.1	1.0
MANUFACTURING, GILLESPIE	1.3	1.2	1.2	1.1	1.1	1.0
MANUFACTURING, HAYS	2.8	2.4	2.2	2.0	1.8	1.7
MANUFACTURING, LLANO	1.0	1.0	1.0	1.0	1.0	1.0
MANUFACTURING, MATAGORDA	1.3	1.2	1.2	1.1	1.1	1.0
MANUFACTURING, MILLS	1.0	1.0	1.0	1.0	1.0	1.0
MANUFACTURING, SAN SABA	1.0	1.0	1.0	1.0	1.0	1.0
MANUFACTURING, TRAVIS	1.0	1.0	1.0	1.0	1.0	1.0
MANUFACTURING, WHARTON	1.4	1.4	1.3	1.2	1.1	1.0
MANVILLE WSC	2.3	1.5	1.3	1.3	1.3	1.2
MARBLE FALLS	2.1	2.7	2.0	1.8	1.8	1.7
MEADOWLAKES	1.1	1.0	1.0	1.0	1.0	1.1
MINING, BASTROP	0.8	0.4	0.3	0.3	0.3	0.3
MINING, BLANCO	1.0	1.0	1.0	1.0	1.0	1.0
MINING, BURNET	1.1	1.1	1.0	1.0	1.1	1.0
MINING, COLORADO	1.1	1.1	1.0	1.0	1.0	1.0
MINING, FAYETTE	1.0	1.0	1.1	1.3	2.5	2.5
MINING, GILLESPIE	13.8	13.8	13.8	13.8	13.8	13.8
MINING, HAYS	1.0	1.1	1.4	1.4	1.2	1.0
MINING, LLANO	1.0	1.0	1.0	1.0	1.0	1.0
MINING, MATAGORDA	1.0	1.0	1.3	1.8	2.9	4.5
MINING, MILLS	1.0	1.0	1.0	1.0	1.0	1.0
MINING, SAN SABA	1.4	1.4	1.6	1.7	1.8	1.8

Water User Group (WUG) Management Supply Factor

REGION K	WUG MANAGEMENT SUPPLY FACTOR					
	2020	2030	2040	2050	2060	2070
MINING, TRAVIS	1.0	1.0	1.0	1.0	1.0	1.0
MINING, WHARTON	1.0	1.0	1.3	1.8	2.8	4.4
MOUNTAIN CITY	1.8	2.2	2.1	1.9	1.7	1.5
NORTH AUSTIN MUD #1	1.1	1.1	1.2	1.1	1.2	1.2
NORTHTOWN MUD	1.6	1.6	1.5	1.5	1.5	1.4
PALACIOS	1.7	1.7	1.7	1.7	1.6	1.6
PFLUGERVILLE	1.3	1.1	1.1	1.1	1.0	1.0
POINT VENTURE	1.3	1.4	1.3	1.5	1.4	1.3
ROLLINGWOOD	1.3	1.4	1.4	1.5	1.5	1.5
SAN SABA	1.2	1.3	1.4	1.4	1.5	1.5
SCHULENBURG	1.2	1.1	1.1	1.1	1.1	1.1
SHADY HOLLOW MUD	1.2	1.2	1.1	1.2	1.2	1.2
SMITHVILLE	2.4	2.1	1.9	1.6	1.2	1.0
STEAM ELECTRIC POWER, BASTROP	1.2	1.0	1.0	1.0	1.0	1.0
STEAM ELECTRIC POWER, FAYETTE	1.6	1.6	1.6	1.4	1.3	1.2
STEAM ELECTRIC POWER, LLANO	1.0	1.0	1.0	1.0	1.0	1.0
STEAM ELECTRIC POWER, MATAGORDA	1.0	1.0	1.0	1.0	1.0	1.0
STEAM ELECTRIC POWER, TRAVIS	1.3	1.3	1.3	1.1	1.0	1.0
STEAM ELECTRIC POWER, WHARTON	1.1	1.1	1.0	1.0	1.0	1.0
SUNRISE BEACH VILLAGE	3.7	3.8	3.9	4.0	4.0	4.0
SUNSET VALLEY	1.5	3.4	3.4	3.2	3.0	2.9
THE HILLS	1.3	1.4	1.5	1.6	1.6	1.7
TRAVIS COUNTY MUD #4	1.8	1.7	1.6	1.5	1.5	1.5
TRAVIS COUNTY WCID #10	1.4	1.7	1.6	1.6	1.5	1.5
TRAVIS COUNTY WCID #17	1.3	1.3	1.3	1.3	1.3	1.4
TRAVIS COUNTY WCID #18	1.7	1.6	1.4	1.3	1.2	1.1
TRAVIS COUNTY WCID #19	1.3	1.4	1.5	1.5	1.6	1.7
TRAVIS COUNTY WCID #20	2.2	2.3	2.4	2.5	2.6	2.6
VOLENTE	2.9	2.5	2.2	1.9	1.7	1.6
WEIMAR	1.4	1.4	1.4	1.4	1.4	1.4
WELLS BRANCH MUD	1.1	1.1	1.1	1.1	1.1	1.1
WEST LAKE HILLS	1.3	1.2	1.3	1.4	1.4	1.5
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	1.5	1.5	1.5	1.4	1.5	1.4
WHARTON	1.7	1.6	1.6	1.5	1.5	1.5

*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. To calculate the Management Supply Factor for each WUG as a whole, not split by region-county-basin the combined total of existing and future supply is divided by the total projected demand.

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Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Primary Region: K

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
AQUA WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,549	1,960	2,502	3,248	4,254	5,639	$50	$50
AQUA WSC	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	2,500	2,500	4,000	4,000	4,000	4,000	$259	$259
AQUA WSC	K	LCRA - PRAIRIE SITE RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIR (2030 DECADE)	0	0	5,000	5,000	10,000	15,000	N/A	$1414
AQUA WSC	K	MUNICIPAL CONSERVATION - AQUA WSC	DEMAND REDUCTION	704	1,006	1,066	1,235	1,623	2,130	$352	$352
AUSTIN	K	CITY OF AUSTIN - AQUIFER STORAGE AND RECOVERY	K | TRINITY AQUIFER ASR | TRAVIS COUNTY	10,000	25,000	25,000	50,000	50,000	50,000	$604	$604
AUSTIN	K	CITY OF AUSTIN - CAPTURE LOCAL INFLOWS TO LADY BIRD LAKE	K | COLORADO RUN-OF-RIVER	1,000	1,000	1,000	1,000	1,000	1,000	$297	$297
AUSTIN	K	CITY OF AUSTIN - CONSERVATION	DEMAND REDUCTION	22,969	24,559	28,317	31,220	33,822	36,899	$342	$342
AUSTIN	K	CITY OF AUSTIN - DIRECT REUSE	K | DIRECT REUSE	5,429	10,429	20,429	22,929	25,429	27,929	$1347	$1347
AUSTIN	K	CITY OF AUSTIN - INDIRECT POTABLE REUSE THROUGH LADY BIRD LAKE	K | COLORADO INDIRECT REUSE	20,000	20,000	20,000	20,000	20,000	20,000	$180	$180
AUSTIN	K	CITY OF AUSTIN - LAKE AUSTIN OPERATIONS	K | COLORADO RUN-OF-RIVER	2,500	2,500	2,500	2,500	2,500	2,500	$10	$10
AUSTIN	K	CITY OF AUSTIN - LAKE LONG ENHANCED STORAGE	K | LAKE LONG/RESERVOIR	20,000	20,000	20,000	20,000	20,000	20,000	$187	$187
AUSTIN	K	CITY OF AUSTIN - LONGHORN DAM OPERATION IMPROVEMENTS	K | COLORADO RUN-OF-RIVER	3,000	3,000	3,000	3,000	3,000	3,000	$29	$29
AUSTIN	K	CITY OF AUSTIN - OTHER REUSE	K | DIRECT REUSE	1,000	1,000	1,500	2,000	2,500	3,000	$1022	$1022
AUSTIN	K	CITY OF AUSTIN - RAINWATER HARVESTING	K | RAINWATER HARVESTING	83	828	4,141	8,282	12,423	16,564	$3487	$3487
AUSTIN	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	19,258	17,749	22,990	22,874	26,759	30,312	$0	$0
AUSTIN	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	16,516	19,260	22,206	24,484	26,524	28,937	$50	$50
BARTON CREEK WEST WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	65	64	64	63	63	63	$50	$50
BARTON CREEK WEST WSC	K	MUNICIPAL CONSERVATION - BARTON CREEK WEST WSC	DEMAND REDUCTION	42	77	108	122	137	152	$282	$282
BASTROP	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	300	300	300	300	300	0	$937	N/A
BASTROP	K	DIRECT REUSE - BASTROP	K | DIRECT REUSE	0	0	300	600	1,120	1,120	N/A	$448
BASTROP	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	294	390	517	692	930	1,248	$50	$50
BASTROP	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	2,500	2,500	2,500	N/A	$2361
BASTROP	K	MUNICIPAL CONSERVATION - BASTROP	DEMAND REDUCTION	195	440	688	1,084	1,459	1,958	$303	$303
BASTROP COUNTY WCID #2	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	19	27	38	53	74	102	$50	$50
BASTROP COUNTY WCID #2	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	0	0	0	0	550	550	N/A	$369
BAY CITY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	568	579	582	591	599	606	$50	$50
BAY CITY	K	MUNICIPAL CONSERVATION - BAY CITY	DEMAND REDUCTION	252	199	114	94	95	96	$336	$336
BEE CAVE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	355	409	459	516	567	614	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
BEE CAVE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	300	300	600	600	800	800	$0	$0
BEE CAVE	K	MUNICIPAL CONSERVATION - BEE CAVE VILLAGE	DEMAND REDUCTION	175	374	608	863	1,136	1,323	$272	$272
BERTRAM	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	62	73	83	93	102	109	$50	$50
BERTRAM	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	180	180	180	180	180	180	$1044	$1044
BERTRAM	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	500	884	884	884	884	884	$952	$952
BERTRAM	K	MUNICIPAL CONSERVATION - BERTRAM	DEMAND REDUCTION	41	64	91	126	164	204	$292	$292
BLANCO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	55	63	68	71	73	74	$50	$50
BLANCO	K	MUNICIPAL CONSERVATION - BLANCO	DEMAND REDUCTION	19	32	28	26	27	27	$378	$378
BRIARCLIFF	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	26	30	33	37	40	44	$50	$50
BUDA	K	DIRECT REUSE - BUDA	K | DIRECT REUSE	2,240	2,240	1,740	1,740	1,740	1,740	$264	$264
BUDA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	177	251	342	456	586	734	$50	$50
BUDA	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	600	600	600	600	600	N/A	$1291
BUDA	K	HCPUA PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	667	1,690	2,467	2,467	2,467	N/A	$1926
BUDA	K	MUNICIPAL CONSERVATION - BUDA	DEMAND REDUCTION	88	206	434	552	709	888	$374	$374
BUDA	K	SALINE EDWARDS ASR	K | EDWARDS AQUIFER ASR FRESH/BRACKISH | TRAVIS COUNTY	0	100	100	100	100	100	N/A	$2031
BUDA	K	SALINE EDWARDS ASR (SALINE)	K | EDWARDS-BFZ AQUIFER SALINE | TRAVIS COUNTY	0	400	400	400	400	400	N/A	$2031
BURNET	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	370	441	500	559	612	658	$50	$50
BURNET	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	1,000	2,000	2,000	2,000	2,000	2,000	$952	$952
BURNET	K	MUNICIPAL CONSERVATION - BURNET	DEMAND REDUCTION	184	282	405	571	740	917	$291	$291
COLUMBUS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	170	175	178	185	191	197	$50	$50
COLUMBUS	K	MUNICIPAL CONSERVATION - COLUMBUS	DEMAND REDUCTION	112	206	296	347	404	464	$282	$282
COTTONWOOD SHORES	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	45	54	61	68	74	80	$50	$50
COTTONWOOD SHORES	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	376	700	700	700	700	700	$1517	$1517
COTTONWOOD SHORES	K	MUNICIPAL CONSERVATION - COTTONWOOD SHORES	DEMAND REDUCTION	22	21	20	19	21	23	$322	$322
COUNTY-OTHER, BASTROP	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	281	338	413	517	657	845	$50	$50
COUNTY-OTHER, BASTROP	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	60	60	60	60	60	0	$3267	N/A
COUNTY-OTHER, BASTROP	K	MUNICIPAL CONSERVATION - BASTROP COUNTY-OTHER	DEMAND REDUCTION	92	196	344	414	527	677	$374	$374
COUNTY-OTHER, BLANCO	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, BLANCO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	144	166	179	185	190	193	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
COUNTY-OTHER, BLANCO	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	0	0	0	55	55	55	N/A	$1382
COUNTY-OTHER, BLANCO	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - HICKORY AQUIFER	K | HICKORY AQUIFER | BLANCO COUNTY	0	0	0	55	55	55	N/A	$2182
COUNTY-OTHER, BURNET	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, BURNET	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	526	566	550	593	646	711	$50	$50
COUNTY-OTHER, BURNET	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	2,235	3,813	3,813	3,813	3,813	3,813	$1308	$1308
COUNTY-OTHER, BURNET	K	MUNICIPAL CONSERVATION - BURNET COUNTY-OTHER	DEMAND REDUCTION	60	93	83	80	87	94	$0	$0
COUNTY-OTHER, COLORADO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	221	223	223	229	237	245	$50	$50
COUNTY-OTHER, COLORADO	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | COLORADO COUNTY	226	226	226	226	226	226	$602	$602
COUNTY-OTHER, FAYETTE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	186	202	213	225	234	242	$50	$50
COUNTY-OTHER, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	639	639	639	639	639	639	$667	$667
COUNTY-OTHER, GILLESPIE	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, GILLESPIE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	273	284	295	310	327	343	$50	$50
COUNTY-OTHER, HAYS	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, HAYS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	466	554	693	852	987	1,121	$50	$50
COUNTY-OTHER, HAYS	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	200	200	200	200	200	N/A	$1291
COUNTY-OTHER, HAYS	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	2,000	2,000	2,000	2,000	2,000	N/A	$708
COUNTY-OTHER, HAYS	K	SALINE EDWARDS ASR	K | EDWARDS AQUIFER ASR FRESH/BRACKISH | TRAVIS COUNTY	0	100	100	100	100	100	N/A	$2031
COUNTY-OTHER, HAYS	K	SALINE EDWARDS ASR (SALINE)	K | EDWARDS-BFZ AQUIFER SALINE | TRAVIS COUNTY	0	100	100	100	100	100	N/A	$2031
COUNTY-OTHER, HAYS	L	GBRA - MBWSP - SURFACE WATER W/ ASR (OPTION 3C)	L | GUADALUPE RUN-OF-RIVER	0	0	0	0	2,029	7,220	N/A	$596
COUNTY-OTHER, HAYS	L	TWA REGIONAL CARRIZO AQUIFER DEVELOPMENT	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	0	0	1,169	4,685	4,388	N/A	$2490
COUNTY-OTHER, HAYS	L	TWA TRINITY AQUIFER DEVELOPMENT	L | TRINITY AQUIFER | COMAL COUNTY	0	0	0	0	0	1,263	N/A	$704
COUNTY-OTHER, HAYS	L	VISTA RIDGE PROJECT	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	3,781	5,000	5,000	5,000	5,000	5,000	$680	$611
COUNTY-OTHER, LLANO	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, LLANO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	31	28	28	28	27	25	$50	$50
COUNTY-OTHER, MATAGORDA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	81	81	81	81	81	83	$50	$50
COUNTY-OTHER, MILLS	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, MILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	77	77	75	78	81	84	$50	$50
COUNTY-OTHER, SAN SABA	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
COUNTY-OTHER, SAN SABA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	47	48	47	46	47	48	$50	$50
COUNTY-OTHER, TRAVIS	K	BRUSH CONTROL	K | COLORADO RUN-OF-RIVER	425	425	425	425	425	425	$500	$500
COUNTY-OTHER, WHARTON	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	299	306	310	322	333	343	$50	$50
CREEDMOOR-MAHA WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	30	34	38	42	46	51	$50	$50
CREEDMOOR-MAHA WSC	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	400	400	400	400	400	N/A	$151
CREEDMOOR-MAHA WSC	K	SALINE EDWARDS ASR	K | EDWARDS AQUIFER ASR FRESH/BRACKISH | TRAVIS COUNTY	0	101	101	101	101	101	N/A	$2031
CREEDMOOR-MAHA WSC	K	SALINE EDWARDS ASR (SALINE)	K | EDWARDS-BFZ AQUIFER SALINE | TRAVIS COUNTY	0	199	199	199	199	199	N/A	$2031
DRIPPING SPRINGS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	96	107	122	141	163	188	$50	$50
DRIPPING SPRINGS	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	0	0	0	134	407	N/A	$0
DRIPPING SPRINGS	K	MUNICIPAL CONSERVATION - DRIPPING SPRINGS	DEMAND REDUCTION	48	67	98	141	195	262	$293	$293
DRIPPING SPRINGS	K	WATER PURCHASE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	0	31	104	198	173	0	N/A	N/A
DRIPPING SPRINGS WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	107	136	172	218	271	330	$50	$50
DRIPPING SPRINGS WSC	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	1,000	1,000	1,000	866	593	N/A	$708
DRIPPING SPRINGS WSC	K	MUNICIPAL CONSERVATION - DRIPPING SPRINGS WSC	DEMAND REDUCTION	54	124	152	187	232	283	$313	$313
EAGLE LAKE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	78	79	79	82	85	87	$50	$50
EAST BERNARD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	57	59	61	63	65	67	$50	$50
EAST BERNARD	K	MUNICIPAL CONSERVATION - EAST BERNARD	DEMAND REDUCTION	19	29	42	56	78	97	$395	$395
ELGIN	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	233	301	386	500	650	844	$50	$50
ELGIN	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	300	300	0	0	0	0	$667	N/A
ELGIN	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	3,500	3,500	3,500	3,500	3,500	N/A	$2718
FAYETTE WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	113	125	133	141	148	152	$50	$50
FLATONIA	K	DIRECT REUSE - FLATONIA	K | DIRECT REUSE	134	149	159	168	176	182	$821	$821
FLATONIA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	51	56	59	63	65	68	$50	$50
FLATONIA	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	100	100	100	100	100	100	$2060	$2060
FLATONIA	K	MUNICIPAL CONSERVATION - FLATONIA	DEMAND REDUCTION	17	29	43	60	84	105	$356	$356
FREDERICKSBURG	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	472	499	521	551	580	609	$50	$50
FREDERICKSBURG	K	MUNICIPAL CONSERVATION - FREDERICKSBURG	DEMAND REDUCTION	317	599	733	916	1,094	1,301	$284	$284
GOLDTHWAITE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	53	53	53	55	57	59	$50	$50
GOLDTHWAITE	K	MUNICIPAL CONSERVATION - GOLDTHWAITE	DEMAND REDUCTION	10	13	24	38	54	58	$449	$449
GRANITE SHOALS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	33	38	43	48	53	57	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
GRANITE SHOALS	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	250	250	250	N/A	$151
HORSESHOE BAY	K	DIRECT REUSE - HORSESHOE BAY	K | DIRECT REUSE	100	100	100	100	100	100	$0	$0
HORSESHOE BAY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	651	748	810	860	930	994	$50	$50
HORSESHOE BAY	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	200	550	550	1,050	1,050	N/A	$151
HORSESHOE BAY	K	MUNICIPAL CONSERVATION - HORSESHOE BAY	DEMAND REDUCTION	264	554	852	1,157	1,501	1,839	$257	$257
IRRIGATION, COLORADO	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	0	0	466	336	485	0	N/A	N/A
IRRIGATION, COLORADO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	29,542	28,746	27,974	27,221	26,489	25,776	$163	$163
IRRIGATION, COLORADO	K	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	3,521	4,441	5,287	6,049	6,717	7,281	$162	$162
IRRIGATION, COLORADO	K	IRRIGATION CONSERVATION - OPERATION CONVEYANCE IMPROVEMENTS	DEMAND REDUCTION	916	2,904	4,791	6,527	8,092	9,364	$200	$200
IRRIGATION, COLORADO	K	IRRIGATION CONSERVATION - SPRINKLER	DEMAND REDUCTION	251	1,221	2,362	2,845	2,845	2,845	$36	$36
IRRIGATION, COLORADO	K	LCRA - INTERRUPTIBLE WATER FOR AGRICULTURE (LCRA WMP AMENDMENTS)	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	25,007	18,363	8,775	4,387	0	0	$50	N/A
IRRIGATION, MATAGORDA	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	8,832	9,326	11,356	13,011	14,876	17,560	$0	$0
IRRIGATION, MATAGORDA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	37,244	36,228	35,238	34,276	33,340	32,429	$649	$649
IRRIGATION, MATAGORDA	K	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	9,947	13,109	16,369	19,741	23,234	26,865	$162	$162
IRRIGATION, MATAGORDA	K	IRRIGATION CONSERVATION - OPERATION CONVEYANCE IMPROVEMENTS	DEMAND REDUCTION	2,587	8,572	14,836	21,300	27,986	34,548	$200	$200
IRRIGATION, MATAGORDA	K	IRRIGATION CONSERVATION - SPRINKLER	DEMAND REDUCTION	711	3,604	7,316	9,286	9,286	9,286	$36	$36
IRRIGATION, MATAGORDA	K	LCRA - INTERRUPTIBLE WATER FOR AGRICULTURE (LCRA WMP AMENDMENTS)	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	36,997	23,109	9,221	4,611	0	0	$50	N/A
IRRIGATION, MILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	125	95	65	36	7	0	$123	N/A
IRRIGATION, MILLS	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | MILLS COUNTY	480	480	480	480	480	480	$1619	$1619
IRRIGATION, WHARTON	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	6,361	6,494	7,216	7,546	7,546	8,484	$0	$0
IRRIGATION, WHARTON	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	27,855	27,106	26,376	25,666	24,976	24,305	$260	$260
IRRIGATION, WHARTON	K	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	6,533	8,450	10,343	12,211	14,049	15,853	$162	$162
IRRIGATION, WHARTON	K	IRRIGATION CONSERVATION - OPERATION CONVEYANCE IMPROVEMENTS	DEMAND REDUCTION	1,698	5,525	9,374	13,175	16,922	20,388	$200	$200
IRRIGATION, WHARTON	K	IRRIGATION CONSERVATION - SPRINKLER	DEMAND REDUCTION	467	2,323	4,622	5,743	5,743	5,743	$36	$36
IRRIGATION, WHARTON	K	LCRA - INTERRUPTIBLE WATER FOR AGRICULTURE (LCRA WMP AMENDMENTS)	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	15,876	7,192	1,452	726	0	0	$50	N/A
IRRIGATION, WHARTON	P	IRRIGATION CONSERVATION - ON FARM	DEMAND REDUCTION	41,338	41,338	41,338	41,338	41,338	41,338	$76	$76
IRRIGATION, WHARTON	P	IRRIGATION CONSERVATION - TAILWATER RECOVERY	DEMAND REDUCTION	8,429	8,429	8,429	8,429	8,429	8,429	$423	$423

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
IRRIGATION, WHARTON	P	LOCAL OFF-CHANNEL RESERVOIR - WHARTON COUNTY (LANE CITY)	K | COLORADO RUN-OF-RIVER	12,000	12,000	12,000	12,000	12,000	12,000	$33	$33
JOHNSON CITY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	71	82	89	92	95	96	$50	$50
JOHNSON CITY	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	175	175	175	175	175	175	$800	$800
JOHNSON CITY	K	MUNICIPAL CONSERVATION - JOHNSON CITY	DEMAND REDUCTION	18	30	30	28	26	26	$378	$378
JONESTOWN	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	82	86	90	95	99	104	$50	$50
JONESTOWN	K	MUNICIPAL CONSERVATION - JONESTOWN	DEMAND REDUCTION	20	36	51	73	96	122	$356	$356
KINGSLAND WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	47	54	53	50	56	60	$50	$50
LA GRANGE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	130	144	153	161	168	174	$50	$50
LA GRANGE	K	MUNICIPAL CONSERVATION - LA GRANGE	DEMAND REDUCTION	42	21	0	0	0	0	$396	N/A
LAGO VISTA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	374	437	498	566	628	686	$50	$50
LAGO VISTA	K	MUNICIPAL CONSERVATION - LAGO VISTA	DEMAND REDUCTION	187	301	426	604	773	972	$291	$291
LAKEWAY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,395	1,823	1,819	1,816	1,815	1,815	$50	$50
LAKEWAY	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	500	500	500	500	500	500	$570	$570
LAKEWAY	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	1,000	1,000	1,000	1,000	1,000	1,000	$0	$0
LAKEWAY	K	MUNICIPAL CONSERVATION - LAKEWAY	DEMAND REDUCTION	702	1,652	2,408	3,052	3,640	3,921	$272	$272
LLANO	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - HICKORY AQUIFER	K | HICKORY AQUIFER | LLANO COUNTY	200	200	200	200	200	200	$1270	$1270
LLANO	K	DIRECT REUSE - LLANO	K | DIRECT REUSE	100	100	100	100	100	100	$660	$660
LLANO	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	129	134	132	128	133	137	$50	$50
LLANO	K	MUNICIPAL CONSERVATION - LLANO	DEMAND REDUCTION	88	118	143	169	209	252	$291	$291
LOOP 360 WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	176	183	190	197	204	211	$50	$50
LOOP 360 WSC	K	MUNICIPAL CONSERVATION - LOOP 360 WSC	DEMAND REDUCTION	116	224	333	441	546	648	$258	$258
LOST CREEK MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	218	214	211	211	211	211	$50	$50
LOST CREEK MUD	K	MUNICIPAL CONSERVATION - LOST CREEK MUD	DEMAND REDUCTION	108	137	171	215	254	294	$291	$291
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	20,594	18,530	19,919	19,519	19,999	22,526	$0	$0
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	CITY OF PFLUGERVILLE - DOWNSTREAM RETURN FLOWS	K | COLORADO INDIRECT REUSE - DOWNSTREAM RETURN FLOWS	5,086	5,834	6,784	8,636	8,997	10,453	$0	$0
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - ACQUIRE ADDITIONAL WATER RIGHTS	K | COLORADO RUN-OF-RIVER	250	250	250	250	250	250	$500	$0
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - EXCESS FLOWS RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	15,257	15,543	15,830	16,117	16,404	16,691	$1446	$1446
MANOR	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	171	234	294	362	422	477	$50	$50
MANOR	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	0	600	600	600	600	600	N/A	$545

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WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
MANUFACTURING, BASTROP	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	55	87	120	151	174	199	$995	$995
MANUFACTURING, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	391	391	391	391	391	391	$547	$547
MANUFACTURING, GILLESPIE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	626	626	626	626	626	626	$594	$594
MANVILLE WSC	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	448	541	630	733	825	911	$50	$50
MANVILLE WSC	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	0	0	0	1,000	1,000	1,000	N/A	$537
MANVILLE WSC	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	500	2,000	2,000	N/A	$151
MARBLE FALLS	K	DIRECT REUSE - MARBLE FALLS	K | DIRECT REUSE	11	11	11	11	11	11	$0	$0
MARBLE FALLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	466	674	968	1,122	1,225	1,277	$50	$50
MARBLE FALLS	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	500	4,000	4,000	4,000	4,000	4,000	$1517	$1517
MARBLE FALLS	K	MUNICIPAL CONSERVATION - MARBLE FALLS	DEMAND REDUCTION	234	587	1,016	1,397	1,764	2,059	$286	$286
MEADOWLAKES	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	170	204	233	261	286	308	$50	$50
MEADOWLAKES	K	MUNICIPAL CONSERVATION - MEADOWLAKES	DEMAND REDUCTION	84	188	309	443	573	708	$271	$271
MINING, BASTROP	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	0	0	466	466	466	466	N/A	$689
MINING, BASTROP	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	K | QUEEN CITY AQUIFER | BASTROP COUNTY	110	306	0	0	0	0	$755	N/A
MINING, BURNET	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - ELLENBURGER-SAN SABA AQUIFER	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	1,500	1,500	1,500	1,500	1,500	1,500	$950	$950
MINING, BURNET	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - HICKORY AQUIFER	K | HICKORY AQUIFER | BURNET COUNTY	0	500	1,000	1,800	1,800	1,800	N/A	$718
MINING, BURNET	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - MARBLE FALLS AQUIFER	K | MARBLE FALLS AQUIFER | BURNET COUNTY	0	0	0	0	1,000	1,500	N/A	$469
MINING, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | FAYETTE COUNTY	1,920	1,520	1,061	618	344	344	$388	$622
MINING, FAYETTE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - SPARTA AQUIFER	K | SPARTA AQUIFER | FAYETTE COUNTY	66	42	13	0	0	0	$1030	N/A
MINING, HAYS	K	DIRECT REUSE - BUDA	K | DIRECT REUSE	0	0	500	500	500	500	N/A	$0
MINING, HAYS	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	100	100	100	100	100	N/A	$1291
MINING, HAYS	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | HAYS COUNTY	531	761	1,047	1,047	1,047	1,047	$436	$436
MOUNTAIN CITY	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	44	44	44	44	44	N/A	$1291
MOUNTAIN CITY	L	DROUGHT MANAGEMENT - MOUNTAIN CITY	DEMAND REDUCTION	1	0	0	0	0	0	$14	N/A
MOUNTAIN CITY	L	LOCAL TRINITY AQUIFER DEVELOPMENT	K | TRINITY AQUIFER | HAYS COUNTY	60	60	60	60	60	60	$1300	$1300
MOUNTAIN CITY	L	MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION	0	0	0	0	0	1	N/A	$770
NORTH AUSTIN MUD #1	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	128	124	121	118	118	118	$50	$50
NORTHTOWN MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	104	120	135	152	167	180	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
PALACIOS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	102	104	104	105	107	108	$50	$50
PFLUGERVILLE	K	DIRECT REUSE - PFLUGERVILLE	K | DIRECT REUSE	500	1,000	2,000	2,000	4,000	4,000	$228	$228
PFLUGERVILLE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	3,194	4,276	5,311	6,474	7,503	8,463	$50	$50
PFLUGERVILLE	K	EXPANSION OF CURRENT GROUNDWATER SUPPLIES - EDWARDS-BFZ AQUIFER	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	1,000	1,000	1,000	1,000	N/A	$371
PFLUGERVILLE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	3,000	3,000	4,000	N/A	$151
PFLUGERVILLE	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	0	0	2,000	N/A	$151
PFLUGERVILLE	K	MUNICIPAL CONSERVATION - PFLUGERVILLE	DEMAND REDUCTION	604	2,105	2,625	3,029	3,514	3,966	$295	$295
POINT VENTURE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	52	66	80	96	109	122	$50	$50
POINT VENTURE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	100	100	300	300	300	N/A	$151
POINT VENTURE	K	MUNICIPAL CONSERVATION - POINT VENTURE	DEMAND REDUCTION	34	82	139	191	241	301	$282	$282
ROLLINGWOOD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	58	57	56	56	56	57	$50	$50
ROLLINGWOOD	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	400	400	400	400	400	N/A	$151
ROLLINGWOOD	K	MUNICIPAL CONSERVATION - ROLLINGWOOD	DEMAND REDUCTION	38	67	79	91	104	118	$286	$286
SAN SABA	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	228	236	235	230	235	240	$50	$50
SAN SABA	K	MUNICIPAL CONSERVATION - SAN SABA	DEMAND REDUCTION	114	211	302	377	463	510	$275	$275
SCHULENBURG	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	110	123	132	139	146	150	$50	$50
SCHULENBURG	K	MUNICIPAL CONSERVATION - SCHULENBURG	DEMAND REDUCTION	37	63	96	141	188	232	$343	$343
SHADY HOLLOW MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	117	114	111	110	110	110	$50	$50
SHADY HOLLOW MUD	K	MUNICIPAL CONSERVATION - SHADY HOLLOW MUD	DEMAND REDUCTION	38	16	0	0	0	0	$397	N/A
SMITHVILLE	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	K | QUEEN CITY AQUIFER | BASTROP COUNTY	0	0	0	0	0	150	N/A	$1607
SMITHVILLE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	126	161	208	273	362	480	$50	$50
SMITHVILLE	K	MUNICIPAL CONSERVATION - SMITHVILLE	DEMAND REDUCTION	44	72	76	88	117	155	$376	$376
STEAM ELECTRIC POWER, BASTROP	K	LCRA - EXPAND USE OF GROUNDWATER (CARRIZO-WILCOX AQUIFER)	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	300	300	300	300	300	300	$1517	$1517
STEAM ELECTRIC POWER, FAYETTE	K	CITY OF AUSTIN - LAKE LONG ENHANCED STORAGE	K | LAKE LONG/RESERVOIR	2,000	2,000	2,000	2,000	2,000	2,000	$187	$187
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - GROUNDWATER SUPPLY FOR FPP (OFF-SITE)	K | CARRIZO-WILCOX AQUIFER | FAYETTE COUNTY	500	500	500	500	500	500	$1113	$1113
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - GROUNDWATER SUPPLY FOR FPP (OFF-SITE)	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	2,000	2,000	2,000	2,000	2,000	2,000	$1113	$1113
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - GROUNDWATER SUPPLY FOR FPP (ON-SITE)	K | GULF COAST AQUIFER | FAYETTE COUNTY	700	700	700	700	700	700	$496	$496
STEAM ELECTRIC POWER, FAYETTE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	6,000	7,000	9,000	11,000	13,000	15,000	$151	$151
STEAM ELECTRIC POWER, MATAGORDA	K	BLEND BRACKISH SURFACE WATER IN STPNOC RESERVOIR	K | GULF OF MEXICO SALINE	3,000	3,000	3,000	3,000	3,000	3,000	$0	$0

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
STEAM ELECTRIC POWER, MATAGORDA	K	CITY OF AUSTIN RETURN FLOWS	K | COLORADO INDIRECT REUSE - CITY OF AUSTIN RETURN FLOWS	770	710	766	763	764	859	$0	$0
STEAM ELECTRIC POWER, MATAGORDA	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	22,727	22,727	22,727	22,727	22,727	22,727	$151	$151
STEAM ELECTRIC POWER, TRAVIS	K	CITY OF AUSTIN - DIRECT REUSE	K | DIRECT REUSE	3,500	7,500	7,500	8,500	9,500	10,500	$1347	$1347
STEAM ELECTRIC POWER, TRAVIS	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	0	0	0	4,543	11,030	N/A	$151
STEAM ELECTRIC POWER, WHARTON	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - GULF COAST AQUIFER	K | GULF COAST AQUIFER | WHARTON COUNTY	0	0	0	0	200	200	N/A	$1035
SUNRISE BEACH VILLAGE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	4	4	4	3	3	3	$50	$50
SUNSET VALLEY	K	DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - TRINITY AQUIFER	K | TRINITY AQUIFER | TRAVIS COUNTY	0	0	200	200	200	200	N/A	$1035
SUNSET VALLEY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	116	150	182	218	250	280	$50	$50
SUNSET VALLEY	K	EDWARDS / MIDDLE TRINITY ASR	K | TRINITY AQUIFER ASR | HAYS COUNTY	0	200	200	200	200	200	N/A	$1291
SUNSET VALLEY	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	715	715	715	715	715	N/A	$151
SUNSET VALLEY	K	MUNICIPAL CONSERVATION - SUNSET VALLEY	DEMAND REDUCTION	38	90	158	241	305	366	$276	$276
THE HILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	217	217	216	216	216	216	$50	$50
THE HILLS	K	MUNICIPAL CONSERVATION - THE HILLS	DEMAND REDUCTION	144	272	386	487	581	665	$263	$263
TRAVIS COUNTY MUD #4	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	522	602	677	762	837	907	$50	$50
TRAVIS COUNTY MUD #4	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY MUD #4	DEMAND REDUCTION	262	564	912	1,302	1,705	2,114	$251	$251
TRAVIS COUNTY WCID #10	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	532	607	679	761	835	905	$50	$50
TRAVIS COUNTY WCID #10	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	3,000	3,000	3,000	3,000	3,000	N/A	$151
TRAVIS COUNTY WCID #10	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #10	DEMAND REDUCTION	213	445	707	996	1,316	1,533	$275	$275
TRAVIS COUNTY WCID #17	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,268	1,508	1,653	1,678	1,722	1,776	$50	$50
TRAVIS COUNTY WCID #17	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	1,000	2,000	2,000	2,000	2,000	2,000	$151	$151
TRAVIS COUNTY WCID #17	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #17	DEMAND REDUCTION	853	1,825	2,399	2,889	3,325	4,645	$289	$289
TRAVIS COUNTY WCID #18	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	168	190	211	236	259	280	$50	$50
TRAVIS COUNTY WCID #18	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #18	DEMAND REDUCTION	60	95	87	87	96	104	$375	$375
TRAVIS COUNTY WCID #19	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	100	99	99	99	99	99	$50	$50
TRAVIS COUNTY WCID #19	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #19	DEMAND REDUCTION	50	92	131	166	199	229	$255	$255
TRAVIS COUNTY WCID #20	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	118	117	117	117	116	116	$50	$50
TRAVIS COUNTY WCID #20	K	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #20	DEMAND REDUCTION	59	110	153	197	234	268	$261	$261
VOLENTE	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	4	4	5	6	7	7	$50	$50
VOLENTE	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	142	142	142	142	142	142	$7644	$7644
WEIMAR	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	83	85	87	90	92	96	$50	$50

Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
WEIMAR	K	MUNICIPAL CONSERVATION - WEIMAR	DEMAND REDUCTION	56	74	90	117	144	171	$290	$290
WELLS BRANCH MUD	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	88	86	85	84	84	84	$50	$50
WEST LAKE HILLS	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	313	310	308	307	306	306	$50	$50
WEST LAKE HILLS	K	LCRA - MID BASIN RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	1,300	1,300	1,300	1,300	1,300	N/A	$151
WEST LAKE HILLS	K	MUNICIPAL CONSERVATION - WEST LAKE HILLS	DEMAND REDUCTION	157	286	398	505	609	700	$267	$267
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	1,292	1,696	2,170	2,757	3,400	4,120	$50	$50
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	HAYS COUNTY PIPELINE - REGION K RECOMMENDED	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	1,000	1,000	1,000	1,000	1,000	N/A	$708
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	LCRA - LANE CITY RESERVOIR	K | LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE)	0	700	2,900	3,400	6,200	6,200	N/A	$151
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	MUNICIPAL CONSERVATION - WEST TRAVIS COUNTY PUA	DEMAND REDUCTION	639	1,575	2,873	4,665	6,874	9,574	$267	$267
WHARTON	K	DROUGHT MANAGEMENT	DEMAND REDUCTION	250	259	265	274	283	291	$50	$50
WHARTON	K	MUNICIPAL CONSERVATION - WHARTON	DEMAND REDUCTION	168	134	176	171	176	182	$312	$312
			Region K Total RecommendedWMS Supplies	538,369	598,375	649,286	725,008	789,681	866,675		

Recommended Projects Associated with Water Management Strategies

Project Sponosr Region: K

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
AQUA WSC	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - AQUA WSC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$9,777,000	2020
AQUA WSC	N	MUNICIPAL CONSERVATION - AQUA WSC	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$1,384,870	2020
AQUA WSC	N	NEW SURFACE WATER INFRASTRUCTURE - AQUA WSC	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$127,538,000	2040
AUSTIN	Y	CITY OF AUSTIN - AQUIFER STORAGE AND RECOVERY	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; PUMP STATION; WATER TREATMENT PLANT EXPANSION	$312,316,000	2020
AUSTIN	Y	CITY OF AUSTIN - CAPTURE LOCAL INFLOWS TO LADY BIRD LAKE	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION	$2,949,000	2020
AUSTIN	Y	CITY OF AUSTIN - DIRECT REUSE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; WATER TREATMENT PLANT EXPANSION	$536,176,000	2020
AUSTIN	Y	CITY OF AUSTIN - INDIRECT POTABLE REUSE THROUGH LADY BIRD LAKE	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION	$41,970,000	2020
AUSTIN	Y	CITY OF AUSTIN - LAKE LONG ENHANCED STORAGE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$31,041,000	2020
AUSTIN	Y	CITY OF AUSTIN - LONGHORN DAM OPERATIONS IMPROVEMENTS	WATER LOSS CONTROL	$1,036,000	2020
AUSTIN	Y	CITY OF AUSTIN - OTHER REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$21,772,000	2020
AUSTIN	Y	CITY OF AUSTIN - RAINWATER HARVESTING	MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); STORAGE TANK	$690,167,000	2020
AUSTIN	Y	CITY OF AUSTIN CONSERVATION	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$41,434,437	2020
BARTON CREEK WEST WSC	N	MUNICIPAL CONSERVATION - BARTON CREEK WEST WSC	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$38,391	2020
BASTROP	N	DEVELOPMENT OF NEW CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,976,000	2020
BASTROP	N	DIRECT REUSE - BASTROP	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$4,625,000	2040
BASTROP	N	MUNICIPAL CONSERVATION - BASTROP	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$224,866	2020
BASTROP	N	NEW SURFACE WATER INFRASTRUCTURE - BASTROP	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION	$34,858,000	2050
BASTROP COUNTY WCID #2	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY WCID #2	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2060
BAY CITY	N	MUNICIPAL CONSERVATION - BAY CITY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$405,403	2020
BEE CAVE	N	MUNICIPAL CONSERVATION - BEE CAVE VILLAGE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$137,097	2020
BERTRAM	N	BUENA VISTA REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$4,523,170	2020
BERTRAM	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - BERTRAM	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,031,000	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
BERTRAM	N	MUNICIPAL CONSERVATION - BERTRAM	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$41,421	2020
BLANCO	N	MUNICIPAL CONSERVATION - BLANCO	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$47,867	2020
BUDA	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$6,818,182	2030
BUDA	N	BS/EACD SALINE EDWARDS ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$7,500,000	2030
BUDA	N	DIRECT REUSE - BUDA	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$6,075,000	2020
BUDA	N	MUNICIPAL CONSERVATION - BUDA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$221,686	2020
BURNET	N	BUENA VISTA REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$10,233,415	2020
BURNET	N	MUNICIPAL CONSERVATION - BURNET	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$184,386	2020
CEDAR PARK	Y	MUNICIPAL CONSERVATION - CEDAR PARK	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$238,695	2020
COLUMBUS	N	MUNICIPAL CONSERVATION - COLUMBUS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$100,974	2020
COTTONWOOD SHORES	N	MARBLE FALLS REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$6,099,086	2020
COTTONWOOD SHORES	N	MUNICIPAL CONSERVATION - COTTONWOOD SHORES	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$30,672	2020
COUNTY-OTHER, BASTROP	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2020
COUNTY-OTHER, BASTROP	N	MUNICIPAL CONSERVATION - BASTROP COUNTY OTHER	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$232,736	2020
COUNTY-OTHER, BLANCO	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, BLANCO	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - BLANCO COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$821,000	2050
COUNTY-OTHER, BLANCO	N	EXPANSION OF HICKORY AQUIFER SUPPLIES - BLANCO COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$1,316,000	2050
COUNTY-OTHER, BURNET	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, BURNET	N	BUENA VISTA REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$10,233,415	2020
COUNTY-OTHER, BURNET	N	EAST LAKE BUCHANAN REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$10,337,000	2020
COUNTY-OTHER, BURNET	N	MARBLE FALLS REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$7,649,996	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
COUNTY-OTHER, BURNET	N	MUNICIPAL CONSERVATION - BURNET COUNTY-OTHER	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$164,771	2020
COUNTY-OTHER, COLORADO	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - COLORADO COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$1,466,000	2020
COUNTY-OTHER, FAYETTE	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FAYETTE COUNTY-OTHER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$4,558,000	2020
COUNTY-OTHER, GILLESPIE	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, HAYS	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, HAYS	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$2,272,727	2030
COUNTY-OTHER, HAYS	N	BS/EACD SALINE EDWARDS ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$3,000,000	2030
COUNTY-OTHER, HAYS	N	HAYS COUNTY PIPELINE - REGION K PORTION	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$11,739,500	2030
COUNTY-OTHER, LLANO	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, MILLS	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, SAN SABA	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
COUNTY-OTHER, TRAVIS	N	BRUSH CONTROL	BRUSH CONTROL CAPITAL COST	$2,137,000	2020
CREEDMOOR-MAHA WSC	N	BS/EACD SALINE EDWARDS ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$4,500,000	2030
DRIPPING SPRINGS	N	MUNICIPAL CONSERVATION - DRIPPING SPRINGS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$49,510	2020
DRIPPING SPRINGS WSC	N	HAYS COUNTY PIPELINE - REGION K PORTION	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$5,869,750	2030
DRIPPING SPRINGS WSC	N	MUNICIPAL CONSERVATION - DRIPPING SPRINGS WSC	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$68,043	2020
EAST BERNARD	N	MUNICIPAL CONSERVATION - EAST BERNARD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$52,607	2020
ELGIN	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - ELGIN	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2020
ELGIN	N	NEW SURFACE WATER INFRASTRUCTURE - ELGIN	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$61,623,000	2030
FLATONIA	N	DIRECT REUSE - FLATONIA	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$1,226,000	2020
FLATONIA	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FLATONIA	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,241,000	2020
FLATONIA	N	MUNICIPAL CONSERVATION - FLATONIA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$37,553	2020
FREDERICKSBURG	N	MUNICIPAL CONSERVATION - FREDERICKSBURG	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$291,489	2020
GOLDTHWAITE	N	MUNICIPAL CONSERVATION - GOLDTHWAITE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$41,809	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
HORSESHOE BAY	N	MUNICIPAL CONSERVATION - HORSESHOE BAY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$154,204	2020
IRRIGATION, COLORADO	N	IRRIGATION CONSERVATION - ON FARM	ON FARM IRRIGATION CONSERVATION	$14,210,709	2020
IRRIGATION, COLORADO	N	IRRIGATION CONSERVATION - SPRINKLER	ON FARM IRRIGATION CONSERVATION	$1,234,855	2020
IRRIGATION, COLORADO	N	IRRIGATION OPERATIONS CONVEYANCE IMPROVEMENTS	CANAL LINING; ON FARM IRRIGATION CONSERVATION	$22,581,627	2020
IRRIGATION, MATAGORDA	N	IRRIGATION CONSERVATION - ON FARM	ON FARM IRRIGATION CONSERVATION	$52,428,108	2020
IRRIGATION, MATAGORDA	N	IRRIGATION CONSERVATION - SPRINKLER	ON FARM IRRIGATION CONSERVATION	$4,030,116	2020
IRRIGATION, MATAGORDA	N	IRRIGATION OPERATIONS CONVEYANCE IMPROVEMENTS	CANAL LINING; ON FARM IRRIGATION CONSERVATION	$83,311,250	2020
IRRIGATION, MILLS	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - MILLS COUNTY IRRIGATION	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$8,289,000	2020
IRRIGATION, WHARTON	N	IRRIGATION CONSERVATION - ON FARM	ON FARM IRRIGATION CONSERVATION	$30,939,183	2020
IRRIGATION, WHARTON	N	IRRIGATION CONSERVATION - SPRINKLER	ON FARM IRRIGATION CONSERVATION	$2,492,779	2020
IRRIGATION, WHARTON	N	IRRIGATION OPERATIONS CONVEYANCE IMPROVEMENTS	CANAL LINING; ON FARM IRRIGATION CONSERVATION	$49,164,123	2020
JOHNSON CITY	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - JOHNSON CITY	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$1,505,000	2020
JOHNSON CITY	N	MUNICIPAL CONSERVATION - JOHNSON CITY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$45,790	2020
JONESTOWN	N	MUNICIPAL CONSERVATION - JONESTOWN	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$46,456	2020
LA GRANGE	N	MUNICIPAL CONSERVATION - LA GRANGE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$117,647	2020
LAGO VISTA	N	MUNICIPAL CONSERVATION - LAGO VISTA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$187,406	2020
LAKEWAY	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - LAKEWAY	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,985,000	2020
LAKEWAY	N	MUNICIPAL CONSERVATION - LAKEWAY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$544,773	2020
LLANO	N	DEVELOPMENT OF NEW HICKORY AQUIFER SUPPLIES - LLANO	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,743,000	2020
LLANO	N	DIRECT REUSE - LLANO	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$689,000	2020
LLANO	N	MUNICIPAL CONSERVATION - LLANO	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$87,599	2020
LOOP 360 WSC	N	MUNICIPAL CONSERVATION - LOOP 360	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$71,683	2020
LOST CREEK MUD	N	MUNICIPAL CONSERVATION - LOST CREEK MUD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$108,519	2020
LOWER COLORADO RIVER AUTHORITY	Y	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - LCRA	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; STORAGE TANK	$4,564,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - ACQUIRE ADDITIONAL WATER RIGHTS	WATER RIGHT/PERMIT LEASE OR PURCHASE	$125,000	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - ENHANCED MUNICIPAL AND INDUSTRIAL CONSERVATION	MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$64,099,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - EXCESS FLOWS PERMIT OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$298,000,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - GROUNDWATER SUPPLY FOR FPP (OFF-SITE)	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; STORAGE TANK	$20,107,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - GROUNDWATER SUPPLY FOR FPP (ON-SITE)	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION	$2,749,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - LANE CITY OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$218,593,000	2017
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - MID-BASIN OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$298,000,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - PRAIRIE SITE OFF-CHANNEL RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$376,000,000	2030
MANOR	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - MANOR	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,442,000	2030
MANUFACTURING, BASTROP	N	EXPANSION OF CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY MANUFACTURING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,150,000	2020
MANUFACTURING, FAYETTE	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FAYETTE COUNTY MANUFACTURING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,279,000	2020
MANUFACTURING, GILLESPIE	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - GILLESPIE COUNTY MANUFACTURING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,880,000	2020
MANVILLE WSC	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - MANVILLE WSC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$5,431,000	2050
MARBLE FALLS	N	MARBLE FALLS REGIONAL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$34,851,918	2020
MARBLE FALLS	N	MUNICIPAL CONSERVATION - MARBLE FALLS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$221,276	2020
MEADOWLAKES	N	MUNICIPAL CONSERVATION - MEADOWLAKES	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$64,541	2020
MINING, BASTROP	N	DEVELOPMENT OF NEW CARRIZO-WILCOX AQUIFER SUPPLIES - BASTROP COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,391,000	2040
MINING, BASTROP	N	DEVELOPMENT OF NEW QUEEN CITY AQUIFER SUPPLIES - BASTROP COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,446,000	2020
MINING, BURNET	N	EXPANSION OF ELLENBURGER-SAN SABA AQUIFER SUPPLIES - BURNET COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$13,418,000	2020
MINING, BURNET	N	EXPANSION OF HICKORY AQUIFER SUPPLIES - BURNET COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$13,437,000	2030
MINING, BURNET	N	EXPANSION OF MARBLE FALLS AQUIFER SUPPLIES - BURNET COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$7,257,000	2060
MINING, FAYETTE	N	EXPANSION OF GULF COAST AQUIFER SUPPLIES - FAYETTE COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$7,520,000	2020
MINING, FAYETTE	N	EXPANSION OF SPARTA AQUIFER SUPPLIES - FAYETTE COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$753,000	2020
MINING, HAYS	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$1,136,364	2030
MINING, HAYS	N	EXPANSION OF TRINITY AQUIFER SUPPLIES - HAYS COUNTY MINING	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$4,652,000	2020
MOUNTAIN CITY	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$500,000	2030
PFLUGERVILLE	N	DIRECT REUSE - PFLUGERVILLE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK	$7,959,000	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
PFLUGERVILLE	N	EXPANSION OF EDWARDS (BFZ) AQUIFER SUPPLIES - PFLUGERVILLE	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$3,729,000	2040
PFLUGERVILLE	N	MUNICIPAL CONSERVATION - PFLUGERVILLE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$1,701,900	2020
POINT VENTURE	N	MUNICIPAL CONSERVATION - POINT VENTURE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$31,028	2020
ROLLINGWOOD	N	MUNICIPAL CONSERVATION - ROLLINGWOOD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$36,238	2020
ROUND ROCK	Y	MUNICIPAL CONSERVATION - ROUND ROCK	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$36,147	2020
SAN SABA	N	MUNICIPAL CONSERVATION - SAN SABA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$91,823	2020
SCHULENBURG	N	MUNICIPAL CONSERVATION - SCHULENBURG	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$78,947	2020
SHADY HOLLOW MUD	N	MUNICIPAL CONSERVATION - SHADY HOLLOW MUD	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$106,952	2020
SMITHVILLE	N	DEVELOPMENT OF NEW QUEEN CITY AQUIFER SUPPLIES - SMITHVILLE	CONVEYANCE/TRANSMISSION PIPELINE; SINGLE WELL	$2,620,000	2070
SMITHVILLE	N	MUNICIPAL CONSERVATION - SMITHVILLE	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$109,412	2020
STEAM ELECTRIC POWER, MATAGORDA	N	ALTERNATE CANAL DELIVERY - STPNOC	CONVEYANCE/TRANSMISSION PIPELINE	$7,669,000	2020
STEAM ELECTRIC POWER, WHARTON	N	DEVELOPMENT OF NEW GULF COAST AQUIFER SUPPLIES - WHARTON COUNTY STEAM-ELECTRIC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,237,000	2060
SUNSET VALLEY	N	BS/EACD EDWARDS / MIDDLE TRINITY ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION	$2,272,727	2030
SUNSET VALLEY	N	DEVELOPMENT OF NEW TRINITY AQUIFER SUPPLIES - SUNSET VALLEY	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$2,228,000	2040
SUNSET VALLEY	N	MUNICIPAL CONSERVATION - SUNSET VALLEY	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$31,520	2020
THE HILLS	N	MUNICIPAL CONSERVATION - THE HILLS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$97,374	2020
TRAVIS COUNTY MUD #4	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY MUD #4	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$137,248	2020
TRAVIS COUNTY WCID #10	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #10	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$171,890	2020
TRAVIS COUNTY WCID #17	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #17	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$828,248	2020
TRAVIS COUNTY WCID #18	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #18	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$147,665	2020

Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
TRAVIS COUNTY WCID #19	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #19	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$28,215	2020
TRAVIS COUNTY WCID #20	N	MUNICIPAL CONSERVATION - TRAVIS COUNTY WCID #20	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$38,290	2020
VOLENTE	N	NEW SURFACE WATER INFRASTRUCTURE - VOLENTE	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$8,263,000	2020
WEIMAR	N	MUNICIPAL CONSERVATION - WEIMAR	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$55,778	2020
WEST LAKE HILLS	N	MUNICIPAL CONSERVATION - WEST LAKE HILLS	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$112,784	2020
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	N	HAYS COUNTY PIPELINE - REGION K PORTION	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	$5,869,750	2030
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	N	MUNICIPAL CONSERVATION - WEST TRAVIS COUNTY PUA	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$461,454	2020
WHARTON	N	MUNICIPAL CONSERVATION - WHARTON	METER REPLACEMENT; MUNICIPAL CONSERVATION CAPITAL COST (DOES NOT INCLUDE METER REPLACEMENT OR WATER LOSS); WATER LOSS CONTROL	$210,832	2020

Region K Total Recommended Capital Cost	**$3,772,705,672**

***Projects with a capital cost of zero are excluded from the report list.**

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Alternative Water User Group (WUG) Water Management Strategies (WMS)

WUG Entity Primary Region: K

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	Water Management Strategy Supplies 2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
AUSTIN	K	CITY OF AUSTIN - BRACKISH GROUNDWATER DESALINATION	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	5,000	5,000	5,000	5,000	5,000	N/A	$1523
AUSTIN	K	CITY OF AUSTIN - RECLAIMED WATER BANK INFILTRATION TO COLORADO ALLUVIUM	K | OTHER AQUIFER | TRAVIS COUNTY	0	15,000	20,000	25,000	30,000	30,000	N/A	$424
BUDA	K	DIRECT POTABLE REUSE	K | DIRECT REUSE (POTABLE)	2,240	2,240	2,240	2,240	2,240	2,240	$1440	$1440
BUDA	K	HCPUA PIPELINE - REGION K ALTERNATIVE	L | CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	0	667	1,690	2,974	4,033	4,426	N/A	$1664
IRRIGATION, WHARTON	P	EXPAND USE OF GROUNDWATER	P | GULF COAST AQUIFER | WHARTON COUNTY	50,285	50,285	50,285	50,285	50,285	50,285	$44	$44
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - AQUIFER STORAGE AND RECOVERY	K | CARRIZO-WILCOX AQUIFER ASR | BASTROP COUNTY	0	0	5,048	5,048	5,048	5,048	N/A	$1076
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - BAYLOR CREEK RESERVOIR	K | BAYLOR CREEK RESERVOIR	0	0	18,000	18,000	18,000	18,000	N/A	$900
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - BRACKISH GROUNDWATER DESALINATION	K | GULF COAST AQUIFER | MATAGORDA COUNTY	0	0	22,400	22,400	22,400	22,400	N/A	$1035
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - ENHANCED RECHARGE AND CONJUNCTIVE USE	K | GULF COAST AQUIFER | WHARTON COUNTY	10,000	10,000	10,000	10,000	10,000	10,000	$834	$834
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - GROUNDWATER IMPORTATION	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	0	0	35,000	35,000	35,000	35,000	N/A	$1470
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - IMPORT RETURN FLOWS FROM WILLIAMSON COUNTY	G | BRAZOS RUN-OF-RIVER	25,000	25,000	25,000	25,000	25,000	25,000	$219	$219
LOWER COLORADO RIVER AUTHORITY - UNASSIGNED WATER VOLUMES	K	LCRA - SUPPLEMENT BAY AND ESTUARY INFLOWS WITH BRACKISH GROUNDWATER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	12,000	12,000	12,000	12,000	12,000	12,000	$500	$500
			Region K Total Alternative WMS Supplies	99,525	120,192	206,663	212,947	219,006	219,399		

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Alternative Projects Associated with Water Management Strategies

Project Sponsor Region: K

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
AUSTIN	Y	CITY OF AUSTIN - BRACKISH GROUNDWATER DESALINATION	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; STORAGE TANK	$54,582,000	2030
AUSTIN	Y	CITY OF AUSTIN - RECLAIMED WATER BANK INFILTRATION TO COLORADO ALLUVIUM	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; RESERVOIR CONSTRUCTION	$151,846,000	2030
BUDA	N	DIRECT POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$26,779,000	2020
HAYS CALDWELL PUA	Y	HAYS/CALDWELL PUA PROJECT - ALTERNATIVE	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$51,128,546	2030
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - AQUIFER STORAGE AND RECOVERY	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$39,590,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - BAYLOR CREEK RESERVOIR	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$179,000,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - BRACKISH GROUNDWATER DESALINATION	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	$277,006,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - ENHANCED RECHARGE AND CONJUNCTIVE USE	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	$53,504,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - GROUNDWATER IMPORTATION	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION	$614,790,000	2040
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - IMPORT RETURN FLOWS FROM WILLIAMSON COUNTY	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER RIGHT/PERMIT; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	$54,193,000	2020
LOWER COLORADO RIVER AUTHORITY	Y	LCRA - SUPPLEMENT BAY AND ESTUARY INFLOWS WITH BRACKISH GROUNDWATER	CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE	$34,966,000	2020

Region K Total Alternative Capital Cost	**$1,537,384,546**

***Projects with a capital cost of zero are excluded from the report list.**

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Water User Group (WUG) Unmet Needs Summary

REGION K

	2020	2030	2040	2050	2060	2070
MUNICIPAL	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	622	4,356	5,006	5,731	6,512	7,377
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	120,822	113,478	102,187	76,539	55,295	27,924

*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The unmet needs shown in the WUG Unmet Needs Summary report are calculated by first deducting the WUG split's projected demand from the sum of its total existing water supply volume and all associated recommended water management strategy water volumes. If the WUG split has a greater future supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with unmet needs in the decade are included with the Needs totals. Unmet needs water volumes are shown as absolute values.

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Water User Group (WUG) Unmet Needs

REGION K	WUG UNMET NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
MINING	173	409	450	496	545	600
COLORADO BASIN						
MINING	449	3,947	4,556	5,235	5,967	6,777
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
IRRIGATION	0	0	1,302	755	1,170	0
LAVACA BASIN						
IRRIGATION	0	0	1,195	475	0	0
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
IRRIGATION	29,286	27,777	25,165	19,532	14,562	7,502
COLORADO BASIN						
IRRIGATION	5,273	5,077	4,694	3,738	2,887	1,576
COLORADO-LAVACA BASIN						
IRRIGATION	35,671	34,041	31,096	24,394	18,461	9,750
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
IRRIGATION	34,013	31,974	27,350	20,281	14,159	7,179
COLORADO BASIN						
IRRIGATION	6,722	5,410	3,593	1,660	149	0
COLORADO-LAVACA BASIN						
IRRIGATION	9,857	9,199	7,792	5,704	3,907	1,917

*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The unmet needs shown in the WUG Unmet Needs report are calculated by first deducting the WUG split's projected demand from the sum of its total existing water supply volume and all associated recommended water management strategy water volumes. If the WUG split has a greater future supply volume than projected demand in any given decade, this amount is considered a surplus volume. In order to display only unmet needs associated with the WUG split, these surplus volumes are updated to a zero and the unmet needs water volumes are shown as absolute values.

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APPENDICES

CHAPTER 2.0: POPULATION PROJECTIONS AND WATER DEMAND PROJECTIONS

One primary goal of the regional water planning process is to identify water supply development strategies that will be reliable during times of drought for all users in the State. Quantifying existing and future water demands is the initial step in the planning effort. Each regional planning group works with the Texas Water Development Board (TWDB) to develop population and water demand projections for the 50-year planning horizon, and this chapter documents the methodology and results of this effort by the Lower Colorado Regional Water Planning Group.

Throughout this chapter, total regional projections are presented and further delineated for each municipal and non-municipal water user group within the region. Projections are also shown for each county as well as the four river basins and two coastal basins partially located in the Lower Colorado Region. In subsequent chapters of the plan, these projections are compared with estimates of currently available water supplies to identify water needs and water management strategies to meet these needs.

The Lower Colorado Region has experienced rapid population expansion in recent decades and this trend is expected to continue over the planning horizon. Total regional population projections estimate a near-doubling of population to more than 3.2 million people by 2070, as shown in *Table 2.1* below. As population increases, the planning area will likely see an associated increase in water demands for municipal, manufacturing, and steam-electric uses. Thus population is the principal driver of the projected total water demand increase in the planning area, from approximately 1.18 million acre-feet in the year 2020 to 1.46 million acre-feet in the year 2070.

Table 2.1 Population and Water Demand Projections for the Lower Colorado Region

Regional Projections	2020	2030	2040	2050	2060	2070
POPULATION	1,737,227	2,064,522	2,381,949	2,658,492	2,928,400	3,243,127
Municipal Water Demand (ac-ft/yr)	306,560	359,194	411,761	458,588	505,009	558,949
Manufacturing Water Demand (ac-ft/yr)	56,019	70,050	86,259	96,283	106,487	117,851
Irrigation Water Demand (ac-ft/yr)	607,433	590,740	574,530	558,789	543,507	528,715
Steam-Electric Water Demand (ac-ft/yr)	178,453	185,235	187,410	194,802	200,413	207,319
Mining Water Demand (ac-ft/yr)	20,848	26,104	27,991	29,757	31,893	34,961
Livestock Water Demand (ac-ft/yr)	14,012	14,012	14,012	14,012	14,012	14,012
TOTAL WATER DEMAND	**1,183,325**	**1,245,335**	**1,301,963**	**1,352,231**	**1,401,321**	**1,461,807**

2.1 TEXAS WATER DEVELOPMENT BOARD GUIDELINES FOR REVISIONS TO POPULATION AND WATER DEMAND PROJECTIONS

The Texas Water Development Board (TWDB) distributed draft non-municipal water demand projections via an October 2011 memorandum for the regional planning group's review. A second TWDB memorandum in March 2013 accompanied the TWDB's draft recommended population projections and associated municipal water demand projections. These communications also described the projection methodologies and steps a regional planning group must follow in making projection revision requests, if necessary. Once submitted to TWDB, the projection revision requests were also reviewed by the Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, and the Texas Department of Agriculture prior to being approved by TWDB.

TWDB rules require that projection analyses be performed for each identified municipal and non-municipal water user group. Municipal water user groups include municipalities with a population of 500 or more, individual utilities providing more than 280 acre-feet per year of water for municipal use, and Collective Reporting Units consisting of group utilities having a common association. All smaller communities and rural areas are combined and referred to as a "county-other" water user group for each county (e.g., Travis County-Other, etc.) Non-municipal water user groups include manufacturing, irrigation, steam-electric power generation, mining, and livestock water use and are also referred to within each county (i.e., Bastrop County Mining, Bastrop County Manufacturing, etc.) The planning process also requires that regions designate wholesale water providers, which are persons or entities having contracts to sell more than 1,000 acre-feet of water wholesale. The planning group has designated two wholesale water providers within the region: the Lower Colorado River Authority (LCRA) and the City of Austin (COA). Associated water demands for these wholesale providers are identified within the plan and discussed in detail in Section 2.5 of this chapter.

The Lower Colorado Regional Water Planning Group Population and Water Demand Committee analyzed all TWDB-provided draft population and water demand projections and recommended any appropriate changes for the planning group's approval. Upon review of TWDB draft projections, the committee recommended revisions to the population and water demand projections for all water use categories. The detailed methodologies and resulting projections of this process are discussed in the following sections of this chapter.

2.2 POPULATION PROJECTIONS

Population increases typically directly drive municipal water demand increases. Establishing accurate population estimates and projections is a fundamental step in the regional water planning process. Population prediction is of particular importance in the Lower Colorado Region, where strong population growth is occurring and anticipated to continue, most notably in the City of Austin and surrounding metropolitan areas. The population projections in this plan were developed in accordance with TWDB guidelines, utilizing the 2010 U.S. Census data and growth projections established by the Office of the State Demographer, and supported with supplemental local data where available. This section details the methodology applied by the planning group and TWDB to develop the final TWDB-approved population projections for the Lower Colorado Region.

2.2.1 Methodology

As with other projections during this planning effort, TWDB staff distributed draft population data and projections for planning group review. In a projection process independent of regional and state water planning, the Texas State Data Center and Office of the State Demographer developed county-level population projections from 2011 to 2050. These projections utilized the 2010 U.S. Census Data and recent and projected demographic trends and served as the TWDB base data for municipal population projections. The TWDB staff further extrapolated the State Demographer projections to 2060 and 2070 to meet the planning horizon requirements of the 2017 State Water Plan. TWDB staff then disaggregated population projections for municipal water user groups, which include entities and water systems of a certain threshold size as discussed in the introduction to *Section 2.1*. County-other population is a sum of populations not designated within a specific municipal water user group for each county.

The Population and Water Demand Committee for the Lower Colorado Regional Water Planning Group relied on regional knowledge and solicited input from county and water user group representatives to determine the need for revisions to the TWDB draft population projections. The committee also considered information from the LCRA's Water Supply Resource Plan planning effort and the data from 2011 Region K Plan, Texas State Data Center, U. S. Census Bureau, the State Demographer, and Capitol Area Planning Council of Governments. TWDB required that revision requests be supported by specific data criteria, such as evidence of a Census undercount or expansion of a service area due to annexation activities. Additionally, TWDB required that individual revisions to water user group populations result in no net increase of population projections within the region and state.

The planning group requested revisions to certain population projections, based on the information received. Some of the revisions were denied, some were approved, and others were partially approved. Further details are provided in *Appendix 2C* which contains the Lower Colorado Region population and demand revision requests as submitted to TWDB. The final TWDB-approved population projections are summarized in the following section.

2.2.2 Regional Population Projections

Projections of population growth in the Lower Colorado Region indicate a nearly 87% increase in total population from approximately 1.7 million in 2020 to 3.2 million in the year 2070 as shown in *Figure 2.1*. Projections by county are delineated in *Table 2.2* for each decade from 2020 through 2070. Each of the 14 counties in the region are projected to grow over the planning period, with Travis County accounting for a majority of the total regional population throughout the planning horizon. As the greater Austin metropolitan area grows, counties such as Bastrop, Hays, and Williamson also account for substantial population increases in the planning region. Notably slower population growth is likely in more rural areas of the region, such as Mills and San Saba Counties.

Figure 2.1: Lower Colorado Region Population Projections

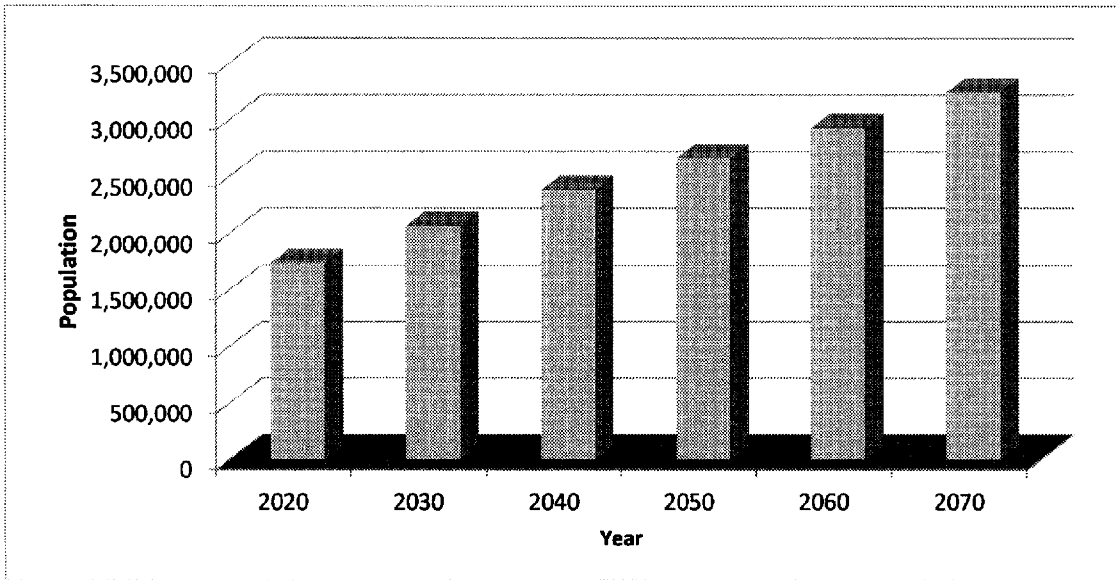


Table 2.2 Population Projections by County*

County	2020	2030	2040	2050	2060	2070
Bastrop	95,487	125,559	164,648	217,608	289,140	384,244
Blanco	13,015	15,475	16,917	17,672	18,175	18,472
Burnet	53,114	64,268	73,673	82,668	90,571	97,426
Colorado	21,884	22,836	23,544	24,582	25,449	26,293
Fayette	28,373	32,384	35,108	37,351	39,119	40,476
Gillespie	26,795	28,852	30,548	32,536	34,365	36,142
Hays (p)	55,584	73,243	94,747	121,629	152,007	186,579
Llano	21,291	22,453	22,422	22,035	22,779	23,549
Matagorda	39,166	41,226	42,548	43,570	44,296	44,815
Mills	4,912	5,076	5,213	5,417	5,625	5,859
San Saba	6,484	6,793	6,833	6,722	6,879	7,039
Travis	1,273,260	1,508,642	1,732,860	1,897,769	2,033,120	2,185,909
Wharton (p)	27,184	28,928	30,322	31,529	32,643	33,629
Williamson (p)	70,678	88,787	102,566	117,404	134,232	152,695
TOTAL	**1,737,227**	**2,064,522**	**2,381,949**	**2,658,492**	**2,928,400**	**3,243,127**

(p) Denotes that the county is shared between multiple regions. The population shown is only the portion within the Lower Colorado Region.

* Population projections by city, county, and portion of a river basin within a county for each of the 14 counties in the Lower Colorado Region are provided in *Appendix 2A*.

The regional planning area covers a portion of four major river basins and two coastal basins and population projections for each basin are shown in *Table 2.3*. Of these, approximately 91 percent of the total population in the year 2070 is projected to reside within the Colorado River Basin, constituting a substantial impact on the water resources within that basin.

Table 2.3 Population Projections by River Basin

River Basin	2020	2030	2040	2050	2060	2070
Brazos	83,316	103,981	120,061	137,285	156,482	177,366
Brazos-Colorado	47,089	49,751	51,651	53,260	54,587	55,683
Colorado	1,573,387	1,873,782	2,170,798	2,426,563	2,674,332	2,965,663
Colorado-Lavaca	12,176	12,833	13,269	13,613	13,871	14,066
Guadalupe	9,044	10,649	11,740	12,513	13,205	13,882
Lavaca	12,215	13,526	14,430	15,258	15,923	16,467
TOTAL	**1,737,227**	**2,064,522**	**2,381,949**	**2,658,492**	**2,928,400**	**3,243,127**

All population projections for the Lower Colorado Region by water user group are provided in Appendix 2A. Chapter 11 provides a comparison of the 2011 and 2016 Lower Colorado Regional Water Plan population projections. Appendix 2B provides the per capita daily use for each municipal water user group.

2.3 WATER DEMAND PROJECTIONS

Total water demand for the Lower Colorado Region is projected to increase 24 percent to approximately 1.45 million acre-feet per year by 2070 as shown in *Figure 2.2*. While demands such as municipal, manufacturing, and steam-electric generation are anticipated to increase due to population growth and economic activity, other water demand categories are projected to decline. For instance, irrigation water demand constitutes 51 percent of the region's total water demand in 2020, but decreases over the planning horizon will have an impact in the reduction of the relative share of this use to 36 percent of the region's total demand by 2070. The distribution of water demands in the region for all decades is shown in *Figure 2.3*, as projected for the years 2020 through 2070.

Figure 2.2: Lower Colorado Region Total Water Demand Projections

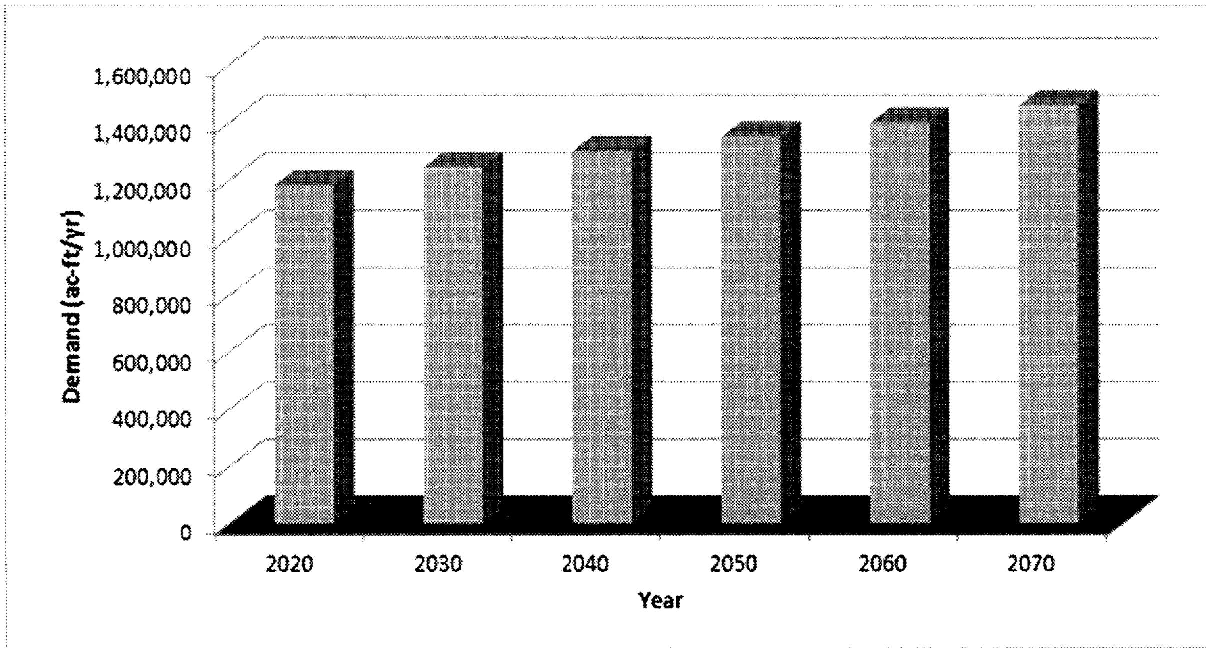
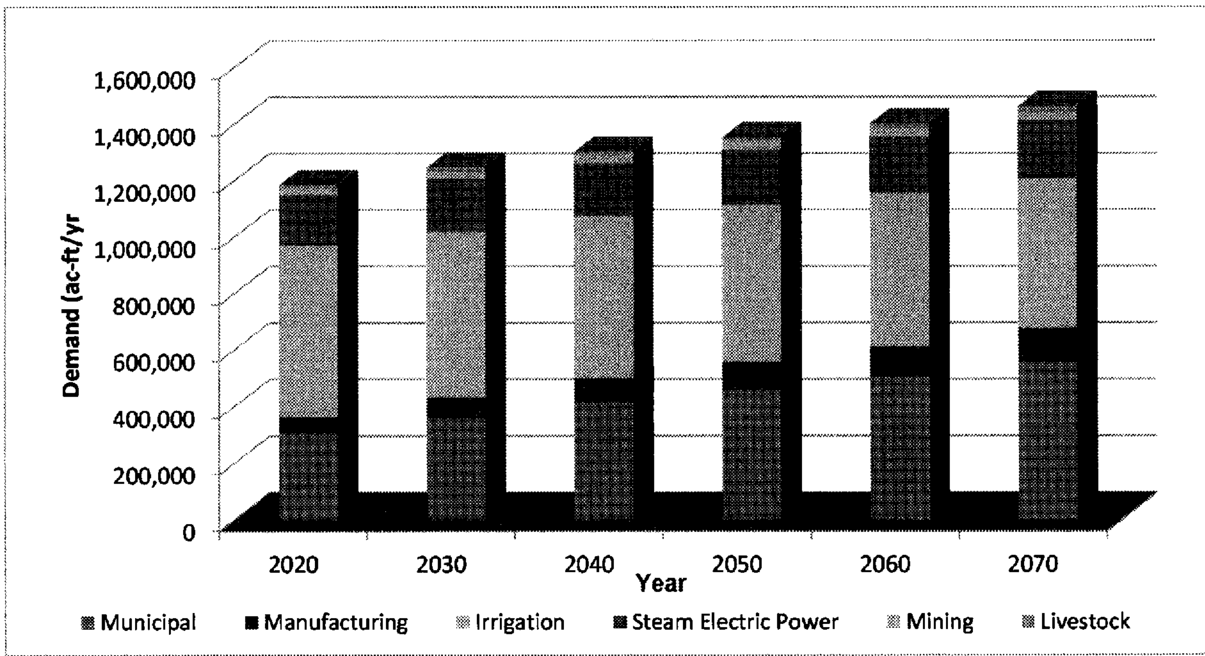


Figure 2.3: Total Water Demand by Type of Use



2.3.1 Municipal Water Demand Projections

2.3.1.1 Methodology

After population is established for each water user group, the second key variable in the TWDB's municipal water demand projections is per capita daily use, which represents the average number of gallons of water used per person per day (also noted commonly as gallons per capita daily and abbreviated as GPCD.) Municipal water demand projections are the product of population projections and per capita daily use projections for each water user group.

The per capita daily use estimate is unique for each municipal reporting entity and determined using responses to the TWDB's 2011 Water Use Survey. The year 2011 is generally considered a "dry-year" for much of the State of Texas and this dataset is assumed to be representative of water use during times of drought. In projecting per capita daily use for future decades of the planning horizon, the TWDB reduced per capita use assuming future water efficiency savings due to federal standards of plumbing fixtures and appliances. The GPCD values and the calculated municipal water demand savings due to plumbing codes and water-efficient appliances for Region K can be found in *Appendix 2B.*

These projections were approved by the TWDB for use in the 2016 Lower Colorado Regional Water Plan and are presented for each municipal water user group by county, river basin, and decade in *Appendix 2A.*

2.3.1.2 Regional Municipal Water Demand Projections

Municipal water demand for the Lower Colorado Region is projected to increase by approximately 252,389 acre-feet per year from 2020 through 2070 as shown in *Figure 2.4*. Due to the TWDB's water efficiency savings assumptions which project reductions in per capita water use, municipal demand is projected to increase approximately 82 percent over the planning horizon while the population projections increase 87 percent. The most substantive municipal demand increases are projected to occur in the City of Austin and surrounding metropolitan areas, including Travis, Bastrop, Hays, and Williamson counties. The distribution of municipal water demand projections for all 14 counties in the Lower Colorado Region is presented in *Table 2.4*.

Figure 2.4: Lower Colorado Region Municipal Water Demand Projections

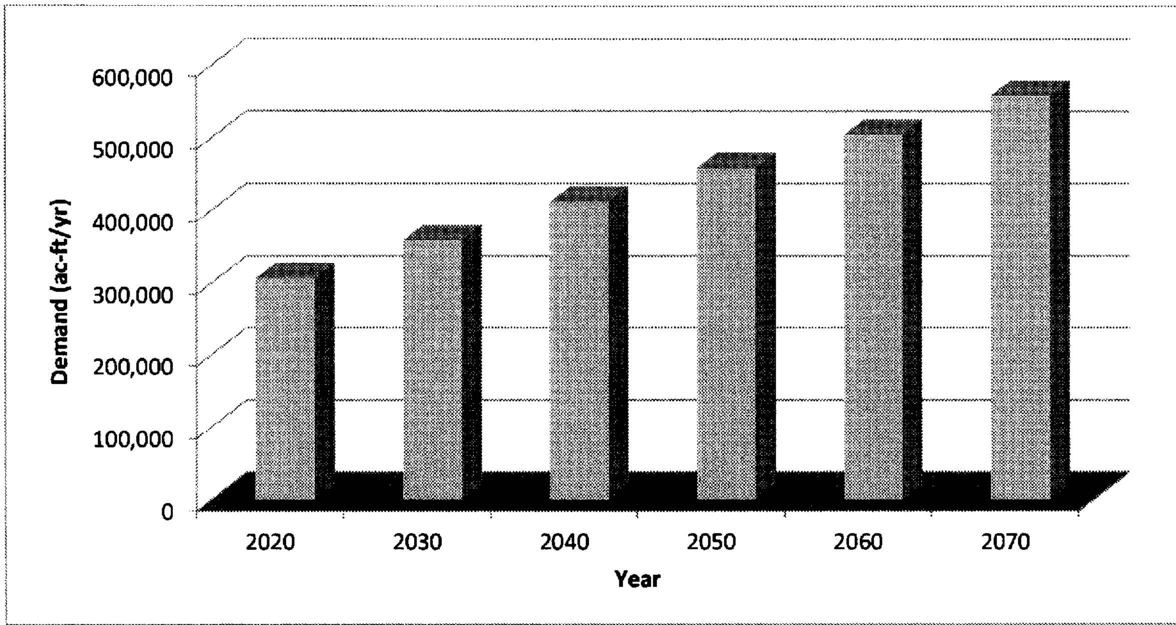


Table 2.4 Municipal Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	15,732	20,149	26,036	34,163	45,264	60,058
Blanco	1,811	2,094	2,254	2,336	2,398	2,438
Burnet	10,823	13,235	15,538	17,510	19,204	20,601
Colorado	3,689	3,746	3,781	3,902	4,031	4,162
Fayette	4,079	4,511	4,792	5,046	5,274	5,455
Gillespie	4,969	5,225	5,438	5,737	6,043	6,349
Hays (p)	10,548	13,997	18,311	23,849	30,279	37,687
Llano	4,306	4,479	4,436	4,337	4,476	4,625
Matagorda	5,123	5,193	5,202	5,259	5,332	5,394
Mills	754	754	753	775	802	835
San Saba	1,622	1,670	1,657	1,623	1,658	1,696
Travis	227,879	266,070	303,161	331,059	354,312	380,499
Wharton (p)	4,050	4,163	4,255	4,398	4,543	4,678
Williamson (p)	11,175	13,908	16,147	18,594	21,393	24,472
TOTAL	**306,560**	**359,194**	**411,761**	**458,588**	**505,009**	**558,949**

(p) Denotes that the county is shared between multiple regions. The municipal demand shown is only the portion within the Lower Colorado Region.

* Municipal water demand projections by city, county, and portion of a river basin within a county for each of the 14 counties in the Lower Colorado Region are provided in *Appendix 2A*.

The majority of current and projected municipal water demand is located in the Colorado River Basin, approximately 93 percent by 2070. These municipal water demand projections geographically correlate with the population centers of the region and are shown by river basin in *Table 2.5*.

Table 2.5 Municipal Water Demand Projections by River Basin (ac-ft/yr)

River Basin	2020	2030	2040	2050	2060	2070
Brazos	13,276	16,384	18,959	21,768	24,931	28,385
Brazos-Colorado	6,677	6,811	6,883	7,033	7,195	7,340
Colorado	281,768	330,792	380,476	424,120	466,993	517,129
Colorado-Lavaca	1,461	1,479	1,483	1,498	1,522	1,543
Guadalupe	1,270	1,454	1,578	1,672	1,766	1,863
Lavaca	2,108	2,274	2,382	2,497	2,602	2,689
TOTAL	**306,560**	**359,194**	**411,761**	**458,588**	**505,009**	**558,949**

2.3.2 Manufacturing Water Demand Projections

2.3.2.1 Methodology

For regional water planning purposes, manufacturing water use is considered to be the cumulative water demand by county and river basin for all industries within specified industrial classifications (SIC) as calculated by the TWDB. Manufacturing water use projections that were developed by the TWDB were used as the default projections for the Lower Colorado Region. In developing draft manufacturing demand projections, TWDB staff utilized 2004-2008 data from TWDB's Water Use Survey. In counties where reported employment from the companies returning surveys was low compared to manufacturing employment data reported by the Bureau of Economic Analysis, surveyed water use was adjusted to account for non-responses. The rate of change for projections from the 2011 Regional Water Plans was then applied to the new base year estimate.

2.3.2.2 Regional Manufacturing Water Demand Projections

Annual manufacturing water demand in the Lower Colorado Region is projected to more than double over the planning horizon, increasing from 56,019 acre-feet per year in 2020 to 117,851 acre-feet per year in 2070. These demands are predominantly associated with existing and future anticipated industries in Travis County, where in 2070 manufacturing water demand is projected to account for over 77 percent of the total manufacturing demand in the region. The expected usage of water for manufacturing purposes in Matagorda County comprises the second largest share of manufacturing demand in the region. Projected total regional manufacturing demand is shown in *Figure 2.5*, while *Table 2.6* presents the projected manufacturing water demand distributed by county in the region.

Figure 2.5: Lower Colorado Region Manufacturing Water Demand Projections

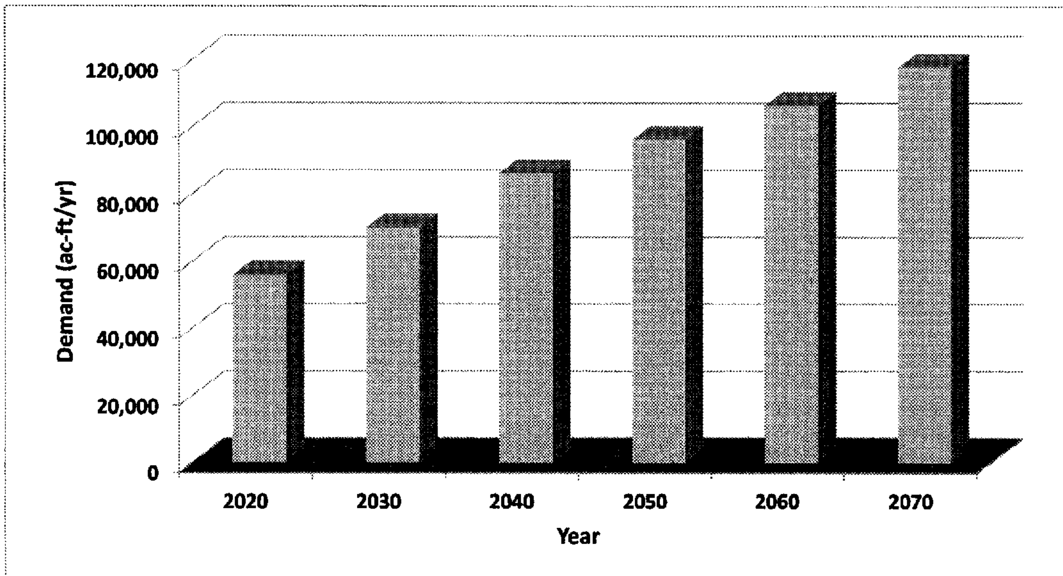


Table 2.6 Manufacturing Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	194	227	262	295	319	345
Blanco	20	20	20	20	20	20
Burnet	1,109	1,248	1,384	1,502	1,636	1,782
Colorado	383	409	433	453	489	528
Fayette	358	395	431	462	501	543
Gillespie	1,049	1,102	1,151	1,192	1,276	1,366
Hays (p)	347	398	449	495	537	583
Llano	3	3	3	3	3	3
Matagorda	16,253	16,991	17,686	18,259	19,267	20,342
Mills	2	2	2	2	2	2
San Saba	8	8	8	8	8	8
Travis	35,790	48,710	63,858	72,991	81,781	91,630
Wharton (p)	503	537	572	601	648	699
Williamson (p)	0	0	0	0	0	0
TOTAL	**56,019**	**70,050**	**86,259**	**96,283**	**106,487**	**117,851**

(p) Denotes that the county is shared between multiple regions. The manufacturing demand shown is only the portion within the Lower Colorado Region.

* Manufacturing water demand projections by city, county, and portion of a river basin within a county for each of the 14 counties in the Lower Colorado Region are provided in *Appendix 2A*.

Manufacturing water demand in the region occurs predominantly in the Colorado and Brazos-Colorado River Basins as shown in *Table 2.7.*

Table 2.7 Manufacturing Water Demand Projections by River Basin (ac-ft/yr)

River Basin	2020	2030	2040	2050	2060	2070
Brazos	0	0	0	0	0	0
Brazos-Colorado	1,157	1,221	1,283	1,335	1,424	1,518
Colorado	53,958	67,855	83,934	93,848	103,880	115,058
Colorado-Lavaca	163	170	177	183	192	203
Guadalupe	15	16	18	20	21	22
Lavaca	726	788	847	897	970	1,050
TOTAL	**56,019**	**70,050**	**86,259**	**96,283**	**106,487**	**117,851**

2.3.3 Irrigation Water Demand Projections

2.3.3.1 Methodology

The irrigation water use projections that were developed by TWDB were used as the default projections except in cases where more representative and current information was submitted. The TWDB projections utilized an average of TWDB's 2005-2009 irrigation water use estimates as a base. TWDB staff developed annual water use estimates at a county level by applying a calculated evapotranspiration-based "crop water need" estimate to reported irrigated acreage from the Farm Service Agency. Estimates were then adjusted based on surface water release data from TCEQ, Texas Water Masters and comments from Groundwater Conservation Districts. The rate of change for projections from the 2011 Regional Water Plan was then applied to the new base. The Lower Colorado Region submitted requests for changes to the TWDB for irrigation demand projections in Burnet, Colorado, Matagorda, and Wharton counties. The revision request to Burnet County irrigation projections utilized the TWDB 2020 draft projection but requested that irrigation rates be held constant, rather than decline, over the planning horizon. The planning group also requested modification of irrigation projections in Colorado, Matagorda, and Wharton counties based on analysis of historical demands over the past twenty year period. Further details are provided in *Appendix 2C* which contains the Lower Colorado Region population and demand revision requests as submitted to TWDB.

2.3.3.2 Regional Irrigation Water Demand Projections

Irrigation water demand for the Lower Colorado Region is projected to decrease from 607,433 acre-feet per year in 2020 to 528,715 acre-feet per year in 2070. Irrigation water demand is concentrated in Colorado, Matagorda, and Wharton Counties and is largely used to meet irrigation needs for rice farming. Over the next 50 years, a decrease in irrigation water demand is projected due to improvements in irrigation efficiency and reductions in irrigated acres due to urbanization. *Figure 2.6* presents the projected regional irrigation demands, and *Table 2.8* presents the projected irrigation water demands by county.

Figure 2.6: Lower Colorado Region Irrigation Water Demand Projections

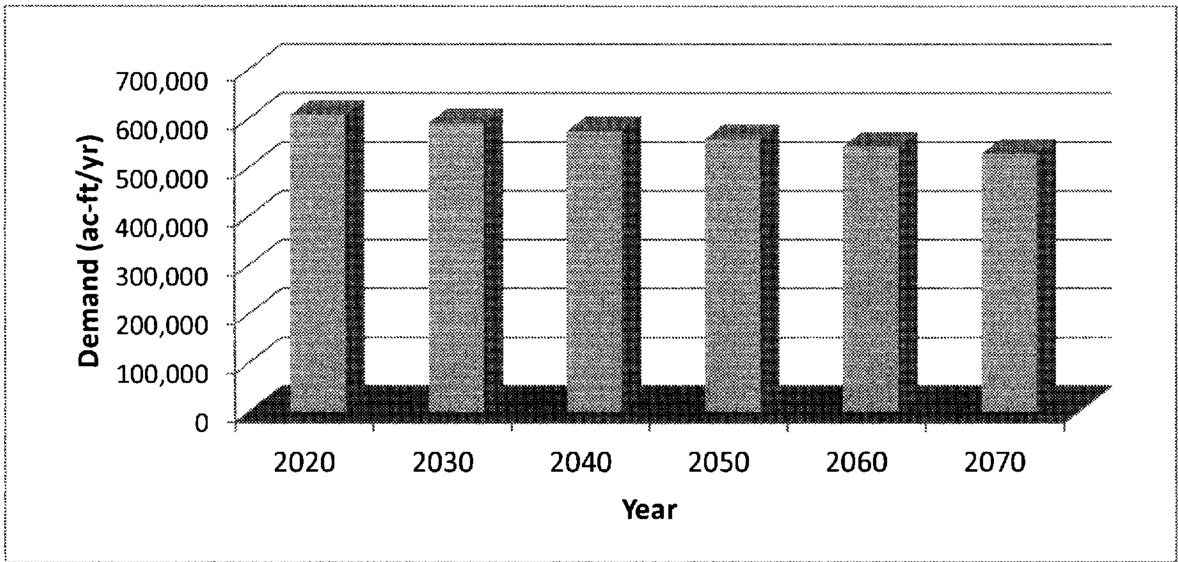


Table 2.8 Irrigation Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	852	742	649	565	492	443
Blanco	256	240	225	217	213	204
Burnet	1,504	1,504	1,504	1,504	1,504	1,504
Colorado	165,846	161,385	157,044	152,819	148,709	144,708
Fayette	623	583	545	511	480	453
Gillespie	2,058	2,031	2,003	1,978	1,953	1,928
Hays (p)	107	107	107	107	107	107
Llano	1,936	1,902	1,870	1,840	1,810	1,781
Matagorda	209,087	203,382	197,830	192,428	187,171	182,055
Mills	3,074	3,008	2,943	2,879	2,817	2,759
San Saba	5,539	5,361	5,188	5,018	4,856	4,709
Travis	4,322	3,975	3,657	3,364	3,097	2,885
Wharton (p)	212,229	206,520	200,965	195,559	190,298	185,179
Williamson (p)	0	0	0	0	0	0
TOTAL	**607,433**	**590,740**	**574,530**	**558,789**	**543,507**	**528,715**

(p) Denotes that the county is shared between multiple regions. The irrigation demand shown is only the portion within the Lower Colorado Region.

* Irrigation water demand projections by city, county, and portion of a river basin within a county for each of the 14 counties in Lower Colorado Region are provided in *Appendix 2A*.

The Lower Colorado Region's irrigation water demand projections are concentrated in the Brazos-Colorado and Colorado-Lavaca Coastal Basins, with the Colorado and Lavaca River Basins constituting a significant secondary portion of irrigation water demand, and are presented by basin in *Table 2.9.*

Table 2.9 Irrigation Water Demand Projections by River Basin (ac-ft/yr)

River Basin	2020	2030	2040	2050	2060	2070
Brazos	2,018	1,982	1,946	1,912	1,879	1,849
Brazos-Colorado	256,669	249,728	242,976	236,404	230,009	223,786
Colorado	120,728	117,201	113,801	110,523	107,364	104,370
Colorado-Lavaca	139,409	135,620	131,931	128,342	124,850	121,451
Guadalupe	180	165	154	143	136	127
Lavaca	88,429	86,044	83,722	81,465	79,269	77,132
TOTAL	**607,433**	**590,740**	**574,530**	**558,789**	**543,507**	**528,715**

2.3.4 Steam-Electric Water Demand Projections

2.3.4.1 Methodology

The TWDB based draft steam-electric power generation water demands on projections from the 2011 Regional Water Plans and the 2008 TWDB report *Water Demand Projections for Power Generation in Texas.* Recent data from the Public Utilities Commission of Texas on plant announcements, retirements, and capacity changes were incorporated to adjust the base. The rate of change for projections from the 2011 Regional Water Plans was then applied to the new base. Of the 14 counties in the Lower Colorado Region, only Bastrop, Fayette, Llano, Matagorda, Travis, and Wharton Counties have or are projected to have any steam-electric water demand in the planning horizon. The Lower Colorado Region Population and Water Demand Committee sought information from steam-electric generators and other sources and consequently requested TWDB reductions to steam-electric projections for each of the counties that have steam-electric water demand except Wharton County, where no changes were requested. Further details are provided in *Appendix 2C.*

2.3.4.2 Regional Steam-Electric Water Demand Projections

Steam-electric water demand is projected to increase from 178,453 acre-feet per year in 2020 to 207,319 acre-feet per year 2070. The projected total regional steam-electric demands are shown in *Figure 2.7,* and *Table 2.10* presents the distributed steam-electric water demand for each county in the region.

Figure 2.7: Lower Colorado Region Steam Electric Water Demand Projections

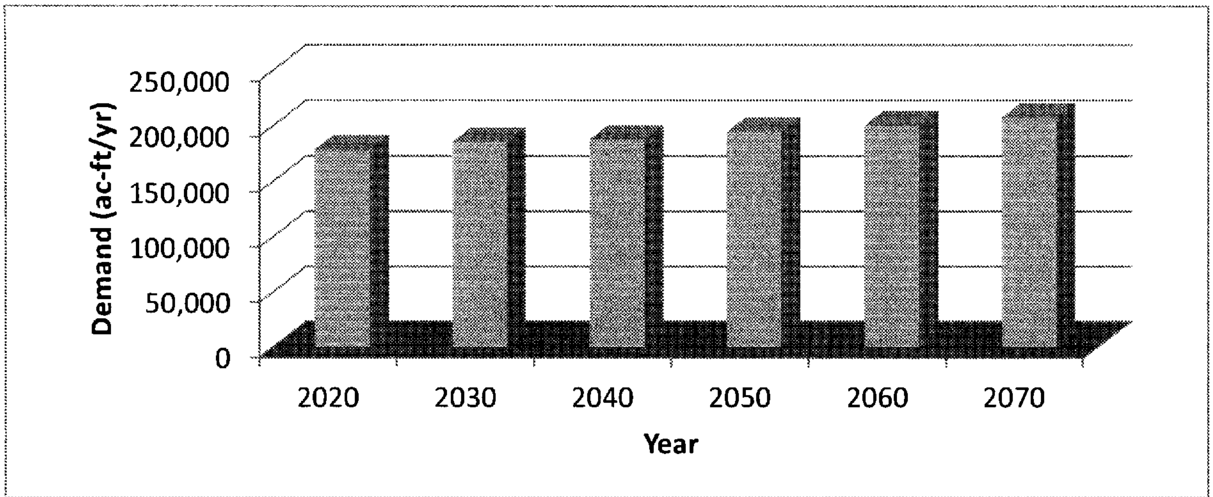


Table 2.10 Steam-Electric Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	14,000	16,720	16,720	16,720	16,720	16,720
Blanco	0	0	0	0	0	0
Burnet	0	0	0	0	0	0
Colorado	0	0	0	0	0	0
Fayette	35,702	35,702	37,802	44,102	48,602	53,402
Gillespie	0	0	0	0	0	0
Hays (p)	0	0	0	0	0	0
Llano	2,500	2,500	2,500	2,500	2,500	2,500
Matagorda	105,000	105,000	105,000	105,000	105,000	105,000
Mills	0	0	0	0	0	0
San Saba	0	0	0	0	0	0
Travis	18,500	22,500	22,500	23,500	24,500	26,500
Wharton (p)	2,751	2,813	2,888	2,980	3,091	3,197
Williamson (p)	0	0	0	0	0	0
TOTAL	**178,453**	**185,235**	**187,410**	**194,802**	**200,413**	**207,319**

(p) Denotes that the county is shared between multiple regions. The steam-electric demand shown is only the portion within the Lower Colorado Region.

* Steam-electric water demand projections by city, county, and portion of a river basin within a county for each of the 14 counties in the Lower Colorado Region are provided in *Appendix 2A*.

The majority of the Lower Colorado Region's steam-electric power generation facilities are located along the Colorado River, and nearly all steam-electric demands are within the Colorado River Basin. The projected steam-electric water demand by basin is shown in *Table 2.11.*

Table 2.11 Steam-Electric Water Demand Projections by River Basin (ac-ft/yr)

River Basin	2020	2030	2040	2050	2060	2070
Brazos	0	0	0	0	0	0
Brazos-Colorado	351	413	488	580	691	797
Colorado	178,102	184,822	186,922	194,222	199,722	206,522
Colorado-Lavaca	0	0	0	0	0	0
Guadalupe	0	0	0	0	0	0
Lavaca	0	0	0	0	0	0
TOTAL	**178,453**	**185,235**	**187,410**	**194,802**	**200,413**	**207,319**

2.3.5 Mining Water Demand Projections

2.3.5.1 Methodology

TWDB mining water usage projections were developed through a TWDB-contracted study with the Bureau of Economic Geology. The study estimated current mining water use and projected that use across the planning horizon utilizing data collected from trade organizations, government agencies, and other industry representatives. Individual projections were made for sectors including oil and gas, aggregates, coal and lignite, and other mining activities. These projections were then summed for each county. The Lower Colorado Region requested revisions to TWDB draft mining projections, for Blanco, Colorado, Llano, Mills, and Williamson counties, based on information provided by Lower Colorado Region members. The TWDB staff approved the revision request. Further details on the revision request are provided in Appendix 2C.

2.3.5.2 Regional Mining Water Demand Projections

Mining water demands for the Lower Colorado Region are projected to increase almost 68 percent over the planning horizon, to 34,961 acre-feet per year in 2070. The total projected regional mining water demands are shown in *Figure 2.8*, and *Table 2.12* presents the projected mining water demand distributed for each county. As in other areas of Texas, hydraulic fracturing activities are expected to influence mining water demands in the future, although this activity is difficult to anticipate and quantify in many instances.

Mining water demand in the Lower Colorado Region is predominantly located in the Colorado River Basin, and the demands by river basin are shown in *Table 2.13.*

Figure 2.8: Lower Colorado Region Mining Water Demand Projections

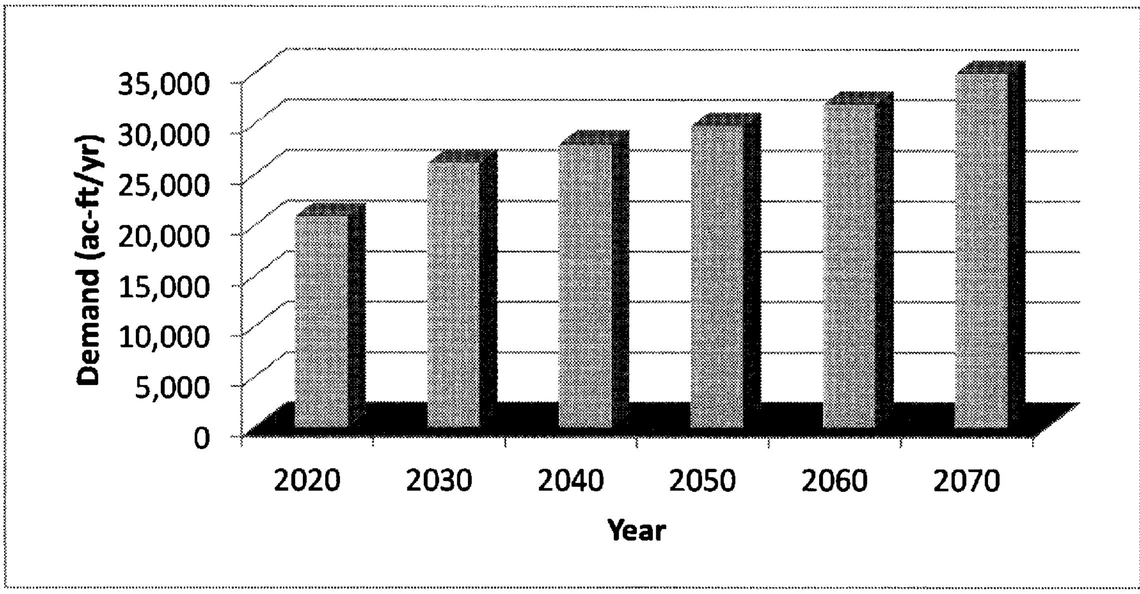


Table 2.12 Mining Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	2884	6813	7498	8263	9085	9996
Blanco	5	5	5	5	5	5
Burnet	4490	5412	6379	7255	8263	9412
Colorado	5325	5378	5433	5487	5542	5597
Fayette	2526	2032	1465	918	359	350
Gillespie	4	4	4	4	4	4
Hays (p)	845	1075	1361	1445	1654	1893
Llano	3	3	3	3	3	3
Matagorda	96	100	75	55	35	22
Mills	4	4	4	4	4	4
San Saba	1088	1093	944	900	864	838
Travis	3502	4108	4762	5374	6046	6817
Wharton (p)	71	74	55	41	26	17
Williamson (p)	5	3	3	3	3	3
TOTAL	**20,848**	**26,104**	**27,991**	**29,757**	**31,893**	**34,961**

(p) Denotes that the county is shared between multiple regions. The mining demand shown is only the portion within the Lower Colorado Region.

* Mining water demand projections by city, county, and portion of a river basin within a county for each of the 14 counties in the Lower Colorado Region are provided in *Appendix 2A*.

Table 2.13 Mining Water Demand Projections by River Basin (ac-ft/yr)

River Basin	2020	2030	2040	2050	2060	2070
Brazos	1,303	1,767	2,050	2,315	2,616	2,958
Brazos-Colorado	252	257	234	218	199	189
Colorado	18,327	23,002	24,702	26,286	28,204	30,890
Colorado-Lavaca	41	42	32	23	15	10
Guadalupe	305	483	496	512	532	585
Lavaca	620	553	477	403	327	329
TOTAL	**20,848**	**26,104**	**27,991**	**29,757**	**31,893**	**34,961**

2.3.6 Livestock Water Demand Projections

2.3.6.1 Methodology

The TWDB livestock water demand projections utilized an average of TWDB's 2005-2009 livestock water use estimates as a base. Water use estimates apply a water use coefficient for each livestock category to county level inventory estimates from the Texas Agricultural Statistics Service. The rate of change for projections from the 2011 Regional Water Plans was then applied to the new base. The Lower Colorado Region requested minor increases to most county livestock demand estimates, based on knowledge and input from Lower Colorado Region members. The TWDB approved the revision request. Further details are provided in *Appendix 2C*.

2.3.6.2 Regional Livestock Water Demand Projections

Livestock water demand for the Lower Colorado Region represents a small portion of total regional water demand and is projected to remain constant over the 50-year planning period. This constant projected demand of 14,012 acre-feet per year is reflected in *Figure 2.9*. Livestock water demand by county is presented in *Table 2.14*, and the rural counties indicate more livestock farming activities.

Figure 2.9: Lower Colorado Region Livestock Water Demand Projections

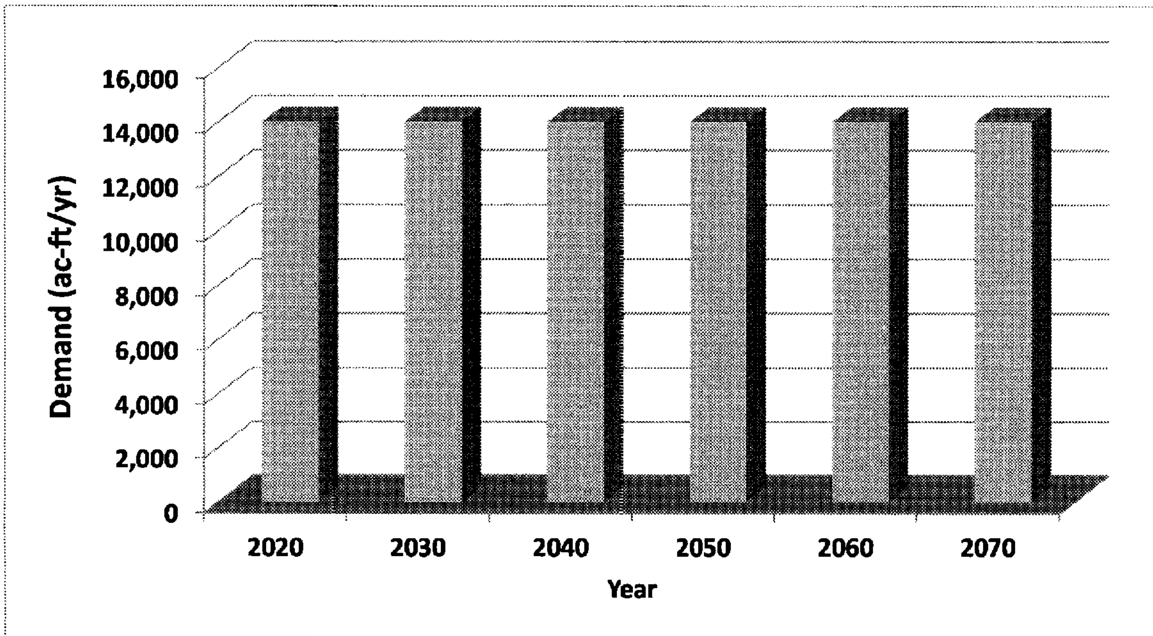


Table 2.14 Livestock Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	1,522	1,522	1,522	1,522	1,522	1,522
Blanco	564	564	564	564	564	564
Burnet	835	835	835	835	835	835
Colorado	1,590	1,590	1,590	1,590	1,590	1,590
Fayette	2,397	2,397	2,397	2,397	2,397	2,397
Gillespie	1,062	1,062	1,062	1,062	1,062	1,062
Hays (p)	220	220	220	220	220	220
Llano	751	751	751	751	751	751
Matagorda	1,503	1,503	1,503	1,503	1,503	1,503
Mills	944	944	944	944	944	944
San Saba	1,191	1,191	1,191	1,191	1,191	1,191
Travis	704	704	704	704	704	704
Wharton (p)	728	728	728	728	728	728
Williamson (p)	1	1	1	1	1	1
TOTAL	**14,012**	**14,012**	**14,012**	**14,012**	**14,012**	**14,012**

(p) Denotes that the county is shared between multiple regions. The livestock demand shown is only the portion within the Lower Colorado Region.

* Livestock water demand projections by city, county, and portion of a river basin within a county for each of the 14 counties in the Lower Colorado Region are provided in *Appendix 2A*.

Livestock water demand in the Lower Colorado Region is located predominantly in the Colorado River Basin and noted in *Table 2.15.*

Table 2.15 Livestock Water Demand Projections by River Basin (ac-ft/yr)

River Basin	2020	2030	2040	2050	2060	2070
Brazos	727	727	727	727	727	727
Brazos-Colorado	1,238	1,238	1,238	1,238	1,238	1,238
Colorado	10,043	10,043	10,043	10,043	10,043	10,043
Colorado-Lavaca	788	788	788	788	788	788
Guadalupe	365	365	365	365	365	365
Lavaca	851	851	851	851	851	851
TOTAL	**14,012**	**14,012**	**14,012**	**14,012**	**14,012**	**14,012**

2.4 ENVIRONMENTAL WATER DEMANDS

Although not an official water demand use category in TWDB rules, environmental water demands are recognized as a significant consideration in regional water planning by the Lower Colorado Region. These demands are considered necessary to preserve a healthy aquatic ecosystem within the region. In particular, planning for and meeting environmental water demands have been determined necessary to protect the habitat associated with the Lower Colorado River and Matagorda Bay.

2.4.1 The Story/History of Matagorda Bay [1, 2, 3, 4, 5]

Matagorda Bay has an interesting and varied history. The earliest map that contained the Texas Gulf Coast was by Alonzo Alvarez de Pineda in 1513. The next explorer was probably Cabeza de Vaca in 1528 followed by Don Luis de Moscoso de Alverado in 1542. The ill-fated LaSalle expedition in 1685 resulted in an active renewal of interest by the Spanish government. In a subsequent expedition by Alonzo de Leon in 1689, the first recorded description of the "Raft" in the Colorado River appeared; refer to *Figure 2.10* for a map of Matagorda Bay in 1705.

The raft was a vast accumulation of drift logs, snags, whole trees, and brush in sections miles in length and 40 to 50 feet thick growing at a rate of about 500 feet per year. In the years after the establishment of Matagorda by Stephen F. Austin's initial colony (Austin 300) the raft continued to grow, refer to *Figure 2.11* for a map of Austin's Colony and Matagorda Bay. The U.S. Army Corps of Engineers (USACE) was enrolled to clear the raft to enable river navigation from Matagorda, the number two port in Texas, inland to central Texas. In 1853 the decision was made to bypass the raft by digging a canal parallel to the river. This allowed riverboat traffic for about six years, but by 1860 the growing raft again prevented navigation. The intervention of the civil war prevented any additional work on the raft. While

[1] *Bay City and Matagorda County – A History*, Pages 4, 8, 16, 165, 166
[2] *Corralling the Colorado*, Page 7
[3] *Historic Matagorda County*, Pages 135, 139
[4] Originally authored by Haskell Simon, Vice Chairman Region K, modified for this report
[5] Additional information from *Flood to Faucet* and interviews with Earl Eidelbach, LCRA from *The Daily Tribune*

the periodic floods had always been a problem, the restoration of the raft, which grew to an estimated 40 miles in length and extended into Wharton County, greatly exacerbated flooding damage.

In 1923 Governor Pat Neff approved legislation that resulted in the retaining of General George W. Goethus, who built the Panama Canal. His plan was to clear a path along the East Bank, removing key logs and allowing the force of the river to clear the raft. Not much was accomplished until a major flood came in 1929. In one massive flushing action the huge mass was washed into Matagorda Bay.

The delta formed by this enormous conglomeration of sediment and debris that had been washed into Matagorda Bay and continued to grow outward into the Bay until it connected the mainland to Matagorda Peninsula, forming a five mile long land bridge, land locking the Seaport of Matagorda and dividing Matagorda Bay into East Matagorda Bay and West Matagorda Bay.

In 1935 the Drainage District cut a channel through the peninsula connecting the Colorado River to the Gulf of Mexico. This caused most of the natural flow of the river to go directly into the Gulf of Mexico, refer to *Figure 2.12* for a map of the development of the Colorado River Delta.

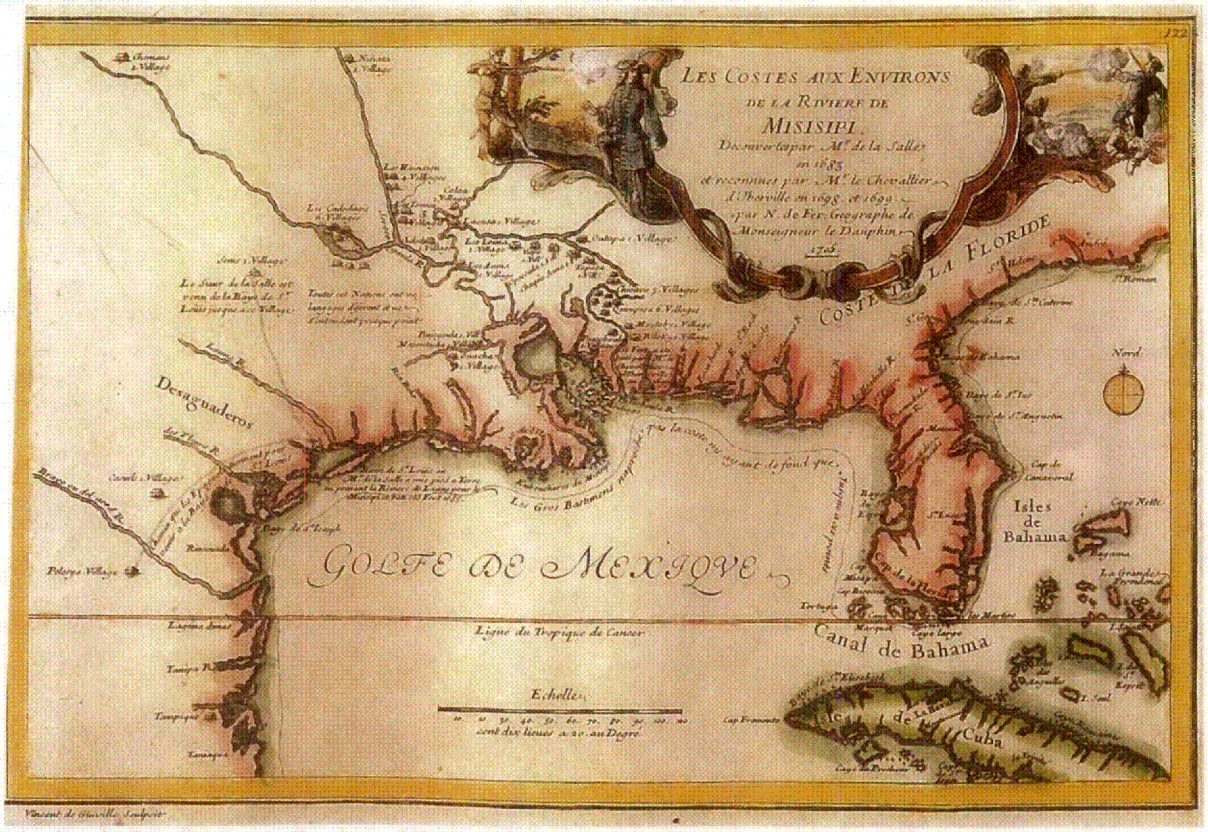
In 1990 the USACE agreed to the next major alteration affecting Matagorda Bay. In order to construct a jetty system at the mouth of the Colorado River in the Gulf of Mexico, a diversion channel was added to the overall design as recommended by the resource agencies. This would divert essentially 100 percent of the river flow into the east end of West Matagorda Bay. This project was completed in 1991. The USACE also closed Parker's Cut (Tiger Island Cut), the channel connecting the Colorado River to West Matagorda Bay, refer to *Figures 2.13* and *2.14*.

Recently, efforts were made to reopen Parker's Cut to accommodate recreational fishing by shortening travel time to the fishing areas. The resource agencies oppose the reopening believing it would be detrimental to fisheries production. Finally a compromise was reached that would open a channel into the Bay just North of the diversion dam. This would allow access to the Bay without going through the locks, but with minimal diversion of fresh water.

In less than 75 years major alterations have been made that dramatically and dynamically changed the characteristics of the Bay. The river flow into Matagorda Bay was reduced significantly, and then it was back to almost 100 percent discharge into West Matagorda Bay by the early 1990s. There are other sources that contribute to the freshwater inflows of Matagorda Bay in addition to the contributions by the Colorado River, but these flows have not been measured and are occasionally overlooked.

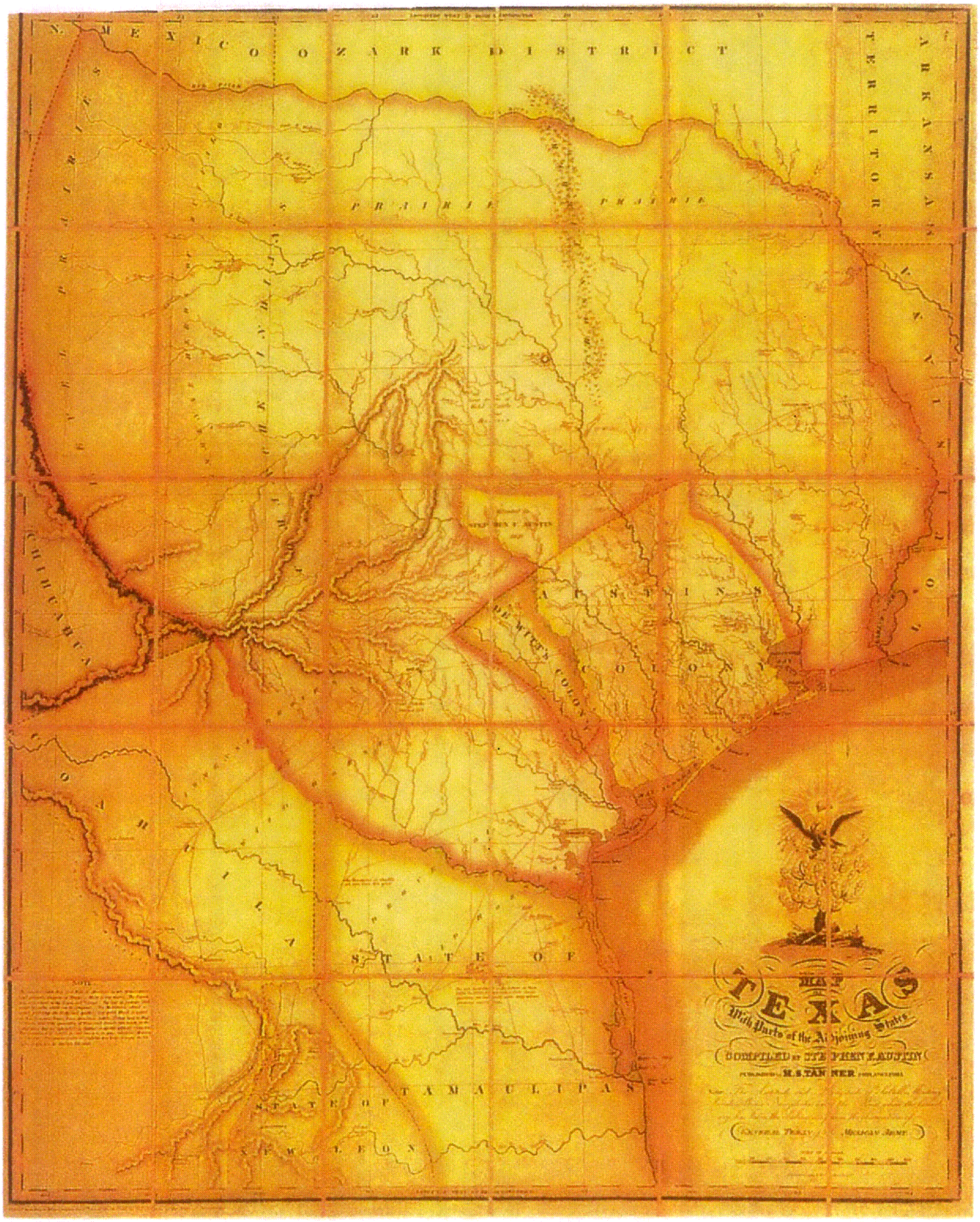
It is difficult to determine the effect of these changes on the Bay's performance. Most entities seem to agree that short-term analysis or comparisons will not yield significant "cause and effects." Certainly with the major changes in the geography and hydrology of the Bay, it is questionable how useful older data may be. One thing is certain; Matagorda Bay, unlike other Texas Bays, has seen major changes in the last 75 years.

Figure 2.10: Matagorda Bay in 1705



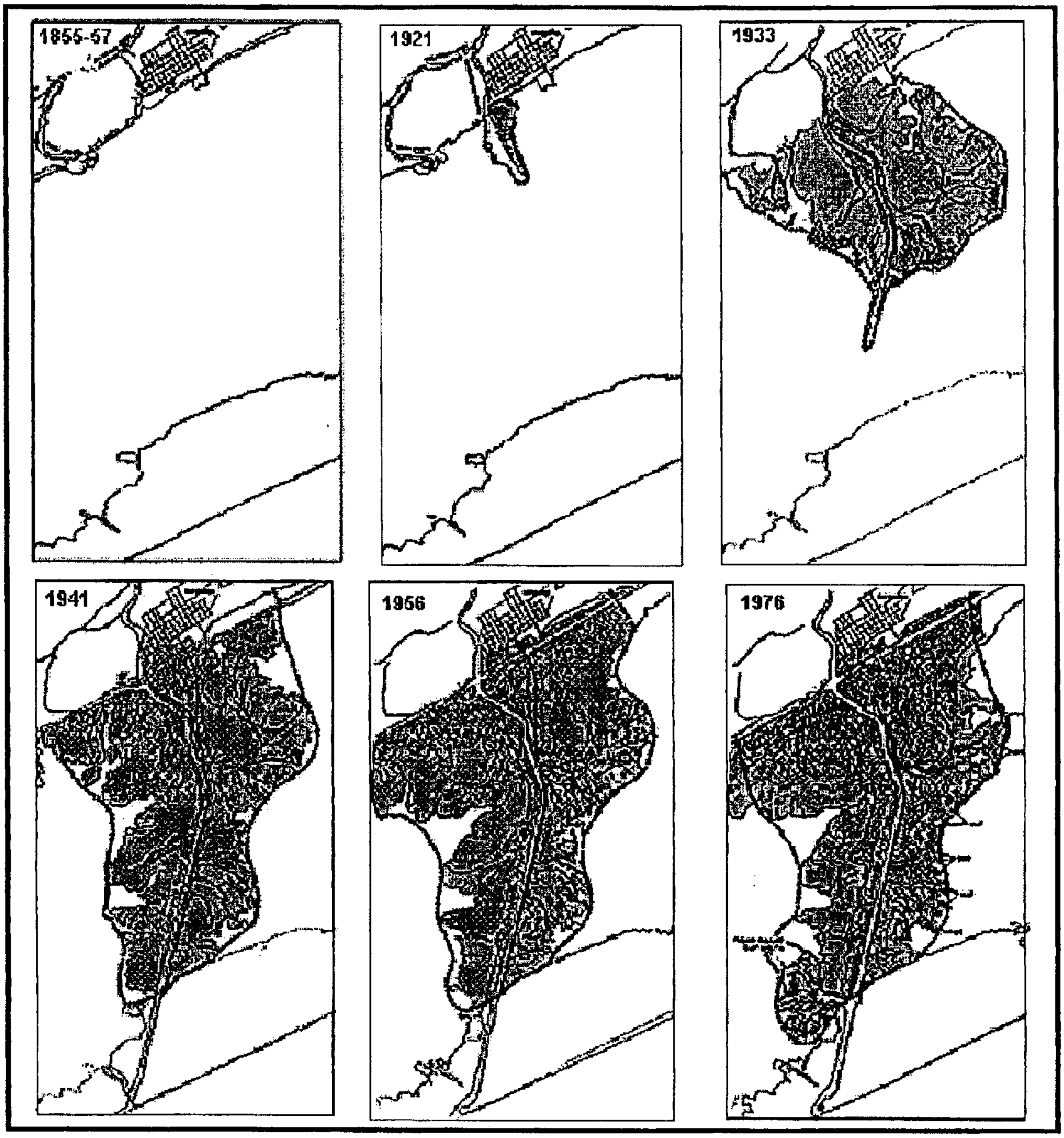
Nicolas de Fer 1705 – Collection of F. Carrington Weems Houston, Texas as shown in *Maps of Texas and the Southwest 1513-1900* by James C. Martin and Robert Sidney Martin, Page 49.

Figure 2.11: Austin's Colony and Matagorda Bay



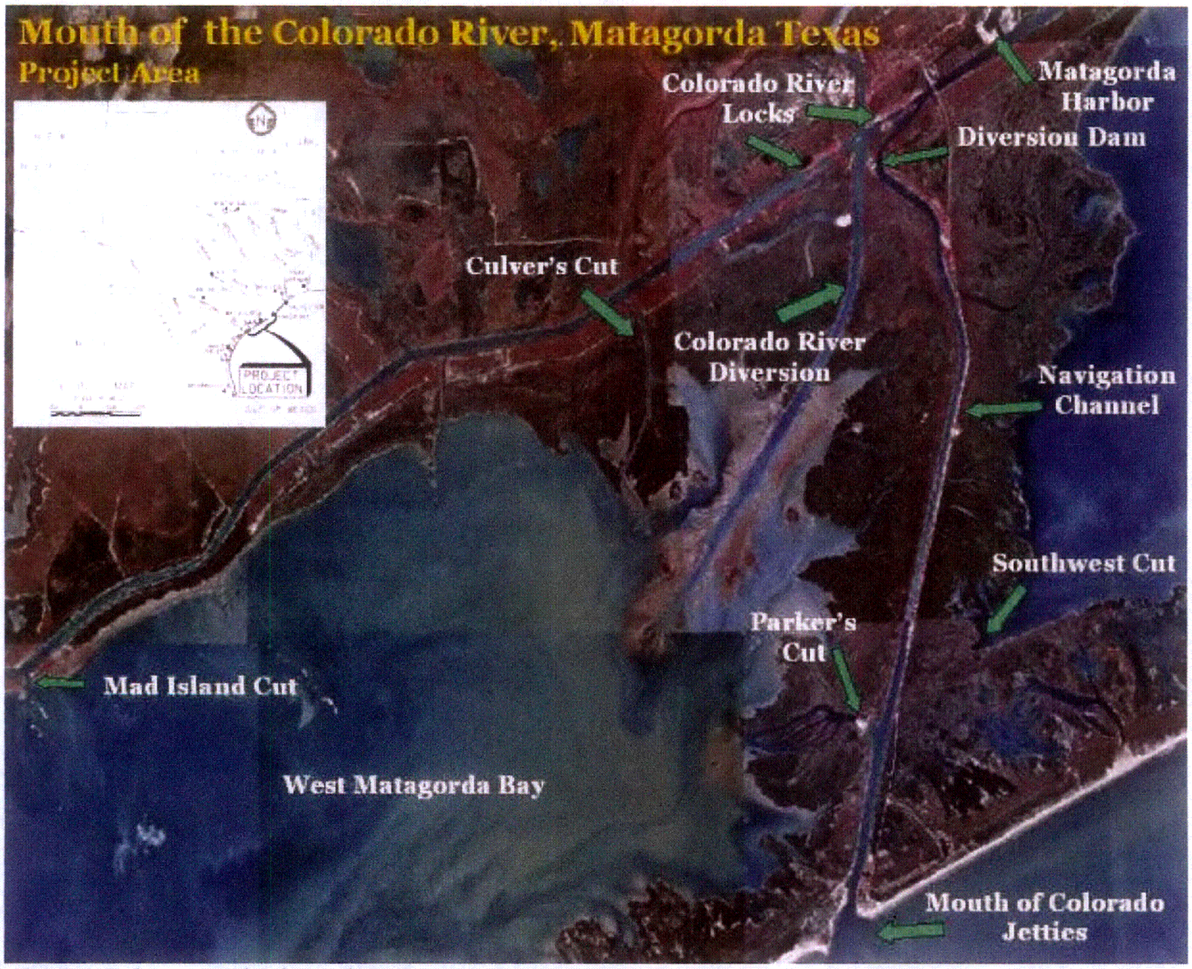
Stephen F. Austin, 1830 – The San Jacinto Museum of History as shown in *Maps of Texas and the Southwest 1513-1900* by James C. Martin and Robert Sidney Martin, Page 52.

Figure 2.12: Development of Colorado River Delta



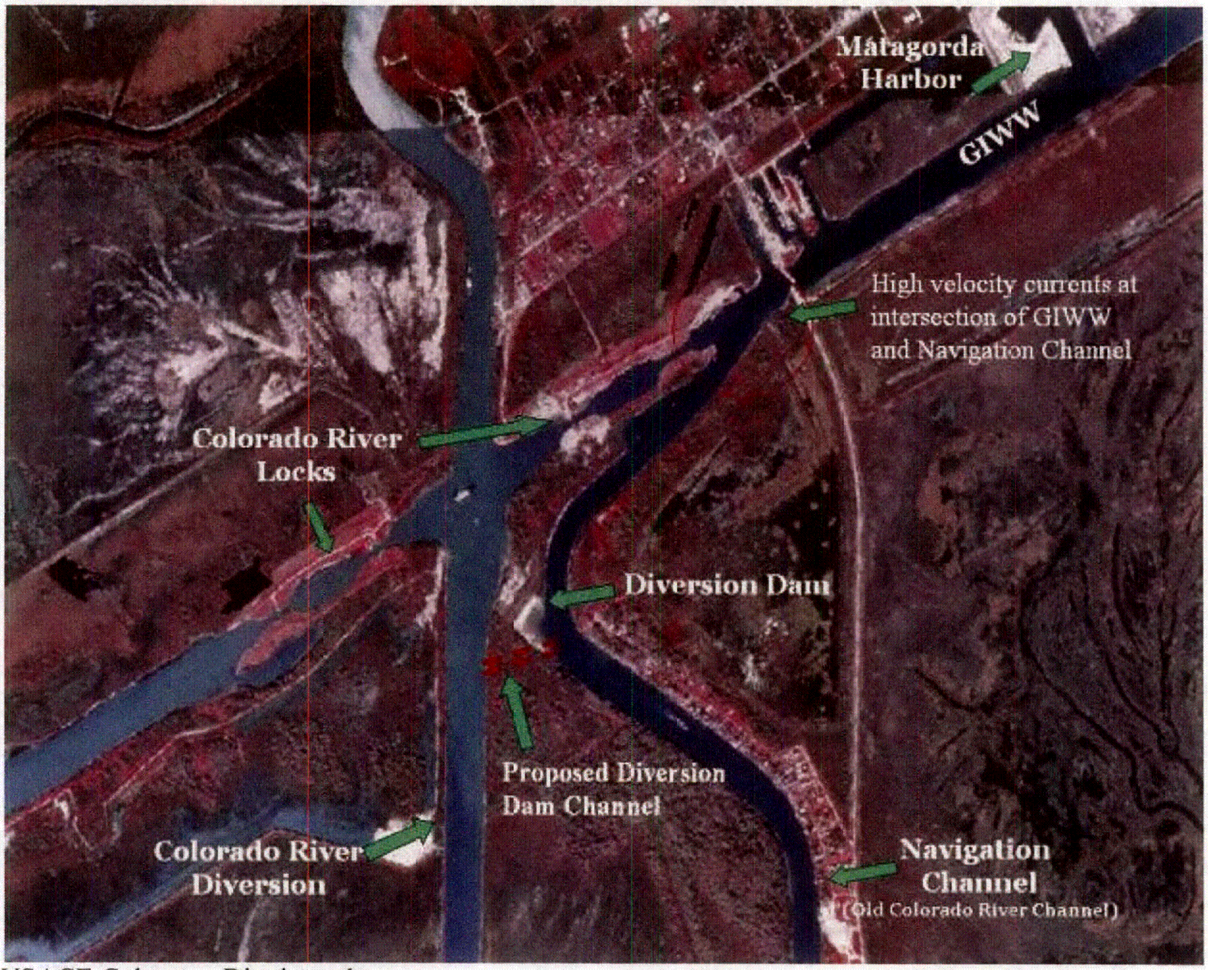
Delta Development – Mouth of Colorado River Project Assessment Report Coastal Technology Corporation (Adapted from USGS, Tobin & Kargl)

Figure 2.13: Mouth of the Colorado River, Matagorda Texas



USACE Galveston District webpage:
http://www.swg.usace.army.mil/items/ColoradoRiver/MOC.asp

Figure 2.14: Colorado River Diversion Channel and Navigation Channel



USACE Galveston District webpage:
http://www.swg.usace.army.mil/items/ColoradoRiver/MOC.asp

2.4.2 Lower Colorado River Authority Water Management Plan

LCRA operates under a Water Management Plan (WMP) that defines the Authority's water management programs and policies. More specifically, the WMP guides how water is allocated from lakes Travis and Buchanan during a drought, and is an operational plan designed to ensure LCRA can meet firm customer demands without shortage through a repeat of the Drought of Record. The WMP sets forth conditions under which LCRA can provide interruptible stored water for irrigated agriculture, and helps address the environmental flow needs of the lower Colorado River and Matagorda Bay. The WMP is developed by LCRA, reviewed and approved by the Texas Commission on Environmental Quality (TCEQ), and has evolved over the years in response to changing conditions and new information.

The current WMP was approved by TCEQ in 2010. After a lengthy stakeholder process, the LCRA Board of Directors in 2012 adopted proposed amendments to the 2010 WMP and submitted them to TCEQ for approval. In May 2014, TCEQ provided LCRA with a draft report containing proposed revisions to the amendments submitted by LCRA in 2012. The revisions being considered by the LCRA Board of Directors incorporate most of the concepts in the draft report from TCEQ, in addition to taking into account a 35,000 acre-foot per year demand expected to begin in 2015, when the city of Corpus Christi begins using its Garwood water rights.

Due to the ongoing severe drought in the Lower Colorado Basin, LCRA requested TCEQ grant emergency relief from the 2010 WMP during 2012, 2013, 2014, and 2015. TCEQ granted the emergency requests for each of the four years. The emergency orders reduced the possibility of reaching a Drought Worse than Drought of Record conditions under the WMP, which would trigger a requirement for LCRA's firm customers to implement pro rata curtailment and also possibly cause the waste of interruptible water by cutting off the water in mid-crop. As a result of the emergency orders, most downstream farmers did not receive stored water from the Highland Lakes during these years, and in 2014 and 2015, LCRA's requirements for maintaining minimum stream flows in the river for the Blue Sucker were temporarily reduced.

On August 20, 2014 the LCRA Board of Directors directed staff to meet with interested parties and stakeholders in August and September 2014 to review the modeling used in developing the staff recommendation and consider adjustments that are consistent with the following criteria:

- Maintaining combined storage above 600,000 acre-feet through a repeat of historic hydrology;
- Including additional hydrology through 2013;
- Adding a 35,000 acre-foot per year demand associated with Corpus Christi's Garwood water rights; and
- Including a three-tier regime for interruptible agricultural customers that considers storage and inflow conditions, plus the use of a look-ahead test. The structure includes three curtailment conditions: extraordinary drought, less severe drought and normal conditions, for decisions on whether and how much stored water from the Highland lakes would be available for interruptible customers.

The LCRA Board approved the revised WMP framework at its September 17, 2014 meeting. LCRA staff finalized the WMP revision for submission to the TCEQ, which must approve the WMP and any changes to it. The amended and restated application was submitted to TCEQ on October 31, 2014.

2.4.3 Current Instream Flow Requirements for the Colorado River[6]

The Lower Colorado Regional Water Planning Group does not have the resources to perform studies to determine appropriate instream flow requirements for the Colorado River. Therefore, data as previously developed by the Lower Colorado River Authority (LCRA) is presented here.

LCRA completed an analysis of instream flow needs for the Colorado River in June 1992. Based on those studies, LCRA generated instream flow recommendations for critical and target flows. These flows are included in the 2010 LCRA Water Management Plan.

Critical flow requirements are those necessary to maintain species population during severe drought conditions. From the LCRA analysis, it is recommended that a flow of at least 46 cfs be maintained at the Austin gage at all times. If this flow should occur for an extended period of time, then operational releases will be made by LCRA to temporarily alleviate these low flow conditions. Specifically, if flow at the Austin gage is less than 65 cfs daily average for 21 consecutive days, the LCRA will make operational releases from storage sufficient to maintain daily average flow at the Austin gage of at least 200 cfs for two consecutive days. If this operational release condition persists for three consecutive cycles (69 days), then a minimum average daily flow of at least 75 cfs will be maintained for the next 30 days. A mean daily flow of 100 cfs is also maintained at the Austin gage to the extent of inflows to Lakes Buchanan and Travis, except during times of drought, when a minimum mean daily flow of 75 cfs is maintained to the extent inflows are available. In addition to the flow requirements at the Austin gage, a mean daily discharge of 120 cfs will be maintained at the Bastrop gage. This minimum flow will be maintained in order to provide adequate water quality conditions in the Colorado River. During a six-week period within the months of March, April, and May, a minimum flow of 500 cfs will be maintained at the Bastrop gage.

Target flows, provided on a mean daily basis, are those necessary to provide an optimal range of habitat complexity for the support of a well-balanced native aquatic community. These flow regimes (described in *Table 2.16*) are considered optimal ranges and should be maintained whenever water resources are adequate. However, these flows should be classified as interruptible demand subject to curtailment during drought conditions. Since native fish species are adapted to normal seasonal variations in flow regimes, target flows were adjusted monthly to emulate the annual cycle.

In addition to critical and target flow requirements, periodic high flow conditions (or scouring flood flows) are needed to prevent siltation and dense macrophytic growth from occurring in the Colorado River.

Total commitments of the Combined Firm Yield from the Highland Lakes for instream flow maintenance will be an average of 27,380 ac-ft/yr, with a maximum of 51,100 ac-ft in any one year; 85,700 ac-ft in any two consecutive years; 114,2000 ac-ft in any three consecutive years; 147,700 ac-ft in any four consecutive years; 184,500 ac-ft in any five consecutive years; 212,200 ac-ft in any six consecutive years; 245,600 ac-ft in any seven consecutive years, and 273,800 ac-ft in any eight to ten consecutive years.

[6]Taken from information provided by the LCRA.

Table 2.16 Instream Flow Requirements for the Colorado River (2010 LCRA WMP)

Month	Critical Flows (cfs)		Target Flows (cfs)		
	Austin Gage [c]	Bastrop Gage	Bastrop Gage	Eagle Lake	Egypt
January	46	120	370	300	240
February	46	120	430	340	280
March	46	500 [b]	560	500 [a]	360
April	46	500 [b]	600	500 [a]	390
May	46	500 [b]	1,030	820	670
June	46	120	830	660	540
July	46	120	370	300	240
August	46	120	240	200	160
September	46	120	400	320	260
October	46	120	470	380	310
November	46	120	370	290	240
December	46	120	340	270	220

Source: LCRA 2010 *Water Management Plan.*

[a] Since target flow at Eagle Lake (based on overall community habitat availability) were insufficient to meet Blue Sucker (Cycleptus elongatus) spawning requirements during March and April, target flows were superseded by critical flow recommendations for this reach.

[b] This flow should be maintained for a continuous period of not less than six weeks during these months. A flow of 120 cfs will be maintained on all days not within the six week period.

[c] LCRA will maintain a mean daily flow of 100 cfs at the Austin gage at all times, to the extent of inflows each day to the Highland Lakes as measured by upstream gages, until the combined storage of Lakes Buchanan and Travis reaches 1.1 million acre-feet of water. A mean daily flow of 75 cfs, to the extent of inflows each day to the Highland Lakes as measured by upstream gages, will then be maintained until the combined storage of Lakes Buchanan and Travis reaches 1.0 million acre-feet of water, then a subsistence/critical flow of 46 cfs will be maintained at all times, regardless of inflows.
In addition, if the subsistence/critical flow of 46 cfs should occur for an extended period of time, then operational releases will be made by LCRA to temporarily alleviate the subsistence/critical flow conditions. Specifically, should the flow at the Austin gage be below a 65 cfs daily average for a period of 21 consecutive days, LCRA will make operational releases from storage sufficient to maintain daily average flow at the Austin gage of at least 200 cfs for two consecutive days. If this operational release conditions persists for three consecutive cycles (69 days), then a minimum average daily flow of at least 75 cfs will be maintained for the next 30 days.

In 2014, the LCRA Board adopted an amended version of their 2010 Water Management Plan and submitted it to TCEQ for approval. The amended plan is currently still undergoing the review and approval process. The instream flow requirements described in the amendment application for the Water Management Plan are somewhat different from the ones in the 2010 LCRA Water Management Plan, and so are presented below for information purposes.

A comprehensive instream flow study was completed in 2008 that recommended both subsistence flow conditions and base flow conditions, including base-dry and base-average conditions being met approximately 80% and 60% of the time, respectively. The flow recommendations at the Austin, Bastrop, Columbus, and Wharton gauge locations, as included in the draft amendment to the 2010 LCRA Water Management Plan, are provided in the table below.

Table 2.17 Instream Flow Recommendations from Draft Amendment to 2010 LCRA WMP

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Austin											
Subsistence	50	50	50	50	50	50	50	50	50	50	50	50
	Bastrop											
Subsistence	208	274	274	184	275	202	137	123	123	127	180	186
Base-Dry	313	317	274	287	579	418	347	194	236	245	283	311
Base-Average	433	497	497	635	824	733	610	381	423	433	424	450
	Columbus											
Subsistence	340	375	375	299	425	534	342	190	279	190	202	301
Base-Dry	487	590	525	554	966	967	570	310	405	356	480	464
Base-Average	828	895	1,020	977	1,316	1,440	895	516	610	741	755	737
	Wharton											
Subsistence	315	303	204	270	304	371	212	107	188	147	173	202
Base-Dry	492	597	531	561	985	984	577	314	410	360	486	470
Base-Average	838	906	1,036	1,011	1,397	1,512	906	522	617	749	764	746

2.4.4 Current Bay and Estuary Requirements

The Lower Colorado Regional Water Planning Group does not have the resources to perform the studies to determine appropriate freshwater inflow needs requirements for the Colorado-Lavaca estuary. Therefore, we present data that has been developed by LCRA and the state resource agencies, TPWD, TWDB, and TCEQ.

The Colorado-Lavaca estuary is the second largest estuary on the Texas Gulf Coast. This estuary, also known as the Matagorda Bay system, covers 352 square miles. While Matagorda Bay is the largest body of water, other major bays in the estuary system are Lavaca, East Matagorda, Keller, Carancahua, and Tres Palacios Bay.

In 1985 the Texas Legislature directed TPWD and TWDB to continue studies of the estuaries to determine freshwater inflow requirements to be considered in the allocation of the State's water resources. These studies were to have been completed by December 31, 1989. However, due to a lack of funding, changes in priorities, and other factors, they have been delayed. To expedite the completion of this study, LCRA entered into a cooperative agreement with TPWD, TWDB, and TNRCC (now TCEQ) in 1993. The LCRA agreed to modify existing methods used by TPWD and TWDB and to apply those methods to compute alternative freshwater needs for the estuary.

The freshwater inflow needs were estimated by a methodology developed in conjunction with the TPWD and TWDB, and is similar to methodologies used for other Texas estuaries. The first major element in this process is the development of statistical relationships for the interactions between freshwater inflows and important indicators of estuarine ecosystem conditions. The parameters that were considered in this analysis are: salinity, species productivity, and nutrient inflows. The next major step in this process involves using the statistical functions to compute optimal monthly and seasonal freshwater inflow needs. This is accomplished using TWDB's Texas Estuarine Mathematical Programming (TxEMP) Model. The TxEMP model estimates the freshwater inflow needs of an estuary by representing mathematically the varied and complex interactions between freshwater inflows and salinity, species productivity, and nutrient inflows. The third major element in the process of developing inflow needs is the simulation of the salinity conditions throughout the estuary using the TxBLEND model developed by TWDB and modified by the LCRA. The application of the TWDB methodology and the resulting estimates of freshwater inflow needs are documented in "Freshwater Inflow Needs of the Matagorda Bay System" (LCRA 1997).

The freshwater inflow needs for the estuarine ecosystem associated with the Matagorda Bay system were estimated for two levels: target and critical. Target inflow needs were determined as the monthly and seasonal inflows that produced 98 percent of the maximum normalized population biomass for nine key estuarine finfish and shellfish species while maintaining specified salinity, population density, and nutrient inflow conditions. The critical inflow needs were determined by finding the minimum total annual inflow needed to keep salinity at or below 25 parts per thousand near the mouths of the Colorado and Lavaca Rivers. These inflow needs are termed critical since they provide a fishery sanctuary habitat during droughts.

Results of the 1997 needs analysis indicate that target freshwater inflows need to be approximately 2.0 million ac-ft/yr. Of this, it is estimated that the Colorado River will need to contribute 1,033,100 ac-ft annually. For critical freshwater inflow needs, approximately 171,000 ac-ft of the total required 287,400 ac-ft/yr must come from the Colorado River. The critical and target freshwater inflow needs from the 1997 study are included in the LCRA 2010 Water Management Plan and are presented below in *Table 2.18*.

LCRA's total commitments of the Combined Firm Yield from lakes Buchanan and Travis for bays and estuaries (estuarine inflows), reflected for this planning effort include an average of 6,060 ac-ft/yr, with a maximum of 20,660 ac-ft in any one year; 23,570 ac-ft in any two consecutive years; 23,680 ac-ft in any three consecutive years; 32,220 ac-ft in any four consecutive years; 40,800 ac-ft in any five consecutive years; 41,400 ac-ft in any six consecutive years; 47,800 ac-ft in any seven consecutive years, and 60,600 ac-ft in any eight to ten consecutive years (LCRA's bay and estuary commitments are in accordance with LCRA's 2010 water management plan).

Table 2.18 Colorado River Critical and Target Freshwater Inflow Needs for the Matagorda Bay System

Month	1997 FINS Freshwater Inflows (1,000 ac-ft)[1]	
	Critical	Target
January	14.26	44.1
February	14.26	45.3
March	14.26	129.1
April	14.26	150.7
May	14.26	162.2
June	14.26	159.3
July	14.26	107.0
August	14.26	59.4
September	14.26	38.8
October	14.26	47.4
November	14.26	44.4
December	14.26	45.2
Annual Totals	**171.1**	**1,033.1**

[1] Schedule of flows is designed to optimize biodiversity/productivity under normal rainfall. Under drought conditions, target flows should be curtailed in accordance to the severity of the drought and flows should be maintained at or above critical levels based on water quality considerations.

In 2014, the LCRA Board adopted an amended version of their 2010 Water Management Plan and submitted it to TCEQ for approval. The amended plan is currently still undergoing the review and approval process. The bay and estuary freshwater inflow requirements described in the amendment application for the Water Management Plan are computed from a different methodology than the ones in the 2010 LCRA Water Management Plan, and so are presented below for information purposes. The text and *Tables 2.19* and *2.20* provided below are taken directly from the 2012 Amendment to the 2010 LCRA Water Management Plan.

> "The Matagorda Bay Health Evaluation (MBHE) used the latest data and science to assess the relationship between various factors and bay conditions. Several measures of bay health were investigated, including salinity, habitat condition, species abundance, nutrient supply and benthic condition. The computer models and data analysis in the study were used to develop inflow criteria for the Colorado River. Salinity, habitat and benthic modeling were used to develop criteria for most levels, but additional measures of bay health were used wherever possible."

Table 2.19 Summary of Matagorda Bay Health Evaluation (MBHE) Inflow Levels

Inflow Level	Descriptions
Threshold	Refuge conditions for all species and habitat
MBHE-1	Maintain tolerable oyster reef health, benthic character, and habitat conditions
MBHE-2	Provide inflow variability and sustain oyster reef health, benthic condition, low estuarine marsh, and shellfish and forage fish habitat
MBHE-3	Provide inflow variability and support quality oyster reef health, benthic condition, low estuarine marsh, and shellfish and forage fish habitat
MBHE-4	Provide inflow variability and support high levels of primary productivity, and high quality oyster reef health, benthic condition, low estuarine marsh, and shellfish and forage fish habitat

"The recommended Colorado River inflows from the MBHE study were designed to cover the full range of inflow conditions into Matagorda Bay, with a regime that incorporates five levels of inflow, each with an associated desired achievement guideline. The lowest level, "Threshold," is a fixed monthly value to provide refuge conditions that would ideally be achieved 100% of the time. The remaining levels, MBHE-1 through MBHE-4, represent different inflow targets that were recommended to be achieved with the following frequencies: MBHE-1, 90%; MBHE-2, 75%; MBHE-3, 60%; and MBHE-4, 35%. The levels all include seasonal variability and incorporate influxes of fresh water into the Bay in the spring and fall that reflect the natural pattern of inflows into the bay."

Table 2.20 Matagorda Bay Health Evaluation (MBHE) Inflow Values (acre-feet)

Inflow Category	Spring (3 month total)	Fall (3 month total)	Intervening (6 month total)	Monthly
Threshold	-	-	-	15,000
MBHE-1	114,000	81,000	105,000	-
MBHE-2	168,700	119,900	155,400	-
MBHE-3	246,200	175,000	226,800	-
MBHE-4	433,200	307,800	399,000	-

Additional details related to the incorporation of the Matagorda Bay Health Evaluation freshwater inflows into the LCRA Water Management Plan can be found in the 2012 or 2014 Amendment to the 2010 LCRA Water Management Plan on the LCRA website at www.lcra.org.

2.4.5 Current TCEQ Environmental Flow Requirements

House Bill (HB) 3 and Senate Bill (SB) 3, passed during the 80th Legislature in 2007, require the TCEQ to adopt environmental flow standards for the river basin and bay systems in Texas. From that, the Colorado and Lavaca Rivers and Matagorda and Lavaca Bays Basin and Bay Stakeholder Committee (BBASC) and Basin and Bay Expert Science Team (BBEST) were formed.

The Final Environmental Flows Recommendations Report from the Colorado and Lavaca Rivers and Matagorda and Lavaca Bays BBEST was completed on March 1, 2011. Then on August 30, 2011, the Colorado and Lavaca Rivers and Matagorda and Lavaca Bays BBASC submitted the Environmental Flows Recommendation Report to the Texas Environmental Flows Advisory Group, co-chaired by Senator Troy Fraser and Senator Allen Ritter, and to the Executive Director of the TCEQ.

On August 8, 2012, the TCEQ adopted environmental flow standards for the Colorado and Lavaca Rivers, and Matagorda and Lavaca Bays that became effective on August 30, 2012. The standards can be found at http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/298d.pdf. The priority date for the standards is March 1, 2011, and "will be used in the water availability determination for a new appropriation or for an amendment to an existing water right that increases the amount of water authorized to be stored, taken, or diverted..."

The current TCEQ environmental flow standards will be discussed further in Chapter 5, as part of the evaluation of water management strategies that involve a new appropriation or amendment to an existing water right.

2.5 WHOLESALE WATER PROVIDERS

Each regional water planning group designates wholesale water providers, which are persons or entities having contracts to sell more than 1,000 acre-feet of water wholesale. The Lower Colorado Region designated two wholesale water providers for the 2016 Plan: the Lower Colorado River Authority (LCRA) and the City of Austin (COA). Associated water demands for these wholesale water providers are identified within the plan. The City is also a water customer of the LCRA, and together these entities supply a large portion of the Lower Colorado Region's water needs.

The intent of TWDB water planning requirements is to ensure that there is an adequate future supply of water for each entity that receives all or a significant portion of its current water supply from another entity. This requires an analysis of projected water demands and currently available water supplies for the primary supplier, each of its wholesale customers, and all of the suppliers in the aggregate as a "system." For example, a city that serves both retail customers within its corporate limits as well as other nearby public water systems would need to have a supply source(s) that is adequate for the combined total of future retail water sales and future wholesale water sales. If there is a "system" deficit currently or in the future, then recommendations are to be included in the regional water plan with regard to strategies for meeting the "system" deficit.

2.5.1 City of Austin

The City of Austin provides water for municipal, manufacturing, and steam-electric water uses. The City's existing service area covers portions of Travis, Williamson, and Hays Counties. *Table 2.21* presents the municipal and manufacturing water demands for the City. These water demands consist of the City's service area water demands and its wholesale water commitments to various communities and retail water systems primarily located within its Extra-Territorial Jurisdiction. The wholesale commitments represent contract amounts as reported by the City. For a complete list of the City's wholesale water commitments refer to Chapter 3.

Table 2.21 Projected Municipal and Manufacturing Water Demands for City of Austin Service Area (ac-ft/yr)

County/WUG	2020	2030	2040	2050	2060	2070
Hays County						
Austin	13	127	249	631	1,519	2,749
Travis County						
Austin	157,445	182,933	209,973	229,887	246,590	266,411
Wholesale Commitments [1]	10,126	4,309	4,350	4,436	4,529	4,620
County-Other [2]	4,520	4,108	3,740	3,138	2,298	1,555
Manufacturing	35,430	48,350	63,498	72,631	81,421	91,270
Williamson County						
Austin	7,697	9,541	11,841	14,317	17,126	20,208
Wholesale Commitments [3]	892	863	839	826	823	823
County-Other [4]	2,586	3,504	3,467	3,451	3,444	3,441
Total	**218,709**	**253,735**	**297,957**	**329,317**	**357,750**	**391,077**

[1] The wholesale commitments in Travis County include the following WUGs: Creedmoor-Maha WSC, Lost Creek MUD, Manor, a portion of North Austin MUD #1, Northtown MUD, Rollingwood, Shady Hollow MUD, Sunset Valley, Travis County WCID #10, and a portion of Wells Branch MUD.

[2] County-Other in Travis County consists of several small communities, which are too small to be considered WUGs.

[3] The wholesale commitments in Williamson County include the following WUGs: a portion of North Austin MUD #1, and a portion of Wells Branch MUD.

[4] County-Other in Williamson County consists of several small communities, which are too small to be considered WUGs.

Travis County-Other water demands decrease due to annexations by the City, which correspondingly increase the City's water demand. The City is responsible for supplying a significant portion of the County-Other water in Travis County. This County-Other demand consists of demand for both individual service connections that are outside the city limits and demands for other public water systems served by the City.

Table 2.22 presents the City of Austin's proposed steam-electric water demands in Fayette and Travis Counties. The City's portion of the South Texas Project (STP) demand is included in the STP total steam-electric demand in Matagorda County.

Table 2.22 Projected Steam-Electric Water Demands for City of Austin Service Area (ac-ft/yr)

County/WUG	2020	2030	2040	2050	2060	2070
Fayette County						
Steam Electric [1]	14,702	14,702	14,702	18,702	20,702	22,702
Travis County						
Steam Electric	18,500	22,500	22,500	23,500	24,500	26,500
Total	**33,202**	**37,202**	**37,202**	**42,202**	**45,202**	**49,202**

[1] City of Austin portion - based on estimated current supply levels and approved projections.

2.5.2 Lower Colorado River Authority

LCRA supplies water for municipal, agricultural (irrigation), manufacturing, steam-electric, mining, and other water uses. The LCRA currently supplies water to entities in Bastrop, Burnet, Colorado, Fayette, Hays, Lampasas (Region G), Llano, Matagorda, San Saba, Travis, Wharton, and Williamson (the portion of Williamson in Region G) counties. *Table 2.23* presents a summary of LCRA commitments to water user groups in the Lower Colorado Region (Region K) and Region G.

As with the City of Austin, the municipal County-Other water commitments actually consist of water that is supplied to several smaller retail water customers.

Table 2.23 LCRA Water Commitment Summary (ac-ft/yr)

County/WUG	2020	2030	2040	2050	2060	2070
Bastrop County						
County-Other	744	744	744	744	744	744
Irrigation	955	955	955	955	955	955
Steam Electric	16,720	16,720	16,720	16,720	16,720	16,720
Burnet County						
Burnet	4,100	4,100	4,100	4,100	4,100	4,100
Cottonwood Shores	495	495	495	495	495	495
Granite Shoals	830	830	830	830	830	830
Horseshoe Bay (also in Llano Co.)	2,225	2,225	2,225	2,225	2,225	2,225
Marble Falls	3,000	3,000	3,000	3,000	3,000	3,000
Meadowlakes	75	75	75	75	75	75
County-Other	2,205	2,205	2,205	2,205	2,205	2,205
Irrigation	416	416	416	416	416	416
Manufacturing	500	500	500	500	500	500
Colorado County						
Irrigation [1,10]	124,385	121,039	117,783	114,614	111,532	108,531
Fayette County						
County-Other	102	102	102	102	102	102
Steam Electric (LCRA)	38,101	38,101	38,101	38,101	38,101	38,101
Steam Electric (COA)	7,016	7,016	7,016	7,016	7,016	7,016
Gillespie County						
County-Other	56	56	56	56	56	56
Hays County						
Dripping Springs	506	506	506	506	506	506
Dripping Springs WSC	1,126	1,126	1,126	1,126	1,126	1,126
County-Other	1,401	1,401	1,401	1,401	1,401	1,401
Llano County						
Kingsland WSC (also in Burnet Co.)	1,150	1,150	1,150	1,150	1,150	1,150
Sunrise Beach Village	200	200	200	200	200	200
County-Other	3,586	3,586	3,586	3,586	3,586	3,586
Irrigation	1,514	1,514	1,514	1,514	1,514	1,514
Steam Electric	2,500	2,500	2,500	2,500	2,500	2,500
Mason County (Region F)						
Irrigation	59	59	59	59	59	59
Mining	2	2	2	2	2	2
Matagorda County						
Manufacturing	14,222	14,222	14,222	14,222	14,222	14,222
Irrigation [2,10]	181,906	176,942	172,112	167,412	162,839	158,388
Steam Electric [3]	32,240	32,226	32,202	32,172	32,142	32,120

[1] The Colorado Irrigation interruptible commitment represents 75 percent of the Colorado County Irrigation demand.

[2] The Matagorda Irrigation interruptible commitment represents 87 percent of the Matagorda County Irrigation demand.

[3] The Matagorda Steam Electric value is based on the Region K Cutoff Model results for the average annual amount of LCRA backup supplies needed to supplement the STPNOC/LCRA water right during a repeat of the drought of record.

Table 2.23 LCRA Water Commitment Summary (ac-ft/yr) (Continued)

County/WUG	2020	2030	2040	2050	2060	2070
San Saba County						
County-Other	20	20	20	20	20	20
Travis County						
Austin - Municipal[4]	123,626	123,626	123,626	123,626	123,613	123,559
Austin - Steam Electric[5]	16,156	16,156	16,156	16,156	16,156	16,156
Briar Cliff Village	400	400	400	400	400	400
Cedar Park[6]	2,767	2,767	2,767	2,767	2,767	2,767
The Hills	1,600	1,600	1,600	1,600	1,600	1,600
Lago Vista	6,500	6,500	6,500	6,500	6,500	6,500
Lakeway	3,069	3,069	3,069	3,069	3,069	3,069
Loop 360 WSC	1,250	1,250	1,250	1,250	1,250	1,250
Pflugerville	12,000	12,000	12,000	12,000	12,000	12,000
Point Venture	360	360	360	360	360	360
Travis County MUD #14	4,316	4,316	4,316	4,316	4,316	4,316
Travis County WCID #17	9,299	9,299	9,299	9,299	9,299	9,299
Travis County WCID #18	1,736	1,736	1,736	1,736	1,736	1,736
Travis County WCID #20	1,135	1,135	1,135	1,135	1,135	1,135
West Travis County PUA[7]	9,450	9,450	9,450	9,450	9,450	9,450
County-Other	14,617	14,617	14,617	14,617	14,617	14,617
Irrigation	2,596	2,596	2,596	2,596	2,596	2,596
Manufacturing	282	282	282	282	282	282
Williamson County (Region G)						
Cedar Park[6] (also in Travis County)	15,233	15,233	15,233	15,233	15,233	15,233
Leander[8] (also in Travis County)	24,000	24,000	24,000	24,000	24,000	24,000
Brazos River Authority	25,000	25,000	25,000	25,000	25,000	25,000
Wharton County						
Irrigation[9,10]	116,726	113,586	110,531	107,557	104,664	101,848
TOTAL	836,494	825,041	813,886	803,024	792,442	782,109

[4] The Austin-Municipal value is based on the Region K Cutoff Model results for the amount of LCRA backup supplies needed to supplement Austin's municipal water rights during a repeat of the drought of record.

[5] The Austin-Steam Electric value is based on the Region K Cutoff Model results for the amount of LCRA backup supplies needed to supplement Austin's steam-electric water rights during a repeat of the drought of record.

[6] Cedar Park is located in both Region K and Region G.

[7] West Travis County PUA serves multiple water user groups including the Village of Bee Cave, Barton Creek West WSC, and County-Other.

[8] Leander is located in both Region K and Region G.

[9] The Wharton Irrigation interruptible commitment represents 55 percent of the total Wharton County Irrigation demand.

[10] These are not firm commitments.

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APPENDIX 2A

TWDB DB17 REPORTS
LCRWPG POPULATION AND WATER DEMAND PROJECTIONS

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
AQUA WSC	551	724	949	1,255	1,667	2,216
LEE COUNTY WSC	342	450	590	780	1,037	1,378
COUNTY-OTHER	128	169	222	293	389	516
BRAZOS BASIN TOTAL POPULATION	**1,021**	**1,343**	**1,761**	**2,328**	**3,093**	**4,110**
COLORADO BASIN						
AQUA WSC	55,253	72,656	95,275	125,920	167,313	222,345
BASTROP	9,653	13,088	17,553	23,603	31,775	42,640
BASTROP COUNTY WCID #2	3,943	5,867	8,368	11,757	16,334	22,420
CREEDMOOR-MAHA WSC	208	262	333	429	559	732
ELGIN	9,247	12,099	15,806	20,828	27,612	36,631
LEE COUNTY WSC	465	611	801	1,059	1,407	1,870
POLONIA WSC	232	296	379	491	643	845
SMITHVILLE	4,913	6,461	8,473	11,198	14,879	19,774
COUNTY-OTHER	9,974	12,180	15,049	18,936	24,183	31,159
COLORADO BASIN TOTAL POPULATION	**93,888**	**123,520**	**162,037**	**214,221**	**284,705**	**378,416**
GUADALUPE BASIN						
AQUA WSC	390	512	672	888	1,180	1,568
COUNTY-OTHER	188	184	178	171	162	150
GUADALUPE BASIN TOTAL POPULATION	**578**	**696**	**850**	**1,059**	**1,342**	**1,718**
BASTROP COUNTY TOTAL POPULATION	**95,487**	**125,559**	**164,648**	**217,608**	**289,140**	**384,244**
BLANCO COUNTY						
COLORADO BASIN						
JOHNSON CITY	2,053	2,441	2,668	2,787	2,867	2,914
COUNTY-OTHER	4,650	5,529	6,045	6,315	6,494	6,600
COLORADO BASIN TOTAL POPULATION	**6,703**	**7,970**	**8,713**	**9,102**	**9,361**	**9,514**
GUADALUPE BASIN						
BLANCO	2,156	2,563	2,802	2,927	3,010	3,060
CANYON LAKE WATER SERVICE COMPANY	1,020	1,213	1,326	1,385	1,424	1,448
COUNTY-OTHER	3,136	3,729	4,076	4,258	4,380	4,450
GUADALUPE BASIN TOTAL POPULATION	**6,312**	**7,505**	**8,204**	**8,570**	**8,814**	**8,958**
BLANCO COUNTY TOTAL POPULATION	**13,015**	**15,475**	**16,917**	**17,672**	**18,175**	**18,472**
BURNET COUNTY						
BRAZOS BASIN						
BERTRAM	1,681	2,034	2,331	2,616	2,866	3,083
BURNET	30	36	41	46	51	55
CHISHOLM TRAIL SUD	372	451	517	580	635	683
KEMPNER WSC	769	930	1,066	1,196	1,311	1,410
COUNTY-OTHER	7,599	9,195	10,542	11,829	12,959	13,939
BRAZOS BASIN TOTAL POPULATION	**10,451**	**12,646**	**14,497**	**16,267**	**17,822**	**19,170**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
BURNET COUNTY						
COLORADO BASIN						
BURNET	7,408	8,964	10,276	11,531	12,633	13,589
COTTONWOOD SHORES	1,395	1,688	1,935	2,171	2,379	2,559
GRANITE SHOALS	6,100	7,381	8,461	9,494	10,402	11,189
HORSESHOE BAY	1,192	1,683	2,097	2,493	2,841	3,142
KINGSLAND WSC	419	508	582	653	716	770
MARBLE FALLS	8,702	12,785	18,509	21,509	23,509	24,509
MEADOWLAKES	2,207	2,671	3,062	3,436	3,764	4,049
COUNTY-OTHER	15,240	15,942	14,254	15,114	16,505	18,449
COLORADO BASIN TOTAL POPULATION	**42,663**	**51,622**	**59,176**	**66,401**	**72,749**	**78,256**
BURNET COUNTY TOTAL POPULATION	**53,114**	**64,268**	**73,673**	**82,668**	**90,571**	**97,426**
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
EAGLE LAKE	1,164	1,215	1,252	1,307	1,353	1,398
COUNTY-OTHER	1,249	1,303	1,344	1,404	1,454	1,501
BRAZOS-COLORADO BASIN TOTAL POPULATION	**2,413**	**2,518**	**2,596**	**2,711**	**2,807**	**2,899**
COLORADO BASIN						
COLUMBUS	3,832	3,999	4,123	4,305	4,457	4,604
EAGLE LAKE	2,652	2,767	2,853	2,979	3,084	3,186
WEIMAR	740	772	796	831	860	889
COUNTY-OTHER	8,107	8,460	8,722	9,106	9,427	9,741
COLORADO BASIN TOTAL POPULATION	**15,331**	**15,998**	**16,494**	**17,221**	**17,828**	**18,420**
LAVACA BASIN						
WEIMAR	1,516	1,582	1,631	1,703	1,763	1,821
COUNTY-OTHER	2,624	2,738	2,823	2,947	3,051	3,153
LAVACA BASIN TOTAL POPULATION	**4,140**	**4,320**	**4,454**	**4,650**	**4,814**	**4,974**
COLORADO COUNTY TOTAL POPULATION	**21,884**	**22,836**	**23,544**	**24,582**	**25,449**	**26,293**
FAYETTE COUNTY						
COLORADO BASIN						
AQUA WSC	24	27	30	31	33	34
FAYETTE WSC	5,174	5,906	6,402	6,811	7,134	7,381
LA GRANGE	5,362	6,120	6,635	7,059	7,393	7,650
LEE COUNTY WSC	1,161	1,325	1,436	1,528	1,601	1,656
COUNTY-OTHER	7,745	8,840	9,584	10,197	10,678	11,049
COLORADO BASIN TOTAL POPULATION	**19,466**	**22,218**	**24,087**	**25,626**	**26,839**	**27,770**
GUADALUPE BASIN						
FAYETTE WSC	335	382	415	441	462	478
FLATONIA	302	345	374	397	416	431
COUNTY-OTHER	335	382	413	441	461	477
GUADALUPE BASIN TOTAL POPULATION	**972**	**1,109**	**1,202**	**1,279**	**1,339**	**1,386**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
FAYETTE COUNTY						
LAVACA BASIN						
FAYETTE WSC	607	692	751	799	836	866
FLATONIA	1,296	1,479	1,603	1,706	1,787	1,848
SCHULENBURG	3,295	3,761	4,077	4,338	4,543	4,701
COUNTY-OTHER	2,737	3,125	3,388	3,603	3,775	3,905
LAVACA BASIN TOTAL POPULATION	**7,935**	**9,057**	**9,819**	**10,446**	**10,941**	**11,320**
FAYETTE COUNTY TOTAL POPULATION	**28,373**	**32,384**	**35,108**	**37,351**	**39,119**	**40,476**
GILLESPIE COUNTY						
COLORADO BASIN						
FREDERICKSBURG	11,318	12,146	12,829	13,630	14,367	15,083
COUNTY-OTHER	14,910	16,095	17,072	18,217	19,270	20,294
COLORADO BASIN TOTAL POPULATION	**26,228**	**28,241**	**29,901**	**31,847**	**33,637**	**35,377**
GUADALUPE BASIN						
COUNTY-OTHER	567	611	647	689	728	765
GUADALUPE BASIN TOTAL POPULATION	**567**	**611**	**647**	**689**	**728**	**765**
GILLESPIE COUNTY TOTAL POPULATION	**26,795**	**28,852**	**30,548**	**32,536**	**34,365**	**36,142**
HAYS COUNTY						
COLORADO BASIN						
AUSTIN	71	760	1,489	3,776	9,100	16,468
BUDA	9,831	14,132	19,369	25,916	33,315	41,735
CIMARRON PARK WATER COMPANY	2,150	2,150	2,150	2,150	2,150	2,150
DRIPPING SPRINGS	2,031	2,311	2,652	3,078	3,560	4,108
DRIPPING SPRINGS WSC	3,037	3,938	5,035	6,407	7,957	9,721
GOFORTH SUD	789	1,246	1,803	2,499	3,285	4,180
MOUNTAIN CITY	490	490	490	490	490	490
PLUM CREEK WATER COMPANY	2,416	3,922	4,208	4,450	4,641	4,791
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	9,514	13,449	18,241	24,231	31,000	38,704
COUNTY-OTHER	25,255	30,845	39,310	48,632	56,509	64,232
COLORADO BASIN TOTAL POPULATION	**55,584**	**73,243**	**94,747**	**121,629**	**152,007**	**186,579**
HAYS COUNTY TOTAL POPULATION	**55,584**	**73,243**	**94,747**	**121,629**	**152,007**	**186,579**
LLANO COUNTY						
COLORADO BASIN						
HORSESHOE BAY	2,958	3,119	3,115	3,061	3,165	3,272
KINGSLAND WSC	8,302	9,581	9,546	9,119	9,938	10,786
LLANO	3,565	3,759	3,754	3,689	3,814	3,943
SUNRISE BEACH VILLAGE	720	724	723	721	723	726
COUNTY-OTHER	5,746	5,270	5,284	5,445	5,139	4,822
COLORADO BASIN TOTAL POPULATION	**21,291**	**22,453**	**22,422**	**22,035**	**22,779**	**23,549**
LLANO COUNTY TOTAL POPULATION	**21,291**	**22,453**	**22,422**	**22,035**	**22,779**	**23,549**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
BAY CITY	18,759	19,746	20,379	20,869	21,216	21,465
COUNTY-OTHER	7,991	8,411	8,681	8,889	9,038	9,143
BRAZOS-COLORADO BASIN TOTAL POPULATION	**26,750**	**28,157**	**29,060**	**29,758**	**30,254**	**30,608**
COLORADO BASIN						
BAY CITY	38	40	41	42	43	43
COUNTY-OTHER	1,636	1,722	1,777	1,820	1,850	1,872
COLORADO BASIN TOTAL POPULATION	**1,674**	**1,762**	**1,818**	**1,862**	**1,893**	**1,915**
COLORADO-LAVACA BASIN						
PALACIOS	5,035	5,300	5,470	5,601	5,695	5,761
COUNTY-OTHER	5,707	6,007	6,200	6,349	6,454	6,531
COLORADO-LAVACA BASIN TOTAL POPULATION	**10,742**	**11,307**	**11,670**	**11,950**	**12,149**	**12,292**
MATAGORDA COUNTY TOTAL POPULATION	**39,166**	**41,226**	**42,548**	**43,570**	**44,296**	**44,815**
MILLS COUNTY						
BRAZOS BASIN						
GOLDTHWAITE	49	50	52	54	56	58
COUNTY-OTHER	1,117	1,155	1,185	1,232	1,279	1,333
BRAZOS BASIN TOTAL POPULATION	**1,166**	**1,205**	**1,237**	**1,286**	**1,335**	**1,391**
COLORADO BASIN						
BROOKESMITH SUD	47	49	50	52	54	56
GOLDTHWAITE	1,820	1,882	1,932	2,008	2,085	2,172
COUNTY-OTHER	1,879	1,940	1,994	2,071	2,151	2,240
COLORADO BASIN TOTAL POPULATION	**3,746**	**3,871**	**3,976**	**4,131**	**4,290**	**4,468**
MILLS COUNTY TOTAL POPULATION	**4,912**	**5,076**	**5,213**	**5,417**	**5,625**	**5,859**
SAN SABA COUNTY						
COLORADO BASIN						
RICHLAND SUD	1,179	1,235	1,242	1,222	1,251	1,280
SAN SABA	3,277	3,433	3,453	3,397	3,477	3,557
COUNTY-OTHER	2,028	2,125	2,138	2,103	2,151	2,202
COLORADO BASIN TOTAL POPULATION	**6,484**	**6,793**	**6,833**	**6,722**	**6,879**	**7,039**
SAN SABA COUNTY TOTAL POPULATION	**6,484**	**6,793**	**6,833**	**6,722**	**6,879**	**7,039**
TRAVIS COUNTY						
COLORADO BASIN						
AQUA WSC	6,628	7,653	8,620	9,702	10,658	11,546
AUSTIN	930,842	1,096,053	1,258,060	1,377,379	1,477,455	1,596,216
BARTON CREEK WEST WSC	1,456	1,456	1,456	1,456	1,456	1,456
BEE CAVE	4,740	5,473	6,165	6,939	7,622	8,258
BRIARCLIFF	1,736	2,005	2,258	2,542	2,792	3,025
CEDAR PARK	9,551	10,188	10,958	10,958	10,958	10,958
CREEDMOOR-MAHA WSC	5,093	5,881	6,624	7,456	8,190	8,873

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY						
COLORADO BASIN						
ELGIN	1,788	2,578	3,323	4,157	4,893	5,578
JONESTOWN	1,987	2,125	2,255	2,400	2,528	2,647
LAGO VISTA	7,580	8,964	10,269	11,730	13,020	14,220
LAKEWAY	19,000	25,000	25,000	25,000	25,000	25,000
LEANDER	9,491	24,827	43,093	46,640	48,403	50,610
LOOP 360 WSC	1,998	2,086	2,169	2,262	2,344	2,420
LOST CREEK MUD	4,369	4,369	4,369	4,369	4,369	4,369
MANOR	8,884	12,343	15,605	19,258	22,482	25,480
MANVILLE WSC	19,152	23,593	27,780	32,469	36,607	40,456
MUSTANG RIDGE	336	353	368	385	400	414
NORTH AUSTIN MUD #1	780	780	780	780	780	780
NORTHTOWN MUD	10,272	11,860	13,359	15,036	16,517	17,894
PFLUGERVILLE	77,054	104,405	130,195	159,073	184,561	208,268
POINT VENTURE	1,181	1,524	1,847	2,209	2,528	2,825
ROLLINGWOOD	1,421	1,429	1,436	1,444	1,451	1,458
ROUND ROCK	1,649	1,907	2,150	2,422	2,662	2,885
SHADY HOLLOW MUD	4,889	4,889	4,889	4,889	4,889	4,889
SUNSET VALLEY	1,134	1,480	1,806	2,171	2,494	2,794
THE HILLS	3,000	3,000	3,000	3,000	3,000	3,000
TRAVIS COUNTY MUD #4	3,113	3,595	4,049	4,557	5,006	5,424
TRAVIS COUNTY WCID #10	6,139	7,088	7,984	8,986	9,871	10,694
TRAVIS COUNTY WCID #17	33,117	39,741	43,715	44,473	45,671	47,125
TRAVIS COUNTY WCID #18	6,657	7,686	8,657	9,745	10,704	11,597
TRAVIS COUNTY WCID #19	716	716	716	716	716	716
TRAVIS COUNTY WCID #20	1,140	1,140	1,140	1,140	1,140	1,140
VOLENTE	677	818	951	1,100	1,232	1,354
WELLS BRANCH MUD	14,989	14,989	14,989	14,989	14,989	14,989
WEST LAKE HILLS	3,699	3,699	3,699	3,699	3,699	3,699
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	5,501	6,352	7,154	8,053	8,846	9,583
WILLIAMSON-TRAVIS COUNTY MUD #1	1,173	1,173	1,173	1,173	1,173	1,173
COUNTY-OTHER	59,713	54,696	49,962	42,096	31,032	21,041
COLORADO BASIN TOTAL POPULATION	**1,272,645**	**1,507,914**	**1,732,023**	**1,896,853**	**2,032,138**	**2,184,854**
GUADALUPE BASIN						
CREEDMOOR-MAHA WSC	240	277	312	351	386	418
GOFORTH SUD	77	89	100	113	124	134
MUSTANG RIDGE	123	128	134	140	146	151
COUNTY-OTHER	175	234	291	312	326	352
GUADALUPE BASIN TOTAL POPULATION	**615**	**728**	**837**	**916**	**982**	**1,055**
TRAVIS COUNTY TOTAL POPULATION	**1,273,260**	**1,508,642**	**1,732,860**	**1,897,769**	**2,033,120**	**2,185,909**

Water User Group (WUG) Population

REGION K	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
EAST BERNARD	2,411	2,566	2,690	2,797	2,896	2,983
WHARTON	6,186	6,583	6,900	7,174	7,428	7,652
COUNTY-OTHER	9,329	9,927	10,405	10,820	11,202	11,541
BRAZOS-COLORADO BASIN TOTAL POPULATION	**17,926**	**19,076**	**19,995**	**20,791**	**21,526**	**22,176**
COLORADO BASIN						
EL CAMPO	27	29	30	31	32	33
WHARTON	3,186	3,391	3,554	3,696	3,826	3,942
COUNTY-OTHER	4,471	4,757	4,987	5,186	5,369	5,531
COLORADO BASIN TOTAL POPULATION	**7,684**	**8,177**	**8,571**	**8,913**	**9,227**	**9,506**
COLORADO-LAVACA BASIN						
COUNTY-OTHER	1,434	1,526	1,599	1,663	1,722	1,774
COLORADO-LAVACA BASIN TOTAL POPULATION	**1,434**	**1,526**	**1,599**	**1,663**	**1,722**	**1,774**
LAVACA BASIN						
COUNTY-OTHER	140	149	157	162	168	173
LAVACA BASIN TOTAL POPULATION	**140**	**149**	**157**	**162**	**168**	**173**
WHARTON COUNTY TOTAL POPULATION	**27,184**	**28,928**	**30,322**	**31,529**	**32,643**	**33,629**
WILLIAMSON COUNTY						
BRAZOS BASIN						
AUSTIN	45,505	57,164	70,943	85,781	102,609	121,072
NORTH AUSTIN MUD #1	7,442	7,442	7,442	7,442	7,442	7,442
WELLS BRANCH MUD	1,073	1,073	1,073	1,073	1,073	1,073
COUNTY-OTHER	16,658	23,108	23,108	23,108	23,108	23,108
BRAZOS BASIN TOTAL POPULATION	**70,678**	**88,787**	**102,566**	**117,404**	**134,232**	**152,695**
WILLIAMSON COUNTY TOTAL POPULATION	**70,678**	**88,787**	**102,566**	**117,404**	**134,232**	**152,695**
REGION K TOTAL POPULATION	**1,737,227**	**2,064,522**	**2,381,949**	**2,658,492**	**2,928,400**	**3,243,127**

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
AQUA WSC	90	116	150	197	261	348
LEE COUNTY WSC	44	56	72	94	124	165
COUNTY-OTHER	24	31	40	53	69	91
MINING	173	409	450	496	545	600
LIVESTOCK	94	94	94	94	94	94
IRRIGATION	50	44	38	33	29	26
BRAZOS BASIN TOTAL DEMAND	**475**	**750**	**844**	**967**	**1,122**	**1,324**
COLORADO BASIN						
AQUA WSC	9,073	11,638	15,056	19,779	26,236	34,838
BASTROP	1,957	2,598	3,446	4,612	6,201	8,317
BASTROP COUNTY WCID #2	378	544	765	1,069	1,482	2,033
CREEDMOOR-MAHA WSC	24	28	35	44	57	74
ELGIN	1,298	1,651	2,125	2,782	3,681	4,880
LEE COUNTY WSC	59	75	97	127	169	223
POLONIA WSC	29	36	45	58	75	99
SMITHVILLE	842	1,074	1,385	1,817	2,410	3,201
COUNTY-OTHER	1,814	2,185	2,681	3,360	4,284	5,516
MANUFACTURING	184	216	249	280	303	328
MINING	2,567	6,064	6,673	7,354	8,086	8,896
STEAM ELECTRIC POWER	14,000	16,720	16,720	16,720	16,720	16,720
LIVESTOCK	1,356	1,356	1,356	1,356	1,356	1,356
IRRIGATION	761	663	580	505	439	396
COLORADO BASIN TOTAL DEMAND	**34,342**	**44,848**	**51,213**	**59,863**	**71,499**	**86,877**
GUADALUPE BASIN						
AQUA WSC	65	83	107	140	186	246
COUNTY-OTHER	35	34	32	31	29	27
MANUFACTURING	10	11	13	15	16	17
MINING	144	340	375	413	454	500
LIVESTOCK	72	72	72	72	72	72
IRRIGATION	41	35	31	27	24	21
GUADALUPE BASIN TOTAL DEMAND	**367**	**575**	**630**	**698**	**781**	**883**
BASTROP COUNTY TOTAL DEMAND	**35,184**	**46,173**	**52,687**	**61,528**	**73,402**	**89,084**
BLANCO COUNTY						
COLORADO BASIN						
JOHNSON CITY	354	411	444	461	473	481
COUNTY-OTHER	576	663	712	737	755	768
MANUFACTURING	15	15	15	15	15	15
MINING	5	5	5	5	5	5
LIVESTOCK	435	435	435	435	435	435
IRRIGATION	179	168	157	152	149	143
COLORADO BASIN TOTAL DEMAND	**1,564**	**1,697**	**1,768**	**1,805**	**1,832**	**1,847**
GUADALUPE BASIN						
BLANCO	365	423	456	473	486	494
CANYON LAKE WATER SERVICE COMPANY	128	150	163	169	174	177
COUNTY-OTHER	388	447	479	496	510	518
MANUFACTURING	5	5	5	5	5	5
LIVESTOCK	129	129	129	129	129	129

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BLANCO COUNTY						
GUADALUPE BASIN						
IRRIGATION	77	72	68	65	64	61
GUADALUPE BASIN TOTAL DEMAND	**1,092**	**1,226**	**1,300**	**1,337**	**1,368**	**1,384**
BLANCO COUNTY TOTAL DEMAND	**2,656**	**2,923**	**3,068**	**3,142**	**3,200**	**3,231**
BURNET COUNTY						
BRAZOS BASIN						
BERTRAM	410	488	554	619	677	728
BURNET	8	9	10	12	13	14
CHISHOLM TRAIL SUD	70	83	95	106	116	124
KEMPNER WSC	135	160	181	201	220	237
COUNTY-OTHER	1,166	1,380	1,558	1,736	1,896	2,038
MINING	1,123	1,353	1,595	1,814	2,066	2,353
LIVESTOCK	311	311	311	311	311	311
IRRIGATION	553	553	553	553	553	553
BRAZOS BASIN TOTAL DEMAND	**3,776**	**4,337**	**4,857**	**5,352**	**5,852**	**6,358**
COLORADO BASIN						
BURNET	1,840	2,193	2,492	2,784	3,047	3,277
COTTONWOOD SHORES	227	269	304	339	371	399
GRANITE SHOALS	653	768	868	967	1,056	1,136
HORSESHOE BAY	747	1,049	1,302	1,545	1,760	1,946
KINGSLAND WSC	46	54	62	68	75	80
MARBLE FALLS	2,332	3,369	4,839	5,609	6,127	6,386
MEADOWLAKES	849	1,021	1,167	1,307	1,430	1,538
COUNTY-OTHER	2,340	2,392	2,106	2,217	2,416	2,698
MANUFACTURING	1,109	1,248	1,384	1,502	1,636	1,782
MINING	3,367	4,059	4,784	5,441	6,197	7,059
LIVESTOCK	524	524	524	524	524	524
IRRIGATION	951	951	951	951	951	951
COLORADO BASIN TOTAL DEMAND	**14,985**	**17,897**	**20,783**	**23,254**	**25,590**	**27,776**
BURNET COUNTY TOTAL DEMAND	**18,761**	**22,234**	**25,640**	**28,606**	**31,442**	**34,134**
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
EAGLE LAKE	160	161	161	166	171	177
COUNTY-OTHER	154	155	156	159	165	170
MANUFACTURING	4	4	4	4	5	5
MINING	160	161	163	165	166	168
LIVESTOCK	203	203	203	203	203	203
IRRIGATION	49,525	48,193	46,897	45,635	44,408	43,213
BRAZOS-COLORADO BASIN TOTAL DEMAND	**50,206**	**48,877**	**47,584**	**46,332**	**45,118**	**43,936**
COLORADO BASIN						
COLUMBUS	1,135	1,165	1,186	1,230	1,272	1,313
EAGLE LAKE	363	366	367	377	390	402
WEIMAR	183	187	190	197	203	210
COUNTY-OTHER	998	1,004	1,007	1,035	1,068	1,103
MANUFACTURING	11	12	13	14	15	16
MINING	4,899	4,948	4,998	5,048	5,099	5,149
LIVESTOCK	922	922	922	922	922	922

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
COLORADO COUNTY						
COLORADO BASIN						
IRRIGATION	28,073	27,318	26,583	25,868	25,172	24,495
COLORADO BASIN TOTAL DEMAND	**36,584**	**35,922**	**35,266**	**34,691**	**34,141**	**33,610**
LAVACA BASIN						
WEIMAR	373	382	388	402	416	429
COUNTY-OTHER	323	326	326	336	346	358
MANUFACTURING	368	393	416	435	469	507
MINING	266	269	272	274	277	280
LIVESTOCK	465	465	465	465	465	465
IRRIGATION	88,248	85,874	83,564	81,316	79,129	77,000
LAVACA BASIN TOTAL DEMAND	**90,043**	**87,709**	**85,431**	**83,228**	**81,102**	**79,039**
COLORADO COUNTY TOTAL DEMAND	**176,833**	**172,508**	**168,281**	**164,251**	**160,361**	**156,585**
FAYETTE COUNTY						
COLORADO BASIN						
AQUA WSC	4	5	5	5	6	6
FAYETTE WSC	639	709	755	795	831	860
LA GRANGE	865	959	1,020	1,075	1,123	1,162
LEE COUNTY WSC	148	164	174	184	192	198
COUNTY-OTHER	885	968	1,021	1,070	1,117	1,156
MINING	2,046	1,646	1,187	744	291	284
STEAM ELECTRIC POWER	35,702	35,702	37,802	44,102	48,602	53,402
LIVESTOCK	1,903	1,903	1,903	1,903	1,903	1,903
IRRIGATION	380	355	332	311	292	276
COLORADO BASIN TOTAL DEMAND	**42,572**	**42,411**	**44,199**	**50,189**	**54,357**	**59,247**
GUADALUPE BASIN						
FAYETTE WSC	42	46	49	52	54	56
FLATONIA	64	71	76	80	83	86
COUNTY-OTHER	38	41	43	46	48	50
MINING	126	102	73	45	18	17
LIVESTOCK	108	108	108	108	108	108
IRRIGATION	62	58	55	51	48	45
GUADALUPE BASIN TOTAL DEMAND	**440**	**426**	**404**	**382**	**359**	**362**
LAVACA BASIN						
FAYETTE WSC	76	83	89	94	98	101
FLATONIA	270	301	321	339	356	368
SCHULENBURG	735	821	878	927	970	1,003
COUNTY-OTHER	313	343	361	379	396	409
MANUFACTURING	358	395	431	462	501	543
MINING	354	284	205	129	50	49
LIVESTOCK	386	386	386	386	386	386
IRRIGATION	181	170	158	149	140	132
LAVACA BASIN TOTAL DEMAND	**2,673**	**2,783**	**2,829**	**2,865**	**2,897**	**2,991**
FAYETTE COUNTY TOTAL DEMAND	**45,685**	**45,620**	**47,432**	**53,436**	**57,613**	**62,600**
GILLESPIE COUNTY						
COLORADO BASIN						
FREDERICKSBURG	3,146	3,327	3,476	3,672	3,866	4,058
COUNTY-OTHER	1,756	1,829	1,891	1,990	2,098	2,208
MANUFACTURING	1,049	1,102	1,151	1,192	1,276	1,366

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
GILLESPIE COUNTY						
COLORADO BASIN						
MINING	4	4	4	4	4	4
LIVESTOCK	1,030	1,030	1,030	1,030	1,030	1,030
IRRIGATION	2,058	2,031	2,003	1,978	1,953	1,928
COLORADO BASIN TOTAL DEMAND	**9,043**	**9,323**	**9,555**	**9,866**	**10,227**	**10,594**
GUADALUPE BASIN						
COUNTY-OTHER	67	69	71	75	79	83
LIVESTOCK	32	32	32	32	32	32
GUADALUPE BASIN TOTAL DEMAND	**99**	**101**	**103**	**107**	**111**	**115**
GILLESPIE COUNTY TOTAL DEMAND	**9,142**	**9,424**	**9,658**	**9,973**	**10,338**	**10,709**
HAYS COUNTY						
COLORADO BASIN						
AUSTIN	13	127	249	631	1,519	2,749
BUDA	1,769	2,508	3,420	4,564	5,860	7,338
CIMARRON PARK WATER COMPANY	249	241	234	230	229	229
DRIPPING SPRINGS	479	537	610	704	813	938
DRIPPING SPRINGS WSC	533	680	861	1,091	1,353	1,652
GOFORTH SUD	85	130	185	255	334	425
MOUNTAIN CITY	57	56	54	54	54	54
PLUM CREEK WATER COMPANY	163	264	283	300	312	322
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	4,093	5,758	7,795	10,343	13,226	16,508
COUNTY-OTHER	3,107	3,696	4,620	5,677	6,579	7,472
MANUFACTURING	347	398	449	495	537	583
MINING	845	1,075	1,361	1,445	1,654	1,893
LIVESTOCK	220	220	220	220	220	220
IRRIGATION	107	107	107	107	107	107
COLORADO BASIN TOTAL DEMAND	**12,067**	**15,797**	**20,448**	**26,116**	**32,797**	**40,490**
HAYS COUNTY TOTAL DEMAND	**12,067**	**15,797**	**20,448**	**26,116**	**32,797**	**40,490**
LLANO COUNTY						
COLORADO BASIN						
HORSESHOE BAY	1,854	1,943	1,934	1,897	1,960	2,026
KINGSLAND WSC	906	1,018	1,001	949	1,031	1,118
LLANO	862	892	878	856	884	913
SUNRISE BEACH VILLAGE	74	72	70	68	68	68
COUNTY-OTHER	610	554	553	567	533	500
MANUFACTURING	3	3	3	3	3	3
MINING	3	3	3	3	3	3
STEAM ELECTRIC POWER	2,500	2,500	2,500	2,500	2,500	2,500
LIVESTOCK	751	751	751	751	751	751
IRRIGATION	1,936	1,902	1,870	1,840	1,810	1,781
COLORADO BASIN TOTAL DEMAND	**9,499**	**9,638**	**9,563**	**9,434**	**9,543**	**9,663**
LLANO COUNTY TOTAL DEMAND	**9,499**	**9,638**	**9,563**	**9,434**	**9,543**	**9,663**
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
BAY CITY	2,837	2,889	2,904	2,949	2,990	3,025
COUNTY-OTHER	834	837	832	835	846	856
MANUFACTURING	650	680	707	730	771	814
MINING	53	55	41	30	19	12

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
LIVESTOCK	664	664	664	664	664	664
IRRIGATION	92,540	90,015	87,558	85,167	82,840	80,576
BRAZOS-COLORADO BASIN TOTAL DEMAND	**97,578**	**95,140**	**92,706**	**90,375**	**88,130**	**85,947**
COLORADO BASIN						
BAY CITY	6	6	6	6	7	7
COUNTY-OTHER	171	172	171	172	174	176
MANUFACTURING	15,440	16,141	16,802	17,346	18,304	19,325
MINING	8	9	7	5	3	2
STEAM ELECTRIC POWER	105,000	105,000	105,000	105,000	105,000	105,000
LIVESTOCK	131	131	131	131	131	131
IRRIGATION	13,217	12,856	12,505	12,164	11,832	11,508
COLORADO BASIN TOTAL DEMAND	**133,973**	**134,315**	**134,622**	**134,824**	**135,451**	**136,149**
COLORADO-LAVACA BASIN						
PALACIOS	679	691	694	700	710	718
COUNTY-OTHER	596	598	595	597	605	612
MANUFACTURING	163	170	177	183	192	203
MINING	35	36	27	20	13	8
LIVESTOCK	708	708	708	708	708	708
IRRIGATION	103,330	100,511	97,767	95,097	92,499	89,971
COLORADO-LAVACA BASIN TOTAL DEMAND	**105,511**	**102,714**	**99,968**	**97,305**	**94,727**	**92,220**
MATAGORDA COUNTY TOTAL DEMAND	**337,062**	**332,169**	**327,296**	**322,504**	**318,308**	**314,316**
MILLS COUNTY						
BRAZOS BASIN						
GOLDTHWAITE	10	10	10	10	11	11
COUNTY-OTHER	144	143	142	146	151	157
MINING	2	2	2	2	2	2
LIVESTOCK	321	321	321	321	321	321
IRRIGATION	1,415	1,385	1,355	1,326	1,297	1,270
BRAZOS BASIN TOTAL DEMAND	**1,892**	**1,861**	**1,830**	**1,805**	**1,782**	**1,761**
COLORADO BASIN						
BROOKESMITH SUD	8	8	8	8	8	8
GOLDTHWAITE	351	354	356	367	379	396
COUNTY-OTHER	241	239	237	244	253	263
MANUFACTURING	2	2	2	2	2	2
MINING	2	2	2	2	2	2
LIVESTOCK	623	623	623	623	623	623
IRRIGATION	1,659	1,623	1,588	1,553	1,520	1,489
COLORADO BASIN TOTAL DEMAND	**2,886**	**2,851**	**2,816**	**2,799**	**2,787**	**2,783**
MILLS COUNTY TOTAL DEMAND	**4,778**	**4,712**	**4,646**	**4,604**	**4,569**	**4,544**
SAN SABA COUNTY						
COLORADO BASIN						
RICHLAND SUD	168	172	169	165	168	172
SAN SABA	1,138	1,178	1,174	1,149	1,175	1,202
COUNTY-OTHER	316	320	314	309	315	322
MANUFACTURING	8	8	8	8	8	8
MINING	1,088	1,093	944	900	864	838

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
SAN SABA COUNTY						
COLORADO BASIN						
LIVESTOCK	1,191	1,191	1,191	1,191	1,191	1,191
IRRIGATION	5,539	5,361	5,188	5,018	4,856	4,709
COLORADO BASIN TOTAL DEMAND	**9,448**	**9,323**	**8,988**	**8,740**	**8,577**	**8,442**
SAN SABA COUNTY TOTAL DEMAND	**9,448**	**9,323**	**8,988**	**8,740**	**8,577**	**8,442**
TRAVIS COUNTY						
COLORADO BASIN						
AQUA WSC	1,089	1,226	1,363	1,524	1,672	1,810
AUSTIN	157,445	182,933	209,973	229,887	246,590	266,411
BARTON CREEK WEST WSC	432	427	424	423	422	422
BEE CAVE	1,777	2,043	2,297	2,582	2,834	3,070
BRIARCLIFF	260	295	328	368	403	436
CEDAR PARK	2,432	2,579	2,767	2,763	2,761	2,760
CREEDMOOR-MAHA WSC	565	623	681	756	828	896
ELGIN	251	352	447	556	653	744
JONESTOWN	408	428	448	473	497	521
LAGO VISTA	1,868	2,185	2,488	2,832	3,140	3,428
LAKEWAY	6,977	9,115	9,093	9,081	9,076	9,075
LEANDER	1,134	2,908	5,020	5,422	5,623	5,878
LOOP 360 WSC	1,174	1,220	1,264	1,316	1,363	1,407
LOST CREEK MUD	1,092	1,072	1,057	1,056	1,054	1,054
MANOR	1,141	1,559	1,959	2,410	2,810	3,183
MANVILLE WSC	2,984	3,604	4,201	4,885	5,499	6,074
MUSTANG RIDGE	45	46	47	48	50	51
NORTH AUSTIN MUD #1	82	79	77	75	75	75
NORTHTOWN MUD	691	798	898	1,011	1,111	1,203
PFLUGERVILLE	12,775	17,105	21,243	25,896	30,012	33,851
POINT VENTURE	347	443	534	638	729	815
ROLLINGWOOD	384	379	376	375	376	378
ROUND ROCK	265	301	336	377	414	448
SHADY HOLLOW MUD	779	758	741	731	730	730
SUNSET VALLEY	386	499	606	727	834	934
THE HILLS	1,449	1,444	1,441	1,439	1,438	1,438
TRAVIS COUNTY MUD #4	2,611	3,010	3,387	3,810	4,184	4,533
TRAVIS COUNTY WCID #10	2,128	2,428	2,715	3,044	3,341	3,619
TRAVIS COUNTY WCID #17	8,451	10,053	11,017	11,187	11,479	11,842
TRAVIS COUNTY WCID #18	1,123	1,267	1,407	1,573	1,725	1,867
TRAVIS COUNTY WCID #19	498	496	494	493	493	493
TRAVIS COUNTY WCID #20	590	587	584	583	582	582
VOLENTE	76	89	101	116	130	142
WELLS BRANCH MUD	1,638	1,602	1,577	1,563	1,559	1,558
WEST LAKE HILLS	1,564	1,550	1,539	1,533	1,532	1,532
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	2,367	2,720	3,057	3,438	3,774	4,088
WILLIAMSON-TRAVIS COUNTY MUD #1	153	149	147	147	146	146
COUNTY-OTHER	8,370	7,608	6,925	5,811	4,256	2,879
MANUFACTURING	35,790	48,710	63,858	72,991	81,781	91,630
MINING	3,467	4,067	4,714	5,320	5,986	6,749

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY						
COLORADO BASIN						
STEAM ELECTRIC POWER	18,500	22,500	22,500	23,500	24,500	26,500
LIVESTOCK	680	680	680	680	680	680
IRRIGATION	4,322	3,975	3,657	3,364	3,097	2,885
COLORADO BASIN TOTAL DEMAND	**290,560**	**345,912**	**398,468**	**436,804**	**470,239**	**508,817**
GUADALUPE BASIN						
CREEDMOOR-MAHA WSC	27	30	33	36	40	43
GOFORTH SUD	9	10	11	12	13	14
MUSTANG RIDGE	17	17	17	18	19	20
COUNTY-OTHER	25	33	41	44	45	49
MINING	35	41	48	54	60	68
LIVESTOCK	24	24	24	24	24	24
GUADALUPE BASIN TOTAL DEMAND	**137**	**155**	**174**	**188**	**201**	**218**
TRAVIS COUNTY TOTAL DEMAND	**290,697**	**346,067**	**398,642**	**436,992**	**470,440**	**509,035**
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
EAST BERNARD	380	395	406	418	432	445
WHARTON	1,103	1,140	1,169	1,205	1,246	1,283
COUNTY-OTHER	1,209	1,234	1,255	1,301	1,345	1,384
MANUFACTURING	503	537	572	601	648	699
MINING	39	41	30	23	14	9
STEAM ELECTRIC POWER	351	413	488	580	691	797
LIVESTOCK	371	371	371	371	371	371
IRRIGATION	114,604	111,520	108,521	105,602	102,761	99,997
BRAZOS-COLORADO BASIN TOTAL DEMAND	**118,560**	**115,651**	**112,812**	**110,101**	**107,508**	**104,985**
COLORADO BASIN						
EL CAMPO	6	6	6	6	6	6
WHARTON	568	588	603	622	642	661
COUNTY-OTHER	580	592	603	625	645	665
MINING	26	27	20	15	10	6
STEAM ELECTRIC POWER	2,400	2,400	2,400	2,400	2,400	2,400
LIVESTOCK	277	277	277	277	277	277
IRRIGATION	61,546	59,891	58,280	56,712	55,186	53,702
COLORADO BASIN TOTAL DEMAND	**65,403**	**63,781**	**62,189**	**60,657**	**59,166**	**57,717**
COLORADO-LAVACA BASIN						
COUNTY-OTHER	186	190	194	201	207	213
MINING	6	6	5	3	2	2
LIVESTOCK	80	80	80	80	80	80
IRRIGATION	36,079	35,109	34,164	33,245	32,351	31,480
COLORADO-LAVACA BASIN TOTAL DEMAND	**36,351**	**35,385**	**34,443**	**33,529**	**32,640**	**31,775**
LAVACA BASIN						
COUNTY-OTHER	18	18	19	20	20	21
LAVACA BASIN TOTAL DEMAND	**18**	**18**	**19**	**20**	**20**	**21**
WHARTON COUNTY TOTAL DEMAND	**220,332**	**214,835**	**209,463**	**204,307**	**199,334**	**194,498**
WILLIAMSON COUNTY						
BRAZOS BASIN						
AUSTIN	7,697	9,541	11,841	14,317	17,126	20,208

Water User Group (WUG) Demand

REGION K	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
WILLIAMSON COUNTY						
BRAZOS BASIN						
NORTH AUSTIN MUD #1	774	748	726	714	711	711
WELLS BRANCH MUD	118	115	113	112	112	112
COUNTY-OTHER	2,586	3,504	3,467	3,451	3,444	3,441
MINING	5	3	3	3	3	3
LIVESTOCK	1	1	1	1	1	1
BRAZOS BASIN TOTAL DEMAND	**11,181**	**13,912**	**16,151**	**18,598**	**21,397**	**24,476**
WILLIAMSON COUNTY TOTAL DEMAND	**11,181**	**13,912**	**16,151**	**18,598**	**21,397**	**24,476**
REGION K TOTAL DEMAND	**1,183,325**	**1,245,335**	**1,301,963**	**1,352,231**	**1,401,321**	**1,461,807**

Appendix 2A: WWP Demands by Category of Use, County and Basin (from DB17 Output)

SellerEntity	SellerEntityRegion	BuyerEntity	BuyerEntityPrimaryRegion	BuyerEntitySplitRegion	BuyerEntitySplitCounty	BuyerEntitySplitBasin	PWS2020	PWS2020	PWS2020	PWS2020	PWS2020	PWS2020
AUSTIN	K	COUNTY-OTHER, TRAVIS	K	K	TRAVIS	COLORADO	4520	4108	3740	3138	2298	1555
AUSTIN	K	COUNTY-OTHER, WILLIAMSON	G	K	WILLIAMSON	BRAZOS	2586	3504	3467	3451	3444	3441
AUSTIN	K	CREEDMOOR-MAHA WSC	K	K	TRAVIS	COLORADO	241	241	241	241	241	241
AUSTIN	K	LOST CREEK MUD	K	K	TRAVIS	COLORADO	1092	1072	1057	1056	1054	1054
AUSTIN	K	MANOR	K	K	TRAVIS	COLORADO	1141	0	0	0	0	0
AUSTIN	K	MANUFACTURING, TRAVIS	K	K	TRAVIS	COLORADO	35430	48350	63498	72631	81421	91270
AUSTIN	K	MANVILLE WSC	K	K	TRAVIS	COLORADO	2240	0	0	0	0	0
AUSTIN	K	NORTH AUSTIN MUD #1	K	K	TRAVIS	COLORADO	82	79	77	75	75	75
AUSTIN	K	NORTH AUSTIN MUD #1	K	K	WILLIAMSON	BRAZOS	774	748	726	714	711	711
AUSTIN	K	NORTHTOWN MUD	K	K	TRAVIS	COLORADO	691	798	898	1011	1111	1203
AUSTIN	K	ROLLINGWOOD	K	K	TRAVIS	COLORADO	384	0	0	0	0	0
AUSTIN	K	SHADY HOLLOW MUD	K	K	TRAVIS	COLORADO	779	758	741	731	730	730
AUSTIN	K	SUNSET VALLEY	K	K	TRAVIS	COLORADO	386	499	606	727	834	934
AUSTIN	K	TRAVIS COUNTY WCID #10	K	K	TRAVIS	COLORADO	2128	0	0	0	0	0
AUSTIN	K	WELLS BRANCH MUD	K	K	TRAVIS	COLORADO	1638	1602	1577	1563	1559	1558
AUSTIN	K	WELLS BRANCH MUD	K	K	WILLIAMSON	BRAZOS	118	115	113	112	112	112
LOWER COLORADO RIVER AUTHORITY	K	AUSTIN	K	K	TRAVIS	COLORADO	123626	123626	123626	123626	123613	123046
LOWER COLORADO RIVER AUTHORITY	K	BRIARCLIFF	K	K	TRAVIS	COLORADO	400	400	400	400	400	400
LOWER COLORADO RIVER AUTHORITY	K	BURNET	K	K	BURNET	COLORADO	3226	3226	3226	3226	3226	3226
LOWER COLORADO RIVER AUTHORITY	K	CEDAR PARK	G	G	WILLIAMSON	BRAZOS	12678	12409	12100	11995	11896	11785
LOWER COLORADO RIVER AUTHORITY	K	CEDAR PARK	G	K	TRAVIS	COLORADO	2432	2579	2767	2763	2761	2760
LOWER COLORADO RIVER AUTHORITY	K	COTTONWOOD SHORES	K	K	BURNET	COLORADO	495	495	495	495	495	495
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, BASTROP	K	K	BASTROP	COLORADO	744	744	744	744	744	744
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, BURNET	K	K	BURNET	COLORADO	2205	2205	2205	2205	2205	2205
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, FAYETTE	K	K	FAYETTE	COLORADO	102	102	102	102	102	102
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, GILLESPIE	K	K	GILLESPIE	COLORADO	56	56	56	56	56	56
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, HAYS	K	K	HAYS	COLORADO	1401	1401	1401	1401	1401	1401
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, LLANO	K	K	LLANO	COLORADO	3586	3586	3586	3586	3586	3586
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, SAN SABA	K	K	SAN SABA	COLORADO	20	20	20	20	20	20
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, TRAVIS	K	K	TRAVIS	COLORADO	14302	14302	14302	14302	14302	14302
LOWER COLORADO RIVER AUTHORITY	K	DRIPPING SPRINGS	K	K	HAYS	COLORADO	506	506	506	506	506	506
LOWER COLORADO RIVER AUTHORITY	K	DRIPPING SPRINGS WSC	K	K	HAYS	COLORADO	133	280	461	691	953	1126
LOWER COLORADO RIVER AUTHORITY	K	GRANITE SHOALS	K	K	BURNET	COLORADO	830	830	830	830	830	830
LOWER COLORADO RIVER AUTHORITY	K	HORSESHOE BAY	K	K	BURNET	COLORADO	700	700	700	700	700	700
LOWER COLORADO RIVER AUTHORITY	K	HORSESHOE BAY	K	K	LLANO	COLORADO	1525	1525	1525	1525	1525	1525
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, BASTROP	K	K	BASTROP	COLORADO	852	742	649	565	492	443
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, BURNET	K	K	BURNET	COLORADO	416	416	416	416	416	416
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, LLANO	K	K	LLANO	COLORADO	1514	1514	1514	1514	1514	1514
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, MASON	F	F	MASON	COLORADO	59	59	59	59	59	59
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, TRAVIS	K	K	TRAVIS	COLORADO	2596	2596	2596	2596	2596	2596
LOWER COLORADO RIVER AUTHORITY	K	KINGSLAND WSC	K	K	BURNET	COLORADO	56	58	67	77	78	80
LOWER COLORADO RIVER AUTHORITY	K	KINGSLAND WSC	K	K	LLANO	COLORADO	1094	1092	1083	1073	1072	1070
LOWER COLORADO RIVER AUTHORITY	K	LAGO VISTA	K	K	TRAVIS	COLORADO	3451	3451	3451	3451	3451	3451
LOWER COLORADO RIVER AUTHORITY	K	LAKEWAY	K	K	TRAVIS	COLORADO	3069	3069	3069	3069	3069	3069
LOWER COLORADO RIVER AUTHORITY	K	LEANDER	G	G	WILLIAMSON	BRAZOS	5198	4716	4662	5131	5321	5459
LOWER COLORADO RIVER AUTHORITY	K	LEANDER	G	K	TRAVIS	COLORADO	1202	1684	1738	1269	1079	941
LOWER COLORADO RIVER AUTHORITY	K	LOMETA	G	G	LAMPASAS	BRAZOS	56	61	64	69	73	76
LOWER COLORADO RIVER AUTHORITY	K	LOMETA	G	G	LAMPASAS	COLORADO	110	119	126	134	142	150
LOWER COLORADO RIVER AUTHORITY	K	LOOP 360 WSC	K	K	TRAVIS	COLORADO	1250	1250	1250	1250	1250	1250
LOWER COLORADO RIVER AUTHORITY	K	MANUFACTURING, BURNET	K	K	BURNET	COLORADO	500	500	500	500	500	500
LOWER COLORADO RIVER AUTHORITY	K	MANUFACTURING, MATAGORDA	K	K	MATAGORDA	COLORADO	14222	14222	14222	14222	14222	14222
LOWER COLORADO RIVER AUTHORITY	K	MANUFACTURING, TRAVIS	K	K	TRAVIS	COLORADO	282	282	282	282	282	282
LOWER COLORADO RIVER AUTHORITY	K	MARBLE FALLS	K	K	BURNET	COLORADO	3000	3000	3000	3000	3000	3000
LOWER COLORADO RIVER AUTHORITY	K	MEADOWLAKES	K	K	BURNET	COLORADO	75	75	75	75	75	75
LOWER COLORADO RIVER AUTHORITY	K	MINING, MASON	F	F	MASON	COLORADO	2	2	2	2	2	2
LOWER COLORADO RIVER AUTHORITY	K	PFLUGERVILLE	K	G	WILLIAMSON	BRAZOS	133	133	133	134	163	193
LOWER COLORADO RIVER AUTHORITY	K	PFLUGERVILLE	K	K	TRAVIS	COLORADO	9400	9400	9400	9399	9370	9340
LOWER COLORADO RIVER AUTHORITY	K	POINT VENTURE	K	K	TRAVIS	COLORADO	360	360	360	360	360	360
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, BASTROP	K	K	BASTROP	COLORADO	12220	11834	11026	10571	10571	10571

Appendix 2A: WWP Demands by Category of Use, County and Basin (from DB17 Output)

SellerEntity	SellerEntityRegion	BuyerEntity	BuyerEntityPrimaryRegion	BuyerEntitySplitRegion	BuyerEntitySplitCounty	BuyerEntitySplitBasin	PWS2020	PWS2020	PWS2020	PWS2020	PWS2020	PWS2020
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, FAYETTE	K	K	FAYETTE	COLORADO	45117	45117	45117	45117	45117	45117
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, LLANO	K	K	LLANO	COLORADO	2500	2500	2500	2500	2500	2500
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, MATAGORDA	K	K	MATAGORDA	COLORADO	32240	32226	32202	32172	32142	32120
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, TRAVIS	K	K	TRAVIS	COLORADO	16156	16156	16156	11987	5487	0
LOWER COLORADO RIVER AUTHORITY	K	SUNRISE BEACH VILLAGE	K	K	LLANO	COLORADO	200	200	200	200	200	200
LOWER COLORADO RIVER AUTHORITY	K	THE HILLS	K	K	TRAVIS	COLORADO	1533	1533	1533	1533	1533	1533
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY MUD #4	K	K	TRAVIS	COLORADO	3818	3820	3822	3823	3823	3823
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY WCID #17	K	K	TRAVIS	COLORADO	8027	8027	8027	8027	8027	8027
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY WCID #18	K	K	TRAVIS	COLORADO	1736	1736	1736	1736	1736	1736
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY WCID #20	K	K	TRAVIS	COLORADO	1135	1135	1135	1135	1135	1135
LOWER COLORADO RIVER AUTHORITY	K	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	K	HAYS	COLORADO	4521	4521	4521	4521	4521	4521
LOWER COLORADO RIVER AUTHORITY	K	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	K	TRAVIS	COLORADO	2615	2615	2615	2615	2615	2615

APPENDIX 2B

LOWER COLORADO REGIONAL WATER PLANNING AREA GALLONS PER CAPITA DAILY (GPCD)

REGION K MUNICIPAL WATER DEMAND SAVINGS DUE TO PLUMBING CODES AND WATER-EFFICIENT APPLIANCES

Region K Gallons per Capita per Day (GPCD) Projections

					GPCD Projections					
CityID	RG	COUNTY	WATER USER GROUP	BASIN	g2020	g2030	g2040	g2050	g2060	g2070
4006	K	BASTROP	AQUA WSC	BRAZOS	146	143	141	140	140	140
4006	K	BASTROP	AQUA WSC	COLORADO	147	143	141	140	140	140
4006	K	BASTROP	AQUA WSC	GUADALUPE	149	145	142	141	141	140
40	K	BASTROP	BASTROP	COLORADO	181	177	175	174	174	174
4011	K	BASTROP	BASTROP COUNTY WCID #2	COLORADO	86	83	82	81	81	81
757	K	BASTROP	COUNTY-OTHER	BRAZOS	167	164	161	161	158	157
757	K	BASTROP	COUNTY-OTHER	COLORADO	162	160	159	158	158	158
757	K	BASTROP	COUNTY-OTHER	GUADALUPE	166	165	160	162	160	161
4076	K	BASTROP	CREEDMOOR-MAHA WSC	COLORADO	103	95	94	92	91	90
188	K	BASTROP	ELGIN	COLORADO	125	122	120	119	119	119
4231	K	BASTROP	LEE COUNTY WSC	BRAZOS	115	111	109	108	107	107
4231	K	BASTROP	LEE COUNTY WSC	COLORADO	113	110	108	107	107	106
4306	K	BASTROP	POLONIA WSC	COLORADO	112	109	106	105	104	105
564	K	BASTROP	SMITHVILLE	COLORADO	153	148	146	145	145	145
60	K	BLANCO	BLANCO	GUADALUPE	151	147	145	144	144	144
4044	K	BLANCO	CANYON LAKE WATER SERVICE COMPANY	GUADALUPE	112	110	110	109	109	109
757	K	BLANCO	COUNTY-OTHER	COLORADO	111	107	105	104	104	104
757	K	BLANCO	COUNTY-OTHER	GUADALUPE	110	107	105	104	104	104
307	K	BLANCO	JOHNSON CITY	COLORADO	154	150	149	148	147	147
826	K	BURNET	BERTRAM	BRAZOS	218	214	212	211	211	211
88	K	BURNET	BURNET	BRAZOS	238	223	218	233	228	227
88	K	BURNET	BURNET	COLORADO	222	218	216	216	215	215
4054	K	BURNET	CHISHOLM TRAIL SUD	BRAZOS	168	164	164	163	163	162
850	K	BURNET	COTTONWOOD SHORES	COLORADO	145	142	140	139	139	139
757	K	BURNET	COUNTY-OTHER	BRAZOS	137	134	132	131	131	131
757	K	BURNET	COUNTY-OTHER	COLORADO	137	134	132	131	131	131
775	K	BURNET	GRANITE SHOALS	COLORADO	96	93	92	91	91	91
1098	K	BURNET	HORSESHOE BAY	COLORADO	559	556	554	553	553	553
4219	K	BURNET	KEMPNER WSC	BRAZOS	157	154	152	150	150	150
4221	K	BURNET	KINGSLAND WSC	COLORADO	98	95	95	93	94	93
385	K	BURNET	MARBLE FALLS	COLORADO	239	235	233	233	233	233
913	K	BURNET	MEADOWLAKES	COLORADO	343	341	340	340	339	339
127	K	COLORADO	COLUMBUS	COLORADO	264	260	257	255	255	255
757	K	COLORADO	COUNTY-OTHER	BRAZOS-COLORADO	110	106	104	101	101	101
757	K	COLORADO	COUNTY-OTHER	COLORADO	110	106	103	101	101	101
757	K	COLORADO	COUNTY-OTHER	LAVACA	110	106	103	102	101	101
172	K	COLORADO	EAGLE LAKE	BRAZOS-COLORADO	123	118	115	113	113	113
172	K	COLORADO	EAGLE LAKE	COLORADO	122	118	115	113	113	113
636	K	COLORADO	WEIMAR	COLORADO	221	216	213	212	211	211
636	K	COLORADO	WEIMAR	LAVACA	220	216	212	211	211	210
4006	K	FAYETTE	AQUA WSC	COLORADO	149	165	149	144	162	158
757	K	FAYETTE	COUNTY-OTHER	COLORADO	102	98	95	94	93	93
757	K	FAYETTE	COUNTY-OTHER	GUADALUPE	101	96	93	93	93	94
757	K	FAYETTE	COUNTY-OTHER	LAVACA	102	98	95	94	94	94
4110	K	FAYETTE	FAYETTE WSC	COLORADO	110	107	105	104	104	104
4110	K	FAYETTE	FAYETTE WSC	GUADALUPE	112	108	105	105	104	105
4110	K	FAYETTE	FAYETTE WSC	LAVACA	112	107	106	105	105	104
202	K	FAYETTE	FLATONIA	GUADALUPE	189	184	181	180	178	178
202	K	FAYETTE	FLATONIA	LAVACA	186	182	179	177	178	178
334	K	FAYETTE	LA GRANGE	COLORADO	144	140	137	136	136	136
4231	K	FAYETTE	LEE COUNTY WSC	COLORADO	114	110	108	108	107	107
544	K	FAYETTE	SCHULENBURG	LAVACA	199	195	192	191	191	190
757	K	GILLESPIE	COUNTY-OTHER	COLORADO	105	101	99	98	97	97
757	K	GILLESPIE	COUNTY-OTHER	GUADALUPE	105	101	98	97	97	97
216	K	GILLESPIE	FREDERICKSBURG	COLORADO	248	245	242	241	240	240
30	K	HAYS	AUSTIN	COLORADO	163	149	149	149	149	149
761	K	HAYS	BUDA	COLORADO	161	158	158	157	157	157
4057	K	HAYS	CIMARRON PARK WATER COMPANY	COLORADO	103	100	97	96	95	95
757	K	HAYS	COUNTY-OTHER	COLORADO	110	107	105	104	104	104
769	K	HAYS	DRIPPING SPRINGS	COLORADO	211	207	205	204	204	204
4092	K	HAYS	DRIPPING SPRINGS WSC	COLORADO	157	154	153	152	152	152
4140	K	HAYS	GOFORTH SUD	COLORADO	96	93	92	91	91	91
1043	K	HAYS	MOUNTAIN CITY	COLORADO	104	102	98	98	98	98
4304	K	HAYS	PLUM CREEK WATER COMPANY	COLORADO	60	60	60	60	60	60
4390	K	HAYS	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	COLORADO	384	382	381	381	381	381
757	K	LLANO	COUNTY-OTHER	COLORADO	95	94	93	93	93	93
1098	K	LLANO	HORSESHOE BAY	COLORADO	560	556	554	553	553	553

Region K Gallons per Capita per Day (GPCD) Projections

					GPCD Projections					
CityID	RG	COUNTY	WATER USER GROUP	BASIN	g2020	g2030	g2040	g2050	g2060	g2070
4221	K	LLANO	KINGSLAND WSC	COLORADO	97	95	94	93	93	93
363	K	LLANO	LLANO	COLORADO	216	212	209	207	207	207
1064	K	LLANO	SUNRISE BEACH VILLAGE	COLORADO	92	89	86	84	84	84
41	K	MATAGORDA	BAY CITY	BRAZOS-COLORADO	135	131	127	126	126	126
41	K	MATAGORDA	BAY CITY	COLORADO	141	134	131	128	145	145
757	K	MATAGORDA	COUNTY-OTHER	BRAZOS-COLORADO	93	89	86	84	84	84
757	K	MATAGORDA	COUNTY-OTHER	COLORADO	93	89	86	84	84	84
757	K	MATAGORDA	COUNTY-OTHER	COLORADO-LAVACA	93	89	86	84	84	84
449	K	MATAGORDA	PALACIOS	COLORADO-LAVACA	120	116	113	112	111	111
4037	K	MILLS	BROOKESMITH SUD	COLORADO	152	146	143	137	132	128
757	K	MILLS	COUNTY-OTHER	BRAZOS	115	111	107	106	105	105
757	K	MILLS	COUNTY-OTHER	COLORADO	115	110	106	105	105	105
239	K	MILLS	GOLDTHWAITE	BRAZOS	182	179	172	165	175	169
239	K	MILLS	GOLDTHWAITE	COLORADO	172	168	165	163	162	163
757	K	SAN SABA	COUNTY-OTHER	COLORADO	139	134	131	131	131	131
4318	K	SAN SABA	RICHLAND SUD	COLORADO	127	124	121	121	120	120
538	K	SAN SABA	SAN SABA	COLORADO	310	306	304	302	302	302
4006	K	TRAVIS	AQUA WSC	COLORADO	147	143	141	140	140	140
30	K	TRAVIS	AUSTIN	COLORADO	151	149	149	149	149	149
4009	K	TRAVIS	BARTON CREEK WEST WSC	COLORADO	265	262	260	259	259	259
1013	K	TRAVIS	BEE CAVE	COLORADO	335	333	333	332	332	332
1014	K	TRAVIS	BRIARCLIFF	COLORADO	134	131	130	129	129	129
686	K	TRAVIS	CEDAR PARK	COLORADO	227	226	225	225	225	225
757	K	TRAVIS	COUNTY-OTHER	COLORADO	125	124	124	123	122	122
757	K	TRAVIS	COUNTY-OTHER	GUADALUPE	128	126	126	126	123	124
4076	K	TRAVIS	CREEDMOOR-MAHA WSC	COLORADO	99	95	92	91	90	90
4076	K	TRAVIS	CREEDMOOR-MAHA WSC	GUADALUPE	100	97	94	92	93	92
188	K	TRAVIS	ELGIN	COLORADO	125	122	120	119	119	119
4140	K	TRAVIS	GOFORTH SUD	GUADALUPE	104	100	98	95	94	93
783	K	TRAVIS	JONESTOWN	COLORADO	183	180	177	176	176	176
787	K	TRAVIS	LAGO VISTA	COLORADO	220	218	216	216	215	215
789	K	TRAVIS	LAKEWAY	COLORADO	328	325	325	324	324	324
713	K	TRAVIS	LEANDER	COLORADO	107	105	104	104	104	104
4236	K	TRAVIS	LOOP 360 WSC	COLORADO	525	522	520	519	519	519
4237	K	TRAVIS	LOST CREEK MUD	COLORADO	223	219	216	216	215	215
720	K	TRAVIS	MANOR	COLORADO	115	113	112	112	112	112
4245	K	TRAVIS	MANVILLE WSC	COLORADO	139	136	135	134	134	134
1044	K	TRAVIS	MUSTANG RIDGE	COLORADO	120	116	114	111	112	110
1044	K	TRAVIS	MUSTANG RIDGE	GUADALUPE	123	119	113	115	116	118
4274	K	TRAVIS	NORTH AUSTIN MUD #1	COLORADO	94	90	88	86	86	86
4466	K	TRAVIS	NORTHTOWN MUD	COLORADO	60	60	60	60	60	60
796	K	TRAVIS	PFLUGERVILLE	COLORADO	148	146	146	145	145	145
1105	K	TRAVIS	POINT VENTURE	COLORADO	262	260	258	258	257	258
741	K	TRAVIS	ROLLINGWOOD	COLORADO	241	237	234	232	231	231
520	K	TRAVIS	ROUND ROCK	COLORADO	143	141	140	139	139	139
4331	K	TRAVIS	SHADY HOLLOW MUD	COLORADO	142	138	135	133	133	133
1110	K	TRAVIS	SUNSET VALLEY	COLORADO	304	301	300	299	299	298
1067	K	TRAVIS	THE HILLS	COLORADO	431	430	429	428	428	428
4480	K	TRAVIS	TRAVIS COUNTY MUD #4	COLORADO	749	747	747	746	746	746
4481	K	TRAVIS	TRAVIS COUNTY WCID #10	COLORADO	309	306	304	302	302	302
4356	K	TRAVIS	TRAVIS COUNTY WCID #17	COLORADO	228	226	225	225	224	224
4357	K	TRAVIS	TRAVIS COUNTY WCID #18	COLORADO	151	147	145	144	144	144
4358	K	TRAVIS	TRAVIS COUNTY WCID #19	COLORADO	621	618	616	615	615	615
4359	K	TRAVIS	TRAVIS COUNTY WCID #20	COLORADO	462	460	457	457	456	456
1112	K	TRAVIS	VOLENTE	COLORADO	100	97	95	94	94	94
4378	K	TRAVIS	WELLS BRANCH MUD	COLORADO	98	95	94	93	93	93
641	K	TRAVIS	WEST LAKE HILLS	COLORADO	377	374	371	370	370	370
4390	K	TRAVIS	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	COLORADO	384	382	381	381	381	381
4397	K	TRAVIS	WILLIAMSON-TRAVIS COUNTY MUD #1	COLORADO	116	113	112	112	111	111
757	K	WHARTON	COUNTY-OTHER	BRAZOS-COLORADO	116	111	108	107	107	107
757	K	WHARTON	COUNTY-OTHER	COLORADO	116	111	108	108	107	107
757	K	WHARTON	COUNTY-OTHER	COLORADO-LAVACA	116	111	108	108	107	107
757	K	WHARTON	COUNTY-OTHER	LAVACA	115	108	108	110	106	108
1080	K	WHARTON	EAST BERNARD	BRAZOS-COLORADO	141	137	135	133	133	133
184	K	WHARTON	EL CAMPO	COLORADO	198	185	179	173	167	162
645	K	WHARTON	WHARTON	BRAZOS-COLORADO	159	155	151	150	150	150
645	K	WHARTON	WHARTON	COLORADO	159	155	151	150	150	150

Region K Gallons per Capita per Day (GPCD) Projections

CityID	RG	COUNTY	WATER USER GROUP	BASIN	GPCD Projections g2020	g2030	g2040	g2050	g2060	g2070
30	K	WILLIAMSON	AUSTIN	BRAZOS	151	149	149	149	149	149
757	K	WILLIAMSON	COUNTY-OTHER	BRAZOS	139	135	134	133	133	133
4274	K	WILLIAMSON	NORTH AUSTIN MUD #1	BRAZOS	93	90	87	86	85	85
4378	K	WILLIAMSON	WELLS BRANCH MUD	BRAZOS	98	96	94	93	93	93

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Savings for Municipal WUGs for Region K by County - in AC-FT (for 2016 RWP)

Region	County	EntityName	2020	2030	2040	2050	2060	2070
K	BASTROP	AQUA WSC	591.69	1076.01	1619.38	2262.2	3051.57	4083.14
K	BASTROP	BASTROP	108.24	203.05	310.26	438.35	597.6	806.72
K	BASTROP	BASTROP COUNTY WCID #2	38.03	74.33	116.14	169.23	238.04	328.49
K	BASTROP	COUNTY-OTHER, BASTROP	87.13	137.3	189.15	250.99	328.04	426.35
K	BASTROP	CREEDMOOR-MAHA WSC	2.56	4.52	6.78	9.36	12.35	16.24
K	BASTROP	ELGIN	100.47	179.3	265.57	367.92	494.56	659.79
K	BASTROP	LEE COUNTY WSC	7.9	14.33	21.9	31.02	41.97	56.03
K	BASTROP	POLONIA WSC	2.45	4.31	6.37	8.76	11.65	15.39
K	BASTROP	SMITHVILLE	61.53	113.7	172.45	240.58	323.5	432.14
K	BLANCO	BLANCO	24.13	39.48	49.81	55.41	57.69	58.78
K	BLANCO	CANYON LAKE WATER SERVICE COMPANY	8.19	12.36	14.53	15.7	16.4	16.79
K	BLANCO	COUNTY-OTHER, BLANCO	82.85	135.13	169.72	188.66	196.72	200.27
K	BLANCO	JOHNSON CITY	21.43	34.94	43.9	48.79	50.87	51.83
K	BURNET	BERTRAM	17.89	29.66	39.09	46.65	51.85	56.01
K	BURNET	BURNET	77.07	127.33	167.57	199.83	222.21	240.1
K	BURNET	CHISHOLM TRAIL SUD	3.37	5.17	6.52	7.63	8.51	9.22
K	BURNET	COTTONWOOD SHORES	13.99	22.97	30.08	35.82	39.87	43.08
K	BURNET	COUNTY-OTHER, BURNET	229.48	339.86	391.91	454.21	507.27	561.24
K	BURNET	GRANITE SHOALS	51.38	83.75	108.61	129.1	144.13	155.91
K	BURNET	HORSESHOE BAY	12.75	24.39	35	44.43	51.46	57.19
K	BURNET	KEMPNER WSC	7.05	11.67	15.59	18.8	21.01	22.71
K	BURNET	KINGSLAND WSC	4.05	6.37	8.09	9.6	10.76	11.66
K	BURNET	MARBLE FALLS	105.18	212.09	344.99	415.13	457.15	477.69
K	BURNET	MEADOWLAKES	18.74	29.65	37.83	44.76	50	54.11
K	COLORADO	COLUMBUS	41.72	62.94	80.36	91.86	96.7	100.1
K	COLORADO	COUNTY-OTHER, COLORADO	122.52	182.03	229.85	263.79	278.09	287.99
K	COLORADO	EAGLE LAKE	41.34	62.18	79.28	91.22	96.02	99.41
K	COLORADO	WEIMAR	23.63	35.46	45.1	51.89	54.62	56.58
K	FAYETTE	AQUA WSC	0.25	0.39	0.5	0.55	0.59	0.61
K	FAYETTE	COUNTY-OTHER, FAYETTE	121.41	197.36	254.59	292.24	310.22	321.85
K	FAYETTE	FAYETTE WSC	58.92	92.42	116.39	132.74	141.49	146.79
K	FAYETTE	FLATONIA	18.82	30.5	39.33	45.13	47.89	49.67
K	FAYETTE	LA GRANGE	60.66	97.62	125.31	143.67	152.54	158.27
K	FAYETTE	LEE COUNTY WSC	11.37	17.9	22.6	25.78	27.49	28.57
K	FAYETTE	SCHULENBURG	37.31	60.2	77.32	88.63	94.14	97.68
K	GILLESPIE	COUNTY-OTHER, GILLESPIE	154.29	235.41	300.9	349.85	376.78	398.42
K	GILLESPIE	FREDERICKSBURG	112.33	170.47	217.28	251.91	270.53	284.85
K	HAYS	AUSTIN	0.48	6.81	13.34	33.84	81.55	147.57
K	HAYS	BUDA	81.93	151.81	225.86	313.81	409.37	516.11
K	HAYS	CIMARRON PARK WATER COMPANY	21.36	29.67	36.37	40.1	40.84	40.87
K	HAYS	COUNTY-OTHER, HAYS	231.41	381.79	576.83	751.21	890.61	1018.8
K	HAYS	DRIPPING SPRINGS	19.52	30.49	41.02	51.17	60.37	70.17
K	HAYS	DRIPPING SPRINGS WSC	28.41	48.79	69.82	93.3	117.83	144.93
K	HAYS	GOFORTH SUD	7.98	16.76	27.18	39.53	52.69	67.47
K	HAYS	MOUNTAIN CITY	4.58	6.33	7.52	8.15	8.33	8.38
K	HAYS	PLUM CREEK WATER COMPANY	29.58	48.33	51.85	54.83	57.18	59.03
K	HAYS	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	73.96	132.42	194.72	269.79	352.11	443.51
K	LLANO	COUNTY-OTHER, LLANO	53.74	54.78	57.35	61.91	60.79	57.2
K	LLANO	HORSESHOE BAY	31.64	45.21	51.99	54.55	57.33	59.56
K	LLANO	KINGSLAND WSC	80.16	120.09	132.7	134.12	149.39	163.35
K	LLANO	LLANO	40.53	60.3	72.96	78.43	82.45	85.46
K	LLANO	SUNRISE BEACH VILLAGE	6.87	9.69	11.9	13.08	13.38	13.44
K	MATAGORDA	BAY CITY	210.56	319.6	406.69	442	456.49	462.32
K	MATAGORDA	COUNTY-OTHER, MATAGORDA	169.01	255.63	324.11	364.38	376.08	381.09
K	MATAGORDA	PALACIOS	54.43	81.69	103.18	115.75	119.55	121.13
K	MILLS	BROOKESMITH SUD	0.47	0.69	0.85	0.98	1.03	1.07
K	MILLS	COUNTY-OTHER, MILLS	31.68	48.61	63.02	69.3	73.31	76.52
K	MILLS	GOLDTHWAITE	18.72	28.33	36.35	41.69	44.12	46.09
K	SAN SABA	COUNTY-OTHER, SAN SABA	23.22	35.54	42.99	42.99	44.74	45.9
K	SAN SABA	RICHLAND SUD	10.68	15.69	18.95	20.38	21.3	21.84
K	SAN SABA	SAN SABA	33.04	49.26	60.26	65.03	67.85	69.53

Savings for Municipal WUGs for Region K by County - in AC-FT (for 2016 RWP)

Region	County	EntityName	2020	2030	2040	2050	2060	2070
K	TRAVIS	AQUA WSC	69.79	111.44	144.06	171.38	191.14	208.48
K	TRAVIS	AUSTIN	6,256.06	9,821.90	11,273.67	12,342.90	13,239.70	14,303.93
K	TRAVIS	BARTON CREEK WEST WSC	12.43	16.62	19.77	21.61	22.13	22.13
K	TRAVIS	BEE CAVE	28.83	42.06	51.31	60.86	69.07	75.48
K	TRAVIS	BRIARCLIFF	14.72	22.46	28.66	34.31	38.47	41.95
K	TRAVIS	CEDAR PARK	83.02	103.74	118.33	122.13	124.1	125.08
K	TRAVIS	COUNTY-OTHER, TRAVIS	728.52	727.28	689.56	606.14	476.3	331.89
K	TRAVIS	CREEDMOOR-MAHA WSC	65.65	106.29	141.24	170.35	189.53	206.17
K	TRAVIS	ELGIN	19.43	38.2	55.83	73.43	87.64	100.47
K	TRAVIS	GOFORTH SUD	0.78	1.2	1.51	1.79	1.99	2.16
K	TRAVIS	JONESTOWN	19.83	29.59	37.71	43.69	46.87	49.25
K	TRAVIS	LAGO VISTA	68.01	105.33	135.62	164.11	185.66	203.88
K	TRAVIS	LAKEWAY	195.59	323.16	344.44	357.05	361.25	362.93
K	TRAVIS	LEANDER	78.67	263.08	483.19	533.93	557.91	585.61
K	TRAVIS	LOOP 360 WSC	17.05	23.58	28.57	32.23	34.21	35.46
K	TRAVIS	LOST CREEK MUD	53.98	73.85	88.68	90.05	91.37	91.52
K	TRAVIS	MANOR	73.54	128.44	173.75	221.76	262.41	299.4
K	TRAVIS	MANVILLE WSC	192	307.88	405.15	497.9	569.97	633.53
K	TRAVIS	MUSTANG RIDGE	4.88	7.17	8.84	9.95	10.52	10.93
K	TRAVIS	NORTH AUSTIN MUD #1	7.14	9.94	12.18	13.44	13.73	13.73
K	TRAVIS	NORTHTOWN MUD	0	0	0	0	0	0
K	TRAVIS	PFLUGERVILLE	603.32	1022.13	1362.12	1723.05	2032.2	2309.57
K	TRAVIS	POINT VENTURE	11.06	18.45	24.64	30.83	35.79	40.25
K	TRAVIS	ROLLINGWOOD	14.69	21.43	27.12	30.33	31	31.16
K	TRAVIS	ROUND ROCK	16.55	24.46	30.56	36	40.17	43.79
K	TRAVIS	SHADY HOLLOW MUD	48.25	69.17	86.58	96.17	97.92	97.92
K	TRAVIS	SUNSET VALLEY	11.27	19.13	25.79	32.42	37.74	42.5
K	TRAVIS	THE HILLS	23.09	28.29	31.25	33.17	34.07	34.18
K	TRAVIS	TRAVIS COUNTY MUD #4	22.46	31.29	37.42	44	49.79	54.38
K	TRAVIS	TRAVIS COUNTY WCID #10	65.67	104.88	138.35	166.99	186.31	202.68
K	TRAVIS	TRAVIS COUNTY WCID #17	304.19	453.17	540.11	570.4	594.46	616.55
K	TRAVIS	TRAVIS COUNTY WCID #18	70.24	110.55	144.58	174.11	194.36	211.48
K	TRAVIS	TRAVIS COUNTY WCID #19	6.05	8.35	10.12	11.14	11.4	11.4
K	TRAVIS	TRAVIS COUNTY WCID #20	9.46	12.76	15.22	16.66	17.07	17.07
K	TRAVIS	VOLENTE	7.44	12.21	16.33	20.06	22.78	25.15
K	TRAVIS	WELLS BRANCH MUD	159	195.43	220.11	234.22	238.08	238.92
K	TRAVIS	WEST LAKE HILLS	43.84	57.76	68.86	74.95	76.07	76.2
K	TRAVIS	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	42.76	62.54	76.37	89.66	100.48	109.81
K	TRAVIS	WILLIAMSON-TRAVIS COUNTY MUD #1	12.82	16.57	18.61	19.55	19.84	19.96
K	WHARTON	COUNTY-OTHER, WHARTON	177.2	275.23	349.59	370.1	389.17	402.01
K	WHARTON	EAST BERNARD	22.71	34.15	43.21	49.03	51.74	53.43
K	WHARTON	EL CAMPO	0.28	0.44	0.56	0.63	0.66	0.69
K	WHARTON	WHARTON	103.93	160.54	207.5	231.34	243.29	251.17
K	WILLIAMSON	AUSTIN	305.83	512.26	635.73	768.7	919.49	1084.94
K	WILLIAMSON	COUNTY-OTHER, WILLIAMSON	175.96	327.7	363.93	379.98	387.49	390.34
K	WILLIAMSON	NORTH AUSTIN MUD #1	68.11	94.86	116.21	128.21	130.96	130.96
K	WILLIAMSON	WELLS BRANCH MUD	11.38	13.99	15.76	16.77	17.04	17.1
K Total			**14,073.56**	**22,095.81**	**27,236.56**	**31,399.99**	**35,104.31**	**39,210.60**

APPENDIX 2C

REVISION REQUEST SUBMITTALS TO THE TWDB BY REGIONAL WATER PLANNING GROUP REGARDING POPULATION, MUNICIPAL, AND NON-MUNICIPAL PROJECTIONS FOR THE 2016 REGIONAL WATER PLANNING CYCLE

LOWER COLORADO REGIONAL WATER PLANNING GROUP

John E. Burke, P.E.
Chairman

Mailstop R325
Austin, TX 78767-0220

Phone: 512/914-3474
Fax: 512/473-3539

July 13, 2012

Ms. Melanie Callahan
Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Subject: Request by the Lower Colorado Regional Water Planning Group (Region K) for extension in submitting non-municipal demand revisions

Dear Ms. Callahan:

The Lower Colorado Regional Water Planning Group (Region K) is preparing to respond to the TWDB's request for revisions to Draft non-municipal demand projections for use in developing the 2016 Region K Water Plan. In an email communication from TWDB staff on June 29, 2012, we were informed that "TWDB staff anticipates taking non-municipal water demand projections to our Board for adoption in October-November of this year." However, no firm deadline was clarified for regional submission of revision requests. Upon further communication with TWDB staff, Region K was informed that non-municipal revision requests should be submitted by September 15, 2012.

Due to the timing of Region K's quarterly meetings and unexpected delays in supportive data for some non-municipal demand revisions, Region K anticipates it will not be prepared to submit revision requests by September 15. Thus, Region K requests that the TWDB allow submission of non-municipal revisions and support data as follows:

1. October 15, 2012 - non-municipal demand projections related to manufacturing, irrigation, steam-electric generation, and livestock; and

2. Mining demand revision projections to be delayed until some later-specified date in order to consider the release of newly-revised data anticipated by the Bureau of Economic Geology in the fall of 2012.

Should you have any questions regarding this request, please contact our consultant team via phone at (512) 457-7798 or via email at jaime.burke@aecom.com . We appreciate your consideration of this request.

Very Truly Yours,

John E. Burke, Chairman
Lower Colorado Regional Water Planning Group

C: Mr. David Meesey, TWDB

Lower Colorado River Authority, Administrative Agent
P.O. Box 220, Austin, Texas 78767
(512) 473-3200, Fax (512) 473-3551

October 11, 2012

Ms. Melanie Callahan
Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Subject: Submittal of non-municipal demand projection revisions by the Lower Colorado Regional Water Planning Group (Region K)

Dear Ms. Callahan:

The Lower Colorado Regional Water Planning Group (Region K) has reviewed the TWDB's draft non-municipal demand projections intended for use in developing the 2016 Region K Water Plan. The Region K revision request is attached for your consideration, formatted in the spreadsheet previously provided by the TWDB staff. The revision request to TWDB's 2017 draft non-municipal demand projections includes:

- Changes to draft irrigation demand projections for Burnet, Colorado, Matagorda, and Wharton counties.
- No changes requested to draft manufacturing demand projections, with the acknowledgment that once the draft municipal demand projections are made available for review to the planning group, modifications to manufacturing demands may be necessary.
- Changes to draft mining demand projections for Blanco, Colorado, Llano, Mills, and Williamson counties.
- Changes to draft steam-electric demand projections for Bastrop, Fayette, Llano, Matagorda, and Travis counties.
- Changes to draft livestock demand projections for all counties except Blanco, Colorado, Matagorda, and Mills counties.
- Changes to the regional demand totals for all water use types except manufacturing.

Region K is also providing a single document which summarizes each revision request and the Region's supportive reasoning for each request.

In addition, Region K put the proposed revisions to the non-municipal demands out for public comment on the Region K website, and has included the public comments we received as an attachment to this submittal.

Should you have any questions regarding this request, please contact our consultant team via phone at (512) 457-7798 or via email at jaime.burke@aecom.com. We appreciate your consideration of this request.

Very Truly Yours,

John E. Burke, Chairman
Lower Colorado Regional Water Planning Group

Enclosures:

- Spreadsheet printout containing Region K revision requests
- Summarized supportive documentation for Region K's revision requests
- Summary of public comments received on the non-municipal demand revisions
- CD containing electronic versions (PDF and Excel) of above documents

cc: Mr. David Meesey, TWDB

IRRIGATION

Draft Projections for 2017 SWP

County Name	2020	2030	2040	2050	2060	2070
Bastrop	852	742	649	565	492	443
Blanco	256	240	225	217	213	204
Burnet	1,504	1,474	1,444	1,429	1,399	1,377
Colorado	120,618	115,551	110,647	105,878	101,314	97,363
Fayette	623	583	545	511	480	453
Gillespie	2,058	2,031	2,003	1,978	1,953	1,928
Hays	107	107	107	107	107	107
Llano	1,936	1,902	1,870	1,840	1,810	1,781
Matagorda	117,462	113,220	109,157	105,247	101,477	98,081
Mills	3,074	3,008	2,943	2,879	2,817	2,759
San Saba	5,539	5,361	5,188	5,018	4,856	4,709
Travis	4,322	3,975	3,657	3,364	3,097	2,885
Wharton	126,140	121,626	117,277	113,083	97,165	92,166
Williamson	0	0	0	0	0	0
Total	384,491	369,820	355,712	342,116	317,180	304,256

2012 SWP Projections

County Name	2020	2030	2040	2050	2060
Bastrop	1,407	1,226	1,072	934	814
Blanco	66	62	58	56	55
Burnet	100	98	96	95	93
Colorado	192,465	184,380	176,555	168,946	161,663
Fayette	692	648	606	568	533
Gillespie	2,013	1,987	1,960	1,936	1,912
Hays	11	11	11	11	11
Llano	963	946	930	915	900
Matagorda	186,072	179,353	172,916	166,722	160,750
Mills	2,872	2,810	2,749	2,689	2,631
San Saba	3,136	3,035	2,937	2,841	2,749
Travis	1,034	951	875	805	741
Wharton	176,441	170,127	164,044	158,177	135,911
Williamson	0	0	0	0	0
Total	567,272	545,634	524,809	504,695	468,763

RWPG Revisions / RWPG Comments

County Name	2020	2030	2040	2050	2060	2070	RWPG Comments
Bastrop							
Blanco							
Burnet	1,504	1,504	1,504	1,504	1,504	1,504	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Colorado	165,846	161,385	157,044	152,819	148,709	144,708	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Fayette							
Gillespie							
Hays							
Llano							
Matagorda	212,087	206,382	200,830	195,428	190,171	185,055	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Mills							
San Saba							
Travis							
Wharton	212,229	206,520	200,965	195,559	190,298	185,179	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Williamson							
Total	610,433	593,740	577,530	561,789	546,507	531,715	New total reflects above revision request.

LIVESTOCK

	Draft Projections for 2017 SWP					
County Name	2020	2030	2040	2050	2060	2070
Bastrop	1,405	1,405	1,405	1,405	1,405	1,405
Blanco	564	564	564	564	564	564
Burnet	756	756	756	756	756	756
Colorado	1,590	1,590	1,590	1,590	1,590	1,590
Fayette	2,272	2,272	2,272	2,272	2,272	2,272
Gillespie	985	985	985	985	985	985
Hays	185	185	185	185	185	185
Llano	645	645	645	645	645	645
Matagorda	1,503	1,503	1,503	1,503	1,503	1,503
Mills	944	944	944	944	944	944
San Saba	1,014	1,014	1,014	1,014	1,014	1,014
Travis	609	609	609	609	609	609
Wharton	645	645	645	645	645	645
Williamson	0	0	0	0	0	0
Total	13,117	13,117	13,117	13,117	13,117	13,117

	2012 SWP Projections				
County Name	2020	2030	2040	2050	2060
Bastrop	1,522	1,522	1,522	1,522	1,522
Blanco	443	443	443	443	443
Burnet	835	835	835	835	835
Colorado	1,473	1,473	1,473	1,473	1,473
Fayette	2,397	2,397	2,397	2,397	2,397
Gillespie	1,062	1,062	1,062	1,062	1,062
Hays	220	220	220	220	220
Llano	751	751	751	751	751
Matagorda	1,151	1,151	1,151	1,151	1,151
Mills	918	918	918	918	918
San Saba	1,191	1,191	1,191	1,191	1,191
Travis	704	704	704	704	704
Wharton	728	728	728	728	728
Williamson	0	0	0	0	0
Total	13,395	13,395	13,395	13,395	13,395

	RWPG Revisions					RWPG Comments
County Name	2020	2030	2040	2050	2060	2070	
Bastrop	1,522	1,522	1,522	1,522	1,522	1,522	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Blanco							
Burnet	835	835	835	835	835	835	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Colorado							
Fayette	2,397	2,397	2,397	2,397	2,397	2,397	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Gillespie	1,062	1,062	1,062	1,062	1,062	1,062	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Hays	220	220	220	220	220	220	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Llano	751	751	751	751	751	751	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Matagorda							
Mills							
San Saba	1,191	1,191	1,191	1,191	1,191	1,191	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Travis	704	704	704	704	704	704	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Wharton	728	728	728	728	728	728	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Williamson	1	1	1	1	1	1	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Total	14,012	14,012	14,012	14,012	14,012	14,012	New total reflects above revision request.

MANUFACTURING

Draft Projections for 2017 SWP

County Name	2020	2030	2040	2050	2060	2070
Bastrop	194	227	262	295	319	345
Blanco	20	20	20	20	20	20
Burnet	1,109	1,248	1,384	1,502	1,636	1,782
Colorado	383	409	433	453	489	528
Fayette	358	395	431	462	501	543
Gillespie	1,049	1,102	1,151	1,192	1,276	1,366
Hays	347	398	449	495	537	583
Llano	3	3	3	3	3	3
Matagorda	13,253	13,991	14,686	15,259	16,267	17,342
Mills	2	2	2	2	2	2
San Saba	8	8	8	8	8	8
Travis	35,790	48,710	63,858	72,991	81,781	91,630
Wharton	503	537	572	601	648	699
Williamson	0	0	0	0	0	0
Total	53,019	67,050	83,259	93,283	103,487	114,851

2012 SWP Projections

County Name	2020	2030	2040	2050	2060
Bastrop	111	130	150	169	183
Blanco	2	2	2	2	2
Burnet	1,109	1,248	1,384	1,502	1,636
Colorado	192	205	217	227	245
Fayette	230	254	277	297	322
Gillespie	539	566	591	612	655
Hays	809	928	1,048	1,156	1,255
Llano	3	3	3	3	3
Matagorda	13,253	13,991	14,686	15,259	16,267
Mills	1	1	1	1	1
San Saba	30	31	32	33	35
Travis	28,294	38,508	50,483	57,703	64,652
Wharton	343	366	390	410	442
Williamson	0	0	0	0	0
Total	44,916	56,233	69,264	77,374	85,698

RWPG Comments

County Name	2020	2030	2040	2050	2060	2070
Bastrop						
Blanco						
Burnet						
Colorado						
Fayette						
Gillespie						
Hays						
Llano						
Matagorda						
Mills						
San Saba						
Travis						
Wharton						
Williamson						
Total						

MINING

Draft Projections for 2017 SWP

County Name	2020	2030	2040	2050	2060	2070
Bastrop	2,884	6,812	7,498	8,264	9,085	9,996
Blanco	0	0	0	0	0	0
Burnet	4,489	5,412	6,379	7,255	8,264	9,412
Colorado	3,961	5,224	4,700	4,137	3,633	3,367
Fayette	2,407	3,091	2,462	1,853	1,232	897
Gillespie	4	4	4	4	4	4
Hays	845	1,075	1,361	1,445	1,654	1,893
Llano	0	0	0	0	0	0
Matagorda	95	99	75	55	35	25
Mills	0	0	0	0	0	0
San Saba	1,088	1,093	944	900	864	838
Travis	3,502	4,108	4,762	5,375	6,046	6,817
Wharton	85	90	67	49	31	22
Williamson	0	0	0	0	0	0
Total	19,360	27,008	28,252	29,337	30,848	33,271

2012 SWP Projections

County Name	2020	2030	2040	2050	2060
Bastrop	5,035	5,036	37	38	39
Blanco	5	5	5	5	5
Burnet	2,049	2,098	2,145	2,190	2,235
Colorado	21,197	21,416	21,623	21,821	21,996
Fayette	42	42	42	42	42
Gillespie	8	8	8	8	8
Hays	6	2	0	0	0
Llano	148	148	148	148	148
Matagorda	172	169	167	165	163
Mills					
San Saba	163	163	163	163	163
Travis	1,649	1,727	1,804	1,880	1,935
Wharton	773	798	822	844	864
Williamson	5	1	0	0	0
Total	31,252	31,613	26,964	27,304	27,598

RWPG Revisions / RWPG Comments

County Name	2020	2030	2040	2050	2060	2070	RWPG Comments
Bastrop							
Blanco	5	5	5	5	5	5	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Burnet							
Colorado	5,325	5,378	5,433	5,487	5,542	5,597	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Fayette							
Gillespie							
Hays							
Llano	3	3	3	3	3	3	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Matagorda							
Mills	4	4	4	4	4	4	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
San Saba							
Travis							
Wharton							
Williamson	5	3	3	3	3	3	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Total	20,741	27,177	29,000	30,702	32,772	35,516	New total reflects above revision request.

Lower Colorado River Authority, Administrative Agent
P.O. Box 220, Austin, Texas 78767
(512) 473-3200, Fax (512) 473-3551

April 24, 2013

Ms. Melanie Callahan
Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Subject: Re-Submittal of non-municipal demand projection revisions by the Lower Colorado Regional Water Planning Group (Region K), noting corrected data in Bastrop and Matagorda County Steam Electric

Dear Ms. Callahan:

The Lower Colorado Regional Water Planning Group (Region K) submitted a non-municipal water demand projection revision request in October 2012. Recently, the Region became aware of the need to amend the original revision request in the following two ways:

- Bastrop County Steam Electric demands should be 16,720 acre-feet for all decades from 2030 to 2070. This revision request was noted in our original "Summarized supportive documentation for Region K's revision requests" submitted in October 2012. However, we recently noted this request was not recorded in the TWDB-required spreadsheet containing revision requests. We have revised the spreadsheet accordingly and it is attached, along with the original supporting documentation.
- On April 10, 2013 Region K voted to request a reduction of Matagorda County Steam Electric demands to 105,000 acre-feet for all decades. The additional reduction of 2,500 acre-feet reflects recent news that the White Stallion Energy Center is no longer pursuing the proposed power plant in Matagorda County.

In both of the above instances, new revision requests are documented in the attached spreadsheet (TWDB format) and support data is provided.

Please note, as per our previous request, Region K intends to consider draft manufacturing demand projections in conjunction with draft municipal demand projections. These will be considered for approval at the July 10 Region K meeting and revision requests will be submitted prior to the TWDB requested August 16, 2013 deadline

Should you have any questions regarding this request, please contact our consultant team via phone at (512) 457-7798 or via email at jaime.burke@aecom.com. We appreciate your consideration of this request.

Very Truly Yours,

John E. Burke, Chairman
Lower Colorado Regional Water Planning Group

Enclosures:
Spreadsheet containing Region K revision requests
Summarized supportive documentation for Region K's revision requests
CD containing electronic copies of above documents

C: Mr. David Meesey, TWDB

April 10, 2013

Region K's Recommended Modifications
to
TWDB's 2017 Non-Municipal Draft Demand Projections

In October 2011, the Texas Water Development Board (TWDB) provided draft projections of non-municipal (agricultural irrigation, manufacturing, mining, steam electric and livestock) demands for use in the 2012-2017 planning cycle for each county in Region K. After review and analysis of available records, public comment, input from local officials and discussion of the planning group, Region K respectfully submits its recommended modifications to the TWDB's non-municipal draft demand projections. Below is a general description of what specific modifications are being recommended, the purpose for the modifications, and, if applicable, the methodology used in developing the modifications

A. Agricultural Irrigation Demand Projections

Recommended Modifications:

1. Use TWDB's 2017 draft agricultural demand projections for all counties, except Burnet, Colorado, Matagorda and Wharton counties;
2. Burnet County – use the TWDB 2020 draft projection and hold that projection steady (no reduction) for 2020-2070; and
3. Colorado, Matagorda and Wharton counties - modify the TWDB's 2017 draft agricultural demand projections for these counties based on Region K's analysis of historical demands over the past twenty year period.

Discussion

Burnet County - Region K received comments from the Burnet County Agent, Central Texas Groundwater Conservation District and Region K members from Burnet County indicating that the 2020 estimate of demand for agriculture use was fairly close to their understanding of use in the county. However, they felt that the level of reduction in agricultural use as shown in the TWDB draft projections did not reflect the growth that they have seen in new vineyards and hay pastures being established in the county and area. They suggested that the demands for agricultural use in Burnet County remain steady over the planning period. This amounts to a difference of only 127 acre-feet/year (AFY) in 2070. Below is **TABLE A** showing the comparison of the TWDB draft projections and Region K's recommended modifications.

TABLE A
Region K's Recommended Modifications to TWDB's Draft Agricultural Demand Projections for Burnet County (AFY)

Burnet County	2020	2030	2040	2050	2060	2070
TWDB Draft Projections	1504	1474	1444	1429	1399	1377
Region K's Recommended Modification	1504	1504	1504	1504	1504	1504

Colorado, Matagorda and Wharton counties - The TWDB's draft projections of agricultural demands for Colorado, Matagorda and Wharton counties for use in the next planning cycle are substantially lower than the projections that were utilized in the previous three regional planning cycles. Region K understands that the TWDB has developed a state-wide methodology, based on the U. S. Dept. of Agriculture's Farm Service Agency records, for determining such demands; however, Region K believes that this methodology does not make use of the best available data and does not properly reflect the actual amounts of water supplies, during dry periods, that this region has utilized over the past twenty years.

Region K invested considerable effort in its development of projected irrigation demands for Colorado, Matagorda and Wharton counties in the first round of regional planning. The fruit of these efforts was used extensively by Region K in developing its 2001, 2006 and 2011 approved regional plans. Some of the conditions and assumptions that led to those initial projections have changed considerably or did not materialize as expected. Therefore, Region K finds it necessary to recommend basic adjustments to these projections to more accurately reflect historical demand patterns and better data. Three additional factors affecting demands are discussed below.

1) Irrigated acreage particularly for rice production was depressed in the late 90's by low commodity prices. Those depressed prices were projected to hold down acreage levels for the ensuing decade and possibly longer. However, rice prices have increased significantly, leading to increases in planted rice acreage in the last decade. Considerable on-farm conservation efforts have helped to minimize the increase in irrigation demands that would correspond to greater irrigated acreage. However, despite concerted efforts to achieve water efficiencies over the past decade, the projected decrease in irrigation demands that was built into previous projections for Region K has not materialized. Actual demand is higher than previously projected in Region K's 2011 Plan- See Attachments I & II for the actual demands.

2) Significant commodity price increases for other crops in addition to rice have led to increased demand for irrigation water. Corn and sorghum in particular have seen increased irrigation and have potential for a continuation of this trend.

3) Certain aspects of federal farm programs have held down rice acreage for the first decade of this millennium, land owners have removed acreage from production in order to garner certain financial benefits from these programs. The current farm program is set to expire at the end of 2012, and by all reports, those financial benefits will not be preserved in new farm legislation. With the likely removal of this disincentive to farm, additional irrigated acreage will be brought back into production in these three counties, most of which will be in Matagorda County where this anomaly has most impacted rice acreage.

In recognition of these changed conditions and consistent with the revisions that Region K recommended in the first planning cycle, Region K is recommending revisions to the TWDB's draft projected agricultural demands for the next cycle of planning to more accurately reflect recent historical drought levels of demands experienced in these three counties. These modifications reflect an approximately 71,000 AFY increase over the amount shown in the current approved Region K plan for 2060. For these three counties, Region K developed its recommended modified agricultural demand projections based on the following data and analysis:

- Surface water demands were calculated for 2010 based on the 90th percentile level of actual demands[1] by irrigation operations that are supplied water by the Lower Colorado River Authority (LCRA) as reported to the Texas Commission on Environmental Quality (TCEQ) over the past twenty years (1992 through 2011) - as shown in **Attachment I**; these demands were adjusted for agreements that came into existence during this period and were further adjusted to reflect the amount of water used between counties and between Regions P and K (the adjustments between counties and regions was based on water use data from 2004-2011). Additionally, surface water demands related to all other surface water rights within these three counties within Region K were calculated for 2010 based on the 90th percentile of 2000-2011 water use data obtained from the TCEQ – as shown in **Attachment I**.
- Groundwater demands were based on the 2009 actual demands[2] as recorded by the local groundwater conservation districts (GCDs) in Wharton (Region K portion only) and Matagorda Counties and estimated for Colorado County (in the absence of actual GCD data) – as shown in **Attachment II**.
- The 2010 total agricultural set of demands (sum of surface water and groundwater historic reported usage) for each county were then reduced based on a 2.69% reduction factor (as described in the next paragraph) for each decade. The resultant numbers for each county by decade are shown in **TABLE B**.

Region K found that the previously-utilized decadal rate at which future agricultural demands would be projected to decrease (a rate of about 3-4 % or more per decade) did not materialize. LCRA data from the past twenty years indicates that the actual rate of reduction in demands within the irrigation operations that it supplies water to is about 2.69% per decade. Region K proposes limiting the decadal reduction in agricultural demands to this rate and has reflected this change in the revised projected agricultural demands (both surface and ground water) for Colorado, Matagorda and Wharton counties. Below is **TABLE B** showing the comparison of the agricultural demand projections from the current approved Region K plan, the TWDB draft projections and Region K's recommended modifications.

[1] Region K will utilize weather-variable demands in its water availability modeling for water management strategies to ensure that such modeling best reflects conditions similar to what is seen in actual records of agricultural water use in these counties and the state over the Region K WAM modeling period (1940-2009).

[2] GCDs have less than ten years of records for water use in their counties; therefore Region K used 2009 as a representative drought year as being reflective of the 90th percentile. Region K plans to use historical groundwater demand data for the fifth planning cycle.

TABLE B
Region K's Recommended Modifications to TWDB's Draft Agricultural Demand Projections for Colorado, Matagorda and Wharton Counties (AFY)

Colorado County	2020	2030	2040	2050	2060	2070
Current Region K Plan	192,465	184,380	176,555	168,946	161,663	
TWDB Draft Proposed	120,618	115,551	110,647	105,878	101,314	97,363
Region K Modifications	165,846	161,385	157,044	152,819	148,709	144,708
Matagorda County						
Current Region K Plan	186,072	179,353	172,916	166,722	160,750	
TWDB Draft Proposed	117,462	113,220	109,157	105,247	101,477	98,081
Region K Modifications	212,087	206,382	200,830	195,428	190,171	185,055
Wharton County						
Current Region K Plan	176,441	170,127	164,044	158,177	135,911	
TWDB Draft Proposed	126,140	121,626	117,277	113,083	97,165	92,166
Region K Modifications	212,229	206,520	200,965	195,559	190,298	185,179

Recent unavailability of surface water in 2012 from the LCRA for three of four downstream irrigation operations it supplies water to has precipitated increased utilization of available groundwater supplies. At this early stage, it is difficult to capture a long term trend regarding irrigators' increased reliance on groundwater and corresponding decreased demand on surface water. However, while there may be shifts of water sourcing between surface and groundwater, the total demand for these three counties is expected to follow the trend indicated under "Region K Modifications" in **TABLE B**.

Irrigation demands beyond a decade are difficult to project. World population growth is expected to increase the pressures on all food supplies leading to increased demand for the products of irrigated agriculture. Such pressures may also lead to technological advancements in irrigation water conservation. Water demands from all use sectors may converge to necessitate more advanced conservation at all levels. While such advancements should ultimately yield conservation of irrigation water, it is likely that much of the conserved water will be needed to support expanded food and fiber production to serve the needs of the growing population. Region K believes it imprudent to project significant decreases in irrigation demands under conditions that clearly indicate increased demand for the products of irrigated agriculture.

B. Manufacturing Demand Projections

Recommended Modifications:

> No modifications are recommended; Region K plans to use TWDB's 2017 draft manufacturing demand projections for all counties; Region K does reserve the right to review these manufacturing demand projections after the TWDB provides the region with population and

municipal water demand projections; and based on its review of those projections, the region may need to revisit some of the manufacturing demand projections.

C. Mining Demand Projections

Recommended Modifications:

1. Use TWDB's 2017 draft mining demand projections for all counties, except Blanco, Colorado, Llano, Mills and Williamson counties;
2. Blanco, Colorado, Llano, Mills and Williamson counties - modify the TWDB's 2017 draft mining demand projections for these counties based on input from local GCD and Region K members.

Discussion

Blanco, Llano, Mills and Williamson counties- Region K planning group members indicated personal knowledge of mining operations in these counties; therefore, Region K recommends that the mining demand in each of these counties be modified from zero to a small amount per county as shown in **TABLE C** below.

Colorado County- Colorado County Groundwater Conservation District has recently determined historic use levels within its district for mining and other purposes of use. This process indicated that the actual use for mining purposes is higher than the TWDB draft projections for 2017, but lower than the projections used in previous Region K plans; therefore, Region K recommends that the mining demand in Colorado County be modified as shown in **TABLE C** below.

TABLE C
Region K's Recommended Modifications to TWDB's Draft Mining Demand Projections for Blanco, Colorado, Llano, Mills and Williamson Counties (AFY)

Blanco County	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
TWDB Draft Proposed	0	0	0	0	0	0
Region K Modifications	5	5	5	5	5	5
Colorado County						
Current Region K Plan	*21,197*	*21,416*	*21,623*	*21,821*	*21,996*	
TWDB Draft Proposed	3961	5224	4700	4137	3633	3367
Region K Modifications	5,325	5,378	5,433	5,487	5,542	5,597
Llano County						
TWDB Draft Proposed	0	0	0	0	0	0
Region K Modifications	3	3	3	3	3	3
Mills County						
TWDB Draft Proposed	0	0	0	0	0	0
Region K Modifications	4	4	4	4	4	4
Williamson County						
TWDB Draft Proposed	0	0	0	0	0	0
Region K Modifications	5	3	3	3	3	3

D. Steam-Electric Demand Projections

Recommended Modifications:

1. Use TWDB's 2017 draft steam-electric demand projections for all counties, except Bastrop, Fayette, Llano, Matagorda and Travis counties;
2. Bastrop, Fayette, Llano, Matagorda and Travis counties - modify the TWDB's 2017 draft steam-electric demand projections for these counties based on input from electric generators and other sources in the region.

Discussion

Region K sought information from steam-electric generators and other sources in its region and is recommending modification of the TWDB's 2017 draft steam-electric demand projections for Bastrop, Fayette, Llano, Matagorda, Travis and Wharton counties based on input from those sources. Most of the modifications reflect an overall reduction in the amount of water needed for steam-electric demands. These recommended modifications are shown in **TABLE D** below.

TABLE D
Region K's Recommended Modifications to TWDB's Draft Steam-Electric Demand Projections for Bastrop, Fayette, Llano, Matagorda and Travis Counties (AFY)

Bastrop County	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
TWDB Draft Proposed	14,000	16,000	18,000	19,500	19,500	19,500
Region K Modifications	14,000	16,720	16,720	16,720	16,720	16,720
Fayette County						
TWDB Draft Proposed	29,702	33,002	63,843	63,843	69,753	76,210
Region K Modifications	35,702	35,702	37,802	44,102	48,602	53,402
Llano County						
TWDB Draft Proposed	1500	1500	15,000	15,000	15,000	15,000
Region K Modifications	2500	2500	2500	2500	2500	2500
Matagorda County						
TWDB Draft Proposed	135,500	135,500	135,500	135,500	135,500	135,500
Region K Modifications**	105,000	105,000	105,000	105,000	105,000	105,000
Travis County						
TWDB Draft Proposed	18,500	22,500	23,500	27,500	28,500	29,500
Region K Modifications	18,500	22,500	22,500	23,500	24,500	26,500

**April 10, 2013 Region K voted to request Matagorda County Steam Electric demands be reduced by 2,500 AFY in each decade to reflect the plans to not pursue the White Stallion Energy Center power plant.

E. Livestock Demand Projections

Recommended Modifications:

1. Use TWDB's 2017 draft livestock demand projections for the following counties: Blanco, Colorado, Matagorda and Mills counties;
2. For all other counties- modify the TWDB's 2017 draft livestock demand projections based on input from regional planning group members.

Discussion

Region K feels the reduction in livestock demand in the identified counties was unwarranted due to the reductions in herd size as a result of droughts that have been experienced over the past five years. Therefore, Region K recommends modification of the demands for livestock in the identified counties, except for Williamson County, back to the level used in the 2012 State Water Plan in **TABLE E** below. For Williamson County, Region K recommends adding a small demand representative of this limited area.

TABLE E
Region K's Recommended Modifications to TWDB's Draft Livestock Demand Projections for the Identified Counties (AFY)

Bastrop County	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
TWDB Draft Proposed	1405	1405	1405	1405	1405	1405
Region K Modifications	1522	1522	1522	1522	1522	1522
Burnet County						
TWDB Draft Proposed	756	756	756	756	756	756
Region K Modifications	835	835	835	835	835	835
Fayette County						
TWDB Draft Proposed	2272	2272	2272	2272	2272	2272
Region K Modifications	2397	2397	2397	2397	2397	2397
Gillespie County						
TWDB Draft Proposed	985	985	985	985	985	985
Region K Modifications	1062	1062	1062	1062	1062	1062
Hays County						
TWDB Draft Proposed	185	185	185	185	185	185
Region K Modifications	220	220	220	220	220	220
Llano County						
TWDB Draft Proposed	645	645	645	645	645	645
Region K Modifications	751	751	751	751	751	751
San Saba County						
TWDB Draft Proposed	1014	1014	1014	1014	1014	1014
Region K Modifications	1191	1191	1191	1191	1191	1191
Travis County						
TWDB Draft Proposed	609	609	609	609	609	609
Region K Modifications	704	704	704	704	704	704
Wharton County						
TWDB Draft Proposed	645	645	645	645	645	645
Region K Modifications	728	728	728	728	728	728
Williamson County						
TWDB Draft Proposed	0	0	0	0	0	0

Region K Modifications	1	1	1	1	1	1

ATTACHMENT I

Historic Surface Water Use for Agricultural Purposes at LCRA Affiliated Irrigation Operations based on LCRA Annual Water Use Reports for 1992-2011 (acre-feet)

Year	Garwood	Gulf Coast	Lakeside	Pierce Ranch	Total
1992	95,304	133,201	135,597	50,212	414,314
1993	78,336	105,505	96,467	38,589	318,897
1994	103,633	145,603	143,743	45,452	438,431
1995	96,745	142,967	140,131	26,917	406,760
1996	107,223	178,491	143,317	23,205	452,236
1997	54,459	108,135	95,390	13,149	271,133
1998	86,579	200,161	156,466	36,770	479,976
1999	71,450	149,276	114,189	23,058	357,973
2000	83,247	152,197	117,838	26,096	379,378
2001	77,777	137,655	113,300	21,521	350,253
2002	78,058	141,928	109,866	20,409	350,261
2003	73,676	110,311	111,958	21,557	317,502
2004	77,990	132,244	110,771	18,484	339,489
2005	85,072	146,389	128,483	21,623	381,566
2006	82,385	109,463	97,944	19,988	309,781
2007	45,205	83,535	56,360	14,285	199,386
2008	103,624	157,332	134,304	23,630	418,890
2009	100,150	197,610	115,889	28,795	442,444
2010	88,895	150,647	96,362	23,452	359,356
2011	117,667	170,633	142,488	33,526	464,314
Average	85,374	142,664	118,043	26,536	372,617
90^{th} Percentile	103,992	180,403	143,360	39,275	467,030
With Limitations(1)	100,000	180,403	143,360	30,000	453,763
Allocation of Use (2)					
Colorado	84,000	0	58,777	0	142,777
Wharton	16,000	14,432	84,582	30,000	145,014
Matagorda	0	165,971	0	0	165,971
				Region K	**437,763**
				Region P	**16,000**

(1) Limitations associated with purchase agreements with original owners

(2) Use allocated based on location by county and regional water planning area;
allocation based on analysis of actual split in 2004-2011

ATTACHMENT I
(Continued)

AECOM obtained the following from TCEQ water use report records for all surface water rights other than LCRA, STPNOC & Corpus Christi:

County		*90th Percentile of historic use shown in 2000-2011 water use reports*
Colorado		7,654
Wharton		6,042
Matagorda		18,543
	Total	32,239

ATTACHMENT II

2009 Groundwater Agricultural Use in Region K portion of Colorado, Wharton & Matagorda counties based on local groundwater conservation district information and data (acre-feet)

County	Amount
Colorado[a]	20,000
Wharton[b]	83,040
Matagorda	33,436
Total	136,476

[a] Colorado County amount estimated by deducting the number of acres provided water under the LCRA operations in Colorado County from the number of certified acres of rice and other crops and applying an average duty of use.

[b] The amount shown for Wharton County is only that amount of use determined by AECOM to be within the Region K portion of county.

STEAM-ELECTRIC

Draft Projections for 2017 SWP

County Name	2020	2030	2040	2050	2060	2070
Bastrop	14,000	16,000	18,000	19,500	19,500	19,500
Blanco	0	0	0	0	0	0
Burnet	0	0	0	0	0	0
Colorado	0	0	0	0	0	0
Fayette	29,702	33,002	63,843	63,843	69,753	76,210
Gillespie	0	0	0	0	0	0
Hays	0	0	0	0	0	0
Llano	1,500	1,500	15,000	15,000	15,000	15,000
Matagorda	135,500	135,500	135,500	135,500	135,500	135,500
Mills	0	0	0	0	0	0
San Saba	0	0	0	0	0	0
Travis	18,500	22,500	23,500	27,500	28,500	29,500
Wharton	2,751	2,813	2,888	2,980	3,091	3,197
Williamson	0	0	0	0	0	0
Total	201,953	211,315	258,731	264,323	271,344	278,907

2012 SWP Projections

County Name	2020	2030	2040	2050	2060
Bastrop	14,000	16,000	18,000	19,500	19,500
Blanco	0	0	0	0	0
Burnet	0	0	0	0	0
Colorado	0	0	0	0	0
Fayette	29,702	33,002	63,843	63,843	69,753
Gillespie	0	0	0	0	0
Hays	0	0	0	0	0
Llano	1,500	1,500	15,000	15,000	15,000
Matagorda	135,000	135,000	135,000	135,000	135,000
Mills	0	0	0	0	0
San Saba	0	0	0	0	0
Travis	18,500	22,500	23,500	27,500	28,500
Wharton	2,651	2,711	2,783	2,872	2,979
Williamson	0	0	0	0	0
Total	201,353	210,713	258,126	263,715	270,732

RWPG Revisions / **RWPG Comments**

County Name	2020	2030	2040	2050	2060	2070	RWPG Comments
Bastrop	14,000	16,720	16,720	16,720	16,720	16,720	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Blanco							
Burnet							
Colorado							
Fayette	35,702	35,702	37,802	44,102	48,602	53,402	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Gillespie							
Hays							
Llano	2,500	2,500	2,500	2,500	2,500	2,500	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Matagorda	105,000	105,000	105,000	105,000	105,000	105,000	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012 and amended by an April 10, 2013 Region K vote to reflect demand reduction due to White Stallion postponement.
Mills							
San Saba							
Travis	18,500	22,500	22,500	23,500	24,500	26,500	Support documentation provided as attachment to Region K transmittal letter, dated October 11, 2012.
Wharton							
Williamson							
Total	178,453	185,235	187,410	194,802	200,413	207,319	New total reflects above revision request.

Lower Colorado River Authority, Administrative Agent
P.O. Box 220, Austin, Texas 78767
(512) 473-3200, Fax (512) 473-3551

July 26, 2013

Mr. Daniel Hardin, Ph.D.
Interim Deputy Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Subject: Re-submittal of non-municipal demand projection revisions by the Lower Colorado Regional Water Planning Group (Region K), related to Manufacturing and Irrigation demands in Matagorda County.

Dear Mr. Hardin:

The Lower Colorado Regional Water Planning Group (Region K) submitted a non-municipal water demand projection revision request in October 2012, with a follow-up correcting request in April 2013. Noted in both requests was that Region K intended to consider draft manufacturing demand projections in conjunction with the draft municipal demand projections, and that they would be considered for approval at the July 10 Region K meeting with revision requests being submitted prior to the TWDB requested August 16, 2013 deadline.

During their review of the population and municipal demand projections, Region K did also evaluate the manufacturing demand projections. During the evaluation, information related to a new manufacturing facility (Tenaris) that is expected to open in 2016 in Matagorda County became available. The manufacturing facility is estimated to use 3,000 AFY of water that is currently being used for irrigation purposes. Region K felt that the draft manufacturing demand projections provided by TWDB did not account for this facility.

On July 10, 2013 Region K voted to request an increase of 3,000 AFY to the Matagorda County Manufacturing demands for all decades, with an equivalent decrease of 3,000 AFY to the Matagorda County Irrigation demands for all decades.

This revision request is documented in the attached spreadsheet (TWDB format).

Should you have any questions regarding this request, please contact our consultant team via phone at (512) 457-7798 or via email at jaime.burke@aecom.com. We appreciate your consideration of this request.

Very Truly Yours,

John E. Burke, Chairman
Lower Colorado Regional Water Planning Group

Enclosures:
Spreadsheet containing Region K revision requests
CD containing electronic copy of Excel spreadsheet and this letter

C: Mr. David Meesey, TWDB

Lower Colorado River Authority, Administrative Agent
P.O. Box 220, Austin, Texas 78767
(512) 473-3200, Fax (512) 473-3551

July 26, 2013

Mr. Daniel Hardin, Ph.D.
Interim Deputy Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Subject: Submittal of requested population and municipal demand projection revisions by the Lower Colorado Regional Water Planning Group (Region K).

Dear Mr. Hardin:

The Lower Colorado Regional Water Planning Group (Region K) has spent the last several months reviewing, processing, and coordinating with the regional municipal Water User Groups on the draft population and municipal demand projections provided to Region K by the TWDB staff.

The information received during the review period has formed the requested revisions that are being submitted to you in this package. On July 10, 2013, Region K approved the draft population and municipal demand projections and the requested revisions as shown in this submittal. While comfortable with the requested revisions as they are, Region K also authorized its consultant, AECOM, to work with the TWDB staff and the Region K Population and Water Demand Committee to negotiate any needed finalization of the projections, as a result of comments from TWDB staff.

This revision request is documented in the attached summary document and spreadsheet (TWDB format). A CD is also provided, which contains electronic versions of the mentioned documents as well as folders containing the pertinent backup data for each Water User Group requesting a revision. Hard copies of the backup data are not provided in this submittal, as the data is extensive.

Should you have any questions regarding this request, please contact our consultant team via phone at (512) 457-7798 or via email at jaime.burke@aecom.com. We appreciate your consideration of this request.

Very Truly Yours,

John E. Burke, Chairman
Lower Colorado Regional Water Planning Group

Enclosures:
Summary document explaining Region K revision requests
Spreadsheet containing Region K revision requests
CD containing electronic versions of documents and all backup data

C: Mr. David Meesey, TWDB

Region K Population and Municipal Demand Revision Request Summary – July 26, 2013

Below is a summary of requested changes and references to support data for the Lower Colorado Regional Water Planning Group. These requested revisions were approved by the Planning Group at their July 10, 2013 meeting. Please note that, with the exception of the City of Austin and Wells Branch MUD, no specific changes to GPCD or demand are made, however the Region requests that TWDB recalculate demand projections based on final approved population projections.

Bastrop County

Increase for all WUGs and County Total through 2060. Bastrop County, as well as the City of Bastrop, requested that Region K consider population growth in line with projections from the CAMPO 2040 Plan (available online at: http://www.campotexas.org/pdfs/Item1btac.pdf) and the 1.0 in migration scenario from the Texas State Data Center. Per discussions with TWDB, Region K recommends that Bastrop County growth reflect the higher rate of growth through 2050. The 2070 population totals for the entire County are recommended to stay at the previous draft population projection provided by TWDB (reflecting a scenario between the 0.5 and 1.0 SDC.) The 2060 population revision request represents a midpoint between the new 2050 revision and the 2070 projection total. Letters from Bastrop County Judge Paul Pape, dated June 5, 2013, and City of Bastrop City Manager Michael Talbot, dated June 26, 2013, are included in the folder "Bastrop" transmitted electronically with this documentation.

Blanco County – no revisions requested

Burnet County

Marble Falls – the Burnet-Llano County Regional Water Facility Study (Study), indicates that Marble Falls will grow more rapidly than TWDB projections. Region K requests that the TWDB increase Marble Falls projections to reflect those shown in the Study (highlighted in the table below in green under "Sum for City of Marble Falls.") Additional documentation regarding projections in the City of Marble Falls 2009 Comprehensive Plan Update and data for Living Unit Equivalents (LUE) is provided as additional support in the folder "Marble Falls" transmitted electronically with this documentation.

		POPULATION						
Entity	Annual Growth Projected by Entity	2010	2015	2020	2025	2030	2035	2040
City of Marble Falls								
TWDB Projection (within existing city limits)	2.2%	7796	8964	10132	11406	12679	13917	15155
City's Projections for existing city limits	3.2%	6077	7114	8327	9747	11410	13356	15634
Proposed Developments within ETJ								
-- Flatrock Springs		0	125	375	875	1375	2125	2875
Sum for City of Marble Falls	3.8%	6077	7239	8702	10622	12785	15481	18509

- County Other – In order to maintain the Burnet County control totals while increasing projections for Marble Falls, Region K requests TWDB decrease County-Other population projections.

Colorado County – no revisions requested

Fayette County – no revisions requested

Gillespie County – no revisions requested

Hays County

- Austin – The City of Austin share of Hays County was increased (per discussion with the City of Austin staff) and reflects development and potential annexation activities of the City of Austin in Hays County. Additional documentation support is in the folder "Austin" transmitted electronically with this documentation.
- Cimarron Park Water Company – Based on a response from Cimarron Park Water Company (included in the folder "Cimarron Park"), the area does not anticipate the growth projected by TWDB. Region K chose to approximate build out population at 2,150 for all decades.
- County Other – In order to maintain the Hays County control totals while increasing projections for the City of Austin, Region K requests TWDB decrease County-Other population projections.
- Mountain City – Based on a response from Mountain City (included in the folder "Mountain City"), all lots are built out and the Region K portion of Mountain City population is expected to be 490 in all decades.

Llano County – no revisions requested

Matagorda County – no revisions requested

Mils County – no revisions requested

San Saba County – no revisions requested

Travis County

- Travis County Total – Region K requests that the TWDB consider applying a 1.0 in migration growth scenario or the entirety of Travis County through the 2070 planning horizon. In support of this, CAMPO has adopted the 1.0 growth scenario for use in development of the CAMPO 2040 Plan. Additionally, a comparison between the US Census data indicates that between April 1, 2010 and July 1, 2012, Travis County grew more rapidly than the 1.0 growth scenario (see table below.)

Travis County	2010	2012	Total % Change
0.5 scenario	1,024,266	1,060,106	3.50
0.75 scenario (approximate TWDB)	1,024,266	1,065,605	4.04
1.0 scenario	1,024,266	1,071,103	4.57
Census	1,024,266	1,095,584	6.96

- Austin – The City of Austin has provided substantial support for revisions to both population and GPCD values in all decades. The support is included in the folder "Austin" transmitted electronically with this revision request. Additionally, data from the US Census Bureau indicates that the City of Austin is growing more rapidly than the initial TWDB draft projections would allow for, please see table below.

City of Austin	2010	2012	Total % Change
Census	790,390	842,592	6.60
TWDB draft**	792,400	823,712	3.95

**Estimate assuming sum of Travis, Hays, Williamson projections and assuming a contant growth rate from 2010 to 2020.

- Cedar Park – Cedar Park provided support data (located in the folder "Cedar Park") that a portion of the "Travis County Other" projections should be included within the Cedar Park service area. Cedar Park also anticipates reaching build out by year 2040. Region K requests that the TWDB revise the population accordingly.
- County Other – revisions to County-Other population for Travis reflect adjustments for the 1.0 migration scenario for the County Total and requested population revisions to the other WUGs within Travis County.
- Lakeway – Lakeway responded (located in the folder "Lakeway") that they anticipate buildout to occur sooner than TWDB's projections reflect, but that the total population would ultimately be lower in 2070. Region K requests that the TWDB revise the population accordingly.
- Leander – The City of Leander has experienced explosive growth rates due to the City's vicinity to the Austin Metro area and the vast quantity of undeveloped land surrounding the City. Leander has annexed large portions of land, currently in varying stages of development, and thus the acreage located within the City Limits increased from 14,446 in 2010 to 17,814 acres in 2013 (a 23% increase.) The US Census indicates Leander's population increased 12.6% between April 1, 2010 and July 1, 2012. Region K and Region G consultants collaborated on Leander's population projections and agreed to a split between the regions.

- Travis County WCID #17 – Travis County WCID#17 provided evidence that their current connections and resulting population are higher than the TWDB draft projections (see documentation included in "Travis County WCID #17" folder.) Region K reduced the projections proposed by Travis County WCID #17 using the following annual growth rates and base population: start at 24,351 for 2011 (2011 Water Use Survey reported population), 4% growth per year to 2020, 2% growth per year to 2030, 1% growth per year to 2040, then .8% growth per year to 2070.
- Wells Branch MUD – It was discovered that Wells Branch is located exclusively in Region K. Wells Branch MUD anticipates a buildout in 2020 in Travis County but at a higher population than the draft TWDB projection due to ongoing construction activities. Region K requests that the TWDB revise projections accordingly.
- West Lake Hills – West Lake Hills communicated that they anticipate buildout in 2020 and population should cap at 2020 TWDB population projection.
- Williamson Travis-County MUD #1 – Williamson-Travis County MUD #1 is located within the service area of Cedar Park. Documentation provided by the MUD (and located in the folder named "WTC_MUD_1) indicates that WTCMUD#1 is fully built out and should be maintained at the 2010 Census value.

Wharton County – no revisions requested.

Williamson County –

Austin – No population changes, but GPCD adjustments per City of Austin documentation.

County-Other – Population from Wells Branch MUD transferred to County-Other.

Wells Branch MUD – It was discovered that Wells Branch is located exclusively in Region K. Wells Branch MUD anticipates a buildout in 2020 in Williamson County but at lower population than the draft TWDB projection. Region K requests that the TWDB revise projections accordingly.

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CHAPTER 3.0: IDENTIFICATION OF CURRENTLY AVAILABLE WATER SUPPLIES

A key task in the preparation of the Lower Colorado Regional Water Plan (Region K Plan) is to determine the current available water supplies within the region. This information, when compared to the population and water demand projections, is critical in projecting water supply shortfalls and surpluses for the region, including the amount of shortfall, when a shortfall is expected to occur, and the county in which the shortfall is expected.

As presented in Chapter 2, the expected water demand in the Lower Colorado Regional Water Planning Area (LCRWPA) is projected to increase by approximately 24 percent while the population is projected to nearly double over the next 50 years. Therefore, the need to accurately identify available water supplies is a critical component of developing the regional plan.

The following sections of the chapter describe the methodologies utilized in developing estimates of currently available water supplies for the LCRWPA. This chapter also presents regional water supplies by county, wholesale water providers of municipal water, and the six Texas Water Development Board (TWDB) specified water-use categories.

3.1 TWDB GUIDELINES FOR REVISIONS TO WATER SUPPLIES

The Texas Water Development Board (TWDB) has promulgated rules for regional planning and has provided specific guidance to Regional Water Planning Groups (RWPGs) concerning the development of estimates of currently available water supplies. The guidance clearly indicates that the estimates of currently available water supplies shall reflect water that is reliably available to the area during a repeat of the "drought-of-record" (DOR) conditions. The specific methods used in determining the amount of currently available water vary depending upon whether it is a groundwater or surface water resource. A summary of TWDB guidelines and methods for estimating currently available water supply is presented below.

3.2 AVAILABLE WATER SOURCES TO THE LCRWPA

In accordance with the TWDB guidelines, five basic types of water supply exist within the LCRWPA. The types are as follows:

- Surface water supplies
- Groundwater supplies
- Supplies available through contractual arrangements
- Supplies available through the operation of a system of reservoirs or other supplies
- Reclaimed water

Since supplies available through the last three categories originated from either surface or groundwater sources, all available water supplies will be discussed in terms of being either of surface water origin or groundwater origin. The following sections present information concerning the available supply of water within the LCRWPA. That is to say, water that is physically present within the LCRWPA, whether it is present due to natural circumstances or it is present as a result of facilities constructed by one or more water users within the LCRWPA.

3.2.1 Surface Water Availability

Surface water sources include any water resource where water is obtained directly from a surface water body. This would include rivers, streams, creeks, lakes, ponds, and tanks. In the State of Texas, all waters contained in a watercourse (rivers, natural streams, and lakes, and the storm water, flood water, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed) are waters of the State and thus belong to the State. The State grants individuals, municipalities, water suppliers, industries, and others the right to divert and use this water through water rights permits. Water rights are considered property rights and can be bought, sold, or transferred with state approval. All of these permits are issued based on the concept of prior appropriation, or "first-in-time, first-in-right." Water rights issued by the State generally fall into two major categories:

- Run-of-River (ROR) Rights – Allow diversions of water directly from a water body as long as there is water in the stream and that water is not needed to meet a senior downstream water right. ROR rights are greatly impacted by drought conditions, particularly in the upper portions of a river basin.
- Stored Water Rights – Allow the impoundment of water by a permittee in a reservoir. Water can be held for storage as long as the inflow is not needed to meet a senior downstream water right. Water stored in the reservoir can be withdrawn by the permittee at a later date to meet its or its customers' water demands. The storage of water in a reservoir gives the permittee a buffer against drought conditions.

A list of active water rights within the LCRWPA is contained in *Appendix 3A*.

In addition to the water rights permits issued by the State, individual landowners may use state waters without a specific permit for certain types of use. The most common of these uses is domestic and livestock use. Landowners are also allowed to construct impoundments on their own property with up to 200 acre-feet (ac-ft) of storage for domestic and livestock or certain wildlife management purposes (see Section 11.142, Texas Water Code). These types of water sources are generally referred to in this plan as "Local Supply Sources." Many individuals with land along a river or stream that have a riparian right can also divert a reasonable amount of water for domestic and livestock uses without a permit.

Water availability in Region K will be determined for the purposes of regional planning as prescribed by the TWDB water planning guidelines. The TWDB guidance requires that the amount of surface water available from each source be determined with the following assumptions:

- Water availability will be estimated based on a "firm yield" analysis. For a reservoir system, this detailed analysis would produce the average annual withdrawals available through a simulated repeat of drought of record conditions considering the reservoir's long-term storage capabilities and drought period inflows, and evaporation. During the on-going drought, drought period inflows into reservoir systems have been lower than the drought-of-record and significantly lower than historical average inflows. For water rights based solely on run-of-river, the drought of record corresponds to the amount of water available in the worst single hydrologic year on record. Without available storage, water is no longer available if the river goes dry. In addition, a run-of-river right may not be able to divert even if there is water in the river or stream due to the constraints of the prior appropriation system or environmental flow limitations under such water right.

- Water availability will be based on the assumption that all senior water rights in the basin are being fully utilized. That is, water user groups cannot depend on "borrowing" water from unused water rights.

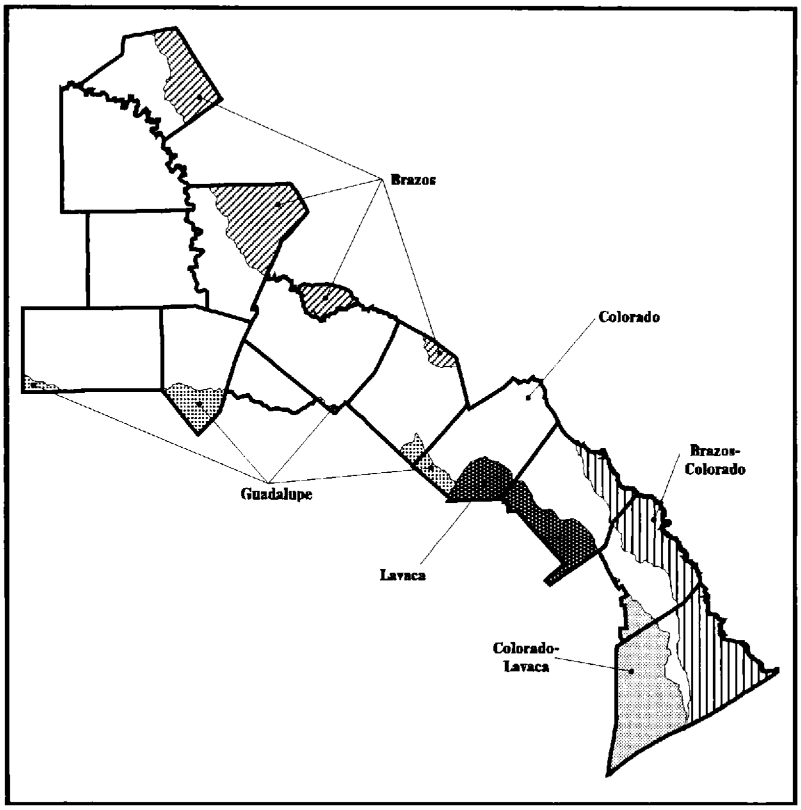
- Water supply is based on the infrastructure that is in place. For example, water would not be considered to be a supply from a reservoir if a user still needed to construct the water intake and pipeline to convey the water from the reservoir to the area of need.

It should be noted that state directives (summarized above) to regional water planners on how they are to determine water availability in meeting future water supply needs may impose unrealistic assumptions on how water is actually used or will be used over the planning period. This methodology requires local water planners to assume that every water right holder will simultaneously divert and totally consume the water up to their full authorizations. These directives have the potential to overestimate water shortages.

Although "worst case" conservative assumptions may be appropriate to avoid the theoretical "over permitting" of water, it may be unrealistic to use this methodology alone for planning purposes. Rather, local and regional planners should be allowed, and are to some extent by the existing process, to bring their knowledge, experience, and common sense to the "planning effort" to determine realistic water availability assumptions, something Senate Bill 1 was intended to provide by establishing a "bottom-up" approach to replace the previous "top-down" state planning approach.

The LCRWPA traverses six different river basins, including the Brazos, Brazos-Colorado Coastal, Colorado, Colorado-Lavaca Coastal, Lavaca, and Guadalupe River Basins. *Figure 3.1* illustrates the location of each of these basins. The following sections discuss the available water sources in each river basin within the LCRWPA.

Figure 3.1: River Basins Within the LCRWPA (Region K)



3.2.1.1 Colorado River Basin

The majority of the LCRWPA is contained in the Colorado River Basin. The primary sources of water within this basin are the Highland Lakes and run-of-river water from the Colorado River. However, several water user groups obtain water from tributaries or off-channel ponds.

3.2.1.1.1 Water Availability Modeling for the 2016 Region K Water Plan

This is the third planning cycle in which the TWDB has approved Region K to use a model other than the TCEQ Colorado River Water Availability Model (WAM) Run 3 to determine surface water availability in the region. Termed the Region K Cutoff Model, this model was developed during the 2011 planning cycle and has been updated for use in the 2016 planning cycle. A description of the Region K Cutoff Model can be found in *Appendix 3B*, along with the request and approval letters for allowing the use of the Region K Cutoff Model by TWDB. The model used prior to the 2011 planning cycle is discussed in detail in the 2006 and 2011 Region K plans.

The model is a modified version of the TCEQ WAM Run 3, where the basin is divided into two parts, an upper basin and a lower basin. The dividing points are the dams for Ivie Reservoir and Lake Brownwood. Most of the area in the upper basin part of the Region K Cutoff Model is included in Region F. Within the Region K Cutoff Model, the water rights below Ivie Reservoir and Lake Brownwood are modeled based on prior appropriation (i.e. each water right has a priority date), however, no water rights downstream of the dividing points make prior appropriation calls on water rights upstream of the dividing points. All of the water rights are represented with their full authorization amounts. This model reflects the actual and historical water management operating conditions and existing contractual agreements between LCRA and certain upper basin water right holders.[1]

3.2.1.1.2.1 Highland Lakes System

The Highland Lakes System is composed of two major water supply reservoirs – Lakes Buchanan and Travis. These lakes are owned and operated by the LCRA. In addition, the system contains three intermediate pass-through lakes owned and operated by the LCRA – Inks Lake, Lake LBJ, and Lake Marble Falls. Lake Austin, the last in the Highland Lakes System, is owned by the City of Austin and is operated by the LCRA through an agreement.

The LCRA operates the Highland Lakes as a system to provide a reliable source of water to its customers. The LCRA developed a "Water Management Plan for the Lower Colorado River Basin" in response to requirements contained in a final order of adjudication of water rights for the Highland Lakes. The Water Management Plan (WMP) was originally adopted in 1989 and has been amended several times, most recently in January 2010, and proposed amendments to the WMP were submitted to the TCEQ by the LCRA in March 2012 and are still pending as of the May, 2015. In each WMP update, LCRA determines the current combined firm yield of Lakes Buchanan and Travis based on a detailed analysis of the water availability for Lakes Buchanan and Travis through a simulated repeat of drought of record conditions. The WMP also contains a management strategy for meeting near-term projected demands of its firm water supply (i.e. municipal, industrial, and other use categories) customers, while continuing to provide water for environmental needs and downstream agricultural purposes, largely on an interruptible basis. The LCRA's current approved WMP determines the annual amount of interruptible water supply that can be made available while continuing to ensure the availability of water for firm demands in a simulated repeat of drought of record conditions using a system of curtailment triggers that are linked to actual water in storage on January 1 of each year. In the current pending update to the WMP, LCRA is proposing significant changes to the WMP, including the utilization of additional trigger dates and storage levels and other mechanisms to better manage the availability and use of interruptible supplies while protecting firm water use through severe drought periods. The interruptible supply is generally comprised of uncommitted firm supply, committed firm supply that is not projected to be used in the ten year planning period covered by the plan, and flood flows. As firm commitments and demands for water under those commitments increase over time, interruptible supplies must be reduced more often even at higher storage levels to ensure the availability of water to firm customers in DOR conditions. For this plan, the Region K Cutoff Model was developed using the LCRA 2010 WMP, and therefore that is the version of the WMP that was used for the development and evaluation of some of the water management strategies in this regional water plan.

The firm yield of the Highland Lakes System was determined using the Region K Cutoff Model and adding up the various components of the Highland Lakes System. Some of the assumptions in the model for determining the firm yield of the system are described below:

- Water rights are protected based on prior appropriation doctrine;

[1] The City of Junction (Lake Junction) and City of Brady, (Brady Creek Lake) water rights are not included in the Region K Cutoff Model under the cutoff assumption, due to the fact that these entities do not have existing formal agreements in place regarding prior appropriation calls on water impoundments.

- The hydrologic conditions in the 1940-2013 period are repeated. Late in the planning cycle, the planning group decided to re-evaluate the surface water availability using hydrology through 2013. Hydrology previously had been through 2009. Doing so did not change the drought-of-record period, but did impact the run-of-river rights by changing the driest year (i.e. "critical year") in the period from 1956 to 2011;
- Downstream, senior water rights are being fully utilized during this period. The water rights in the Lower Colorado Region are included in *Appendix 3A;*
- The 2010 WMP component of the Region K Cutoff Model and the return flows component are disengaged in determining the firm yield of the Highland Lakes System
- The LCRA cannot impose its priority rights for Lakes Buchanan and Travis against any upstream, junior water right with a priority date senior to November 1, 1987, so long as interruptible supplies are not curtailed;
- Historical net evaporation rates for the period of 1940 through 2013 were used;
- Downstream water demands are assumed to be met with inflows to the river below the Highland Lakes, to the extent possible; and
- The total system yield decreases over time due to sedimentation of the reservoirs.

Table 3.1 Components of the Highland Lakes Firm Yield

Entity or Use	Region K Cutoff Model Results (Ac-Ft/Yr)					
	2020	2030	2040	2050	2060	2070
Water Available for LCRA Firm Contracts and Env Commitments*	296,243	290,743	285,243	279,243	272,743	266,743
LCRA Backup of STPNOC Run-of-River Water Right	32,240	32,226	32,202	32,172	32,142	32,120
LCRA Backup of City of Austin Municipal Run-of-River Water Rights**	90,329	90,329	90,329	90,329	90,316	90,262
LCRA Backup to Interruptible Run-of-River Water Rights	0	0	0	0	0	0
Total Highland Lakes Firm Yield	**418,812**	**413,298**	**407,774**	**401,744**	**395,201**	**389,125**

Notes:

Colorado WAM provided by TCEQ, February 2012, Run 3. Hydrology extended through 2013. WRAP program by Dr. Ralph Wurbs, Texas A&M University, August 2012

Drought-of-Record (DOR) is May 1947 to April 1957 (10 years) for all decades

* Includes firm water supplies for municipal, industrial, irrigation, and other water contracts. The LCRA 2010 WMP states that the amount of firm water allocated for environmental purposes is 33,440 AFY (10-year average). This amount is included in this line item.

** Amount shown does not include 33,297 AFY of firm water needed to meet LCRA's full contractual municipal commitment to City of Austin.

Table 3.1 above shows the components that make up the firm yield of the Highland Lakes System. The Region K Cutoff Model was used to determine the values in the table. The results were viewed using the August 2012 version of the WRAP modeling program. The firm yields were calculated for the 10-year

DOR period (May 1947 to April 1957) for the 2020 through 2070 analyses, which is currently identified as the most severe historical drought period since 1898. At the time this plan was being initially drafted this region was experiencing hydrologic drought conditions that were approaching, if not exceeding, those of the above DOR period, thereby giving this regional planning group the expectation of a potential new drought of record period prior to the end of this planning cycle. The firm yield commitments are releases from system storage; they do not consist of run-of-river water.

As shown in *Table 3.1* the Highland Lakes yield will decrease over time and this is due to sedimentation of the two supply reservoirs.

It should be noted that the current drought in the Colorado River Basin is on-going and historical in proportion. At the time of the development of this plan's information, preliminary analysis indicates that firm yields have been reduced below the values shown. The LCRA is working to develop drought response strategies to assure that the water supply remains reliable taking into consideration the on-going drought. LCRA's water management strategies and drought response strategies are referenced in Chapter 5.

3.2.1.1.2.2 Reservoirs

The estimated firm yields for all existing reservoirs within the Colorado River Basin are presented in *Table 3.2*.

Table 3.2 Reservoir Yields in the Colorado Basin (ac-ft/yr)

Entity or Use	Region K Cutoff Model Results (Ac-Ft/Yr)					
	2020	2030	2040	2050	2060	2070
Highland Lakes	**418,812**	**413,298**	**407,774**	**401,744**	**395,201**	**389,125**
City of Goldthwaite	0	0	0	0	0	0
City of Llano	417	417	417	417	417	417
Walter E. Long (Decker Lake)	0	0	0	0	0	0
Lake Bastrop	0	0	0	0	0	0
Lake Fayette	0	0	0	0	0	0
City of Lometa	0	0	0	0	0	0
STP Reservoir	0	0	0	0	0	0
Minor Reservoir Subtotal	**417**	**417**	**417**	**417**	**417**	**417**
TOTAL	**419,229**	**413,715**	**408,191**	**402,161**	**395,618**	**389,542**

Notes:

Colorado WAM provided by TCEQ, February 2012, Run 3. WRAP program by Dr. Ralph Wurbs, Texas A&M University, August 2012

Drought-of-Record (DOR) is May 1947 to April 1957 (10 years) for all decades

The Highland Lakes firm yield is discussed in detail in *Section 3.2.1.1.1*. Several smaller reservoirs in the LCRWPA are also located within the Colorado River Basin. Estimates for the firm yield of these reservoirs are based on the Region K Cutoff Model runs and a detailed discussion is provided below.

- The **City of Goldthwaite** owns and operates a two-reservoir system as part of its water supply facilities. The reservoirs include a small reservoir with a capacity of 40 ac-ft adjacent to the river and a larger reservoir with a capacity of 200 ac-ft, both of which are located off-channel. The city pumps water from the Colorado River into the smaller reservoir and then pumps it into the larger reservoir, from which water is drawn for treatment. The size of the reservoirs are relatively small in comparison to the city's water demand, which is projected to increase from approximately 361 ac-ft in the year 2020 scenario to 407 ac-ft in the year 2070. Based on the limited storage available, the firm yields of the reservoirs are dependent upon continued river flows throughout the year. It is estimated that the available storage would be depleted within four months once the river ceases flowing. Based on the Region K Cutoff Model, it was determined that the Goldthwaite reservoir system has a firm yield of 0 ac-ft/yr.

- The **City of Llano** owns and operates two reservoirs on the Llano River: City Lake and City Park Lake, both of which are small channel dams. The two reservoirs were estimated to have a combined capacity of 503 ac-ft in 1988. This is significantly less than the original design capacity of 700 ac-ft. The decreased capacity is due to sedimentation rates in the two reservoirs. The firm yield estimated by the Region K Cutoff Model was 417 ac-ft/yr.

- **Lake Walter E. Long (Decker Lake)** is owned and operated by the City of Austin. The lake is formed by a dam on Decker Creek, which is a tributary to the Colorado River in Travis County. The City of Austin uses Decker to supply cooling water for an electrical generating plant. The City of Austin supplements the water supply to Decker by pumping water from the Colorado River based on run-of-river rights and a water supply contract with LCRA for stored water from the Highland Lakes. Therefore, because the water from Decker Lake has already been accounted for in run-of-river and LCRA backup amounts, the firm yield of the lake itself due to the TCEQ WAM is considered 0 ac-ft/yr.

  Lake Bastrop is owned and operated by the LCRA. The lake is formed by a dam on Spicey Creek, which is a tributary to Piney Creek and the Colorado River in Bastrop County. The LCRA uses water from Lake Bastrop for cooling purposes at its Sim Gideon Power Generating Station. The LCRA supplements the water supply at this lake by pumping water into the lake from the Colorado River. The surface water pumped into the lake is stored water from the Highland Lakes. Therefore, because the water from Lake Bastrop has already been accounted for in run-of-river and LCRA backup amounts, the firm yield of the lake itself due to the TCEQ WAM is considered 0 ac-ft/yr. In addition to surface water sources, LCRA has obtained a groundwater production permit from the Lost Pines Groundwater Conservation District to use groundwater from the Simsboro formation at this site for industrial purposes and the lake is now supplied by both surface water and groundwater.

- **Lake Fayette** is owned and operated by the LCRA. The lake is formed by a dam on Cedar Creek, which is a tributary to the Colorado River in Fayette County. The LCRA uses water from Lake Fayette for cooling purposes at the Fayette Power Project. The LCRA supplements the water supply at this lake by pumping water into the reservoir from the Colorado River. A portion of the water pumped is run-of-river water rights held by the City of Austin, which is co-owner in certain facilities at the Fayette Power Project. The remainder of the water pumped into the reservoir is stored water from the Highland Lakes. Therefore, because the water from Lake Fayette has already been accounted for in run-of-river and LCRA backup amounts, the firm yield of the lake itself due to the TCEQ WAM is considered 0 ac-ft/yr.

- **Lometa Reservoir** is owned by LCRA and is being operated under a long term agreement with an operating company. The reservoir is formed by a dam on Salt Creek, which is a tributary to the Colorado River in Lampasas County. Water from Lometa Reservoir is being used for municipal purposes within the service area of the Lometa Water System. The reservoir was authorized to have a normal maximum operating capacity of 554.6 ac-ft. A maximum of 882 ac-ft of water is available for diversion from the Colorado River, including 476 ac-ft for municipal demands and 406 ac-ft to offset evaporative losses through an upstream firm water supply contract with LCRA. Because this amount is included as part of the Highland Lakes firm yield, the reported firm yield of the Lometa Reservoir is 0 ac-ft/yr.

- **South Texas Project Reservoir**: The Main Cooling Reservoir associated with the South Texas Project Electric Generating Station is a 7,000-acre (surface area) off-channel reservoir located in Matagorda County. At the authorized maximum design operating level, the reservoir has a capacity of 202,600 ac-ft, or 9.6 percent of the total capacity of Lakes Travis and Buchanan as stated in the LCRA Water Management Plan. The firm yield from the TCEQ WAM is considered to be 0 ac-ft/yr since the reservoir firm yield is supplied by the STP run-of-river right (STP Nuclear Operating Co. et al.) and LCRA stored water from Lakes Buchanan and Travis, and the amount of water from the run-of-river right and LCRA's Highland Lakes has already been included in the water availability analysis for Region K (refer to *Tables 3.1* and *3.3*). If both the run-of-river right and the reservoir firm yield were included, then the water would be double counted since the water available to the reservoir is based on the diversions from the river.

  Reservoir water is withdrawn from the Colorado River adjacent to the site. Pumping from the river is intermittent, and this diversion normally occurs during periods of higher river flow. The reservoir design incorporates storage to account for periods during which river water is unavailable for the reservoir in order to support operation through a repeat of the drought of record conditions.

- **Consideration of Lower Inflows on Reservoir Firm Yields.** During the ongoing drought, reservoir inflows have been unusually low in comparison to historical inflows, even during periodic significant rainfall events. Many factors can affect inflows including: changes in the frequency and intensity of rainfall events in the watershed, the transpiration of water and impeding of flows by invasive species, proliferation of impoundments such as stock tanks, and pumping from the alluvium of rivers and tributaries.

<u>3.2.1.1.2.3 Run-of-River Water</u>

Historically, the State of Texas has granted many of the run-of-river rights through an adjudication process that considered maximum historical uses. As a result, some run-of-river rights may have been granted for more water than is available in a river during drought conditions. The use of water during drought conditions is controlled by the priority system, with the oldest water rights having first call on the flows in the river. The TCEQ Colorado River Basin WAM was developed to simulate the amount of water available in the Colorado River under a strict run-of-river model scenario with no basin water management. Major factors used to calculate available water include:

- Senior downstream water rights are assumed to be fully utilized;

- No wastewater flows are returned to the river; and

- Inflows to the Highland Lakes are passed through the lakes to the extent that the water is needed to satisfy senior water rights downstream.

The results of this analysis for major run-of-river rights holders are presented in *Table 3.3*. The water availability presented in the table for most of the major run-of-river rights is based on the amount of run-of-river water that would be available during the driest year of the analysis period (2011 in the Region K Cutoff Model). Modeling output was reviewed to confirm that run-of-river availabilities were not over-estimated due to intra-year shortages. Region K has a very limited number of municipal water rights that are strictly run-of-river with no available storage or backup contract, and availabilities shown in this plan for those are based on the use-appropriate monthly percentages of the annual firm diversion being satisfied. The water availability for the City of Austin and STP Nuclear Operating Company water rights is based on the average annual water availability during the drought-of-record (DOR) period (1947-1957). This average availability was used since the City of Austin has contracted with LCRA to supply stored water to firm up its run-of-river water rights during drought conditions. Section 3.3.2 provides details of how the City of Austin is able to receive up to 325,000 AFY of firm water for municipal and other beneficial water uses, if needed. The STP Nuclear Operating Company has also contracted for backup supplies from LCRA, in addition to having a reservoir that allows for potential storage of water over the DOR period instead of having to use all of the water that is received in a particular year.

Table 3.3 below shows the water availability for the major run-of-river rights. The Region K Cutoff Model was used to determine the values in the table. The following describes the methods used to determine the values in *Table 3.3*.

LCRA (Garwood, Lakeside (#1 & 2), Gulf Coast, and Pierce Ranch)
The Garwood, Lakeside (#1 & 2), Gulf Coast, and Pierce Ranch operations each have several water supplies, both run-of-river and supplemental interruptible supplies from the Highland Lakes. The run-of-river rights are listed in *Table 3.3*. The run-of-river water rights were summed for each irrigation operation to determine which year in the model had the minimum total diversion.

City of Austin
The City of Austin has four municipal water rights shown in the table. Because these water rights are backed up by LCRA through contract each year, an average during the DOR was used.

The City of Austin has steam-electric water rights as shown in the table. The steam-electric water use portion of water right 5489 is backed up by LCRA, so an average during the DOR was used. The steam-electric water use portion of water right 5471 is not backed up by the LCRA, so the water availability for this right was determined by using the minimum amount of water available in any year during the analysis period.

Table 3.3 Major Run-of-River Rights in the Colorado Basin (ac-ft/yr)

Water Right Number	Water Rights Holder	Maximum Permitted Diversion (ac-ft/yr)	Priority Date	Region K Cutoff Model	
				2020	2070
5434	LCRA - Garwood	133,000	Nov 1, 1900	123,822	123,822
	Garwood	**Sub-Total**		**123,822**	**123,822**
5475	LCRA - Lakeside #1 Sr	52,500	Jan 4, 1901	2,780	2,780
5475	LCRA - Lakeside #1 Jr	78,750	Nov 1, 1987	0	0
5475	LCRA - Lakeside #2	55,000	Sep 2, 1907	2,912	2,912
	Lakeside #1 and #2	**Sub-Total**		**5,692**	**5,692**
5476	LCRA - Gulf Coast Sr	228,570	Dec 1, 1900	13,446	13,446
5476	LCRA - Gulf Coast Jr	33,930	Nov 1, 1987	78	78
	Gulf Coast	**Sub-Total**		**13,524**	**13,524**
5477	LCRA - Pierce Ranch	55,000	Sep 1, 1907	2,912	2,912
	Pierce Ranch	**Sub-Total**		**2,912**	**2,912**
5471	City of Austin - (mun.) [1, 2]	250,000	Jun 30, 1913	158,781	158,848
5471	City of Austin - (mun.) [1]		Jun 30, 1913	29,201	29,201
5471	City of Austin - (mun.) [1]	21,403	Jun 27, 1914	8,284	8,284
5471	City of Austin - (stm.)	24,000	Jun 27, 1914	4,970	4,970
5471	City of Austin - (stm.)		Jun 27, 1914	871	871
5489	City of Austin - (mun.) [1]	20,300	Aug 20, 1945	5,108	5,108
5489	City of Austin - (stm.)	16,156	Aug 20, 1945	0	0
5489	City of Austin - (stm.) [1]		Aug 20, 1945	5,097	5,097
5437	STP Nuclear Operating Co. [1]	102,000	Jun 10, 1974	44,397	44,397
5434	City of Corpus Christi [3]	35,000	Nov 2, 1900	22,105	22,105
	Totals	**1,433,200**		**424,764**	**424,831**

Data Source: WRAP modeling program provided by Dr. Ralph Wurbs, Texas A&M University, August 2012 version. Region K Cutoff Model updated for 2016 Plan.

Notes:

Water availability reflects driest year during period of record (1940-2013) unless otherwise noted and does not include return flows.

An explanation of the firm yield calculations is provided in Chapter 3 Section 3.2.1.1.2

The Drought-of-Record (DOR) is May 1947 - Apr 1957 for 2020-2070.

[1] The water availability was averaged over the drought-of-record period because of LCRA backup water.

[2] LCRA's water rights with a priority date junior to November 15, 1900, are subordinated in accordance with City of Austin Certificate of Adjudication #5471, Amendment A., Section 5.a.

[3] The water availability for this run-of-river water right was determined by using the minimum amount of water available in any year during the DOR. After discussions with Region N, the water availability entered into the TWDB database was not the one determined using the Region K Cutoff Model. Please see Section 3.2.1.1.2.3 for additional details.

STP Nuclear Operating Company
The run-of-river water right 5437, jointly owned by STPNOC and LCRA, was determined by taking the average over the DOR period. This was done because there is a contract for backup from LCRA, and there is a reservoir that allows for storage of water over the DOR period, rather than having to use the entire amount of water received in a particular year. One of the STPNOC diversion points is within the tidal reaches of the Gulf of Mexico.

Corpus Christi
The water availability for this run-of-river water right was determined by using the minimum amount of water available in any year during the DOR. After discussions with Region N, the water availability entered into the TWDB database was not the one determined using the Region K Cutoff Model. Region N has a local multi-basin system model with different drought-of-record periods. By working as a system, the sources can be optimized to provide a minimum amount of water each year. Therefore, using the minimum annual amount as the availability for each source in their system may not be accurate. At Region N's request, the availability entered into the TWDB database was the full authorized diversion of 35,000 ac-ft/yr.

3.2.1.1.2.4 Local Surface Water Sources

Another category of available surface water is local supply sources. This category includes small diversions from the river or tributaries to the river, as well as stock ponds that have captured diffuse surface water located on individual's property. Information concerning these sources is limited. As a result, the information available from the TWDB developed during the first planning cycle was used as an initial estimate of the water availability. However, in several instances the availability numbers were increased to match the projected demands with the assumption that the supply and demand for local water will be self-limiting. The results of this process are presented in *Table 3.4* and are organized by county. These numbers were developed for the 2001 Region K Plan and have been updated for the 2016 Plan.

Table 3.4 Other Surface Water Sources in the Colorado Basin (ac-ft/yr)

Local Supply Source Name	2020	2030	2040	2050	2060	2070
Livestock - basinwide	10,043	10,043	10,043	10,043	10,043	10,043
Other - basinwide	29,226	29,226	29,226	29,226	29,226	29,226
Irrig. - Bastrop Co.	786	786	786	786	786	786
Irrig. - Blanco Co.	67	67	67	67	67	67
Irrig. - Burnet Co.	276	276	276	276	276	276
Irrig. - Colorado Co.	3,000	3,000	3,000	3,000	3,000	3,000
Irrig. - Fayette Co.	534	534	534	534	534	534
Irrig. - Gillespie Co.	880	880	880	880	880	880
Irrig. - Hays Co.	41	41	41	41	41	41
Irrig. - Llano Co.	440	440	440	440	440	440
Irrig. - Matagorda Co.	900	900	900	900	900	900
Irrig. - Mills Co.	2,378	2,378	2,378	2,378	2,378	2,378
Irrig. - San Saba Co.	8,800	8,800	8,800	8,800	8,800	8,800
Irrig. - Travis Co.	880	880	880	880	880	880
Irrig. - Wharton Co.	7,650	7,650	7,650	7,650	7,650	7,650
Totals	**65,901**	**65,901**	**65,901**	**65,901**	**65,901**	**65,901**

Note: All of the sources listed in the table above are Local Supply Sources, which were updated for the 2016 Plan.

3.2.1.1.2.5 Current Available Reclaimed Water

Another category of surface water for use in the Colorado Basin is reclaimed water. Reclaimed water is wastewater effluent that has been treated to a level that is safe to be directly used to meet various water needs. At this time, reclaimed water in Region K is used for non-potable uses only, such as irrigation or industrial uses. Reclaimed water is currently used by the City of Austin, the City of Horseshoe Bay, the City of Buda, and entities around the Highland Lakes. *Table 3.5* contains a summary of available reclaimed water.

Table 3.5 Reclaimed Water Sources in the Colorado River Basin (ac-ft/yr)

Reclaimed Water Source Name	2020	2030	2040	2050	2060	2070
Direct Reuse – Burnet Co.	1,270	1,270	1,270	1,270	1,270	1,270
Direct Reuse – Hays Co.	2,240	2,240	2,240	2,240	2,240	2,240
Direct Reuse – Llano Co.	516	516	516	516	516	516
Direct Reuse – Travis Co.	19,500	33,457	45,648	55,598	60,848	60,848
Totals	**23,526**	**37,483**	**49,674**	**59,624**	**64,874**	**64,874**

3.2.1.2 Brazos River Basin

A portion of the LCRWPA is located within the Brazos River Basin. This area is limited to portions of Bastrop, Burnet, Fayette, Mills, Travis, and Williamson Counties. The portion of Williamson County in Region K is completely contained within the City of Austin service area. The remainder of Williamson County is located in Region G.

Surface water sources for these areas are limited to local sources. There are no major reservoirs within the LCRWPA portion of the Brazos River Basin. *Table 3.6* contains a summary of the surface water available to the LCRWPA from the Brazos River Basin.

Table 3.6 Surface Water Sources in the Brazos River Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
Livestock - basinwide	727	727	727	727	727	727
Totals	**727**	**727**	**727**	**727**	**727**	**727**

Note: All of the sources listed in the table above are Local Supply Sources, which were updated for the 2016 Plan.

3.2.1.3 Brazos-Colorado Coastal Basin

A portion of the LCRWPA is located within the Brazos-Colorado Coastal Basin. This area is limited to portions of Colorado, Matagorda, and Wharton Counties. Surface water sources for these areas are limited to local sources and a run-of-river water right from the San Bernard River. There are no major reservoirs within the LCRWPA portion of the Brazos-Colorado Coastal Basin. *Table 3.7* contains a summary of the surface water available to the LCRWPA from the Brazos-Colorado Coastal Basin.

Table 3.7 Surface Water Sources in the Brazos-Colorado Coastal Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
San Bernard ROR	597	597	597	597	597	597
Livestock - basinwide	1,238	1,238	1,238	1,238	1,238	1,238
Other - basinwide	1,900	1,900	1,900	1,900	1,900	1,900
Irrig. - Matagorda Co.	4,000	4,000	4,000	4,000	4,000	4,000
Irrig. - Wharton Co.	2,000	2,000	2,000	2,000	2,000	2,000
Totals	**9,735**	**9,735**	**9,735**	**9,735**	**9,735**	**9,735**

Note: All of the sources listed in the table above except for the San Bernard ROR are Local Supply Sources, which were updated for the 2016 Plan.

3.2.1.4 Colorado-Lavaca Coastal Basin

A portion of the LCRWPA is located within the Colorado-Lavaca Coastal Basin. This area is limited to portions of Matagorda and Wharton Counties. Surface water sources for these areas are limited to local sources. There are no major reservoirs (other than the South Texas Project Reservoir described in Section 3.2.1.1.2.2) within the LCRWPA portion of the Colorado-Lavaca Coastal Basin, and there are no WUGs with rights to water from reservoirs in the Colorado-Lavaca Coastal Basin. Return flows originating in the Colorado Basin from agriculture are sent to the Colorado-Lavaca Coastal Basin for use, but since the Region K Cutoff Model assumes full utilization of water rights and no return flows unless explicitly stated in the water right, these return flows were not taken into consideration for the Region K water availability analysis. *Table 3.8* contains a summary of the surface water available to the LCRWPA from the Colorado-Lavaca Coastal Basin.

Table 3.8 Surface Water Sources in the Colorado-Lavaca Coastal Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
Livestock - basinwide	788	788	788	788	788	788
Irrig. - Matagorda Co.	4,000	4,000	4,000	4,000	4,000	4,000
Totals	**4,788**	**4,788**	**4,788**	**4,788**	**4,788**	**4,788**

Note: All of the sources listed in the table above are Local Supply Sources, which were updated for the 2016 Plan.

3.2.1.5 Lavaca River Basin

A portion of the LCRWPA is located within the Lavaca River Basin. This area is limited to portions of Colorado and Fayette Counties. Surface water sources for these areas are limited to local sources. There are no major reservoirs within the LCRWPA portion of the Lavaca River Basin, and there are no WUGs with rights to water from reservoirs in the Lavaca River Basin. *Table 3.9* contains a summary of the surface water available to the LCRWPA from the Lavaca River Basin.

Table 3.9 Surface Water Sources in the Lavaca River Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
Livestock - basinwide	851	851	851	851	851	851
Irrig. - Colorado Co.	4,002	4,002	4,002	4,002	4,002	4,002
Irrig. - Fayette Co.	20	20	20	20	20	20
Totals	**4,873**	**4,873**	**4,873**	**4,873**	**4,873**	**4,873**

Note: All of the sources listed in the table above are Local Supply Sources, which were updated for the 2016 Plan.

3.2.1.6 Guadalupe River Basin

A portion of the LCRWPA is located within the Guadalupe River Basin. This area is limited to portions of Bastrop, Blanco, Fayette, Hays, and Travis Counties. Most of the surface water sources for these areas are limited to local sources. There are no major reservoirs within the LCRWPA portion of the Guadalupe River Basin. However, the City of Blanco owns and operates two, small, on-channel reservoirs on the Blanco River. The two reservoirs have a combined storage capacity of 168 ac-ft.

Anecdotal information provided by the City of Blanco indicates that the Blanco River has ceased flowing in the past, most notably during the summer of 1996. Information provided by the City of Blanco indicates that flow in the Blanco River ceased for a three-month period during that summer. The relatively small storage capacity of the two reservoirs will not sustain the projected demands from the City of Blanco for more than a four-month period when the river has ceased flowing.

Based on the Guadalupe River Basin WAM from TCEQ, dated October 2014, Run 3, the firm yield of the reservoir system is 596 ac-ft (water right C3877_1). *Table 3.10* contains a summary of the surface water available to the LCRWPA from the Guadalupe River Basin.

Table 3.10 Surface Water Sources in the Guadalupe River Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
Livestock - basinwide [1]	365	365	365	365	365	365
Irrig. - Blanco Co. [1]	9	9	9	9	9	9
Blanco Reservoirs [2]	596	596	596	596	596	596
Totals	**970**	**970**	**970**	**970**	**970**	**970**

[1] Local Supply Sources determined in the 2001 Plan, which were updated for the 2016 Plan.
[2] Firm Yield Data Source: Guadalupe River Basin WAM provided by TCEQ, October 2014, Run 3. WRAP modeling program provided by Dr. Ralph Wurbs, Texas A&M University, August 2012 version.

3.2.2 Groundwater Availability

Available groundwater is the volume of groundwater that can be withdrawn from an individual aquifer in accordance with the principle by which the aquifer is being managed or an assumed management approach. That managing principle, typically stated as a sustainability goal, can be stated in various ways, and the mechanism through which availabilities are being stated throughout Texas is evolving.

Before the advent of Groundwater Management Areas (GMAs), (HB 1763, 79th Legislature), an aquifer, or portion of an aquifer, may or may not have had a governmental entity managing the way that aquifer was being managed. If an aquifer, or portion of an aquifer, was managed, it was by a Groundwater Conservation District (GCD) whose jurisdiction can coincide with the boundary or boundaries of one or more counties or an aquifer. Most aquifers span multiple counties, and in that case the entire aquifer can be managed by one or more GCDs, with some portions not managed at all. There are also several Priority Groundwater Management Areas (PGMA) around the State, with portions of the Hill Country PGMA located within Region K. PGMAs are areas where critical groundwater problems exist. Region K has a GCD in every county located within the PGMA with the exception of Travis County. The Hill Country UWCD in Gillespie County was created prior to the designation of the PGMA. The Blanco-Pedernales GCD was created after the PGMA designation, as was the Hays-Trinity GCD. These GCDs give notice to the area residents that the declaration of the PGMA means that their water availability and quality will be at risk within the next 50 years. The Hays County Development Regulations have specific requirements listed for subdivisions served by individual water wells producing local groundwater within the PGMA. These requirements can be found in *Chapter 715, Sub-Chapter 3, Section 3.06* of the Hays County Development Regulations. GMAs are a different concept in that every county in the State is in one or more of sixteen GMAs, for the most part the major aquifers are not split across multiple GMAs, and the goal is to manage entire aquifer systems across political subdivisions in a consistent way. GCDs and GMAs are discussed in Chapter 1 of this plan and on the TWDB website at http://www.twdb.state.tx.us/groundwater/index.asp.

Early in the 2011-2016 regional water planning cycle, the GMAs in the LCRWPA adopted their Desired Future Condition (DFC) for their aquifers and the TWDB established the Modeled Available Groundwater (MAG) values for such aquifers. The GCDs within the PGMA had the same responsibility to adopt their DFC and establish a MAG for the aquifers in their district. If a MAG has been established for a particular aquifer, the TWDB requires that the MAG be considered the maximum amount of groundwater available for the regional water planning process. In cases where a MAG is not established for an aquifer, the local GCD or GMA representative was consulted regarding an appropriate availability volume.

The groundwater resources located in the region have been traditionally divided into those aquifers that yield large quantities of water over a relatively large area (major aquifers) and those aquifers yielding smaller quantities of water over smaller areas (minor aquifers). In the LCRWPA there are five major aquifers and six minor aquifers that provide usable groundwater supplies. The following discussion of the groundwater resources of the LCRWPA is divided into these two categories.

3.2.2.1 Major Aquifers

The major aquifers in the LCRWPA are the Edwards-Trinity (Plateau), Trinity Group, Edwards (Balcones Fault Zone), Carrizo-Wilcox, and the Gulf Coast. These five aquifers provide a significant component of the water supply used within the LCRWPA beyond that provided by the Colorado River. Most of the cities in the planning region draw their water supply from one of the five major aquifers. Descriptions and availability volumes of each major aquifer are provided in the following sections.

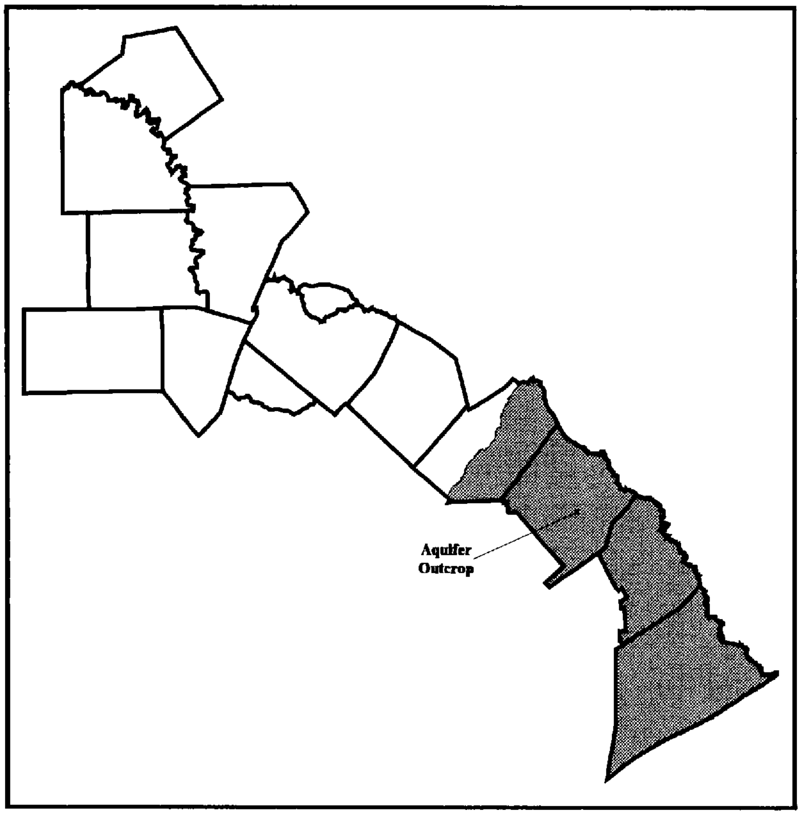
3.2.2.1.1 Gulf Coast Aquifer

Location and Use

The Gulf Coast aquifer forms an irregularly shaped belt along the Gulf of Mexico from Florida to Mexico. In Texas, the aquifer provides water to all or parts of 54 counties and extends from the Rio Grande northeastward to the Louisiana-Texas border.

Groundwater use from the Gulf Coast aquifer within the LCRWPA occurs in Colorado, Fayette, Matagorda, and Wharton Counties. TWDB records indicate that irrigation use accounts for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.2*.

Figure 3.2: Gulf Coast Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Gulf Coast aquifer consists of complex interbedded clays, silts, sands, and gravels, which are hydrologically connected to form a large, leaky artesian aquifer system. The system has four major subdivisions in the LCRWPA. The Jasper aquifer is the lowermost or most landward component of the aquifer system. The Jasper aquifer is composed of the Oakville Sand and may also include upper portions of the Catahoula Sandstone. The Burkeville confining layer separates the top of the Jasper aquifer from the bottom of the Evangeline aquifer. The Evangeline aquifer is composed of the Fleming and Goliad Sands. The Chicot aquifer, or upper component of the Gulf Coast aquifer system, consists of the Lissie, Willis, and Beaumont Formations; and overlying alluvial deposits. Maximum total sand thickness ranges from about 700 feet in the south to 1,300 feet in the northern extent.

Water Quality

Water quality is generally good in the shallower portion of the aquifer. Groundwater containing less than 500 mg/l dissolved solids is usually encountered to a maximum depth of 3,200 feet in the aquifer from the San Antonio River Basin northeastward to Louisiana.

Availability

The Gulf Coast aquifer in Colorado, Fayette, Matagorda and Wharton Counties is within GMA 15. The Groundwater Conservation Districts (GCD) within GMA 15 worked together to determine the desired future condition (DFC) of the Central Gulf Coast Aquifer. Desired future conditions are essentially management goals for each aquifer. The DFC for the Central Gulf Coast Aquifer, adopted by GMA 15 on July 14, 2010, is summarized as follows:

- No more than 12 feet of average drawdown by 2060 relative to 1999 conditions.

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports, with the GMA 15 Central Gulf Coast aquifer MAG being documented in TWDB report GR 10-028_MAG, dated November 18, 2011. The report provides the MAG values for the Gulf Coast aquifer by county and basin, as shown in *Table 3.11* below.

Table 3.11 Water Availability in the Gulf Coast Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Colorado	Brazos-Colorado	10,464	10,464	10,464	10,464	10,464	10,464
Colorado	Colorado	16,058	16,058	16,058	16,058	16,058	16,058
Colorado	Lavaca	22,431	22,431	22,431	22,431	22,431	22,431
	County Total	***48,953***	***48,953***	***48,953***	***48,953***	***48,953***	***48,953***
Fayette	Brazos	17	17	17	17	17	17
Fayette	Colorado	6,123	5,961	5,956	5,952	5,924	5,924
Fayette	Lavaca	2,933	2,927	2,922	2,917	2,915	2,915
	County Total	***9,073***	***8,905***	***8,895***	***8,886***	***8,856***	***8,856***
Matagorda	Brazos-Colorado	23,055	23,055	23,055	23,055	23,055	23,055
Matagorda	Colorado	4,179	4,179	4,179	4,179	4,179	4,179
Matagorda	Colorado-Lavaca	18,662	18,662	18,662	18,662	18,662	18,662
	County Total	***45,896***	***45,896***	***45,896***	***45,896***	***45,896***	***45,896***
Wharton	Brazos-Colorado	34,020	34,020	34,020	34,020	34,020	34,020
Wharton	Colorado	31,406	31,406	31,406	31,406	31,406	31,406
Wharton	Colorado-Lavaca	11,624	11,624	11,624	11,624	11,624	11,624
Wharton	Lavaca	1,690	1,690	1,690	1,690	1,690	1,690
	County Total	***78,740***	***78,740***	***78,740***	***78,740***	***78,740***	***78,740***
Region K	**Region Total**	**182,662**	**182,494**	**182,484**	**182,475**	**182,445**	**182,445**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.1.1 *Availability*.

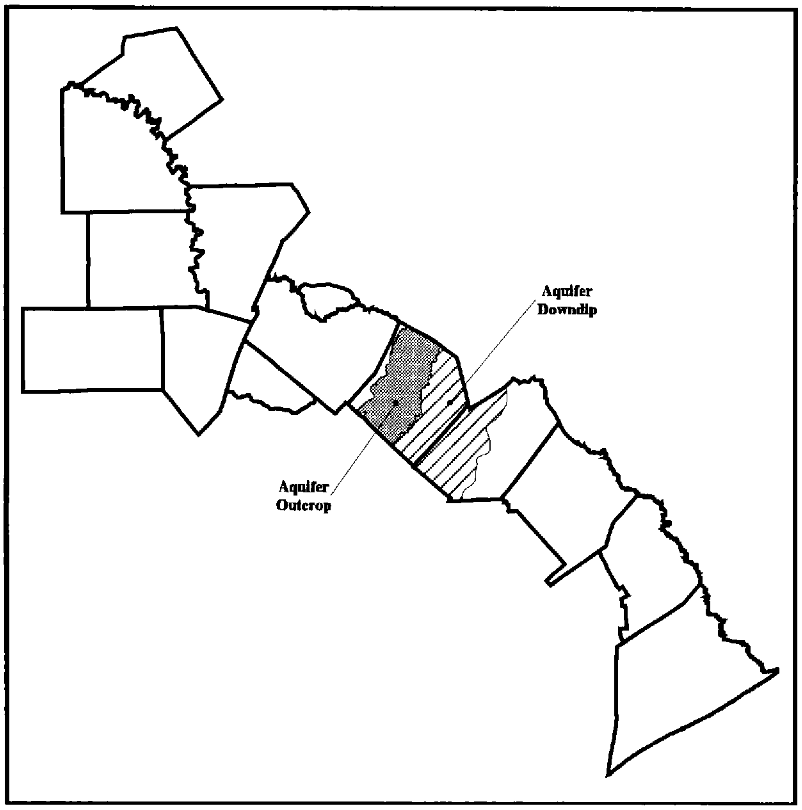
3.2.2.1.2 Carrizo-Wilcox Aquifer

Location and Use

The Wilcox Group and the overlying Carrizo Formation of the Claiborne Group form a hydrologically connected system known as the Carrizo-Wilcox aquifer. This aquifer extends from the Rio Grande in South Texas northeastward into Arkansas and Louisiana, providing water to all or parts of 60 counties in Texas. The Carrizo Sand and Wilcox Group occur at the surface along an outcrop band that parallels the Gulf Coast and dip beneath the land surface toward the coast except in the East Texas structural basin adjacent to the Sabine Uplift where the formations form a trough.

Use of water from the Carrizo-Wilcox aquifer in the LCRWPA occurs in Bastrop County and a portion of Fayette County. TWDB records indicate that municipal use accounts for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.3*.

Figure 3.3: Carrizo-Wilcox Aquifer Within the Colorado Regional Water Planning Area



Hydrogeology

The Carrizo-Wilcox aquifer is predominantly composed of sand, locally interbedded with gravel, silt, clay, and lignite deposited during the Tertiary Period. North of the Colorado River, the Wilcox Group is generally divided into three distinct subdivisions. From the oldest and deepest to youngest these are the Hooper, Simsboro, and Calvert Bluff Formations. Of the three, the Simsboro Formation typically contains the most massive and coarsest sands and produces the largest quantities of water. South of the Colorado River, the Simsboro is absent as a distinct unit. The Wilcox portion of the aquifer varies significantly in thickness in the downdip artesian portion from 400 feet in portions of Fayette County (south of the Colorado River) to as much as 1,600 feet in Bastrop County. The Carrizo portion of the aquifer also varies in thickness in the downdip artesian portion from 200 feet to 400 feet across the LCRWPA.

Water Quality

Water from the Carrizo-Wilcox is fresh to slightly saline with quality problems limited to localized areas. In the outcrop the water is hard yet usually low in dissolved solids. Downdip, the water is softer, has a higher temperature, and contains increasing amounts of dissolved solids down-gradient. Hydrogen sulfide and methane may occur locally.

Availability

The Carrizo-Wilcox aquifer in Bastrop and Fayette Counties is within GMA 12. The Groundwater Conservation Districts (GCD) within GMA 12 worked together to determine the desired future condition (DFC) of the Carrizo-Wilcox Aquifer. Desired future conditions are essentially management goals for each aquifer. The DFC for the Carrizo-Wilcox Aquifer, adopted by GMA 12 on August 11, 2010, is summarized as follows:

- Carrizo Aquifer: No more than 47 feet of average drawdown between January 2000 and December 2059.
- Simsboro (Middle Wilcox) Aquifer: No more than 237 feet of average drawdown between January 2000 and December 2059.

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports, with the GMA 12 Carrizo-Wilcox Aquifer MAG being documented in TWDB report GR 10-044_MAG, dated July 9, 2012. The report provides the MAG values for the Carrizo-Wilcox Aquifer by county and basin, as shown in *Table 3.12* below.

Table 3.12 Water Availability in the Carrizo-Wilcox Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Bastrop	Brazos	4,864	4,013	4,497	4,293	4,372	4,372
Bastrop	Colorado	15,109	16,647	19,641	22,360	22,734	22,734
Bastrop	Guadalupe	6	6	695	1,365	1,392	1,392
	County Total	***19,979***	***20,666***	***24,833***	***28,018***	***28,498***	***28,498***
Fayette	Colorado	683	683	683	683	683	683
Fayette	Guadalupe	317	317	317	317	317	317
	County Total	***1,000***	***1,000***	***1,000***	***1,000***	***1,000***	***1,000***
Region K	**Region Total**	**20,979**	**21,666**	**25,833**	**29,018**	**29,498**	**29,498**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.1.2 *Availability*.

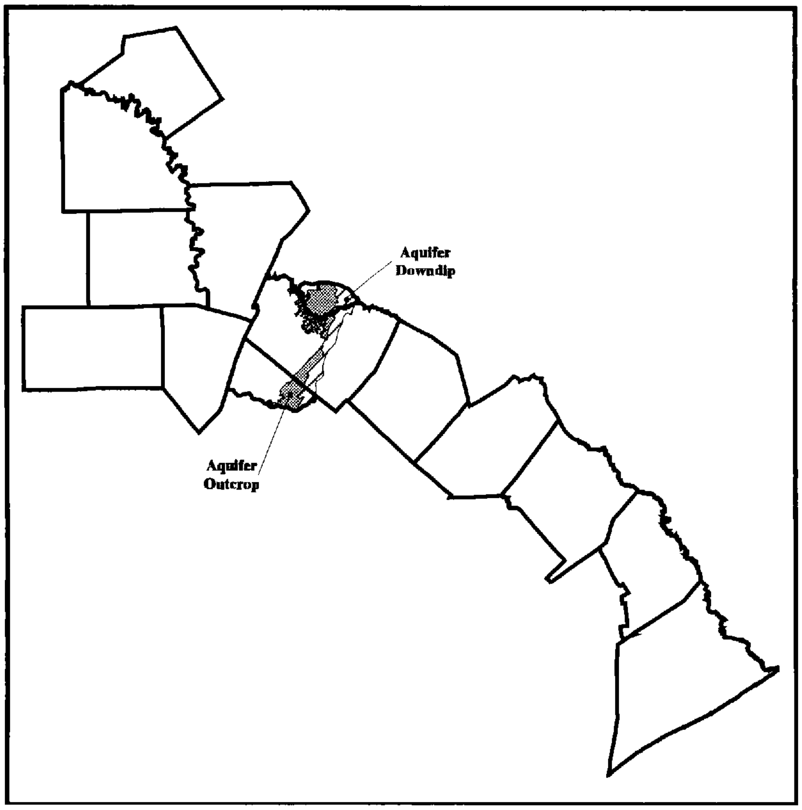
3.2.2.1.3 Edwards Aquifer (Balcones Fault Zone)

Location and Use

The Edwards aquifer (Balcones Fault Zone, or BFZ) covers approximately 4,350 square miles in parts of 11 counties. It forms a narrow belt extending along the base of the Balcones Escarpment from Kinney County through the San Antonio area northeastward to the Leon River in Bell County. A groundwater divide near Kyle in Hays County hydrologically separates the aquifer into the San Antonio and Barton Springs segments. The Colorado River divides the Barton Springs and Northern segments which are also considered hydrologically separate. The name Edwards aquifer (BFZ) distinguishes this aquifer from the Edwards-Trinity (Plateau) and Edwards-Trinity (High Plains) aquifers.

Groundwater use from the Edwards aquifer (BFZ) within the LCRWPA occurs in Hays, Travis, and Williamson Counties. TWDB records indicate that municipal use accounts for the majority of groundwater pumpage from the aquifer. Large springs feed several recreational areas and serve as habitat to several endangered species of plants and animals. Major river systems derive a significant amount of baseflow from Edwards aquifer (BFZ) spring flows that are utilized outside the Edwards region mainly for industrial and agricultural needs. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.4.*

Figure 3.4: Edwards Aquifer (BFZ) Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Edwards aquifer (BFZ) is composed of limestone and dolomite deposited during the Cretaceous Period. The aquifer exists under water-table conditions in the outcrop and under artesian conditions where it dips into the subsurface and is confined below the overlying Del Rio Clay. The Edwards aquifer (BFZ) consists of the Georgetown Limestone and formations of the Edwards Group within the LCRWPA. Across the Edwards aquifer (BFZ) region, the aquifer thickness ranges from 200 to 600 feet.

Aquifer recharge occurs by the percolation of water on the aquifer outcrop (recharge zone). The recharge may occur by several methods: surface water percolating from streams and rivers draining the Edwards Plateau and which cross the outcrop; the percolation of rainfall runoff in ephemeral streams crossing the outcrop; and by direct infiltration of precipitation on the outcrop. This recharge reaches the aquifer through solution cavities, fracture crevices, faults, and sinkholes in the recharge zone. Unknown amounts of groundwater may enter the aquifer as lateral underflow from the Glen Rose Formation. Water in the aquifer generally moves from the recharge zone down-gradient and laterally toward natural discharge points such as Comal, San Marcos, Barton, and Salado springs.

A hydrologic divide occurs in the aquifer near Kyle in Hays County that separates the San Antonio segment of the aquifer from the Barton Springs and Northern segments of the aquifer. The Barton Springs segment is hydrologically bounded to the north by the Colorado River. The northern segment of the aquifer includes the area north of the Colorado River to Bell County. The area included in the LCRWPA is the area north of the Kyle groundwater divide and includes a portion of the Northern segment.

Groundwater moving through the aquifer system has dissolved large amounts of rock to create highly permeable zones in certain aquifer subdivisions and solution channels. Highly fractured areas near faults may be preferentially enhanced by solutioning to form conduits capable of transmitting large amounts of water. The solution features may facilitate rapid flow and augment the relatively high storage capacity of the aquifer. Due to the honeycombed and cavernous character of the aquifer, well yields are moderate to large. Several wells yield in excess of 16,000 gal/min and one well drilled in Bexar County flowed 37,000 gal/min from a 30-inch-diameter casing. The aquifer is significantly less permeable farther downdip where the concentration of dissolved solids in the water may abruptly exceed 1,000 mg/l.

Water Quality

The chemical quality of water in the aquifer is typically fresh, although hard, with dissolved solids concentrations averaging less than 500 mg/l. The downdip's relatively sharp interface between fresh and slightly saline water represents the extent of water containing less than 1,000 mg/l and is popularly known as the Bad Water Line (BWL). Within a relatively short distance down-gradient of the BWL, the groundwater becomes increasingly mineralized. The position of the bad water line generally coincides with the alignment of IH 35 in the LCRWPA.

Availability

Due to its highly permeable nature in the fresh water zone, the Edwards aquifer (BFZ) responds quickly to changes and extremes in stress placed upon the system. This is indicated by the rapid fluctuations in water levels over relatively short periods of time. During times of adequate rainfall and recharge, the Edwards aquifer (BFZ) is able to supply sufficient amounts of water for all demands as well as sustain springflows at many locations throughout its extent. However, when recharge is low, water withdrawn from wells and water discharged at the springs comes mainly from aquifer storage. If these conditions persist, water in storage within the aquifer continues to be depleted with corresponding water-level declines and reduced spring flows.

Availability for the northern segment of the Edwards aquifer (BFZ) was established by the TWDB based on DFCs adopted by GMA 8 on April 27, 2011. The DFCs for Travis and Williamson counties within GMA 8 are as follows:

- Maintain at least 42 acre-feet per month of aggregated stream/spring flow during a repeat of the Drought of Record in Travis County.
- Maintain at least 60 acre-feet per month of aggregated stream/spring flow during a repeat of the Drought of Record in Williamson County.

Availability for the southern portion of the Edwards aquifer (BFZ) was established by the TWDB based on DFCs adopted by GMA 10 on August 4, 2010. The DFCs for the Edwards (BFZ) Northern Subdivision and Edwards (BFZ) Northern Subdivision Saline Zone in Hays and Travis counties within GMA 10 are as follows:

Edwards (BFZ) Northern Subdivision

- Springflow at Barton Springs during average recharge conditions shall be no less than 49.7 cubic feet per second averaged over an 84 month (7-year) period;
- During extreme drought conditions, including those as severe as a recurrence of the 1950s drought of record, springflow of Barton Springs shall be no less than 6.5 cubic feet per second averaged on a monthly basis.

Edwards (BFZ) Northern Subdivision Saline Zone

- Well drawdown at the saline-freshwater interface (the so-called Edwards Bad Water Line) averages no more than 5 feet and does not exceed a maximum of 25 feet at any one point on the interface.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports. The GMA 8 Edwards (BFZ) Aquifer MAG is documented in TWDB report GR 10-065_MAG, dated December 14, 2011. The GMA 10 Edwards (BFZ) Aquifer MAG is documented in TWDB report GR 10-059_MAG Version 2, dated December 7, 2011. The GMA 10 Saline Edwards (BFZ) Aquifer MAG is documented in TWDB report AA 10-35 MAG, dated November 20, 2011. The reports provide the MAG values for the Edwards (BFZ) Aquifer by county and basin, and the Saline Edwards (BFZ) Aquifer by county and basin, as shown in *Table 3.13* and *Table 3.14* below.

Table 3.13 Water Availability in the Edwards Aquifer (BFZ) (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070	Source
Hays	Colorado	2,292	2,292	2,292	2,292	2,292	2,292	GMA 10
	County Total	***2,292***	***2,292***	***2,292***	***2,292***	***2,292***	***2,292***	
Travis	Brazos	275	275	275	275	275	275	GMA 8
Travis	Colorado	4,962	4,962	4,962	4,962	4,962	4,962	GMA 8
Travis	Colorado	1,166	1,166	1,166	1,166	1,166	1,166	GMA 10
	County Total	***6,403***	***6,403***	***6,403***	***6,403***	***6,403***	***6,403***	
Williamson	Brazos	6	6	6	6	6	6	GMA 8
Williamson	Colorado	4	4	4	4	4	4	GMA 8
	County Total	***10***	***10***	***10***	***10***	***10***	***10***	
Region K	**Region Total**	**8,705**	**8,705**	**8,705**	**8,705**	**8,705**	**8,705**	

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.1.3 *Availability*.

Table 3.14 Water Availability in the Saline Edwards Aquifer (BFZ) (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070	Source
Hays	Colorado	9	9	9	9	9	9	GMA 10
	County Total	***9***	***9***	***9***	***9***	***9***	***9***	
Travis	Colorado	699	699	699	699	699	699	GMA 10
Travis	Guadalupe	39	39	39	39	39	39	GMA 10
	County Total	***738***	***738***	***738***	***738***	***738***	***738***	
Region K	**Region Total**	**747**	**747**	**747**	**747**	**747**	**747**	

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.1.3 *Availability*.

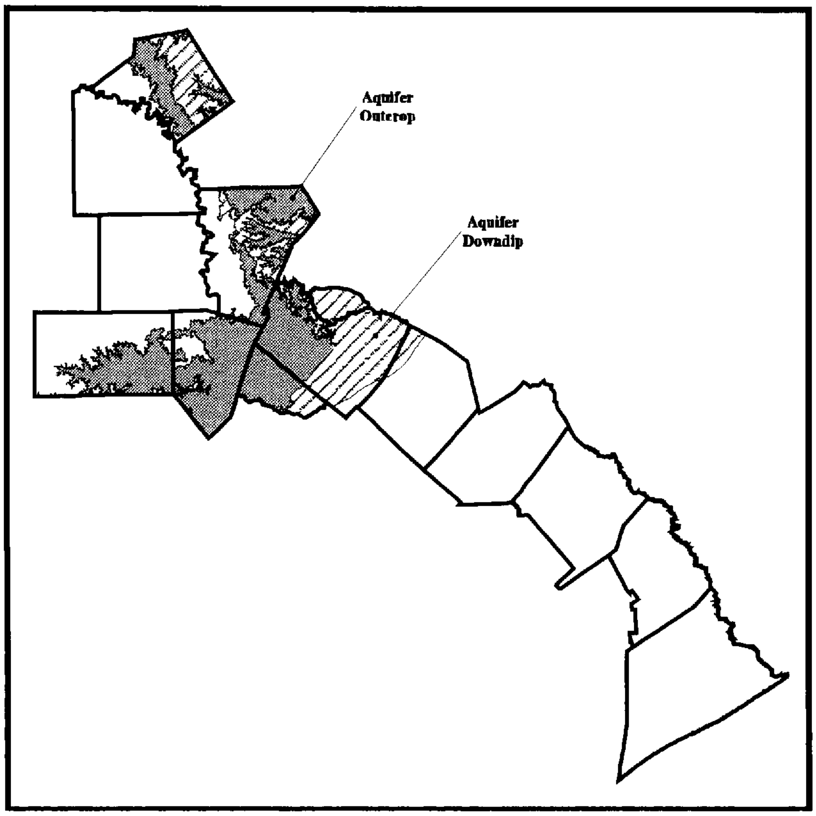
3.2.2.1.4 Trinity Aquifer

Location and Use

The Trinity aquifer consists of Cretaceous age rocks of the Trinity Group. The formations of the Trinity Group crop out in a band from the Red River in northern Texas to the Hill Country of South-Central Texas and provide water in all or parts of 55 counties. Trinity Group deposits also occur as far west as the Panhandle and Trans-Pecos regions where they are included as part of the Edwards-Trinity (High Plains) and Edwards-Trinity (Plateau) aquifers. Within much of the LCRWPA, the Trinity aquifer is exposed at the land surface as the erosion dissected margin of the Edwards Plateau.

Groundwater use from the Trinity aquifer in the LCRWPA occurs in Blanco, Burnet, Gillespie, Hays, Mills, and Travis Counties. TWDB records indicate that municipal use accounts for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.5*.

Figure 3.5: Trinity Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Trinity aquifer is composed of sand, clay, and limestone deposited during the Cretaceous Period. The aquifer in the LCRWPA is subdivided into the Upper, Middle, and Lower Trinity aquifers. The Upper Trinity is composed of the Upper Glen Rose Formation. The Middle Trinity aquifer is composed of the Lower Glen Rose Formation and the Hensell Sand and Cow Creek Limestone of the Travis Peak Formation. The Hammett Shale of the Travis Peak Formation is a confining zone between the Middle and Lower Trinity aquifers. The Lower Trinity aquifer is composed of the Sligo Limestone and the Hosston Formation (sand and conglomerate). The Glen Rose Formation and the Cow Creek Limestone are karsted but not as heavily solutioned as the Edwards aquifer (BFZ). There are evaporite mineral beds (principally anhydrite) associated with the contact of the Upper and Lower Glen Rose Formation that contribute to water quality issues in the certain areas of the Trinity aquifer within the LCRWPA. The formations of the Trinity aquifer thin from down-dip areas toward the outcrop. In some areas of the LCRWPA this thinning is pronounced. At the Balcones Escarpment the Trinity may be significantly displaced by the throw of faults associated with the Balcones Fault Zone. Trinity aquifer well yields typically range from less than 20 to more than 300 gallons per minute. The yields of wells in the Upper and Middle Trinity aquifers may be closely associated with the degree of local karst or solutioning features. The yield of wells from the Lower Trinity aquifer may be generally greater than the average yields of Upper or Lower Trinity aquifer wells.

Water Quality

Water quality from the Trinity aquifer is acceptable for most municipal and industrial purposes; however, excess concentrations of certain constituents in many places exceed drinking water standards. Heavy pumpage and water level declines in this region have contributed to deteriorating water quality in the aquifer. Wells completed in the Middle Trinity (especially the Hensell Sand) may exhibit levels of sodium, sulfate, and chloride, which are believed to be the result of leakage from the overlying Glen Rose. This is less likely to be true for wells completed in the Lower Trinity. The Hammett Shale acts as an aquitard and effectively prevents leakage from the overlying formations. In some areas, poor quality water occurs in and near wells that have not been properly cased. These wells may have deteriorated casings, insufficient casing or cement, or the casing may have been perforated at multiple depths in an effort to maximize the well yield. These wells serve as a conduit for poor quality water originating in the evaporite beds near the contact of the Upper and Lower Glen Rose Formations. Water quality declines in the downdip direction of all of the Trinity water-bearing units.

Availability

The groundwater availability estimate values for the northern Trinity aquifer in Burnet, Mills, Travis, and Williamson Counties are based on DFCs submitted by GMA 8. The DFCs for the above mentioned counties are as follows:

Burnet County
- Average draw down of the Paluxy aquifer should not exceed approximately 1 foot after 50 years.
- Average draw down of the Glen Rose aquifer should not exceed approximately 1 foot after 50 years.
- Average draw down of the Hensell aquifer should not exceed approximately 11 feet after 50 years.
- Average draw down of the Hosston aquifer should not exceed approximately 29 feet after 50 years.

Mills County
- Average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- Average draw down of the Glen Rose aquifer should not exceed approximately 0 feet after 50 years.
- Average draw down of the Hensell aquifer should not exceed approximately 3 feet after 50 years.
- Average draw down of the Hosston aquifer should not exceed approximately 12 feet after 50 years.

Travis County
- Average draw down of the Paluxy aquifer should not exceed approximately 124 feet after 50 years.
- Average draw down of the Glen Rose aquifer should not exceed approximately 61 feet after 50 years.
- Average draw down of the Hensell aquifer should not exceed approximately 98 feet after 50 years.
- Average draw down of the Hosston aquifer should not exceed approximately 116 feet after 50 years.

Williamson County
- Average draw down of the Paluxy aquifer should not exceed approximately 108 feet after 50 years.
- Average draw down of the Glen Rose aquifer should not exceed approximately 88 feet after 50 years.
- Average draw down of the Hensell aquifer should not exceed approximately 142 feet after 50 years.
- Average draw down of the Hosston aquifer should not exceed approximately 166 feet after 50 years.

The groundwater availability estimate values for the Trinity aquifer in Blanco, Hays, and Travis Counties are based on DFCs submitted by GMA 9. The DFCs for the Trinity aquifer is as follows:

- Average drawdown of approximately 30 feet through 2060.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports. The GMA 8 Trinity Aquifer MAG being documented in TWDB report GR 10-063_MAG, dated December 14, 2011. The GMA 9 Trinity Aquifer MAG being documented in TWDB report GR 10-050_MAG, dated March 30, 2012. The reports provide the MAG values for the Trinity Aquifer by county and basin, as shown in *Table 3.15* below.

Table 3.15 Water Availability for the Trinity Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Blanco	Colorado	1,322	1,322	1,322	1,322	1,322	1,322
Blanco	Guadalupe	1,251	1,251	1,251	1,251	1,251	1,251
	County Total	***2,573***	***2,573***	***2,573***	***2,573***	***2,573***	***2,573***
Burnet	Brazos	2,723	2,723	2,723	2,723	2,723	2,723
Burnet	Colorado	823	823	823	823	823	823
	County Total	***3,546***	***3,546***	***3,546***	***3,546***	***3,546***	***3,546***
Gillespie	Colorado	2,482	2,482	2,482	2,482	2,482	2,482
Gillespie	Guadalupe	46	46	46	46	46	46
	County Total	***2,528***	***2,528***	***2,528***	***2,528***	***2,528***	***2,528***
Hays	Colorado	5,665	5,662	5,661	5,661	5,661	5,661
	County Total	***5,665***	***5,662***	***5,661***	***5,661***	***5,661***	***5,661***
Mills	Brazos	1,273	1,273	1,273	1,273	1,273	1,273
Mills	Colorado	1,128	1,128	1,128	1,128	1,128	1,128
	County Total	***2,401***	***2,401***	***2,401***	***2,401***	***2,401***	***2,401***
Travis	Brazos	8	8	8	8	8	8
Travis	Colorado	13,188	13,171	13,159	13,143	13,114	13,114
Travis	Guadalupe	7	7	7	7	7	7
	County Total	***13,203***	***13,186***	***13,174***	***13,158***	***13,129***	***13,129***
Williamson	Brazos	157	157	157	157	157	157
Williamson	Colorado	61	61	61	61	61	61
	County Total	***218***	***218***	***218***	***218***	***218***	***218***
Region K	**Region Total**	**30,134**	**30,114**	**30,101**	**30,085**	**30,056**	**30,056**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.1.4 *Availability*.

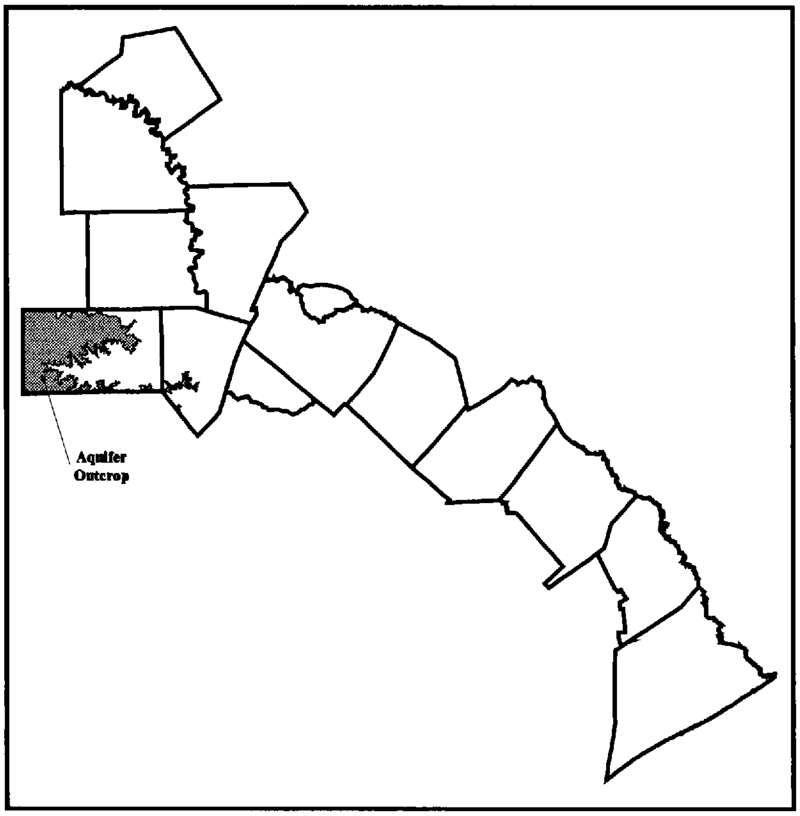
3.2.2.1.5 Edwards-Trinity (Plateau) Aquifer

Location and Use

The Edwards-Trinity (Plateau) aquifer underlies the Edwards Plateau east of the Pecos River and the Stockton Plateau west of the Pecos River, providing water to all or parts of 38 counties. The aquifer extends from the Hill Country of Central Texas to the Trans-Pecos region of West Texas.

Groundwater use from the Edwards-Trinity aquifer within the LCRWPA is limited to Gillespie County. TWDB records indicate that municipal use accounts for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.6.*

Figure 3.6: Edwards Trinity Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The aquifer consists of saturated sediments of lower Cretaceous age Trinity Group formations and overlying limestones and dolomites of the Comanche Peak, Edwards, and Georgetown Formations. Springs issuing from the aquifer form the headwaters for the Pedernales, Llano, and San Saba Rivers.

The aquifer generally exists under water table conditions, however, where the Trinity is fully saturated and a zone of low permeability occurs near the base of the overlying Edwards, artesian conditions may exist. Reported well yields commonly range from less than 50 gal/min, where saturated thickness is thin, to more than 1,000 gal/min, in areas outside of Region K where large capacity wells are completed in jointed and cavernous limestone.

Water Quality

Natural chemical quality of Edwards-Trinity (Plateau) water ranges from fresh to slightly saline. The water is typically hard and may vary widely in concentrations of dissolved solids, composed mostly of calcium and bicarbonate. The salinity of the groundwater tends to increase toward the west. Water quality of springs issuing from the aquifer in the southern and eastern border areas is typically excellent.

Availability

The Edwards-Trinity (Plateau) aquifer in Gillespie County is within GMA 7. The Groundwater Conservation Districts (GCD) within GMA 7 worked together to determine the desired future condition (DFC) of the Edwards-Trinity (Plateau) Aquifer. Desired future conditions are essentially management goals for each aquifer. The DFC for the Edwards-Trinity (Plateau) Aquifer, adopted by GMA 7 on July 29, 2010, is summarized as follows:

- No more than 7 feet of average drawdown.

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports, with the GMA 7 Edwards-Trinity (Plateau) aquifer MAG being documented in TWDB report GR 10-043_MAG, dated November 12, 2012. The report provides the MAG values for the Edwards-Trinity (Plateau) aquifer by county and basin, as shown in *Table 3.16* below.

Table 3.16 Water Availability from the Edwards-Trinity Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Gillespie	Colorado	2,378	2,378	2,378	2,378	2,378	2,378
Gillespie	Guadalupe	136	136	136	136	136	136
	County Total	***2,514***	***2,514***	***2,514***	***2,514***	***2,514***	***2,514***
Region K	**Region Total**	**2,514**	**2,514**	**2,514**	**2,514**	**2,514**	**2,514**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.1.5 *Availability*.

3.2.2.2 Minor Aquifers

The minor aquifers in the LCRWPA are the Hickory, Queen City, Sparta, Ellenburger-San Saba, Marble Falls, and Yegua-Jackson aquifers. These aquifers provide water supply to many of the cities and towns in the hill country of Central Texas, or in the case of the Sparta and Queen City aquifers, to farms, ranches, and small towns in Bastrop and Fayette Counties.

There are also WUGs in Region K that rely on alluvial aquifers for supply. These supplies are referred to as "Other Aquifer" since the actual aquifers have not been identified or named and the extent of the aquifer supply has not been determined.

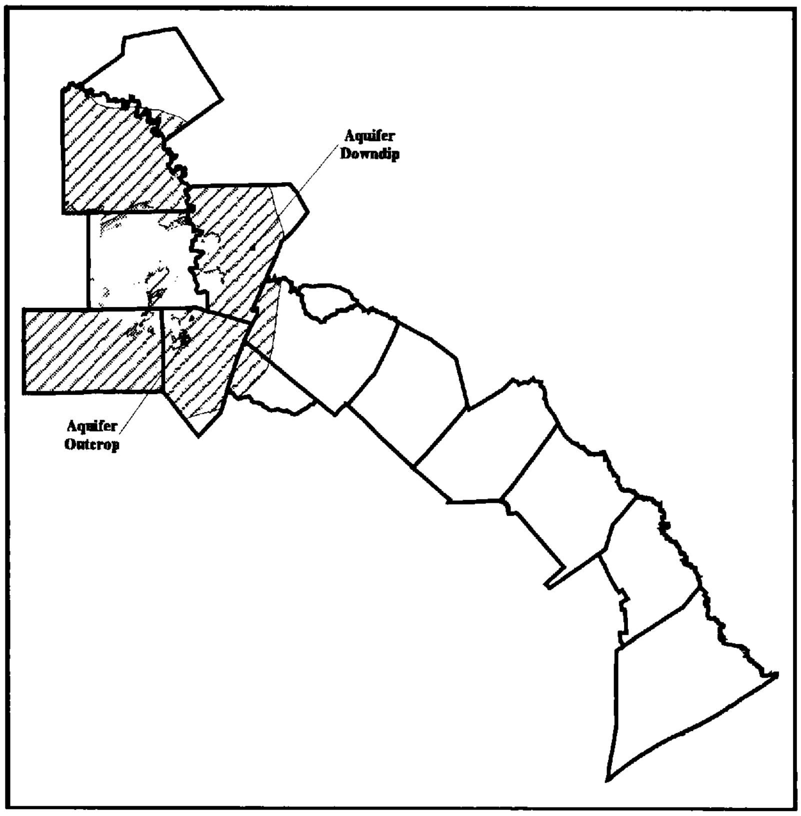
3.2.2.2.1 Hickory Aquifer

Location and Use

The Hickory aquifer underlies approximately 5,000 square miles in parts of 19 counties within the Llano Uplift region of Central Texas. Discontinuous outcrops of the Hickory sandstone overlie and flank the exposed Precambrian rocks that form the central core of the Uplift. The downdip artesian portion of the aquifer encircles the Uplift and extends to maximum depths approaching 4,500 feet.

Groundwater use from the Hickory aquifer within the LCRWPA occurs in Burnet, Gillespie, Llano, San Saba, and Blanco Counties. TWDB records indicate that irrigation use accounts for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.7.*

Figure 3.7: Hickory Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Hickory aquifer, like the Marble Falls and Ellenburger-San Saba aquifers, was formed by the Llano Uplift, a distinct area of the state that includes portions of 19 counties. The Hickory Sandstone member of the Cambrian Riley Formation is composed of some of the oldest sedimentary rocks found in Texas. In most of the northern and western portions of the aquifer, the Hickory Sandstone Member can be differentiated into lower, middle, and upper units, which reach a maximum thickness of 480 feet in southwestern McCulloch County just northwest of the LCRWPA. In the southern and eastern extent of the aquifer, the Hickory Sandstone Member consists of only two units, which range in thickness from about 150 to 400 feet.

The Hickory aquifer has been compartmentalized by block faulting. The vertical displacement of faults ranges from a few feet to as much as 2,000 feet. Significant lateral displacement is also associated with these faults. Throughout its extent, the thickness of the aquifer is affected by the relief of the underlying Precambrian surface. Both of these elements have contributed to the significant variability that occurs in groundwater availability, movement, quality, and productivity.

Large wells used for irrigation and municipal supply may range from 200 to 500 gal/min. Some exceptional wells have been reported to have yields in excess of 1,000 gal/min. These would typically occur outside of the LCRWPA, northwest of the Llano Uplift.

Water Quality

In general, the quality of water from the Hickory aquifer could be described as moderate to low quality. The total dissolved solids concentrations vary from 300 to 500 mg/l. In some areas the groundwater may have dissolved solids concentrations as high as 3,000 mg/l. The water may contain alpha particle and total radium concentrations that may exceed safe drinking water levels soon to be issued by the EPA. Radon gas may also be entrained. Most of the radioactive groundwater is thought to be produced from the middle Hickory unit, while the upper Hickory unit produces water that exceeds safe drinking water concentrations for iron. High nitrate levels may be found in the shallower portions of the aquifer where there may be interaction with surface activities such as fertilizer applications and septic systems.

Availability

The Hickory aquifer spans several counties and several GMAs. The groundwater availability estimate values for the Hickory aquifer are based on desired future conditions (DFCs) submitted by the responsible GMAs. Desired future conditions are essentially management goals for each aquifer. The DFCs for the Hickory aquifer are as follows:

Blanco County (GMA 9) – DFC adopted on August 29, 2008

- Allow for an increase in average drawdown of no more than seven (7) feet.

Burnet County (GMA 8) – DFC adopted on May 19, 2008

- Burnet County should maintain approximately 100 percent of the saturated thickness after 50 years by using approximately 80 percent of the estimated recharge.

Gillespie County (GMA 7) – DFC adopted on July 29, 2010

- Total net decline in water levels shall not exceed seven (7) feet below 2010 water levels in the aquifer after 50 years.

Llano County (GMA 7) – DFC adopted on July 29, 2010

- Total net decline in water levels shall not exceed seven (7) feet below 2010 water levels in the aquifer after 50 years.

Mills County (GMA 8) – DFC adopted on May 19, 2008

- Mills County should maintain approximately 90 percent of the available drawdown after 50 years.

San Saba County (GMA 7) – DFC adopted on July 29, 2010

- Total net decline in water levels shall not exceed seven (7) feet below 2010 water levels in the aquifer after 50 years.

Travis County (GMA 8) – DFC adopted on May 19, 2008

- Travis County should maintain approximately 90 percent of the available drawdown after 50 years.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports.

- The GMA 7 Hickory aquifer MAG being documented in TWDB report AA 10-11_MAG, dated November 1, 2011.
- The GMA 8 Hickory aquifer MAG being documented in TWDB report AA 10-16_MAG, dated December 7, 2011.
- The GMA 9 Hickory aquifer MAG being documented in TWDB report AA 10-02_MAG, dated June 22, 2011.

The reports provide the MAG values for the Hickory Aquifer by county and basin, as shown in *Table 3.17* below.

Table 3.17 Water Availability from the Hickory Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Blanco	Colorado	1,162	1,162	1,162	1,162	1,162	1,162
Blanco	Guadalupe	1	1	1	1	1	1
	County Total	***1,163***	***1,163***	***1,163***	***1,163***	***1,163***	***1,163***
Burnet	Brazos	0	0	0	0	0	0
Burnet	Colorado	2,148	2,148	2,148	2,148	2,148	2,148
	County Total	***2,148***	***2,148***	***2,148***	***2,148***	***2,148***	***2,148***
Gillespie	Colorado	1,659	1,659	1,659	1,659	1,659	1,659
Gillespie	Guadalupe	0	0	0	0	0	0
	County Total	***1,659***	***1,659***	***1,659***	***1,659***	***1,659***	***1,659***
Llano	Colorado	2,018	2,018	2,018	2,018	2,018	2,018
Mills	Brazos	1	1	1	1	1	1
Mills	Colorado	35	35	35	35	35	35
	County Total	***36***	***36***	***36***	***36***	***36***	***36***
San Saba	Colorado	1,479	1,479	1,479	1,479	1,479	1,479
Travis	Brazos	0	0	0	0	0	0
Travis	Colorado	22	22	22	22	22	22
	County Total	***22***	***22***	***22***	***22***	***22***	***22***
Region K	**Region Total**	**8,525**	**8,525**	**8,525**	**8,525**	**8,525**	**8,525**

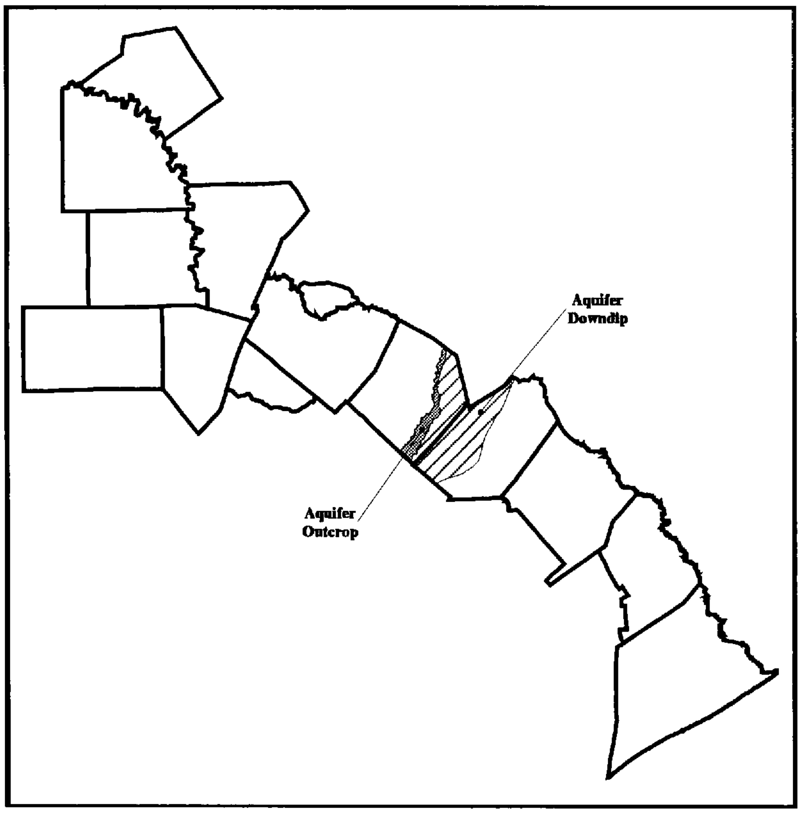
Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.2.1 *Availability*.

3.2.2.2.2 Queen City Aquifer

Location and Use

The Queen City aquifer extends in a band across most of the State from the Frio River in South Texas northeastward into Louisiana. The southwestern boundary is placed at the Frio River because of a facies change in the formation. This facies change results in reduced amounts of poorer quality water produced from this interval southwest of the Frio River. TWDB records indicate that irrigation and livestock use account for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.8.*

Figure 3.8: Queen City Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Queen City aquifer is composed of sand, loosely cemented sandstone, and interbedded clay units of the Queen City Formation of the Tertiary Claiborne Group. These rocks slope downward or dip gently to the south and southeast toward the Gulf of Mexico. The total thickness of this aquifer is usually less than 500 feet in the LCRWPA. The Queen City aquifer generally parallels the Carrizo aquifer, and like the Carrizo, it has both a water table and artesian portion. Well yields are generally low with a few exceeding 400 gal/min.

Water Quality

Throughout most of the LCRWPA, the chemical quality of the Queen City aquifer water is excellent, but water quality may deteriorate fairly rapidly downdip. The water may be fairly acidic (low pH), have high iron concentrations, or contain hydrogen sulfide gas. All of these conditions are relatively easy to remedy with standard water treatment methods.

Availability

The Queen City aquifer in Bastrop and Fayette Counties is within GMA 12. The Groundwater Conservation Districts (GCD) within GMA 12 worked together to determine the desired future condition (DFC) of the Queen City aquifer. Desired future conditions are essentially management goals for each aquifer. The DFC for the Queen City aquifer, adopted by GMA 12 on August 11, 2010, is summarized as follows:

- No more than 13 feet of average drawdown between January 2000 and December 2059 within the Lost Pines Groundwater Conservation District (Bastrop County).
- No more than 60 feet of average drawdown between January 2000 and December 2059 within the Fayette County Groundwater Conservation District (Fayette County).

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports, with the GMA 12 Queen City aquifer MAG being documented in TWDB report GR 10-045_MAG, dated July 9, 2012. The report provides the MAG values for the Queen City aquifer by county and basin, as shown in *Table 3.18* below.

Table 3.18 Water Availability From the Queen City Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Bastrop	Brazos	244	598	219	216	216	216
Bastrop	Colorado	659	1,626	599	591	590	590
Bastrop	Guadalupe	192	541	213	216	216	216
	County Total	***1,095***	***2,765***	***1,031***	***1,023***	***1,022***	***1,022***
Fayette	Colorado	436	478	513	565	570	570
Fayette	Guadalupe	0	0	0	0	0	0
	County Total	***436***	***478***	***513***	***565***	***570***	***570***
Region K	**Region Total**	**1,531**	**3,243**	**1,544**	**1,588**	**1,592**	**1,592**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.2.2 *Availability*.

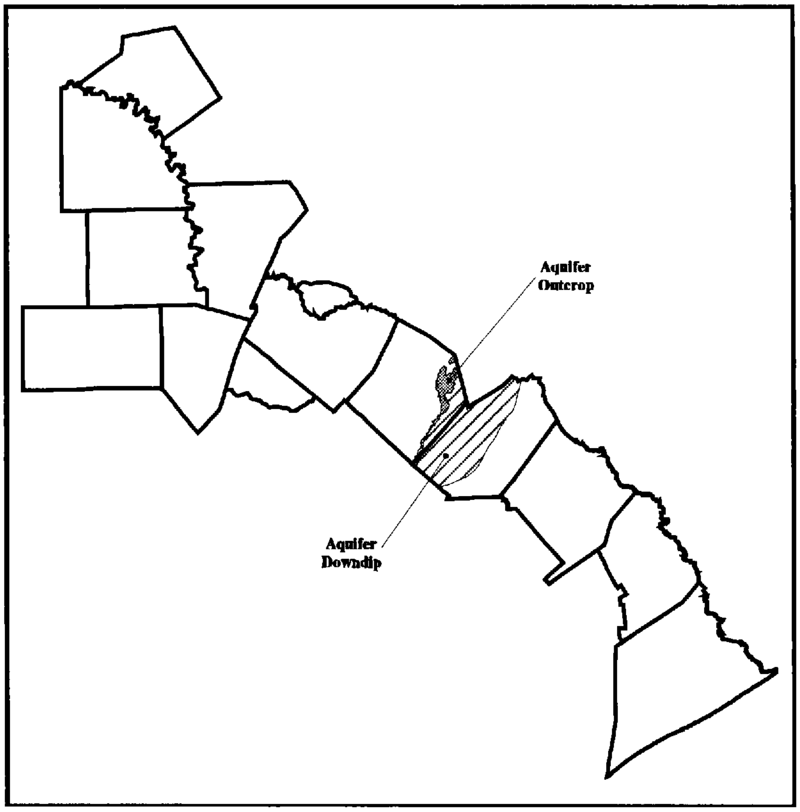
3.2.2.2.3 Sparta Aquifer

Location and Use

The Sparta aquifer extends in a narrow band across the state from the Frio River in South Texas northeastward to the Louisiana border in Sabine County. The southwestern boundary is placed at the Frio River because of a facies change in the formation, which makes it difficult to delineate the boundaries of the Sparta and contiguous formations southwestward. The facies change results in reduced amounts of water and poorer quality water produced from the interval.

Groundwater use from the Sparta aquifer within the LCRWPA occurs in Bastrop and Fayette Counties. TWDB records indicate that municipal, irrigation, and livestock use account for the groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.9*.

Figure 3.9: Sparta Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Sparta Formation, like the Queen City, is part of the Claiborne Group. The aquifer consists of sand and interbedded clay with more massive sand beds in the basal section. Rocks composing the Sparta Formation also dip gently to the south and southeast toward the Gulf Coast, with a total thickness that can reach up to 300 feet. Yields of individual wells are generally low to moderate, but high capacity wells, producing 400 to 500 gal/min, are possible. The water occurs under water table conditions near the outcrop but becomes confined and is under artesian conditions downdip. Usable quality water may be recovered from as much as 2,000 feet below the surface.

Water Quality

Usable quality water is commonly found within the outcrop and for a few miles downdip. The water quality in most of this aquifer is excellent, but the quality does decrease in the downdip direction. In some areas the water can contain iron concentrations exceeding the safe drinking water standards.

Availability

The Sparta aquifer in Bastrop and Fayette Counties is within GMA 12. The Groundwater Conservation Districts (GCD) within GMA 12 worked together to determine the desired future condition (DFC) of the

Sparta aquifer. Desired future conditions are essentially management goals for each aquifer. The DFC for the Sparta aquifer, adopted by GMA 12 on August 11, 2010, is summarized as follows:

- No more than 7 feet of average drawdown between January 2000 and December 2059 within the Lost Pines Groundwater Conservation District (Bastrop County).
- No more than 60 feet of average drawdown between January 2000 and December 2059 within the Fayette County Groundwater Conservation District (Fayette County).

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports, with the GMA 12 Sparta aquifer MAG being documented in TWDB report GR 10-046_MAG, dated July 9, 2012. The report provides the MAG values for the Sparta aquifer by county and basin, as shown in *Table 3.19* below.

Table 3.19 Water Availability from the Sparta Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Bastrop	Brazos	65	170	58	55	55	55
Bastrop	Colorado	1,761	4,606	1,538	1,460	1,453	1,453
Bastrop	Guadalupe	87	228	79	76	75	75
	County Total	***1,913***	***5,004***	***1,675***	***1,591***	***1,583***	***1,583***
Fayette	Colorado	3,161	3,206	3,226	3,278	3,294	3,294
Fayette	Guadalupe	431	431	430	433	435	435
	County Total	***3,592***	***3,637***	***3,656***	***3,711***	***3,729***	***3,729***
Region K	**Region Total**	**5,505**	**8,641**	**5,331**	**5,302**	**5,312**	**5,312**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.2.3, *Availability*.

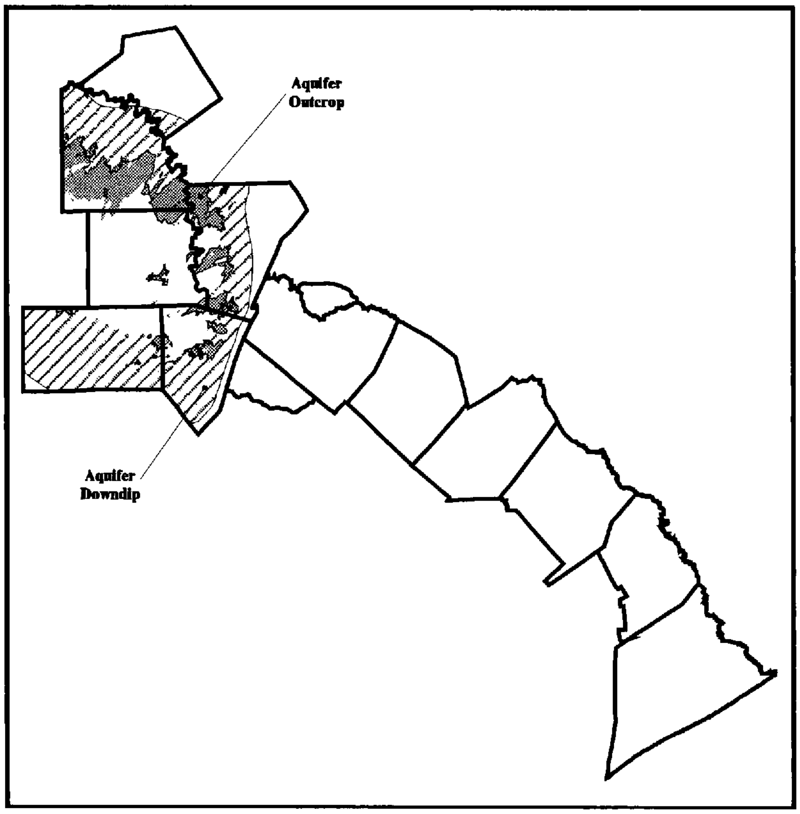
3.2.2.2.4 Ellenburger-San Saba Aquifer

Location and Use

The Ellenburger-San Saba aquifer underlies about 4,000 square miles in parts of 15 counties in the Llano Uplift area of Central Texas. Discontinuous outcrops of the aquifer generally encircle older rocks in the core of the uplift. The remaining downdip portion contains fresh to slightly saline water to depths of approximately 3,000 feet below land surface.

Groundwater use from the Ellenburger-San Saba aquifer within the LCRWPA occurs in Blanco, Burnet, Gillespie, Llano, and San Saba Counties. TWDB records indicate that municipal use accounts for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.10*.

Figure 3.10: Ellenburger-San Saba Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Ellenburger-San Saba aquifer occurs in limestone and dolomite facies of the San Saba Member of the Wilbern Formation of the Late Cambrian Age; and in the Honeycut, Gorman, and Tanyard Formations of the Ellenburger Group. In the southeastern portion of the aquifer, these units have a combined maximum thickness of about 2,700 feet while in the northeastern portion of the aquifer and a maximum combined thickness is about 1,100 feet. In some areas where the overlying confining beds are thin or nonexistent the aquifer may be hydrologically connected to the Marble Falls aquifer.

Most of the water is under artesian conditions, even in the outcrop areas where impermeable carbonate rocks in the upper portion of the Ellenburger-San Saba function as confining layers. The aquifer is compartmentalized by block faulting with the fractures forming various sized cavities, which are the major water-bearing features.

The maximum capacity of wells used for municipal and irrigation purposes generally range from 200 to 600 gal/min. Most other wells produce less than 100 gal/min. The variable flow properties of the aquifer make it difficult to consistently obtain higher yield wells in some areas. Locations in the LCRWPA that have experienced this difficulty include the cities of Fredericksburg and Bertram.

Water Quality

Water produced from the aquifer may have dissolved concentrations that range from 200 mg/l to as high as 3,000 mg/l, but in most cases is usually less than 1,000 mg/l. The quality of water declines rapidly in the downdip direction.

Availability

The Ellenburger-San Saba aquifer spans several counties and several GMAs. The groundwater availability estimate values for the Ellenburger-San Saba aquifer are based on desired future conditions (DFCs) submitted by the responsible GMAs. Desired future conditions are essentially management goals for each aquifer. The DFCs for the Ellenburger-San Saba aquifer are as follows:

Blanco County (GMA 9) – DFC adopted on August 29, 2008

- Allow for an increase in average drawdown of no more than two (2) feet.

Burnet County (GMA 8) – DFC adopted on May 19, 2008

- Burnet County should maintain approximately 100 percent of the saturated thickness after 50 years by using approximately 80 percent of the estimated recharge.

Gillespie County (GMA 7) – DFC adopted on July 29, 2010

- Total net decline in water levels shall not exceed five (5) feet below 2010 water levels in the aquifer after 50 years.

Llano County (GMA 7) – DFC adopted on July 29, 2010

- Total net decline in water levels shall not exceed five (5) feet below 2010 water levels in the aquifer after 50 years.

Mills County (GMA 8) – DFC adopted on May 19, 2008

- Mills County should maintain approximately 90 percent of the available drawdown after 50 years.

San Saba County (GMA 7) – DFC adopted on July 29, 2010

- Total net decline in water levels shall not exceed five (5) feet below 2010 water levels in the aquifer after 50 years.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports.

- The GMA 7 Ellenburger-San Saba aquifer MAG being documented in TWDB report AA 10-10_MAG, dated November 1, 2011.
- The GMA 8 Ellenburger-San Saba aquifer MAG being documented in TWDB report AA 10-15_MAG, dated December 30, 2011.
- The GMA 9 Ellenburger-San Saba aquifer MAG being documented in TWDB report AA 10-01_MAG, dated June 22, 2011.

The reports provide the MAG values for the Ellenburger-San Saba aquifer by county and basin, as shown in *Table 3.20* below.

Table 3.20 Water Availability from the Ellenburger-San Saba Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Blanco	Colorado	2,655	2,655	2,655	2,655	2,655	2,655
Blanco	Guadalupe	6	6	6	6	6	6
	County Total	***2,661***	***2,661***	***2,661***	***2,661***	***2,661***	***2,661***
Burnet	Brazos	123	123	123	123	123	123
Burnet	Colorado	5,403	5,403	5,403	5,403	5,403	5,403
	County Total	***5,526***	***5,526***	***5,526***	***5,526***	***5,526***	***5,526***
Gillespie	Colorado	6,270	6,270	6,270	6,270	6,270	6,270
Gillespie	Guadalupe	1	1	1	1	1	1
	County Total	***6,271***	***6,271***	***6,271***	***6,271***	***6,271***	***6,271***
Llano	Colorado	2,057	2,057	2,057	2,057	2,057	2,057
Mills	Brazos	5	5	5	5	5	5
Mills	Colorado	494	494	494	494	494	494
	County Total	***499***	***499***	***499***	***499***	***499***	***499***
San Saba	Colorado	10,893	10,893	10,893	10,893	10,893	10,893
Region K	**Region Total**	**27,907**	**27,907**	**27,907**	**27,907**	**27,907**	**27,907**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.2.4 *Availability*.

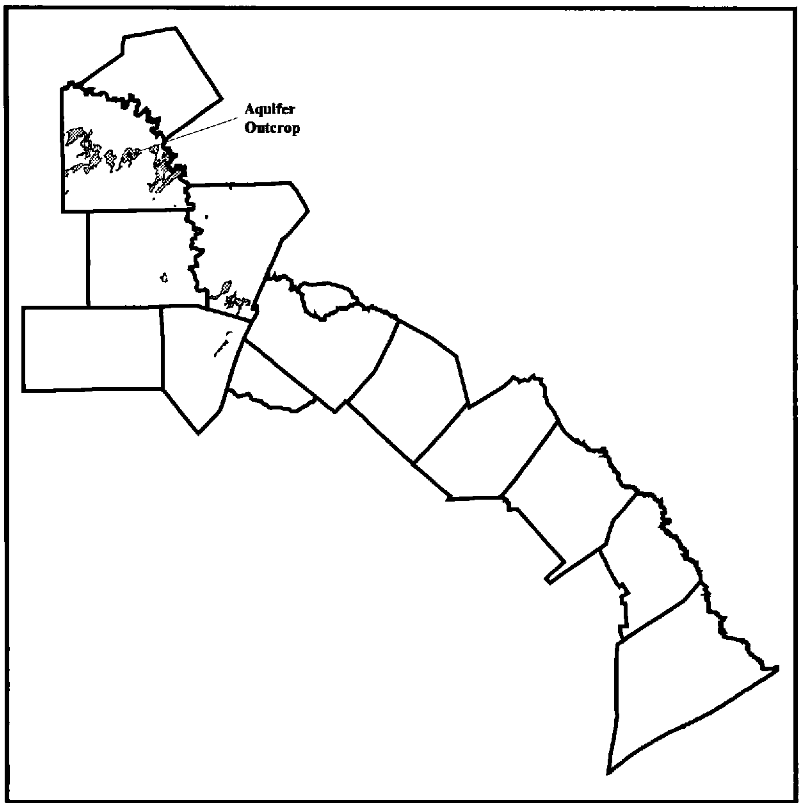
3.2.2.2.5 Marble Falls Aquifer

Location and Use

The Marble Falls aquifer occurs in several separated outcrops, primarily along the northern and eastern flanks of the Llano Uplift region of Central Texas. The downdip portion of the aquifer is of unknown extent.

Groundwater use from the Marble Falls aquifer within the LCRWPA occurs in Burnet and San Saba Counties. TWDB records indicate that municipal use accounts for the majority of groundwater pumpage from the aquifer. The location of the aquifer within the LCRWPA is illustrated in *Figure 3.11*.

Figure 3.11: Marble Falls Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

This aquifer occurs in the fractures, solution cavities, and channels of the limestone rocks of the Marble Falls Formation of the Pennsylvanian Bend Group. The maximum thickness of the formation is 600 feet. Numerous large springs discharge from the aquifer and provide a significant portion of the baseflow of the San Saba River in McCulloch and San Saba Counties; and to the Colorado River in San Saba and Lampasas Counties. The aquifer contributes flow to the San Saba springs, which is the source of drinking water for the City of San Saba. In some areas where the confining layers are thin or nonexistent, the Marble Falls aquifer may be hydrologically connected to the San Saba-Ellenburger aquifer. Some wells have been known to produce as much as 2,000 gal/min; however, most wells produce at rates significantly less than this amount.

Water Quality

The water produced from this aquifer is suitable for most purposes, but some wells in Blanco County have produced water with high nitrate concentrations. The downdip portion of the aquifer is not extensive, but in these areas the water becomes highly mineralized. Because the limestone formation comprising this aquifer is relatively shallow, it is susceptible to pollution by surface uses and activities.

Availability

The Marble Falls aquifer spans several counties and several GMAs. The groundwater availability estimate values for the Marble Falls aquifer are based on desired future conditions (DFCs) submitted by the responsible GMAs. Desired future conditions are essentially management goals for each aquifer. The DFCs for the Marble Falls aquifer are as follows:

Blanco County (GMA 9) – DFC adopted on August 29, 2008

- Allow for no net increase in average drawdown.

Burnet County (GMA 8) – DFC adopted on May 19, 2008

- Burnet County should maintain approximately 100 percent of the saturated thickness after 50 years by using approximately 80 percent of the estimated recharge.

San Saba County (GMA 7) – DFC adopted on July 29, 2010

- Total net decline in water levels shall not exceed seven (7) feet below 2010 water levels in the aquifer after 50 years.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports.

- The GMA 7 Marble Falls aquifer MAG being documented in TWDB report AA 10-12_MAG, dated November 1, 2011.
- The GMA 8 Marble Falls aquifer MAG being documented in TWDB report AA 10-17_MAG, dated December 9, 2011.
- The GMA 9 Marble Falls aquifer MAG being documented in TWDB report AA 10-14_MAG, dated June 22, 2011.

The reports provide the MAG values for the Marble Falls aquifer by county and basin, as shown in *Table 3.21* below.

Table 3.21 Water Availability from the Marble Falls Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Blanco	Colorado	261	261	261	261	261	261
Burnet	Brazos	93	93	93	93	93	93
Burnet	Colorado	1,885	1,885	1,885	1,885	1,885	1,885
	County Total	***1,978***	***1,978***	***1,978***	***1,978***	***1,978***	***1,978***
San Saba	Colorado	11,063	11,063	11,063	11,063	11,063	11,063
Region K	**Region Total**	**13,302**	**13,302**	**13,302**	**13,302**	**13,302**	**13,302**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.2.5 *Availability*.

3.2.2.2.6 Yegua-Jackson Aquifer

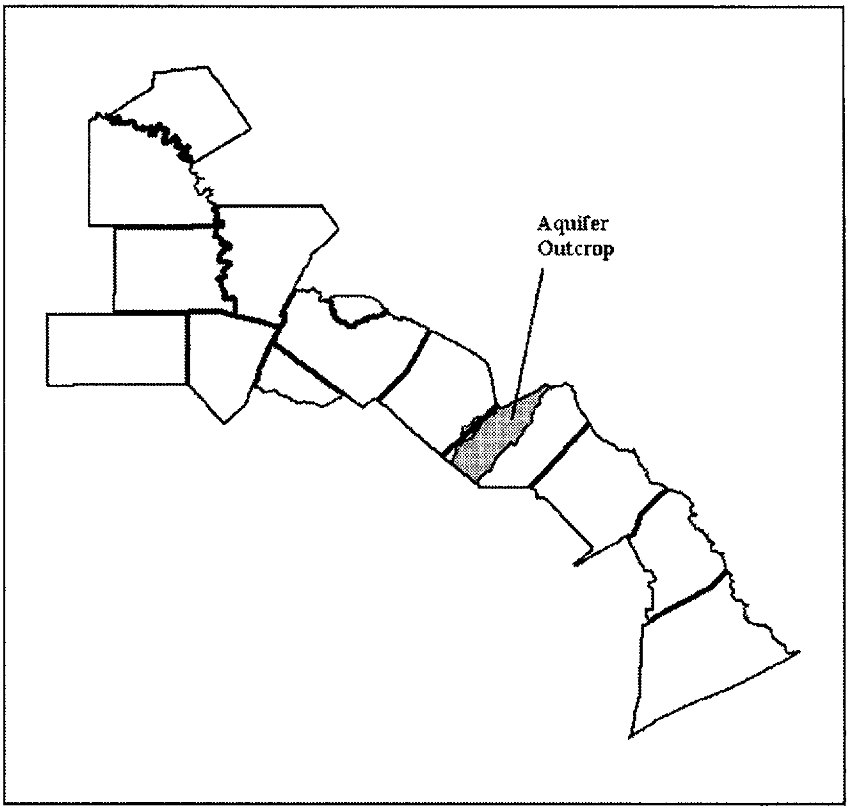
Location and Use

The Yequa-Jackson Aquifer extends in a narrow band from the Rio Grande Valley across the state to the Sabine River and Louisiana. It covers 10,904 square miles and exists within 34 counties.

The Yegua-Jackson Aquifer includes water bearing parts of the Yegua Formation and the Jackson Group. Within the LCRWPA, the Yegua Formation outcrops in Fayette County in a band approximately four to eight miles wide along the Bastrop-Fayette County line. The formation downdips at a rate of 150 feet per mile, and reaches its deepest depth of 2,800 feet below mean sea level along the Fayette-Lavaca County line. The yields of most wells in the Yegua-Jackson are generally small, ranging from less than 50 gallons per minute to over 300 gallons per minute. Groundwater use in Fayette County is primarily by rural landowners for domestic and livestock water supply.

The Jackson Group Formation outcrops in Fayette County within the LCRWPA in a band approximately three to eight miles wide along the northeasterly line from Flatonia to La Grange. The formation dips within Fayette County at a rate of approximately 150 feet per mile, and reaches its deepest depth of 2,200 feet below mean sea level near Fayetteville. Groundwater from the Jackson Group in Fayette County is used by the cities of Ledbetter, Flatonia, and Schulenburg as well as rural property owners.

Figure 3.12: Yegua-Jackson Aquifer Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Yegua-Jackson Aquifer's geologic units consist of complexly interbedded sand, silt, and clay layers originally deposited as fluvial and deltaic sediments. Most groundwater is produced from the sand units of the aquifer with the more significant productivity occurring in areas of more extensive fluvial channel sands and thick deltaic sands. Usable quality groundwater is generally limited to sands in the outcrop or slightly downdip. Net freshwater sands are generally less than 200 feet deep at any location within the aquifer.

Water Quality

Where the thicker, more extensive sand layers occur in the outcrop and slightly downdip, significant amounts of fresh to slightly saline water is available. Water quality varies greatly within the aquifer, and shallow occurrences of poor-quality water are not uncommon. The chemical quality of the groundwater is variable due to the variability of the composition of the sediments that make up the aquifer and the variability of how easily water moves through the aquifer. In all areas the aquifer becomes highly mineralized downdip.

Availability

The Yegua-Jackson aquifer in Fayette County is within GMA 12. The Groundwater Conservation Districts (GCD) within GMA 12 worked together to determine the desired future condition (DFC) of the Yegua-Jackson aquifer. Desired future conditions are essentially management goals for each aquifer. The DFC for the Yegua-Jackson aquifer, adopted by GMA 12 on June 30, 2011, is summarized as follows:

- No more than 75 feet of average drawdown between January 2010 and January 2060 within the Fayette County Groundwater Conservation District (Fayette County).

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) that converted the DFC into a volume. This volume is considered the modeled available groundwater or MAG. The MAG, which is considered the maximum amount of groundwater available for the regional water planning process from a particular aquifer, is documented in TWDB reports, with the GMA 12 Yegua-Jackson aquifer MAG being documented in TWDB report GR 10-060_MAG, dated July 9, 2012. The report provides the MAG values for the Yegua-Jackson aquifer by county and basin, as shown in *Table 3.22* below.

Table 3.22 Water Availability from the Yegua-Jackson Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Fayette	Colorado	5,065	5,065	5,065	5,065	5,065	5,065
Fayette	Guadalupe	650	650	650	650	650	650
Fayette	Lavaca	47	47	47	47	47	47
	County Total	***5,762***	***5,762***	***5,762***	***5,762***	***5,762***	***5,762***
Region K	**Region Total**	**5,762**	**5,762**	**5,762**	**5,762**	**5,762**	**5,762**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.2.6 *Availability*.

3.2.2.2.7 Other Aquifer

Other Aquifer refers to alluvial aquifer water supplies that have not been identified, named, or studied. These alluvial aquifers are being used by a few WUGs in Region K as supply sources. The most likely source of these Other Aquifer supplies in Region K is the Colorado River Alluvium and related terrace deposits. Other Aquifer supplies were only considered for counties where WUGs specifically list alluvial aquifer type supplies as a source or where municipal or industrial WUGs could potentially utilize these alluvial supplies.

The availability of Other Aquifer supplies was determined based on current groundwater pumping reported in the TWDB historical groundwater use report for 2011, as well as permit data from Groundwater Conservation Districts, where applicable. *Table 3.23* contains a summary of the Other Aquifer sources available to the LCRWPA.

Table 3.23 Water Availability from Other Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Bastrop	Colorado	5,340	5,340	5,340	5,340	5,340	5,340
	County Total	***5,340***	***5,340***	***5,340***	***5,340***	***5,340***	***5,340***
Burnet	Brazos	783	783	783	783	783	783
Burnet	Colorado	3,672	3,672	3,672	3,672	3,672	3,672
	County Total	***4,455***	***4,455***	***4,455***	***4,455***	***4,455***	***4,455***
Fayette	Colorado	834	834	834	834	834	834
	County Total	***834***	***834***	***834***	***834***	***834***	***834***
Llano	Colorado	629	629	629	629	629	629
	County Total	***629***	***629***	***629***	***629***	***629***	***629***
Travis	Colorado	1,453	1,453	1,453	1,453	1,453	1,453
Travis	Guadalupe	112	112	112	112	112	112
	County Total	***1,565***	***1,565***	***1,565***	***1,565***	***1,565***	***1,565***
Region K	**Region Total**	**12,823**	**12,823**	**12,823**	**12,823**	**12,823**	**12,823**

Note: An explanation of the numbers presented in this table is provided in Section 3.2.2.2.6.

3.2.3 Regional Water Availability Summary

The TWDB guidelines for regional water planning process require that a summary of the water sources available to the region be presented. Detailed information concerning water source availability for the region is presented in *Appendix 3C* in the DB17 reports from TWDB. This information is presented graphically in *Figure 3.13* and is summarized in *Table 3.24*. As indicated, under current conditions, a total of approximately 1.25 million ac-ft of water is available annually to the LCRWPA under DOR conditions. Of this amount, approximately 74 percent is from surface water sources and 26 percent is from groundwater sources.

Figure 3.13: Total Water Available in Region K During a Drought of Record

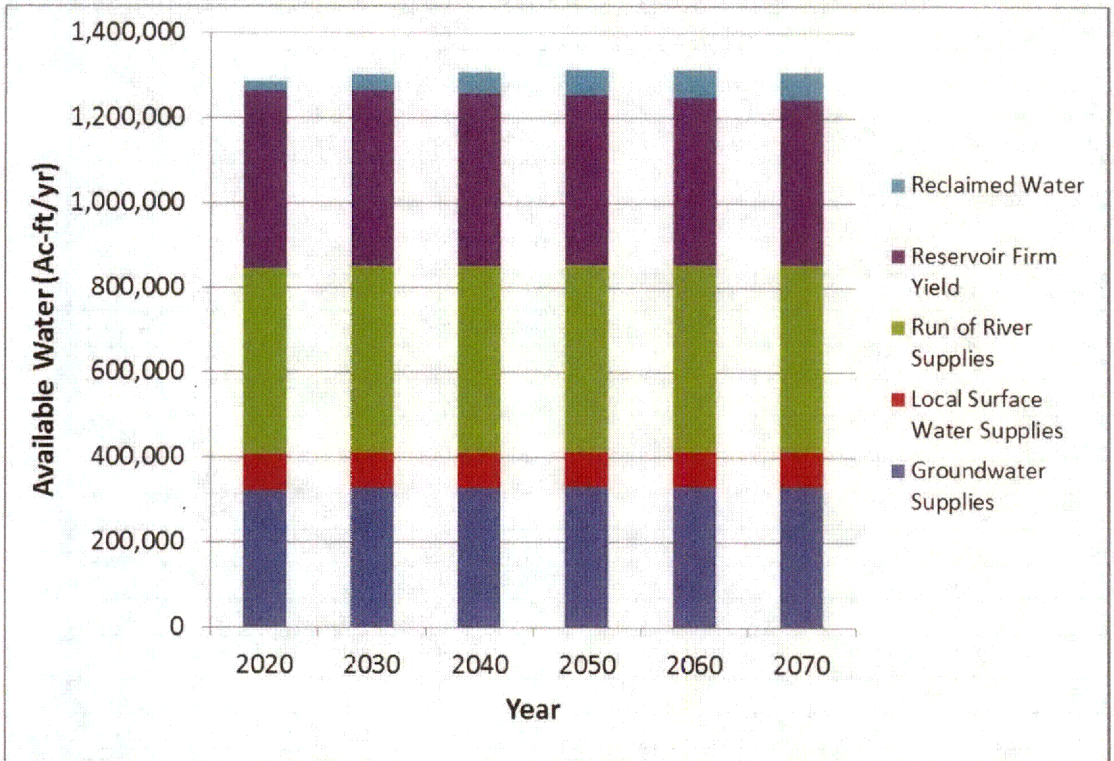


Table 3.24 Total Water Available in the Lower Colorado Regional Planning Area During a Drought of Record (ac-ft/yr)

Water Source	2020	2030	2040	2050	2060	2070
City of Austin - ROR Municipal [1]	201,374	201,374	201,374	201,374	201,387	201,441
City of Austin - ROR Steam Electric [1]	10,938	10,938	10,938	10,938	10,938	10,938
LCRA - Garwood ROR	123,822	123,822	123,822	123,822	123,822	123,822
LCRA - Gulf Coast ROR	13,524	13,524	13,524	13,524	13,524	13,524
LCRA - Lakeside ROR	5,692	5,692	5,692	5,692	5,692	5,692
LCRA - Pierce Ranch ROR	2,912	2,912	2,912	2,912	2,912	2,912
STP Nuclear Operating Co. ROR	44,397	44,397	44,397	44,397	44,397	44,397
San Bernard ROR	597	597	597	597	597	597
Highland Lakes [2]	418,812	413,298	407,774	401,744	395,201	389,125
Goldthwaite Reservoir	0	0	0	0	0	0
Llano Reservoir	417	417	417	417	417	417
Blanco Reservoir	596	596	596	596	596	596
Reclaimed Water (Reuse)	23,526	37,483	49,674	59,624	64,874	64,874
Irrigation Local Supply	38,687	38,687	38,687	38,687	38,687	38,687
Livestock Local Supply [3]	14,012	14,012	14,012	14,012	14,012	14,012
Other Local Supply	31,126	31,126	31,126	31,126	31,126	31,126
Carrizo-Wilcox Aquifer	20,979	21,666	25,833	29,018	29,498	29,498
Edwards (BFZ)Aquifer	9,452	9,452	9,452	9,452	9,452	9,452
Edwards-Trinity Aquifer (Plateau)	2,514	2,514	2,514	2,514	2,514	2,514
Ellenburger-San Saba Aquifer	27,907	27,907	27,907	27,907	27,907	27,907
Gulf Coast Aquifer	182,662	182,494	182,484	182,475	182,445	182,445
Hickory Aquifer	8,525	8,525	8,525	8,525	8,525	8,525
Marble Falls Aquifer	13,302	13,302	13,302	13,302	13,302	13,302
Queen City Aquifer	1,531	3,243	1,544	1,588	1,592	1,592
Sparta Aquifer	5,505	8,641	5,331	5,302	5,312	5,312
Trinity Aquifer	30,134	30,114	30,101	30,085	30,056	30,056
Yegua-Jackson Aquifer	5,762	5,762	5,762	5,762	5,762	5,762
Other Aquifer	14,093	14,093	14,093	14,093	14,093	14,093
Garwood (Corpus Christi) ROR	35,000	35,000	35,000	35,000	35,000	35,000
Region K Totals	**1,287,798**	**1,301,588**	**1,307,390**	**1,314,485**	**1,313,640**	**1,307,618**

Notes: Downstream water availability does not include return flows.
The water availability numbers in this table reflect water that is physically present in the region. This does not necessarily mean that this water is available to WUGs for immediate use as defined in *Table 3.31*.
Groundwater availabilities are discussed in Section 3.2.2.

[1] Refer to *Table 3.3* and *Table 3.27* for a breakdown of what is included in the COA ROR rights.
[2] Refer to *Table 3.1* for a breakdown of the Highland Lakes.
[3] Local Supply Sources are presented in *Tables 3.4, 3.5, 3.6, 3.7, 3.8,* and *3.9*.

3.3 WHOLESALE WATER PROVIDERS

The RWPGs are required to prepare estimates of the water available to the Wholesale Water Providers within each region. The LCRWPG has identified two Wholesale Water Providers, the LCRA, and the City of Austin. The water supplies available to these two entities are discussed in the following sections.

3.3.1 LCRA Water Availability

The LCRA has acquired the rights to significant quantities of water within the LCRWPA. The majority of water that is available to LCRA during a repeat of the drought of record is associated with the Highland Lakes System. However, the LCRA also has two additional smaller reservoirs that it operates in association with two power generating facilities (Fayette Power Project and Sim Gideon/Lost Pines Power Park). LCRA has developed groundwater supplies in Bastrop County. In addition, the LCRA has acquired many of the senior run-of-river water rights in the lower basin. *Table 3.25* contains a summary of the water that is available to the LCRA.

Table 3.25 Total Water Available to the Lower Colorado River Authority (ac-ft/yr)

Water Rights Holder/Source	Water Availability During Drought of Record [1]					
	2020	2030	2040	2050	2060	2070
LCRA - Garwood	123,822	123,822	123,822	123,822	123,822	123,822
LCRA - Gulf Coast	13,524	13,524	13,524	13,524	13,524	13,524
LCRA - Lakeside #1 and #2	5,692	5,692	5,692	5,692	5,692	5,692
LCRA - Pierce Ranch	2,912	2,912	2,912	2,912	2,912	2,912
LCRA - Highland Lakes	418,812	413,298	407,774	401,744	395,201	389,125
Carrizo-Wilcox Aquifer [2]	4,500	4,886	5,694	6,149	6,149	6,149
Totals	**569,262**	**564,134**	**559,418**	**553,843**	**547,300**	**541,224**

Data Source: Colorado WAM provided by TCEQ, Feb 2012, Run 3 – modified to Region K Cutoff Model with hydrology through 2013. WRAP program by Dr. Ralph Wurbs, Texas A&M University, August 2012

Note: Downstream water availability does not include return flows.

[1] The firm yield determinations for the LCRA ROR rights are discussed in *Section 3.2.1.1.3* and are presented in *Table 3.3*. The Highland Lakes firm yield determination is discussed in *Section 3.2.1.1.1* and is presented in *Table 3.1*.

[2] LCRA has a permit for Carrizo-Wilcox aquifer groundwater in Bastrop County. The amount shown is not the full permitted volume, but the amount available for planning purposes that meets TWDB requirements for regional water planning.

The LCRA makes the majority of this water available to its customers for various uses through water sales contracts. The majority of these water sales contracts are for stored water from the Highland Lakes System. These firm customer contracts are assumed to renew through the planning period. In addition, the LCRA operates three irrigation divisions (Lakeside, Garwood and Gulf Coast) in the lower basin and also provides water to Pierce Ranch. These divisions and Pierce Ranch are provided irrigation water, subject to interruption, for agricultural crop (rice and other crops) production in Colorado, Wharton, and Matagorda Counties. *Table 3.26* contains a summary of current LCRA water supply commitments and projected irrigation demands, by Water User Groups.

Table 3.26 LCRA Firm Water Commitment and Interruptible Demand Summary (ac-ft/yr)

County/WUG	2020	2030	2040	2050	2060	2070
Environmental Commitments*	33,440	33,440	33,440	33,440	33,440	33,440
Bastrop County						
County-Other	744	744	744	744	744	744
Irrigation	955	955	955	955	955	955
Steam Electric	16,720	16,720	16,720	16,720	16,720	16,720
Burnet County						
Burnet	4,100	4,100	4,100	4,100	4,100	4,100
Cottonwood Shores	495	495	495	495	495	495
Granite Shoals	830	830	830	830	830	830
Horseshoe Bay (also in Llano Co.)	2,225	2,225	2,225	2,225	2,225	2,225
Marble Falls	3,000	3,000	3,000	3,000	3,000	3,000
Meadowlakes	75	75	75	75	75	75
County-Other	2,205	2,205	2,205	2,205	2,205	2,205
Irrigation	416	416	416	416	416	416
Manufacturing	500	500	500	500	500	500
Colorado County						
Irrigation [1]	124,385	121,039	117,783	114,614	111,532	108,531
Fayette County						
County-Other	102	102	102	102	102	102
Steam Electric (LCRA)	38,101	38,101	38,101	38,101	38,101	38,101
Steam Electric (COA)	7,016	7,016	7,016	7,016	7,016	7,016
Gillespie County						
County-Other	56	56	56	56	56	56
Hays County						
Dripping Springs	506	506	506	506	506	506
Dripping Springs WSC	1,126	1,126	1,126	1,126	1,126	1,126
County-Other	1,401	1,401	1,401	1,401	1,401	1,401
Lampasas County (Region G)						
Lometa	665	665	665	665	665	665
Llano County						
Kingsland WSC (also in Burnet Co.)	1,150	1,150	1,150	1,150	1,150	1,150
Sunrise Beach Village	200	200	200	200	200	200
County-Other	3,586	3,586	3,586	3,586	3,586	3,586
Irrigation	1,514	1,514	1,514	1,514	1,514	1,514
Steam Electric	2,500	2,500	2,500	2,500	2,500	2,500
Mason County (Region F)						
Irrigation	59	59	59	59	59	59
Mining	2	2	2	2	2	2

County/WUG	2020	2030	2040	2050	2060	2070
Matagorda County						
Manufacturing	14,222	14,222	14,222	14,222	14,222	14,222
Irrigation [2]	181,906	176,942	172,112	167,412	162,839	158,388
Steam Electric [3]	32,240	32,226	32,202	32,172	32,142	32,120
San Saba County						
County-Other	20	20	20	20	20	20
Travis County						
Austin - Municipal [4]	123,626	123,626	123,626	123,626	123,613	123,559
Austin - Steam Electric [5]	16,156	16,156	16,156	16,156	16,156	16,156
Briar Cliff Village	400	400	400	400	400	400
Cedar Park [6]	2,767	2,767	2,767	2,767	2,767	2,767
The Hills	1,600	1,600	1,600	1,600	1,600	1,600
Lago Vista	6,500	6,500	6,500	6,500	6,500	6,500
Lakeway	3,069	3,069	3,069	3,069	3,069	3,069
Loop 360 WSC	1,250	1,250	1,250	1,250	1,250	1,250
Pflugerville	12,000	12,000	12,000	12,000	12,000	12,000
Point Venture	360	360	360	360	360	360
Travis County MUD #14	4,316	4,316	4,316	4,316	4,316	4,316
Travis County WCID #17	9,299	9,299	9,299	9,299	9,299	9,299
Travis County WCID #18	1,736	1,736	1,736	1,736	1,736	1,736
Travis County WCID #20	1,135	1,135	1,135	1,135	1,135	1,135
West Travis County PUA [7]	9,450	9,450	9,450	9,450	9,450	9,450
County-Other	14,617	14,617	14,617	14,617	14,617	14,617
Irrigation	2,596	2,596	2,596	2,596	2,596	2,596
Manufacturing	282	282	282	282	282	282
Williamson County (Region G)						
Cedar Park [6] (also in Travis County)	15,233	15,233	15,233	15,233	15,233	15,233
Leander [8] (also in Travis County)	24,000	24,000	24,000	24,000	24,000	24,000
Brazos River Authority	25,000	25,000	25,000	25,000	25,000	25,000
Wharton County						
Irrigation [9]	116,726	113,586	110,531	107,557	104,664	101,848
TOTAL	868,579	857,116	845,951	835,079	824,487	814,144

*Environmental demands are not one of the six water uses planned for in regional water planning.

[1] The Colorado Irrigation commitment represents 75 percent of the Colorado County Irrigation demand and includes both supplies from LCRA ROR water rights and supplemental interruptible stored water from the Highland Lakes on an annual contract basis.

[2] The Matagorda Irrigation commitment represents 87 percent of the Matagorda County Irrigation demand and includes both supplies from LCRA ROR water rights and supplemental interruptible stored water from the Highland Lakes on an annual contract basis.

[3] The Matagorda Steam Electric value is based on the Region K Cutoff Model results for the average annual amount of LCRA backup supplies needed to supplement the STPNOC/LCRA water right.

[4] The Austin-Municipal value is based on the Region K Cutoff Model results for the amount of LCRA backup supplies needed to supplement Austin's municipal water rights.

[5] The Austin-Steam Electric value is based on the Region K Cutoff Model results for the amount of LCRA backup supplies needed to supplement Austin's steam-electric water rights.

[6] Cedar Park is located in both Region K and Region G , and it serves Williamson-Travis Counties MUD #1 (WUG).

[7] West Travis County PUA serves multiple water user groups including the Village of Bee Cave, Barton Creek West WSC, and County-Other.

[8] Leander is located in both Region K and Region G.

[9] The Wharton Irrigation commitment represents 55 percent of the total Wharton County Irrigation demand and includes both supplies from LCRA ROR water rights and supplemental interruptible stored water from the Highland Lakes on an annual contract basis.

In general, the municipal and manufacturing commitments listed in the table above are considered firm commitments for water, while the water provided by LCRA to irrigation users in the three LCRA Irrigation Divisions and to Pierce Ranch is on an interruptible supply basis. Based on the current 2010 LCRA Water Management Plan, the LCRA will release water from storage on an interruptible basis when the levels in the Highland Lakes are above a prescribed level at the beginning of the year. During drought conditions, this water may not be available for users or is available in limited quantities. Therefore, in accordance with the TWDB guidance, interruptible water supplied by LCRA is not being considered as a "currently available water supply." The availability of interruptible water will be addressed in Chapter 5 discussing management strategies to meet identified water shortages.

3.3.2 City of Austin Water Availability

The City of Austin has run-of-river water rights to divert and use water from the Colorado River. Hydrologic conditions are such that Austin's full authorized diversion amount of water is not available to Austin under these water rights. As a result, the City of Austin has entered into a contract with LCRA to firm up these water rights with water stored in the Highland Lakes. *Table 3.27* contains a summary of the water available to the City of Austin.

Table 3.27 City of Austin Water Availability (ac-ft/yr)

Water Right / Agreement	Water Rights Holder	Water Supply Source	Water Availability During Drought of Record (Ac-Ft/Yr)					
			2020	2030	2040	2050	2060	2070
5471	COA [1]	ROR - Municipal	158,781	158,781	158,781	158,781	158,794	158,848
5471	COA [1]	ROR - Municipal	29,201	29,201	29,201	29,201	29,201	29,201
5471	COA [2]	ROR - Municipal	8,284	8,284	8,284	8,284	8,284	8,284
5489	COA [3]	ROR - Municipal	5,108	5,108	5,108	5,108	5,108	5,108
Mun and Mfg ROR Subtotal			201,374	201,374	201,374	201,374	201,387	201,441
5471	LCRA Backup [1]	Highland Lakes	62,018	62,018	62,018	62,018	62,005	61,951
5471	LCRA Backup [2]	Highland Lakes	13,119	13,119	13,119	13,119	13,119	13,119
5489	LCRA Backup [3]	Highland Lakes	15,192	15,192	15,192	15,192	15,192	15,192
Remaining Contract	LCRA Contract	Highland Lakes	33,297	33,297	33,297	33,297	33,297	33,297
LCRA Mun and Mfg Subtotal			123,626	123,626	123,626	123,626	123,613	123,559
Municipal & Manufacturing Total			**325,000**	**325,000**	**325,000**	**325,000**	**325,000**	**325,000**
5471 (Town Lake)	COA	ROR - Steam Electric	4,970	4,970	4,970	4,970	4,970	4,970
5471 (FPP)	COA	ROR - Steam Electric	871	871	871	871	871	871
5489 (Decker)	COA	ROR - Steam Electric	0	0	0	0	0	0
5489 (Decker) [4]	COA	ROR - Steam Electric	5,097	5,097	5,097	5,097	5,097	5,097
Steam Electric ROR Total			10,938	10,938	10,938	10,938	10,938	10,938
Town Lake Contract	LCRA Contract	Highland Lakes	0	0	0	0	0	0
Decker Contract [4]	LCRA Contract	Highland Lakes	11,059	11,059	11,059	11,059	11,059	11,059
FPP & Sandhill Contract	LCRA Contract	Highland Lakes	7,016	7,016	7,016	7,016	7,016	7,016
LCRA Steam Electric Total			18,075	18,075	18,075	18,075	18,075	18,075
Steam Electric Total			**29,013**	**29,013**	**29,013**	**29,013**	**29,013**	**29,013**
TOTAL (Municipal & Manufacturing + Stream Electric)			**354,013**	**354,013**	**354,013**	**354,013**	**354,013**	**354,013**

[1] These two City of Austin ROR Rights and the LCRA backup total 250,000 ac-ft/yr.
[2] The City of Austin ROR Right and the LCRA backup total 21,403 ac-ft/yr.
[3] The City of Austin ROR Right and the LCRA backup total 20,300 ac-ft/yr.
[4] The Decker ROR right and the LCRA contract total 16,156 ac-ft/yr.

The City of Austin provides treated water to customers within its service area. In addition, the City has contracts to provide treated water on a wholesale basis to cities, districts, and water supply corporations in surrounding areas. *Table 3.28* contains a summary of the City of Austin water commitments. Contracts which are expected to terminate, not be renewed, and may subsequently be supplied by LCRA during the planning period are identified as so in the table below by showing 0 ac-ft/yr of supply in the applicable decades. Details related to water management strategies for new LCRA contracts are provided in Chapter 5. The City of Austin will continue to treat and deliver the LCRA contracted water for these entities.

Table 3.28 City of Austin Water Commitment Summary (ac-ft/yr)

Water User Groups (WUGs)	County	Basin	2020	2030	2040	2050	2060	2070
Austin	Hays	Colorado	13	127	249	631	1,519	2,749
Austin	Travis	Colorado	157,445	182,933	209,973	229,887	246,590	266,411
County-Other [1] (COA Retail portion)	Travis	Colorado	4,520	4,108	3,740	3,138	2,298	1,555
Manufacturing	Travis	Colorado	35,430	48,350	63,498	72,631	81,421	91,270
Creedmoor-Maha WSC [1]	Travis	Colorado	241	0	0	0	0	0
Lost Creek MUD	Travis	Colorado	1,092	1,072	1,057	1,056	1,054	1,054
Manor [1]	Travis	Colorado	1,141	0	0	0	0	0
North Austin MUD#1	Travis	Colorado	82	79	77	75	75	75
Northtown MUD	Travis	Colorado	691	798	898	1,011	1,111	1,203
Rollingwood	Travis	Colorado	384	0	0	0	0	0
Shady Hollow MUD	Travis	Colorado	779	758	741	731	730	730
Sunset Valley	Travis	Colorado	386	0	0	0	0	0
Travis County WCID #10 [2]	Travis	Colorado	3,692	0	0	0	0	0
Wells Branch MUD	Travis	Colorado	1,638	1,602	1,577	1,563	1,559	1,558
Austin	Williamson	Brazos	7,697	9,541	11,841	14,317	17,126	20,208
County-Other (All COA Retail)	Williamson	Brazos	2,586	3,504	3,467	3,451	3,444	3,441
North Austin MUD#1	Williamson	Brazos	774	748	726	714	711	711
Wells Branch MUD	Williamson	Brazos	118	115	113	112	112	112
Total			**218,709**	**253,735**	**297,957**	**329,317**	**357,750**	**391,077**

Steam-Electric [3]	Fayette [4]	Colorado	14,702	14,702	14,702	14,702	20,702	22,702
Steam-Electric [3]	Travis	Colorado	18,500	22,500	22,500	23,500	24,500	26,500
Total			**33,202**	**37,202**	**37,202**	**38,202**	**45,202**	**49,202**

[1] These WUGs are also served by other entities.

[2] Travis County WCID #10 sells 1,564 AF of the Austin commitment to West Lake Hills.

[3] COA's portion of the STPNOC demand is included in the STPNOC total steam-electric demand in Matagorda County.

[4] COA portion - based on estimated current supply levels and approved projections.

3.4 WATER SUPPLIES AVAILABLE TO WATER USER GROUPS

Estimates of the total available supply of water within the LCRWPA during a repeat of the drought of record conditions are presented in Section 3.2. However, the availability of this water to each of the

water user groups is dependent upon the WUG's location and the infrastructure capacity or permits/contracts that are in place to move the water where it is needed. The following sections discuss the currently available water supplies for each of the water user groups within the LCRWPA. The water supply amounts presented in this section are a total of permitted/contracted amount and/or infrastructure capacity for each WUG in LCRWPA. Firm contacts are assumed to be renewed through the planning period, unless identified specifically in *Table 3.28*. The amount presented in *Section 3.2* (*Table 3.24*) is the total water available for LCRWPA established through modeling effort or regulatory limit.
The amount of total water supply available to the WUGs in Region K is less than the total available water to the region presented in *Table 3.24*, since the water supply for the WUGs is limited by current supplies owned or controlled by each WUG, location relative to the source, and infrastructure limitations. There is water available in Region K that is not currently being used by WUGs because they do not have the needs right now, or they do not have the means to utilize the source at this time. The following sections present the amount of water supply that is currently available to the WUGs (current permits/contracts and infrastructure capacities).

3.4.1 Surface Water Supplies Available to Water User Groups

As previously stated, there are four primary categories of surface water to be considered. The three categories include water stored in reservoirs, run-of-river water rights, local surface water supplies, and reclaimed water. The surface water supplies are available to the water user groups in a variety of methods. Many users of water throughout the basin have contracts with one of the two designated Wholesale Water Providers within the Region. Other users of surface water generally obtain water from small reservoirs or from other local sources such as stock ponds. Surface water information was also obtained from the TCEQ Water Utility Database (plant production capacities).

Information concerning the available surface water supply for each county within the LCRWPA is presented in *Table 3.29*. Detailed information concerning water supply availability for individual WUGs is presented in *Appendix 3C* in the DB17 reports from TWDB.

Table 3.29 Summary of Surface Water Supply to WUGs by County (ac-ft/yr)

County	2020 Supply	2030 Supply	2040 Supply	2050 Supply	2060 Supply	2070 Supply
Bastrop	14,734	14,237	13,336	12,799	12,726	12,677
Blanco	1,644	1,672	1,687	1,692	1,697	1,700
Burnet	15,422	15,462	15,505	15,546	15,576	15,603
Colorado	70,713	70,713	70,713	70,713	70,713	70,713
Fayette	48,330	48,330	48,330	48,330	48,330	48,330
Gillespie	742	742	742	742	742	742
Hays	8,447	8,619	8,811	9,283	10,274	11,496
Llano	12,057	12,055	12,046	12,036	12,035	12,033
Matagorda	108,927	108,913	108,889	108,859	108,829	108,807
Mills	3,066	3,066	3,066	3,066	3,066	3,066
San Saba	2,930	2,930	2,930	2,930	2,930	2,930
Travis	408,666	406,440	404,588	397,627	387,710	378,430
Wharton	37,422	37,422	37,422	37,422	37,422	37,422
Williamson	11,175	14,058	16,467	19,111	21,960	24,472
Regional Totals	**744,275**	**744,659**	**744,532**	**740,156**	**734,010**	**728,421**

Note: The supplies presented in this table are supplies currently available to the WUGs (current contracts and infrastructure capacities). Surface water availability excludes City of Austin return flows.

3.4.2 Groundwater Supplies Available to Water User Groups

Groundwater supplies were allocated to the various WUGs within the LCRWPA using data from various sources. Information provided by the water user group was entered when available. Permit information was entered for various groundwater conservation districts, and supplies were estimated based upon the TCEQ Water Utility Database information (well production capacities). In addition, in cases where total supplies exceeded the Modeled Available Groundwater (MAG), WUG supplies were cut back proportionally to prevent over allocation.

Information concerning the available groundwater supply for each county within the LCRWPA is presented in *Table 3.30.* Detailed information concerning water supply availability for individual WUGs is presented in *Appendix 3C* in the DB17 reports from TWDB.

Table 3.30 Summary of Groundwater Supply to WUGs by County (ac-ft/yr)

County	2020 Supply	2030 Supply	2040 Supply	2050 Supply	2060 Supply	2070 Supply
Bastrop	21,954	23,358	26,103	28,217	29,063	30,177
Blanco	2,575	2,575	2,575	2,575	2,575	2,575
Burnet	12,122	12,352	12,593	12,812	13,064	13,351
Colorado	48,727	48,727	48,727	48,727	48,727	48,727
Fayette	8,079	8,076	8,071	8,071	8,062	8,044
Gillespie	10,413	10,413	10,413	10,413	10,413	10,413
Hays	5,559	5,704	5,776	5,863	5,954	6,055
Llano	1,531	1,531	1,531	1,531	1,531	1,531
Matagorda	43,156	43,156	43,156	43,156	43,156	43,156
Mills	1,927	1,927	1,927	1,927	1,927	1,927
San Saba	7,715	7,717	7,716	7,712	7,715	7,718
Travis	14,630	14,561	14,434	14,325	14,170	13,630
Wharton	76,198	76,198	76,198	76,198	76,198	76,198
Williamson	6	6	6	6	6	6
Regional Totals	**254,592**	**256,301**	**259,226**	**261,533**	**262,561**	**263,508**

Note: The supplies presented in this table are supplies currently available to the WUGs (current permits and infrastructure capacities).

3.4.3 WUG Water Supply Summary

Information concerning the available water supply to WUGs in each county within the LCRWPA is presented in *Table 3.31.* There is water available in Region K that is not currently being used by WUGs because they do not have the needs right now, or they do not have the means to utilize the source at this time. *Table 3.31* shows the amount of water supply that is currently available to the WUGs (current permits/contracts and infrastructure capacities). As the contracts and permits expire, it is assumed they will be renewed at their currently contracted amount.

Detailed information concerning water supply available for every individual WUG in Region K is presented in *Appendix 3C* in the DB17 reports from TWDB.

Table 3.31 Total Water Supply to WUGs by County (ac-ft/yr)

County	2020 Supply	2030 Supply	2040 Supply	2050 Supply	2060 Supply	2070 Supply
Bastrop	36,688	37,595	39,439	41,016	41,789	42,854
Blanco	4,219	4,247	4,262	4,267	4,272	4,275
Burnet	27,544	27,814	28,098	28,358	28,640	28,954
Colorado	119,440	119,440	119,440	119,440	119,440	119,440
Fayette	56,409	56,406	56,401	56,401	56,392	56,374
Gillespie	11,155	11,155	11,155	11,155	11,155	11,155
Hays	14,006	14,323	14,587	15,146	16,228	17,551
Llano	13,588	13,586	13,577	13,567	13,566	13,564
Matagorda	152,083	152,069	152,045	152,015	151,985	151,963
Mills	4,993	4,993	4,993	4,993	4,993	4,993
San Saba	10,645	10,647	10,646	10,642	10,645	10,648
Travis	423,296	421,001	419,022	411,952	401,880	392,060
Wharton	113,620	113,620	113,620	113,620	113,620	113,620
Williamson	11,181	14,064	16,473	19,117	21,966	24,478
Regional Totals	**998,867**	**1,000,960**	**1,003,758**	**1,001,689**	**996,571**	**991,929**

Note: The supplies presented in this table are supplies currently available to the WUGs (current permits/contracts and infrastructure capacities).

APPENDIX 3A

WATER RIGHTS HELD IN THE LOWER COLORADO REGIONAL WATER PLANNING AREA

WATER RIGHTS
LOWER COLORADO REGIONAL WATER PLANNING AREA (REGION K)

Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
3448	JOHN W WHITE	Bastrop	Colorado	Recreation		11/15/1976
3491	BLUEBONNET LANDOWNERS ASSN INC	Bastrop	Colorado	Recreation	83	3/14/1977
3849	DAN L DUNCAN	Bastrop	Guadalupe	Recreation		8/30/1976
5084	SUN WEST INVESTMENTS INC	Bastrop	Colorado	Irrigation	4	8/14/1986
5398	JOHN COLEMAN HORTON III ET AL	Bastrop	Colorado	Irrigation	120	3/31/1954
5399	BELLE PENDLETON	Bastrop	Colorado	Irrigation	26	6/30/1955
5400	JERRY B DONALDSON	Bastrop	Colorado	Irrigation	8	4/30/1955
5402	LLOYD KETHA	Bastrop	Colorado	Irrigation	348	12/31/1905
5403	MERLE A PROKOP JR	Bastrop	Colorado	Irrigation	5	7/31/1966
5404	TEXAS PARKS & WILDLIFE DEPT	Bastrop	Colorado	Recreation		5/19/1969
5405	EDWARD L HUGHES	Bastrop	Colorado	Irrigation	8	12/31/1960
5406	J B LOVEJOY	Bastrop	Colorado	Irrigation	2	12/31/1962
5407	A J ROD	Bastrop	Colorado	Irrigation	80	12/9/1974
5408	TEXAS PARKS & WILDLIFE DEPT	Bastrop	Colorado	Recreation		8/25/1969
5411	MILTON C PETZOLD	Bastrop	Colorado	Irrigation	15	2/23/1970
5412	ASSN	Bastrop	Colorado	Recreation		4/8/1975
5413	CARL DROEMER	Bastrop	Colorado	Irrigation	61	9/16/1974
5414	LAKE THUNDERBIRDS OWNERS ASSN INC	Bastrop	Colorado	Recreation		10/15/1973
5415	INDIAN LAKE OWNERS ASSOCIATION	Bastrop	Colorado	Recreation		10/1/1973
5473	LOWER COLORADO RIVER AUTHORITY	Bastrop	Colorado	Industrial	10750	3/4/1963
1468	MARY O'BOYLE II ENGLISH	Blanco	Colorado	Irrigation	500	4/1/1963
1470	TEXAS PARKS & WILDLIFE DEPT	Blanco	Colorado	Irrigation		1/1/1967
1470	WERNER SCHUMANN	Blanco	Colorado	Irrigation	50	1/1/1967
1472	AL LOUIS LINDIG ET UX	Blanco	Colorado	Irrigation	7	1/1/1933
1473	JOHN W O'BOYLE JR	Blanco	Colorado	Irrigation	276	1/1/1964
1477	KELLER EQUIPMENT COMPANY	Blanco	Colorado	Irrigation	4	12/31/1964
1478	JAMES J MOONEY	Blanco	Colorado	Irrigation	9	8/16/1965
1479	CITY OF JOHNSON CITY	Blanco	Colorado	Municipal/Domestic	220	11/29/1966
1480	W T YETT	Blanco	Colorado	Recreation		4/1/1967
1481	TEXAS PARKS & WILDLIFE DEPT	Blanco	Colorado	Municipal/Domestic	30	4/24/1972
1482	NANCY WARREN FRASHER	Blanco	Colorado	Irrigation	34	9/7/1962
3673	GARY & BRUCE GRANBERG	Blanco	Guadalupe	Irrigation	7	2/5/1979
3728	STEVE MARSHALL ET AL	Blanco	Guadalupe	Recreation		1/7/1980
3871	W J HAAS	Blanco	Guadalupe	Irrigation	12	9/30/1957
3872	HALL STREET HAMMOND	Blanco	Guadalupe	Irrigation	20	11/25/1974
3872	STETLER FAMILY LIVING TRUST	Blanco	Guadalupe	Irrigation	7	11/25/1974
3872	THOMAS A SIKES ET AL	Blanco	Guadalupe	Irrigation	5	11/25/1974
3873	HENRY & ELSIE LEE MCCLAIN	Blanco	Guadalupe	Irrigation	49	6/30/1957
3874	JIMMY C PARKER ET AL	Blanco	Guadalupe	Irrigation	24	11/30/1963
3875	MCCOMBS LEGACY LTD	Blanco	Guadalupe	Irrigation	45	5/31/1963
3876	NORVAL A HAILE ET UX	Blanco	Guadalupe	Recreation		5/28/1974
3876	WAYNE A ZERCHER	Blanco	Guadalupe	Recreation		5/28/1974
3876	WILLIAM W ATWELL	Blanco	Guadalupe	Recreation		5/28/1974
3877	CITY OF BLANCO	Blanco	Guadalupe	Municipal/Domestic	600	8/29/1955
3878	TEXAS PARKS & WILDLIFE DEPT	Blanco	Guadalupe	Recreation		5/26/1969
3879	STEPHEN E MARSHALL ET UX	Blanco	Guadalupe	Recreation		6/14/1976
3930	WAYMOND LIGHTFOOT TRUSTEE	Blanco	Guadalupe	Recreation		9/20/1982
3988	A DEAN MABRY ET AL	Blanco	Guadalupe	Recreation		1/10/1983
4041	LUXURY TRAILS INCORPORATED	Blanco	Colorado	Recreation		5/23/1983
5556	CHARLES JAMES TESAR	Blanco	Guadalupe	Irrigation	20	7/31/1996
2607	GOODRICH RANCH	Burnet	Colorado	Irrigation	43	3/31/1955
2608	GOODRICH RANCH	Burnet	Colorado	Domestic and Livestock Only		9/7/1950
2609	JAMES BARBER JOHANSON	Burnet	Colorado	Irrigation	33	12/31/1948
2614	FAMILY TRUST NO 1	Burnet	Colorado	Irrigation	46	12/31/1953
2615	ESTATE OF KATHLEEN BARNETT	Burnet	Colorado	Irrigation	150	12/31/1959
2629	FRITZ & BERNICE BRUNS	Burnet	Colorado	Irrigation	8	12/31/1956
2630	AGNES ANDERSON HEFNER ET AL	Burnet	Colorado	Irrigation	438	7/4/1956
2631	TEXAS GRANITE CORPORATION	Burnet	Colorado	Industrial	33	5/23/1950

WATER RIGHTS
LOWER COLORADO REGIONAL WATER PLANNING AREA (REGION K)

Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
2632	CITY OF MEADOWLAKES	Burnet	Colorado	Irrigation	78	4/4/1895
2633	JOAN BREWER	Burnet	Colorado	Irrigation	18	12/31/1934
2634	MOUSTAPHA ABOU-SAMRA ET UX	Burnet	Colorado	Irrigation	144	12/31/1953
2635	MARGERY RUTH FELPS TRUST	Burnet	Colorado	Irrigation	11	12/31/1953
2636	BILLIE J PRATT	Burnet	Colorado	Irrigation	2	3/31/1966
2637	BILLIE J PRATT	Burnet	Colorado	Irrigation	6	3/31/1966
2638	BILLIE J PRATT	Burnet	Colorado	Irrigation	6	3/31/1966
2639	P H & JANICE L SMITH	Burnet	Colorado	Irrigation	10	3/31/1966
2640	R G FUSSELL ET UX	Burnet	Colorado	Irrigation	10	3/31/1966
2641	G S ALLEN	Burnet	Colorado	Irrigation	253	2/28/1958
2642	D M DOYLE	Burnet	Colorado	Irrigation	89	12/31/1961
2643	COSTILLO C LEWIS	Burnet	Colorado	Irrigation	80	4/30/1967
2989	CAROLYN SUE CAROTHERS	Burnet	Brazos	Irrigation	9	12/31/1923
2989	GARY L REID ET AL	Burnet	Brazos	Irrigation	19	12/31/1923
2990	HERBERT A & BARBARA MAAS	Burnet	Brazos	Irrigation	63	4/30/1966
2991	SAWTOOTH ENTERPRISES LTD	Burnet	Brazos	Irrigation	145	12/31/1965
2992	FLORENCE ELIZABETH BROWN	Burnet	Brazos	Irrigation	34	3/14/1954
2992	MARY ANGELINE GAGE	Burnet	Brazos	Irrigation	34	3/14/1954
2993	HANSFORD B SMITH ET AL	Burnet	Brazos	Irrigation	44	12/31/1925
2994	THOMAS M & BETTY L R SPENCER	Burnet	Brazos	Irrigation	6	12/31/1925
2995	MORSE RANCH A PARTNERSHIP	Burnet	Brazos	Irrigation	120	3/7/1966
2996	JOHN TAYLOR ET UX	Burnet	Brazos	Irrigation	56	4/1/1966
3411	THE MEADOWLAKES COMPANY	Burnet	Colorado	Irrigation	403	11/22/1976
3735	HENRY GRADY RYLANDER	Burnet	Brazos	Irrigation	26	6/30/1963
5116	BUCKNER BAPTIST BENEVOLENCES INC	Burnet	Colorado	Recreation		12/30/1986
5193	GREENSMITHS INC	Burnet	Colorado	Other		9/6/1988
5216	GOLDSTAR INVESTMENTS LTD ET AL	Burnet	Colorado	Domestic and Livestock Only		2/10/1989
5327	CITY OF BURNET	Burnet	Colorado	Recreation		10/26/1990
5452	BASKIN FAMILY CAMPS INC	Burnet	Colorado	Recreation		2/23/1993
5478	LOWER COLORADO RIVER AUTHORITY	Burnet	Colorado	Municipal/Domestic	1500000	3/29/1926
5479	LOWER COLORADO RIVER AUTHORITY	Burnet	Colorado	Hydroelectric		3/29/1926
5480	LOWER COLORADO RIVER AUTHORITY	Burnet	Colorado	Industrial	15700	3/29/1926
5481	LOWER COLORADO RIVER AUTHORITY	Burnet	Colorado	Hydroelectric		3/29/1926
5593	JERRY W GLAZE ET UX	Burnet	Brazos	Irrigation	130	7/1/1997
2079	LAKE SHERIDAN ESTATES INC	Colorado	Lavaca	Recreation		10/7/1963
2080	ENGSTROM BROTHERS PARTNERSHIP	Colorado	Lavaca	Irrigation	248	12/31/1938
2081	TRUMAN ENGSTROM JR ET AL	Colorado	Lavaca	Irrigation	683	4/30/1955
2085	WILLIAM MARK WIED	Colorado	Lavaca	Irrigation	13	12/31/1962
2086	A J RICHTER ET AL	Colorado	Lavaca	Irrigation	282	4/30/1955
2087	LEO M KORENEK	Colorado	Lavaca	Irrigation	84	4/30/1946
2088	LEO M KORENEK	Colorado	Lavaca	Irrigation	45	4/30/1924
2089	LOUIS P HOFFMAN	Colorado	Lavaca	Irrigation	48	5/31/1966
3415	MERIDEE BATLA CORLEY	Colorado	Brazos-Colorado	Irrigation	11	5/31/1964
3415	ORA LEE BATLA PLENGEMEYER	Colorado	Brazos-Colorado	Irrigation	14	5/31/1964
3416	JOHN W ADKINS	Colorado	Brazos-Colorado	Irrigation	150	7/14/1980
3417	ALICE M ADKINS ET AL	Colorado	Brazos-Colorado	Irrigation	150	7/14/1980
3904	NORBERT WEID AND PAT WISHERT	Colorado	Lavaca	Irrigation	60	11/16/1981
3906	HERBERT J & JOSEPHINE POPP	Colorado	Lavaca	Irrigation	140	11/16/1981
3908	ELIZABETH B MILLER	Colorado	Lavaca	Irrigation	279	11/16/1981
5156	US DEPARTMENT OF THE INTERIOR	Colorado	Brazos-Colorado	Other		9/15/1987
5429	C G JOHNSON	Colorado	Colorado	Irrigation	73	7/31/1949
5432	CHARLES T TREFNY	Colorado	Colorado	Irrigation	21	8/31/1951
5434	CITY OF CORPUS CHRISTI	Colorado	Colorado	Municipal/Domestic	35000	11/2/1900
5434	LOWER COLORADO RIVER AUTHORITY	Colorado	Colorado	Irrigation	133000	11/1/1900
5475	LOWER COLORADO RIVER AUTHORITY	Colorado	Colorado	Irrigation	131250	1/4/1901
5523	CLARK & VICKI POWERS	Colorado	Brazos-Colorado	Irrigation	300	3/1/1995
5728	CITY OF WEIMAR	Colorado	Colorado	Irrigation		1/25/2001
2075	H D WRIGHT ET UX	Fayette	Lavaca	Irrigation	2	12/31/1954

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2075	O C TOWNSEND ET UX	Fayette	Lavaca	Irrigation	2	12/31/1954
3469	JEAN A PHARR	Fayette	Colorado	Recreation		6/14/1976
3522	JOHN WETH	Fayette	Colorado	Irrigation	35	6/20/1977
5410	FIVE H & ONE LTD	Fayette	Colorado	Recreation		2/17/1975
5416	CLEAR LAKE PINES MAINTENANCE CORP	Fayette	Colorado	Recreation		9/16/1974
5417	G W OEDING	Fayette	Colorado	Recreation		9/17/1973
5418	EDMUND KAPPLER ET AL	Fayette	Colorado	Irrigation	128	2/10/1975
5420	WILLIAM GOLDAPP	Fayette	Colorado	Irrigation	32	6/10/1968
5421	WILLIE G LEHMANN	Fayette	Colorado	Irrigation	30	5/22/1972
5422	ROBERT LEHMANN	Fayette	Colorado	Irrigation	3	6/30/1967
5423	CLEAR LAKE PINES INC	Fayette	Colorado	Recreation		7/5/1976
5424	ERNEST G BARTEK ET UX	Fayette	Colorado	Irrigation	47	7/31/1967
5425	CHARLES T TREFNY	Fayette	Colorado	Irrigation	76	7/31/1956
5426	HAGEMANN	Fayette	Colorado	Irrigation	10	7/31/1956
5427	C A HENSEL	Fayette	Colorado	Irrigation	14	7/31/1956
5428	RALPH T JOHNSON ET UX	Fayette	Colorado	Irrigation	15	7/31/1956
5433	KELLY K REYNOLDS TRUSTEE	Fayette	Colorado	Irrigation	35	11/4/1974
5474	LOWER COLORADO RIVER AUTHORITY	Fayette	Colorado	Industrial		2/3/1975
1405	CUATRO ESTRELLAS LTD	Gillespie	Colorado	Irrigation	10	1/1/1959
1405	MARY C VEHLE	Gillespie	Colorado	Irrigation	27	1/1/1959
1405	R J SECHRIST ET UX	Gillespie	Colorado	Irrigation	21	1/1/1959
1405	REDDING RANCH LTD	Gillespie	Colorado	Irrigation	16	1/1/1959
1406	REDDING RANCH LTD	Gillespie	Colorado	Irrigation	8	9/30/1957
1407	CLETIS GRONA ET AL	Gillespie	Colorado	Irrigation	11	12/31/1940
1407	FALCON SEABOARD DIVERSIFIED INC	Gillespie	Colorado	Irrigation	33	12/31/1940
1407	PENNY LEIGH GRONA CRENWELGE ET UX	Gillespie	Colorado	Irrigation	16	12/31/1940
1408	HERBERT REEH	Gillespie	Colorado	Irrigation	8	12/31/1955
1409	KEYSER BIERSCHWALE	Gillespie	Colorado	Irrigation	13	12/31/1958
1410	JAY D RUTLEDGE III ET AL	Gillespie	Colorado	Irrigation	25	12/31/1970
1411	PAUL D & BETTY MEEK	Gillespie	Colorado	Irrigation	50	12/31/1951
1412	C H BONN & SONS	Gillespie	Colorado	Irrigation	118	3/31/1955
1413	EDWIN & WERNER HENKE	Gillespie	Colorado	Irrigation	21	9/30/1954
1414	ERNEST W KOTT	Gillespie	Colorado	Irrigation	12	12/31/1955
1415	STEVE & HILMER JUENKE	Gillespie	Colorado	Irrigation	13	7/1/1974
1416	MELVIN BONN ET UX	Gillespie	Colorado	Irrigation	22	4/30/1955
1417	ALLEN ROY HENKE ET AL	Gillespie	Colorado	Irrigation	7	5/1/1938
1417	E J COP	Gillespie	Colorado	Irrigation	120	5/1/1938
1417	ROY RICHARD HENKE	Gillespie	Colorado	Irrigation	113	5/1/1938
1418	NATHAN KOTT ET AL	Gillespie	Colorado	Irrigation	44	12/31/1955
1419	WALTON HEIMANN	Gillespie	Colorado	Irrigation	3	4/1/1960
1420	LILLIAN WISSEMANN ET VIR	Gillespie	Colorado	Irrigation	10	1/10/1967
1420	YUCCA LILY LTD	Gillespie	Colorado	Irrigation	10	1/10/1967
1421	BRIAN T MCLAUGHLIN	Gillespie	Colorado	Irrigation	31	12/31/1935
1421	DONALD M PARRISH ET UX	Gillespie	Colorado	Irrigation	67	12/31/1935
1422	WEIRICH BROTHERS INC	Gillespie	Colorado	Mining	50	1/1/1959
1423	GREGORY KEITH HAGEL	Gillespie	Colorado	Irrigation	80	4/15/1967
1424	THOMAS G LOEFFLER ET UX	Gillespie	Colorado	Irrigation	33	6/30/1964
1425	RAY E & ANNETTE GILBERT	Gillespie	Colorado	Irrigation	2	12/31/1963
1426	F W BURGESS	Gillespie	Colorado	Irrigation	17	4/30/1963
1427	CITY OF FREDERICKSBURG	Gillespie	Colorado	Recreation		4/1/1968
1428	VAN C BROWN	Gillespie	Colorado	Irrigation	21	12/31/1952
1429	CONRAD ERNST	Gillespie	Colorado	Irrigation	6	12/31/1951
1430	MILTON C BOOS	Gillespie	Colorado	Irrigation	25	12/31/1950
1431	LILLIAN M WISSEMANN	Gillespie	Colorado	Irrigation	11	4/15/1967
1432	DAYTON SOLBRIG ET AL	Gillespie	Colorado	Irrigation	25	12/31/1947
1432	MARVIN G PIPKIN ET UX	Gillespie	Colorado	Irrigation	12	12/31/1947
1433	THEODORE J STEHLING	Gillespie	Colorado	Irrigation	30	1/11/1949
1434	DR J HARDIN PERRY	Gillespie	Colorado	Irrigation	6	12/31/1963

WATER RIGHTS
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1435	CLEMENS IMMEL ESTATE	Gillespie	Colorado	Irrigation	12	12/31/1957
1436	GAY NELL MILLARD ET AL	Gillespie	Colorado	Irrigation	12	5/31/1965
1437	DR DOR W BROWN JR	Gillespie	Colorado	Irrigation	30	4/30/1964
1438	ALBERT G DWARSHUS JR	Gillespie	Colorado	Irrigation	3	1/1/1952
1438	HENRY J FRANTZEN	Gillespie	Colorado	Irrigation	4	1/1/1952
1438	LESTER C FRANTZEN	Gillespie	Colorado	Irrigation	33	1/1/1952
1439	HILMER WEINHEIMER	Gillespie	Colorado	Irrigation	221	5/31/1948
1440	BOOT RANCH DEVELOPMENT LP	Gillespie	Colorado	Irrigation	121	12/31/1943
1441	BOOT RANCH DEVELOPMENT LP	Gillespie	Colorado	Irrigation	34	1/1/1943
1442	LISTON MANER	Gillespie	Colorado	Irrigation	12	1/1/1940
1443	EUGENE PATTESON	Gillespie	Colorado	Irrigation	13	1/1/1966
1443	JANICE C PATTESON	Gillespie	Colorado	Irrigation	0	1/1/1966
1445	WAYNE E MOHR	Gillespie	Colorado	Mining	30	1/1/1951
1446	PARTNERSHIP	Gillespie	Colorado	Irrigation	45	12/31/1964
1447	MICHAEL G PAINTER	Gillespie	Colorado	Irrigation	21	8/1/1964
1448	VICTOR KLINKSIEK	Gillespie	Colorado	Irrigation	22	1/1/1923
1449	DANIEL HOHENBERGER	Gillespie	Colorado	Irrigation	26	1/1/1966
1450	CLAYTON KLINKSIEK ET AL	Gillespie	Colorado	Irrigation	35	1/1/1943
1452	JEANINE M BELL	Gillespie	Colorado	Irrigation	19	1/1/1952
1452	SHEILA E PETSCH	Gillespie	Colorado	Irrigation	19	1/1/1952
1453	WILLIE A WEHMEYER JR	Gillespie	Colorado	Irrigation	41	1/1/1964
1454	WILLIE A WEHMEYER JR	Gillespie	Colorado	Irrigation	68	1/1/1962
1456	ELGIN O BEHRENDS	Gillespie	Colorado	Irrigation	4	1/1/1967
1456	MELVIN RAY BEHRENDS	Gillespie	Colorado	Irrigation	6	1/1/1967
1457	BERNARD STAUDT ESTATE	Gillespie	Colorado	Irrigation	14	1/1/1965
1458	HILMAR O NEBGEN	Gillespie	Colorado	Irrigation	2	8/1/1966
1459	RUBEN RUEBSAHM	Gillespie	Colorado	Irrigation	26	1/1/1953
1460	CHARLES W KLEIN	Gillespie	Colorado	Irrigation	10	1/1/1948
1461	BRYON C HULETT ET UX	Gillespie	Colorado	Irrigation	13	1/1/1966
1461	J MIKE HOWARD ET UX	Gillespie	Colorado	Irrigation	14	1/1/1966
1461	JOE KIRK FULTON	Gillespie	Colorado	Irrigation	500	1/1/1966
1461	THE LBJ COMPANY	Gillespie	Colorado	Irrigation	3	1/1/1966
1462	TEXAS PARKS & WILDLIFE DEPT	Gillespie	Colorado	Recreation		5/8/1972
1463	ERNEST HODGES ESTATE	Gillespie	Colorado	Industrial	39	1/1/1950
1464	THE LBJ COMPANY	Gillespie	Colorado	Irrigation	86	1/8/1952
1465	US DEPARTMENT OF THE INTERIOR	Gillespie	Colorado	Irrigation	114	1/8/1952
1466	JOE KIRK FULTON	Gillespie	Colorado	Irrigation	16	1/1/1952
1466	THE LBJ COMPANY	Gillespie	Colorado	Irrigation	1244	1/1/1952
1466	US DEPARTMENT OF THE INTERIOR	Gillespie	Colorado	Irrigation		1/1/1952
1467	AUSTIN INVESTMENTS COMPANY	Gillespie	Colorado	Irrigation	220	1/1/1953
1467	US DEPARTMENT OF THE INTERIOR	Gillespie	Colorado	Irrigation		1/1/1953
1469	TEXAS PARKS & WILDLIFE DEPT	Gillespie	Colorado	Irrigation	160	3/1/1964
1471	ESTATE OF J O TANNER	Gillespie	Colorado	Irrigation	22	1/1/1944
1471	GEORGE RICHARD TANNER	Gillespie	Colorado	Irrigation	1	1/1/1944
1471	KENNETH LINDIG	Gillespie	Colorado	Irrigation	33	1/1/1944
1474	KERMIT ECKHARDT	Gillespie	Colorado	Irrigation	26	1/1/1900
1475	CHARLES OTTMERS	Gillespie	Colorado	Irrigation	3	1/1/1942
1476	JOHNNIE W OTTMERS	Gillespie	Colorado	Irrigation	3	1/1/1966
1632	BRADLEY OWEN BAETHGE ET AL	Gillespie	Colorado	Irrigation	6	3/1/1954
1632	BYRON KEITH HOOPER ET AL	Gillespie	Colorado	Irrigation	10	3/1/1954
2619	BILL TEAGUE	Gillespie	Colorado	Irrigation	114	9/30/1962
2620	LEVY ERSCH	Gillespie	Colorado	Irrigation	1	4/30/1966
2621	DANIEL J PETERSEN	Gillespie	Colorado	Irrigation	15	12/31/1935
2622	LEROY RABKE	Gillespie	Colorado	Industrial	1	9/30/1944
3405	DANIEL J PETERSEN	Gillespie	Colorado	Irrigation	55	11/8/1976
3409	J D HEXT ESTATE	Gillespie	Colorado	Irrigation	19	11/22/1976
5427	CITY OF FREDERICKSBURG	Gillespie	Colorado	Recreation		7/15/1992
4143	STEVEN R SPRINKEL ET UX	Hays	Colorado	Irrigation	25	6/5/1984

WATER RIGHTS
LOWER COLORADO REGIONAL WATER PLANNING AREA (REGION K)

Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
5086	STEPHEN P CARRIGAN	Hays	Colorado	Irrigation	88	8/15/1986
5273	COYOTE CREW RANCH LTD	Hays	Colorado	Irrigation	60	12/18/1989
5360	RIVER OAKS RANCH DEVELOPMENT CORP	Hays	Colorado	Recreation		5/15/1991
5387	JAMES H ARNOLD JR	Hays	Colorado	Irrigation	61	1/13/1965
5387	JAMES H ARNOLD JR ET AL	Hays	Colorado	Irrigation	61	1/13/1965
5387	WILLIAM H CUNNINGHAM ET UX	Hays	Colorado	Irrigation	61	1/13/1965
5388	TRAVIS ALLISON MATHIS	Hays	Colorado	Irrigation	16	7/31/1965
5389	ANNA MARIE WIDEN SPEIR ET AL	Hays	Colorado	Irrigation	5	12/31/1939
5389	HANCOCK/HANKS INVESTMENTS LTD	Hays	Colorado	Irrigation	0	12/31/1939
5390	SLAUGHTER FAMILY RANCH ET AL	Hays	Colorado	Irrigation	6	12/31/1954
5391	KATHRYN LAURA NAGEL ELLIOTT	Hays	Colorado	Irrigation	12	5/31/1955
5696	ASSOCIATION INC	Hays	Colorado	Recreation		8/15/2000
5768	FSP DEVELOPMENT OF TEXAS LLC	Hays	Colorado	Recreation		3/25/2002
1571	KINGSLAND WSC	Llano	Colorado	Municipal/Domestic	40	5/1/1910
1642	RANDOLPH C LEIFESTE	Llano	Colorado	Industrial	5	1/1/1956
1643	CHARLES T PERKINS JR ET UX	Llano	Colorado	Industrial	1	1/1/1959
1644	NORMAN GRENWELGE	Llano	Colorado	Industrial	30	1/1/1947
1645	CLYDE C BUSH ET AL	Llano	Colorado	Recreation		1/1/1960
1646	MRS LUKE MOSS	Llano	Colorado	Recreation		1/1/1954
1647	MRS RACHEL E JONES TALKINGTON	Llano	Colorado	Irrigation	15	1/1/1900
1648	FLOYD KOTHMANN	Llano	Colorado	Irrigation	2	1/1/1930
1649	ODIS K JONES	Llano	Colorado	Irrigation	6	1/1/1964
1650	CITY OF LLANO	Llano	Colorado	Municipal/Domestic	400	12/10/1956
1651	LILA FAYE JOHNSON	Llano	Colorado	Irrigation	24	9/1/1964
1652	KENNETH D RHODES ET UX	Llano	Colorado	Irrigation	11	3/1/1966
1653	MRS LUKE MOSS	Llano	Colorado	Recreation		12/31/1945
1654	MAUD MOSS	Llano	Colorado	Recreation		1/1/1939
1655	CITY OF LLANO	Llano	Colorado	Municipal/Domestic	1380	6/13/1914
1656	GUY L CLYMER	Llano	Colorado	Recreation		11/29/1946
1658	D MALCOLM LONG	Llano	Colorado	Irrigation	60	1/1/1904
1659	ROY B SILER	Llano	Colorado	Irrigation	24	9/18/1918
2610	T-BAR-O RANCH PARTNERSHIP LTD	Llano	Colorado	Irrigation	99	8/31/1957
2611	DRACE WILLIAMS ET AL	Llano	Colorado	Irrigation	52	12/31/1910
2612	T M CASH	Llano	Colorado	Irrigation	12	5/31/1955
2613	SOUTHERN PACIFIC LINES	Llano	Colorado	Other	1	1/19/1915
2616	ANN ETTA HALL	Llano	Colorado	Recreation		12/31/1935
2617	J A RATLIFF ET AL	Llano	Colorado	Recreation		12/31/1950
2618	JAMES M INKS ET AL	Llano	Colorado	Recreation		12/31/1939
2623	CAROLINE OEHLER JOHNSON	Llano	Colorado	Irrigation	3	12/31/1964
2623	MARY OEHLER GOFF	Llano	Colorado	Irrigation	1	12/31/1964
2623	SAMUEL OEHLER	Llano	Colorado	Irrigation	3	12/31/1964
2624	HAROLD DONOVAN HOHMANN ET AL	Llano	Colorado	Irrigation	7	3/31/1966
2625	HAROLD DONOVAN HOHMANN ET AL	Llano	Colorado	Irrigation	6	3/31/1966
2626	OTTO DOYLE HOHMANN ET UX	Llano	Colorado	Irrigation	10	3/31/1966
3883	LAKE LBJ IMPROVEMENT CORP	Llano	Colorado	Irrigation	750	2/17/1982
4121	LAKE LBJ INVESTMENT CORPORATION	Llano	Colorado	Recreation		4/25/1983
4152	LAKE LBJ INVESTMENT CORPORATION	Llano	Colorado	Recreation		7/10/1984
5033	DEBORAH SLATOR GILLAN ET AL	Llano	Colorado	Domestic and Livestock Only		12/12/1985
3426	JOHN S RUNNELLS III	Matagorda	Brazos-Colorado	Irrigation	17	3/1/1971
3426	TIMOTHY BLAYLOCK ET UX	Matagorda	Brazos-Colorado	Irrigation	26	3/1/1971
3427	MICHAEL D STONE	Matagorda	Brazos-Colorado	Irrigation	24	11/7/1977
3428	ESTATE OF P J REEVES JR	Matagorda	Brazos-Colorado	Irrigation	20	11/6/1978
3429	D R ALFORD	Matagorda	Brazos-Colorado	Irrigation	40	6/27/1977
3430	HUDGINS DIVISION OF J D HUDGINS	Matagorda	Brazos-Colorado	Irrigation	800	11/1/1954
3431	MICHAEL J PRUETT	Matagorda	Brazos-Colorado	Irrigation	44	8/25/1964
3431	SAMANTHA ANNETTE HUDGINS	Matagorda	Brazos-Colorado	Irrigation	41	8/25/1964
3432	JOHNNY WAYNE & VICKI LYNN JONES	Matagorda	Brazos-Colorado	Irrigation	2	12/12/1977
3434	DONALD R & JANICE M KOPNICKY	Matagorda	Brazos-Colorado	Irrigation	30	10/29/1979

WATER RIGHTS
LOWER COLORADO REGIONAL WATER PLANNING AREA (REGION K)

Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
3435	JOHN A HUEBNER JR ET AL	Matagorda	Brazos-Colorado	Irrigation	550	4/2/1969
3436	RUSSELL A & JUANITA L MATTHES	Matagorda	Brazos-Colorado	Irrigation	880	12/16/1974
3437	FRANCIS I SAVAGE	Matagorda	Brazos-Colorado	Irrigation	411	9/11/1967
3437	O B STANLEY	Matagorda	Brazos-Colorado	Irrigation	2339	9/11/1967
3438	E CROSS CATTLE COMPANY INC	Matagorda	Brazos-Colorado	Irrigation	668	6/25/1914
3439	E CROSS CATTLE COMPANY INC	Matagorda	Brazos-Colorado	Irrigation	592	6/25/1914
3795	LILLIAN G ZERNICEK	Matagorda	Brazos-Colorado	Irrigation	80	12/22/1980
3846	LINDA C MOORE	Matagorda	Brazos-Colorado	Irrigation	90	11/9/1981
3895	THE MINZE LAND INVESTMENTS LP	Matagorda	Brazos-Colorado	Irrigation	1000	5/17/1982
3957	FUTURO FARMS INC	Matagorda	Brazos-Colorado	Irrigation	450	1/10/1983
3957	G P HARDY III	Matagorda	Brazos-Colorado	Irrigation		1/10/1983
3967	BETTY GENE MCAFERTY ET AL	Matagorda	Brazos-Colorado	Irrigation	35	12/20/1982
3972	JOHN SCHMERMUND	Matagorda	Colorado-Lavaca	Irrigation	1500	1/31/1983
3992	RUNNELLS PASTURE COMPANY LTD	Matagorda	Brazos-Colorado	Irrigation	219	2/28/1983
4122	JULIA HOLUB ET AL	Matagorda	Brazos-Colorado	Irrigation	25	11/28/1983
4207	DON A CULWELL & LESLIE L APPELT	Matagorda	Colorado-Lavaca	Industrial	2250	1/3/1985
4780	MAX CORNELIUS JOHNSON ET AL	Matagorda	Colorado-Lavaca	Irrigation	400	11/24/1969
4781	LAWRENCE J PETERSON & WIFE	Matagorda	Colorado-Lavaca	Irrigation	400	1/24/1916
4782	FARMERS CANAL COMPANY	Matagorda	Colorado-Lavaca	Irrigation	120	1/24/1916
4783	LOUIS F HARPER	Matagorda	Colorado-Lavaca	Irrigation	301	12/31/1961
4786	WILLIAM J NAISER	Matagorda	Colorado-Lavaca	Irrigation	93	12/31/1945
4787	FARMERS CANAL COMPANY	Matagorda	Colorado-Lavaca	Irrigation	20615	5/31/1909
4788	MRS GLEN HUTSON ET AL	Matagorda	Colorado-Lavaca	Irrigation	7	12/31/1956
4790	PARTNERSHIP	Matagorda	Colorado-Lavaca	Irrigation	1500	1/12/1976
5099	MATAGORDA BAY AQUACULTURE INC	Matagorda	Colorado-Lavaca	Industrial	316	9/25/1986
5436	LLP	Matagorda	Colorado	Irrigation	1443	6/26/1914
5437	NRG TEXAS LP	Matagorda	Colorado	Industrial		6/10/1974
5437	AGENT	Matagorda	Colorado	Industrial		6/10/1974
5437	AGENT ET AL	Matagorda	Colorado	Industrial	102000	6/10/1974
5438	MATAGORDA CO DRAINAGE DIST NO 1	Matagorda	Brazos-Colorado	Other	260	11/17/1992
5476	LOWER COLORADO RIVER AUTHORITY	Matagorda	Colorado	Irrigation	2404680	12/1/1900
5609	TEXAS BRINE CO LLC	Matagorda	Colorado	Industrial		5/28/1998
5682	HERFF CORNELIUS	Matagorda	Brazos-Colorado	Irrigation	2400	3/27/2000
1744	L L GILGER	Mills	Colorado	Irrigation	95	1/1/1963
1745	JOHN JUDSON GRAVES ET AL	Mills	Colorado	Irrigation	80	7/14/1969
1746	JOHN JUDSON GRAVES ET AL	Mills	Colorado	Irrigation	160	1/1/1906
1748	SLEDGE CATTLE COMPANY INC	Mills	Colorado	Irrigation	47	1/1/1904
1748	ZEPHYR LAND COMPANY	Mills	Colorado	Irrigation	78	1/1/1904
1749	GENE SLEDGE / SLEDGE CATTLE CO INC	Mills	Colorado	Irrigation	20	11/2/1964
1750	J DON WYLIE	Mills	Colorado	Irrigation	32	11/12/1969
1751	MARY ALICE STALCUP	Mills	Colorado	Irrigation	200	4/27/1970
1751	PEGGY JEAN ROSS	Mills	Colorado	Irrigation		4/27/1970
1752	P V KING	Mills	Colorado	Irrigation	127	3/1/1973
1753	CHARLES & CATHERINE MANGHAM	Mills	Colorado	Irrigation	52	6/9/1969
1755	JOHN C SMITH ET AL	Mills	Colorado	Irrigation	60	2/2/1970
1756	VIRGIL KEITH ANDERSON ET UX	Mills	Colorado	Irrigation	16	1/1/1964
1757	MILLS COUNTY HUNTING & FISHING CLUB	Mills	Colorado	Recreation		7/6/1916
1758	JAMES R FARMER ET UX	Mills	Colorado	Irrigation	3	8/1/1965
1759	W M STANSBERRY	Mills	Colorado	Irrigation	69	3/1/1965
1760	DUREN TRUST	Mills	Colorado	Irrigation	60	2/7/1972
1761	JERRY L SPRINKLE ET UX	Mills	Colorado	Irrigation	4	1/1/1957
1762	DORIS CATHERINE STERLING TRUSTEE	Mills	Colorado	Irrigation	41	1/1/1955
1920	WALLACE MADDOX ET AL	Mills	Colorado	Industrial	14	6/3/1914
2472	O P LEONARD JR ET UX	Mills	Colorado	Irrigation	1460	12/31/1961
2524	PARTNERSHIP	Mills	Colorado	Irrigation	120	12/31/1923
2526	W H HICKS	Mills	Colorado	Irrigation	14	5/15/1963
2527	CHARLES A HICKS	Mills	Colorado	Irrigation	14	5/15/1963
2528	TRUMAN LONG	Mills	Colorado	Irrigation	203	3/4/1916

WATER RIGHTS
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Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
2532	A J BECK ESTATE	Mills	Colorado	Irrigation	90	5/7/1973
2535	DAVID SWENSON ET AL	Mills	Colorado	Irrigation	313	6/22/1914
2537	L I TANNER	Mills	Colorado	Irrigation	125	12/31/1913
2538	BILLY W BORHO ET UX	Mills	Colorado	Irrigation	66	5/31/1913
2538	GRENETTA BELL BERRY	Mills	Colorado	Irrigation	17	5/31/1913
2539	GRENETTA BELL BERRY	Mills	Colorado	Irrigation	102	6/30/1906
2541	SHERAL M RAINBOLT ET AL	Mills	Colorado	Irrigation	57	12/31/1905
2542	MILDRED HALE CHANEY ET AL	Mills	Colorado	Irrigation	13	8/15/1967
2543	BILLY B HALE	Mills	Colorado	Irrigation	100	12/31/1956
2544	J WAYNE WILCOX	Mills	Colorado	Irrigation	16	12/31/1957
2545	JAMES C BLUE ET UX	Mills	Colorado	Irrigation	16	12/31/1957
2547	RYON DUNLAP ET UX	Mills	Colorado	Irrigation	171	9/30/1965
2549	O P LEONARD JR ET UX	Mills	Colorado	Irrigation	249	12/31/1905
2550	O P LEONARD JR ET AL	Mills	Colorado	Irrigation	3680	12/31/1903
2551	WILLIAM HAYDEN COCKRELL ET AL	Mills	Colorado	Irrigation	81	12/31/1926
2552	MARTIN HUGHES DVM ET UX	Mills	Colorado	Irrigation	37	12/31/1950
2552	ROBERT LEE LONG JR ET UX	Mills	Colorado	Irrigation	73	12/31/1950
2553	CITY OF GOLDTHWAITE	Mills	Colorado	Municipal/Domestic	1750	5/6/1960
2554	LEE P SHELLBERG TRUSTEE	Mills	Colorado	Irrigation	24	9/27/1949
2555	FRED E HARTLEY ET UX	Mills	Colorado	Irrigation	34	2/26/1968
2556	A & A LANDSCAPE & IRRIGATION LP	Mills	Colorado	Irrigation	75	12/31/1952
2565	THE ESTATE OF OTHEL OTTO SMITH	Mills	Colorado	Irrigation	100	6/30/1964
2566	DORTHEY DUCKETT	Mills	Colorado	Irrigation	159	12/31/1952
2568	KELLIS LANDRUM	Mills	Colorado	Irrigation	168	12/31/1963
2569	MILLS COUNTY STATE BANK	Mills	Colorado	Irrigation	2	12/31/1905
2569	R C JOHNSON	Mills	Colorado	Irrigation	106	12/31/1905
2570	TRUST	Mills	Colorado	Irrigation	189	12/31/1904
2570	MILLS COUNTY STATE BANK	Mills	Colorado	Municipal/Domestic	277	12/31/1904
2570	TRUSTEE	Mills	Colorado	Irrigation	5	12/31/1904
2576	DONALD D BURNHAM	Mills	Colorado	Irrigation	84	12/31/1941
2916	LEE ROY SCHWARTZ	Mills	Brazos	Irrigation	53	5/31/1959
2917	WILFORD & RUTH WITZSCHE	Mills	Brazos	Irrigation	25	3/31/1963
2918	PAMELA ANN MARWITZ POPE ET AL	Mills	Brazos	Irrigation	20	4/30/1949
2919	FRITZ HOPPER	Mills	Brazos	Irrigation	27	4/30/1958
2920	DOUG HOPPER	Mills	Brazos	Irrigation	12	5/31/1965
2955	MARTIN P SHELTON ET AL	Mills	Brazos	Irrigation	150	7/1/1968
2957	HOWARD K MOORE	Mills	Brazos	Irrigation	65	8/31/1940
5111	NEW HORIZONS RANCH & CENTER INC	Mills	Colorado	Municipal/Domestic	15	11/24/1986
1847	LLANO PARTNERS LTD	San Saba	Colorado	Irrigation	200	1/1/1951
1856	JUDY DUNNEGAN	San Saba	Colorado	Irrigation	16	6/26/1914
1856	KATHLEEN HAWKINS	San Saba	Colorado	Irrigation	18	6/24/1914
1857	MABEL FLEMING	San Saba	Colorado	Irrigation	6	6/24/1914
1858	E L BYRD	San Saba	Colorado	Irrigation	19	6/24/1914
1859	CHRISTINE DIANE POOL BESSENT ET AL	San Saba	Colorado	Irrigation	171	6/27/1914
1860	LARRY BAKER ET UX	San Saba	Colorado	Irrigation	96	6/27/1914
1861	WILLARD KEITH BESSENT ET UX	San Saba	Colorado	Irrigation	20	6/27/1914
1862	CHRISTINE DIANE POOL BESSENT ET AL	San Saba	Colorado	Irrigation	28	6/27/1914
1863	FRANK CHURCHILL ET UX	San Saba	Colorado	Irrigation	15	6/27/1914
1863	JIMMY N SHOOK ET AL	San Saba	Colorado	Irrigation	35	6/27/1914
1864	DON FOWLER ET UX	San Saba	Colorado	Irrigation	26	4/25/1914
1864	SHARON KAY LEWIS	San Saba	Colorado	Irrigation	7	4/25/1914
1865	CLARENCE G JOHNSON III	San Saba	Colorado	Irrigation	15	4/25/1914
1866	SEIDERS SAN SABA RANCH LTD	San Saba	Colorado	Irrigation	93	1/1/1947
1867	JOHNSON REVOCABLE TRUST	San Saba	Colorado	Irrigation	54	1/1/1935
1868	JOHNSON REVOCABLE TRUST	San Saba	Colorado	Irrigation	190	1/1/1918
1869	CRAIG STENCIL ET UX	San Saba	Colorado	Irrigation	41	1/1/1925
1869	HOMER R OWENS ET UX	San Saba	Colorado	Irrigation	26	1/1/1925
1870	HOMER R OWENS ET UX	San Saba	Colorado	Irrigation	88	5/2/1914

WATER RIGHTS
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Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
1871	LARRY GENE CONNER	San Saba	Colorado	Irrigation	120	1/1/1955
1872	TRIPLE M CATTLE COMPANY	San Saba	Colorado	Irrigation	225	6/24/1914
1873	EUGENE CONNER	San Saba	Colorado	Irrigation	104	1/1/1952
1874	BEN F AMONETT ET AL	San Saba	Colorado	Irrigation	1	1/1/1922
1874	DENNIS HARDMAN ET UX	San Saba	Colorado	Irrigation	34	1/1/1922
1875	CHARLES B MARTIN JR ET UX	San Saba	Colorado	Irrigation	114	6/22/1914
1876	THE ESTATE OF RILEY C HARKEY ET AL	San Saba	Colorado	Irrigation	142	1/1/1922
1877	BONNIE HARKEY	San Saba	Colorado	Irrigation	146	11/14/1914
1878	THE ESTATE OF RILEY C HARKEY	San Saba	Colorado	Irrigation	120	1/1/1910
1879	RANDY KIRK HARKEY ET AL	San Saba	Colorado	Irrigation	25	1/1/1913
1880	CHRISTINE BAGLEY EDMONDSON	San Saba	Colorado	Irrigation	29	1/1/1956
1881	CHRISTINE BAGLEY EDMONDSON	San Saba	Colorado	Irrigation	21	1/1/1910
1881	CONNIE BAGLEY ADAMS	San Saba	Colorado	Irrigation	37	1/1/1910
1881	DEAN BAGLEY JR	San Saba	Colorado	Irrigation	103	1/1/1910
1882	MARJORIE GUNTER ET AL	San Saba	Colorado	Irrigation	150	1/1/1919
1883	ESTATE OF BYRON E & GEORGIA L LEWIS	San Saba	Colorado	Irrigation	31	1/1/1933
1884	JAMES B BONHAM CORPORATION	San Saba	Colorado	Irrigation	72	1/1/1963
1885	T N WOOD	San Saba	Colorado	Irrigation	64	9/4/1962
1886	MAXINE MIFFLETON	San Saba	Colorado	Irrigation	4	1/1/1911
1886	RICKY LAMBERT ET UX	San Saba	Colorado	Irrigation	31	1/1/1911
1886	RONNIE MCBRIDE ET UX	San Saba	Colorado	Irrigation	4	1/1/1911
1887	ROGER RICKY LAMBERT ET UX	San Saba	Colorado	Irrigation	329	1/1/1911
1888	SLOAN LIVESTOCK LTD	San Saba	Colorado	Irrigation	88	1/1/1956
1889	MRS HOPE CRUTSINGER	San Saba	Colorado	Irrigation	41	1/1/1925
1890	THE GREAT SAN SABA RIVER PECAN CO	San Saba	Colorado	Irrigation	434	1/1/1911
1891	JOE ROGAN MILLER	San Saba	Colorado	Municipal/Domestic	118	1/1/1921
1891	THE ESTATE OF SARA JEAN CAMERON	San Saba	Colorado	Irrigation	25	1/1/1921
1892	ESTATE OF JOHN P MCCONNELL JR	San Saba	Colorado	Irrigation	53	1/1/1953
1892	JOHNETTE MCCONNELL EARLY ET AL	San Saba	Colorado	Irrigation	180	1/1/1953
1893	DEAN BAGLEY JR	San Saba	Colorado	Irrigation	52	1/1/1959
1894	GAILIAN DEAN BAGLEY JR	San Saba	Colorado	Irrigation	272	1/1/1913
1895	THE GREAT SAN SABA RIVER PECAN CO	San Saba	Colorado	Irrigation	48	1/1/1955
1896	GAILIAN DEAN BAGLEY JR	San Saba	Colorado	Irrigation	64	1/1/1950
1897	WILTON & BETTY MARTIN	San Saba	Colorado	Irrigation	80	5/16/1914
1898	DAVID GILGER	San Saba	Colorado	Irrigation	40	3/30/1914
1899	ANITA OWEN	San Saba	Colorado	Irrigation	340	1/1/1929
1900	STEVE D STIFFLEMIRE	San Saba	Colorado	Irrigation	54	1/1/1954
1901	ROY BAGLEY	San Saba	Colorado	Irrigation	49	1/1/1940
1902	JOHN T & GLENNETTA SANDERSON	San Saba	Colorado	Irrigation	2	1/1/1963
1903	CITY OF SAN SABA	San Saba	Colorado	Municipal/Domestic	550	6/29/1914
1904	WINSTON MIKE MILLICAN	San Saba	Colorado	Irrigation	5	1/1/1966
1905	L F & MARY B TOWNSEND	San Saba	Colorado	Irrigation	38	1/1/1912
1906	CITY OF SAN SABA	San Saba	Colorado	Irrigation	54	1/1/1920
1907	PATSY RAYE MCCONNELL	San Saba	Colorado	Irrigation	198	1/1/1933
1908	W L OWEN JR	San Saba	Colorado	Irrigation	40	10/8/1914
1909	JOE C SMITH	San Saba	Colorado	Irrigation	84	1/1/1963
1910	EDGAR HUBBERT JR ET AL	San Saba	Colorado	Irrigation	14	6/26/1914
1911	JIMMY N SHOOK ET AL	San Saba	Colorado	Irrigation	95	1/1/1883
1912	J M GAGE JR	San Saba	Colorado	Irrigation	112	1/1/1915
1913	EMMETT LEE GRUMBLES	San Saba	Colorado	Irrigation	270	1/1/1932
1913	JOHN PAT GRUMBLES	San Saba	Colorado	Irrigation		1/1/1932
1914	MARTHA OWEN BURNHAM ET AL	San Saba	Colorado	Irrigation	207	1/1/1931
1915	MAX MAHAN	San Saba	Colorado	Irrigation	220	1/1/1918
1916	ALAN LANE JOHNSON ET UX	San Saba	Colorado	Irrigation	103	1/1/1908
1917	MARTHA OWEN BURNHAM ET AL	San Saba	Colorado	Irrigation	188	1/1/1918
1918	MIKE REAVIS ET UX	San Saba	Colorado	Irrigation	40	4/25/1914
1919	JIMMIE D SHAHAN	San Saba	Colorado	Irrigation	15	6/3/1914
1921	SAN SABA IRREVOCABLE TR AGREEMENT	San Saba	Colorado	Irrigation	20	1/1/1904

WATER RIGHTS
LOWER COLORADO REGIONAL WATER PLANNING AREA (REGION K)

Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
1922	WILLIE MAY SHAHAN	San Saba	Colorado	Irrigation	40	6/3/1914
1924	RAYMOND A OLIVER	San Saba	Colorado	Irrigation	49	1/1/1905
1925	WILLIE MAY SHAHAN	San Saba	Colorado	Irrigation	37	5/30/1914
1926	R L OLIVER ET AL	San Saba	Colorado	Irrigation	6	1/1/1905
1927	MARJORIE ANN O'BANNON ALTIZER	San Saba	Colorado	Irrigation	54	1/1/1905
1928	ELSIE MILLICAN ET AL	San Saba	Colorado	Irrigation	118	1/1/1905
2452	O P LEONARD JR ET AL	San Saba	Colorado	Irrigation	1302	12/31/1864
2516	J PHILLIP KEETER	San Saba	Colorado	Irrigation	12	12/31/1966
2518	OSCAR L GRANT	San Saba	Colorado	Irrigation	6	12/31/1966
2519	JEAN IRBY	San Saba	Colorado	Irrigation	8	12/31/1966
2525	C BARTON DRAPER ET UX	San Saba	Colorado	Irrigation	620	12/31/1903
2529	T WARD LOCKLEAR	San Saba	Colorado	Irrigation	239	12/31/1924
2530	RIVER CREEK LTD	San Saba	Colorado	Irrigation	41	12/31/1904
2531	DON TAPP ET UX	San Saba	Colorado	Irrigation	73	12/31/1960
2531	PAT REAGAN ET UX	San Saba	Colorado	Irrigation	55	12/31/1960
2531	RICHARD M BARNEY	San Saba	Colorado	Irrigation	28	12/31/1960
2531	STEWART LIVING TRUST DATED 3/13/02	San Saba	Colorado	Irrigation	43	12/31/1960
2533	KITTY JO SIMPSON CUMMINGS	San Saba	Colorado	Irrigation	44	12/31/1912
2533	NANCY C BUSH	San Saba	Colorado	Irrigation	44	12/31/1912
2533	ROGER D BUSH ET UX	San Saba	Colorado	Irrigation	44	12/31/1912
2534	1997	San Saba	Colorado	Irrigation	156	12/31/1955
2536	CHARLES E JONES ET UX	San Saba	Colorado	Irrigation	96	12/31/1912
2536	THE JOAN PEET MCMULLAN TRUST NO 1	San Saba	Colorado	Irrigation	140	12/31/1912
2540	J C EDMONDSON	San Saba	Colorado	Irrigation	67	12/31/1937
2546	KENNETH O O'REAR ET UX	San Saba	Colorado	Irrigation	1600	12/31/1956
2557	JOHN W & JEAN BARFIELD	San Saba	Colorado	Irrigation	16	8/31/1928
2558	CECIL CAMPBELL	San Saba	Colorado	Irrigation	71	8/31/1928
2559	J C & LOUISE OSWALD	San Saba	Colorado	Irrigation	27	8/31/1928
2560	ROBERT E & DEBORAH O MILLICAN	San Saba	Colorado	Irrigation	27	8/31/1928
2561	CECIL CAMPBELL	San Saba	Colorado	Irrigation	39	8/31/1928
2562	JOHN H BANNISTER ET UX	San Saba	Colorado	Irrigation	47	7/31/1913
2562	MELBA LOU WHITT ESTATE ET AL	San Saba	Colorado	Irrigation	49	7/31/1913
2563	O P LEONARD JR ET AL	San Saba	Colorado	Irrigation	173	12/31/1937
2564	HASKEL G HUDSON ET UX	San Saba	Colorado	Irrigation	606	12/31/1929
2564	KENDALL C MONTGOMERY ET UX	San Saba	Colorado	Irrigation	20	12/31/1929
2564	LUTHER W SIMPSON ET UX	San Saba	Colorado	Irrigation	474	12/31/1929
2567	RICHARD TURNER MILLER	San Saba	Colorado	Irrigation	70	6/29/1914
2571	JAMES R CROMER	San Saba	Colorado	Irrigation	113	7/31/1965
2572	ALTA FERN EDMONDSON FREEMAN ET AL	San Saba	Colorado	Irrigation	232	6/30/1910
2573	STEPHEN BURKE ET UX	San Saba	Colorado	Irrigation	11	12/31/1952
2574	JOHN J OLIVER	San Saba	Colorado	Irrigation	45	12/31/1911
2575	TOMMIE WORTH WOOD ET AL	San Saba	Colorado	Irrigation	93	12/31/1911
2577	CHEREE HAMBLEN	San Saba	Colorado	Irrigation	44	12/31/1911
2578	SUE BETH O'BANON GRIMES ET AL	San Saba	Colorado	Irrigation	30	12/31/1940
2582	DICK GLOVER COMPANY INC	San Saba	Colorado	Irrigation	71	12/31/1905
2583	MICHAEL H ROCKAFELLOW ET UX	San Saba	Colorado	Irrigation	259	12/31/1912
2584	MYLES D MCDOWELL ET AL	San Saba	Colorado	Irrigation	96	6/23/1914
2591	KENNETH R & JUDITH ANNE MCCOY	San Saba	Colorado	Irrigation	73	1/31/1911
2593	KENNETH R & JUDITH ANNE MCCOY	San Saba	Colorado	Irrigation	57	9/30/1963
2595	WILLIAM G BURGESS ET UX	San Saba	Colorado	Irrigation	205	12/31/1914
2601	BOBBY JOHN FOSTER	San Saba	Colorado	Irrigation	105	12/31/1957
2602	W D PORCH	San Saba	Colorado	Irrigation	30	6/30/1964
2603	JACKIE BRISTER	San Saba	Colorado	Irrigation	187	5/31/1907
2604	W N CLARK	San Saba	Colorado	Irrigation	60	5/31/1907
2606	ELSIE MILLICAN ET AL	San Saba	Colorado	Irrigation	18	12/31/1961
5288	TOMMY LEE JONES ET UX	San Saba	Colorado	Irrigation	20	3/20/1990
2644	US FISH & WILDLIFE SERVICE	Travis	Colorado	Irrigation	28	12/31/1954
2645	LAGO VISTA INC	Travis	Colorado	Irrigation	9	1/28/1974

WATER RIGHTS
LOWER COLORADO REGIONAL WATER PLANNING AREA (REGION K)

Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
2646	JAMES L ANDERSON	Travis	Colorado	Irrigation	0	4/30/1964
2647	TEX CONF ASSOC SEVENTH DAY ADVENTS	Travis	Colorado	Irrigation	6	4/30/1964
2648	SAAAM LTD	Travis	Colorado	Irrigation	0	4/30/1964
2649	JAMES L ANDERSON	Travis	Colorado	Irrigation	10	7/31/1963
2650	MARVIN T & PEGGY JEAN TALBOTT	Travis	Colorado	Irrigation	1	7/31/1963
2651	US FISH & WILDLIFE SERVICE	Travis	Colorado	Irrigation	14	12/31/1954
3344	ONION CREEK CLUB INC	Travis	Colorado	Irrigation	12	8/2/1976
3379	HYDE PARK BAPTIST CHURCH	Travis	Colorado	Recreation	64	9/13/1976
3414	CARROLL & JAMES SANSOM	Travis	Colorado	Irrigation	200	9/27/1976
3815	APACHE SHORES INC	Travis	Colorado	Recreation		3/30/1981
3841	ASSN INC	Travis	Colorado	Irrigation	76	9/21/1981
4007	CITY OF CEDAR PARK	Travis	Colorado	Municipal/Domestic	5600	7/18/1983
4008	CITY OF AUSTIN / DRAINAGE UTILITY	Travis	Colorado	Recreation		4/18/1983
4025	THE LAKEWAY COMPANY	Travis	Colorado	Irrigation		4/18/1983
4169	HURST CREEK MUD OF TRAVIS COUNTY	Travis	Colorado	Irrigation	1700	11/1/1982
5042	TEX CONF ASSOC SEVENTH DAY ADVENTS	Travis	Colorado	Recreation		1/29/1986
5058	HHCC PROPERTIES INC	Travis	Colorado	Recreation		5/16/1986
5070	THI AUSTIN LP	Travis	Colorado	Recreation		6/27/1986
5095	NORWOOD/UNITED PARK JOINT VENTURE	Travis	Colorado	Recreation		9/8/1986
5102	AQUAPLEX INC	Travis	Colorado	Recreation		10/8/1986
5179	WINDERMERE A JOINT VENTURE AND	Travis	Colorado	Other		5/4/1988
5268	APPLIED MATERIALS INC	Travis	Colorado	Recreation		12/6/1989
5269	MARKBOROUGH DEVELOPMENT CO LTD	Travis	Colorado	Recreation		12/6/1989
5368	239 RIO VISTA LTD	Travis	Colorado	Irrigation	14	6/30/1954
5368	DORIS WILKERSON	Travis	Colorado	Irrigation	0	6/30/1954
5368	JAY C CHOWNING ET AL	Travis	Colorado	Irrigation	0	6/30/1954
5368	LA/WCD FAMILY WATERWORKS LTD	Travis	Colorado	Irrigation	2	6/30/1954
5368	LAKE AUSTIN LAND & CATTLE LTD	Travis	Colorado	Irrigation	1	6/30/1954
5368	MICHAEL G MCCARTHY	Travis	Colorado	Irrigation	1	6/30/1954
5368	MINI-ME MANAGEMENT LTD	Travis	Colorado	Irrigation	12	6/30/1954
5368	ROBERT L STEINER TRUSTEE	Travis	Colorado	Irrigation	0	6/30/1954
5368	RONALD LEE FINN	Travis	Colorado	Irrigation	0	6/30/1954
5368	LTD	Travis	Colorado	Irrigation	123	6/30/1954
5368	THL RANCH LTD	Travis	Colorado	Irrigation	8	6/30/1954
5369	BOHLS CATTLE RANCH & INVEST VENTURE	Travis	Colorado	Irrigation	22	12/31/1939
5371	MARION FOWLER	Travis	Colorado	Irrigation	8	12/12/1956
5372	GEORGE S NALLE JR	Travis	Colorado	Irrigation	25	12/31/1948
5373	RANDOLPH G MUELLER ET AL	Travis	Colorado	Irrigation	11	12/31/1966
5374	GREAT HILL LTD	Travis	Colorado	Irrigation	13	1/20/1976
5375	ROBERT J JOHNSON TRUST NO 1 ET AL	Travis	Colorado	Irrigation	40	8/16/1965
5376	HILL COUNTRY GOLF INC	Travis	Colorado	Recreation		3/13/1972
5377	CITY OF AUSTIN	Travis	Colorado	Recreation		3/24/1975
5378	BALCONES COUNTRY CLUB	Travis	Colorado	Irrigation	60	8/27/1991
5379	ARLENE BOLM FITZPATRICK ET AL	Travis	Colorado	Irrigation		6/10/1914
5379	EXECUTOR	Travis	Colorado	Irrigation	1323	6/10/1914
5380	CAPITOL AGGREGATES LTD	Travis	Colorado	Mining	2540	9/11/1972
5382	WILLIAM D MCMORRIS ET AL	Travis	Colorado	Irrigation	50	6/29/1914
5384	SHAPARD FARMS	Travis	Colorado	Irrigation	74	6/29/1914
5385	WILLIAM D MCMORRIS ET AL	Travis	Colorado	Irrigation	67	3/4/1916
5386	TEXAS INDUSTRIES INC	Travis	Colorado	Mining	110	5/25/1970
5393	SCHWERTNER FARMS INC	Travis	Colorado	Industrial	95	6/30/1963
5393	TRAVIS COUNTY LANDFILL COMPANY LLC	Travis	Colorado	Industrial	20	6/30/1963
5394	DAVID & KATHERINE MELLENBRUCH	Travis	Colorado	Irrigation	150	4/25/1899
5396	BASTROP ENERGY PARTNERS LP	Travis	Colorado	Irrigation	180	11/12/1913
5397	CLARENCE WASHINGTON	Travis	Colorado	Industrial	17	11/20/1967
5401	J W SIMECEK	Travis	Colorado	Irrigation	30	4/30/1963
5471	CITY OF AUSTIN	Travis	Colorado	Municipal/Domestic	270403	6/30/1913
5482	LOWER COLORADO RIVER AUTHORITY	Travis	Colorado	Industrial	1470	3/29/1926

WATER RIGHTS
LOWER COLORADO REGIONAL WATER PLANNING AREA (REGION K)

Water Right Number	Owner	County	Basin	Use	Max. Permitted Diversion (ac-ft/yr)	Priority Date
5483	NIX O BODDEN ET UX	Travis	Colorado	Irrigation	1	12/31/1961
5489	CITY OF AUSTIN	Travis	Colorado	Municipal/Domestic	36456	8/20/1945
5491	ROBERT D HEJL	Travis	Colorado	Irrigation	22	12/31/1952
5542	WELLS BRANCH MUD	Travis	Colorado	Recreation		11/20/1995
5564	NATIONAL INSTRUMENTS CORPORATION	Travis	Colorado	Recreation		12/9/1996
5677	LOWER COLORADO RIVER AUTHORITY	Travis	Colorado	Municipal/Domestic	6400	2/2/2000
5781	BAE SYSTEMS	Travis	Colorado	Recreation		7/3/2002
5790	CITY OF PFLUGERVILLE	Travis	Colorado	Municipal/Domestic	12000	12/20/2002
5888	NINE HIDDEN LAKE LTD	Travis	Colorado	Recreation		6/6/2005
3418	GLEN D LAAS ET UX	Wharton	Brazos-Colorado	Irrigation	480	5/7/1979
3418	HARRY H ANDERSON ET UX	Wharton	Brazos-Colorado	Irrigation	110	12/31/1910
3419	HARRY H ANDERSON ET UX	Wharton	Brazos-Colorado	Irrigation	800	5/7/1979
3420	PEMM PARTNERS LTD	Wharton	Brazos-Colorado	Irrigation	300	9/10/1979
3421	CONOCOPHILLIPS CO	Wharton	Brazos-Colorado	Municipal/Domestic	1000	9/13/1928
3421	LEONARD WITTIG GRASS FARMS INC	Wharton	Brazos-Colorado	Mining	1000	9/13/1928
3421	WHARTON COUNTY GENERATION LLC	Wharton	Brazos-Colorado	Municipal/Domestic	1600	9/13/1928
3814	JAMES L FORGASON ET UX	Wharton	Brazos-Colorado	Irrigation	912	3/24/1981
3816	CHARLIE F JOCHETZ ET AL	Wharton	Brazos-Colorado	Irrigation	400	5/30/1981
3847	S W K LAND COMPANY ET AL	Wharton	Brazos-Colorado	Irrigation	1011	11/30/1981
3887	RAYMOND A & JO MARIE RABIUS	Wharton	Brazos-Colorado	Irrigation	275	4/19/1982
3926	WAYNE LEE CORMAN ET AL	Wharton	Brazos-Colorado	Irrigation	300	9/7/1982
3996	RONALD D & JOHNNIE M CLOUGH	Wharton	Brazos-Colorado	Irrigation	130	2/22/1983
4177	WAYNE ALLEN & THERESA A GUESS ET AL	Wharton	Brazos-Colorado	Irrigation	164	9/25/1984
4229	MARCIAL SORRELL III TRUSTEE ET AL	Wharton	Brazos-Colorado	Irrigation	297	3/19/1985
4243	MERLE T CARLSON ET AL	Wharton	Colorado-Lavaca	Other	111	5/7/1985
4284	GARY W ROBERTS & DONALD G ROBERTS	Wharton	Brazos-Colorado	Irrigation	450	7/30/1985
4288	LEROY MACHA ET AL	Wharton	Brazos-Colorado	Irrigation	1151	9/3/1985
4773	EDMUND HOLUB	Wharton	Colorado-Lavaca	Irrigation	160	12/31/1951
4774	JOHN T GANN JR	Wharton	Colorado-Lavaca	Irrigation	63	6/30/1948
4775	KATHRYN E ALLEN	Wharton	Colorado-Lavaca	Irrigation	640	12/31/1941
4776	JOHN T GANN JR	Wharton	Colorado-Lavaca	Irrigation	228	12/31/1941
4777	PATSY RUTH COX CARLQUIST	Wharton	Colorado-Lavaca	Irrigation	640	4/30/1944
4778	JAMES R HLAVINKA ET AL	Wharton	Colorado-Lavaca	Irrigation	1093	3/31/1953
4779	ELIAS R CALLAHAN ET UX	Wharton	Colorado-Lavaca	Irrigation	116	4/30/1923
4779	SOUTH TEXAS RICE INC	Wharton	Colorado-Lavaca	Irrigation	347	4/30/1923
4784	PARTNERSHIP	Wharton	Colorado-Lavaca	Irrigation	324	4/30/1944
4785	MAREK FARMS	Wharton	Colorado-Lavaca	Irrigation	26	4/30/1944
5067	ELIZABETH ANN ULLMAN	Wharton	Brazos-Colorado	Irrigation	2290	6/4/1986
5067	OMAR ARLT TRUST	Wharton	Brazos-Colorado	Irrigation		6/4/1986
5067	ROBERT STRUNK TRUST	Wharton	Brazos-Colorado	Irrigation		6/4/1986
5324	RABIUS CHILDREN TRUST	Wharton	Brazos-Colorado	Irrigation	87	10/25/1990
5338	BERNARD O STONE JR	Wharton	Brazos-Colorado	Irrigation	420	12/19/1990
5435	TRI-GEN LAND CORPORATION	Wharton	Colorado	Irrigation	192	12/31/1955
5459	S & S FARMS A JOINT VENTURE WITH	Wharton	Brazos-Colorado	Irrigation	1000	4/21/1993
5477	LOWER COLORADO RIVER AUTHORITY	Wharton	Colorado	Irrigation	55000	9/1/1907
5477	LOWER COLORADO RIVER AUTHORITY	Wharton	Colorado	Municipal/Domestic		9/1/1907
5477	LOWER COLORADO RIVER AUTHORITY	Wharton	Colorado	Industrial		9/1/1907
5568	MORRISON TRUST	Wharton	Brazos-Colorado	Irrigation	1120	1/15/1997
5573	ANNIE LEE ANSLEY	Wharton	Brazos-Colorado	Irrigation	1289	1/21/1997
5623	STEVEN C CALLAWAY ET AL	Wharton	Brazos-Colorado	Irrigation	185	4/6/1999
5674	F JOE PREISLER JR ET AL	Wharton	Brazos-Colorado	Irrigation	152	2/4/2000
5684	WILLIAM A ANSLEY ET AL	Wharton	Brazos-Colorado	Irrigation	184	5/5/2000
5685	MARIE E SIKORA	Wharton	Brazos-Colorado	Irrigation	33	5/5/2000
5702	LESLIE W HUDGINS	Wharton	Brazos-Colorado	Irrigation	217	11/1/2000
5721	NIZAR MULLANI ET AL	Wharton	Brazos-Colorado	Irrigation	72	11/16/2000

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APPENDIX 3B

DESCRIPTION OF REGION K WAM RUN 3 CUTOFF MODEL

TABLE A
SUMMARY OF REGION K WAM MODELING ASSUMPTIONS REGARDING SUPPLY AND STRATEGY ANALYSES FOR 2016 REGIONAL PLAN DEVELOPMENT

NO.	ASSUMPTION	(1) SUPPLY ANALYSIS	(2) STRATEGY ANALYSIS	(3)
		Cutoff WAM By Decade	**TCEQ Full-Basin WAM Run 3**	**Cutoff WAM By Decade**
1	Use TCEQ Full-Basin WAM Run 3 Without Modification for New Appropriation Water Supply Strategies Analysis	No	Yes	No
2	All Rights at and Above Ivie/Brownwood Senior to Downstream Rights (maintaining relative date priority in rights upstream)	Yes	No	Yes
3	Use Expanded 1940-2009 Naturalized Flows	Yes	No	Yes
4	Determine Firm Yield for Buchanan-Travis Reservoir System	Yes	No	No
5	Use Sediment-Adjusted Future Reservoir Storage by Decade	Yes	No	Yes
6	Use 2010 Water Mgt Plan Environmental Flow Criteria	No	Yes	Yes
7	Set All Water Right Demands at Authorized Diversion Amounts	Yes	Yes	No
8	Include Provisions of LCRA-STP 2006 Settlement Agreement	Yes	No	Yes
9	Include Operating Rules for Lakes Buchanan and Travis to Maintain Consistent Levels of Drawdown in the Lakes	Yes	Yes	Yes
10	Include Latest Approved LCRA Permits and Amendments	Yes	Yes	Yes
11	Include 2010 Water Mgt Plan Highland Lakes Interruptible Water	No	Yes	Yes
12	Adjust 2010 Water Mgt Plan Environmental Flow Triggers	No	No	Yes
13	Set All Region K M&I Water Right Demands at Projected Future Demand Amounts by Decade	No	No	Yes
14	Modify Curtailment of Highland Lakes Interruptible Water as Necessary to Satisfy LCRA Future Firm M&I Demands	No	No	Yes
15	Set LCRA Lower Basin Irrigation Demands Equal to Projected Future Weather-Variable Demands by Decade	No	No	Yes
16	Include LCRA Irrigation Return Flows to the Colorado River	No	No	Only As A Strategy
17	Include Return Flows from Austin Wastewater Treatment Plants	No	Only As A Strategy	Only As A Strategy
18	Include Other M&I Return Flows	No	Only As A Strategy	Only As A Strategy
19	Include Reuse Provisions and Environmental Flow Requirements of LCRA-Austin 2007 Settlement Agreement	No	Only As A Strategy	Only As A Strategy

Note: TCEQ SB-3 requirements will be taken into consideration in strategies involving a new appropriation of water

LOWER COLORADO REGIONAL WATER PLANNING GROUP

John E. Burke, P.E.
Chairman

Mailstop R325
Austin, TX 78767-0220

Phone: 512/914-3474
Fax: 512/473-3539

April 13, 2012

Ms. Melanie Callahan
Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Subject: Request by the Lower Colorado Regional Water Planning Group (Region K) to use a modified TCEQ WAM Run 3 for determining availability of surface water resources

Dear Ms. Callahan:

On April 11, 2012, the Lower Colorado Regional Water Planning Group (Region K) authorized submitting this request to you for approval of using the Region K WAM Run 3 Cutoff Model ("the Cutoff Model") in determining availability of surface water resources for development of the 2016 Region K Regional Water Plan (RWP). Previously in development of the 2011 Region K RWP, Region K determined that the required TCEQ WAM Run 3 did not adequately reflect the historical operation of water rights and existing contractual commitments in the Colorado River Basin and subsequently requested and received TWDB's permission to use the Cutoff Model in determining surface water availability for the 2011 RWP (described more fully in Appendix 3B of the 2011 RWP). The Cutoff Model proposed for this 2016 RWP uses the same assumptions as approved previously by TWDB plus some limited revisions to include appropriate updates reflecting new data and changed conditions within the basin. The attached *Summary of Region K WAM Modeling Assumptions* outlines all of the major assumptions and include these significant revisions listed below.

1. Uses as a starting point the most recently available version of the TCEQ Colorado WAM Run 3 model.
2. Expands the naturalized flow data set to include the period of record from 1940-2009.
3. Incorporates the latest TCEQ approved permits.
4. Uses the approved 2010 LCRA Water Management Plan and its associated environmental flow criteria.

Should you have any questions regarding this request, please contact our consultant team via phone (512) 457-7774 or via email at david.parkhill@aecom.com. We appreciate your consideration of this request.

Very Truly Yours,

John E. Burke, Chairman
Lower Colorado Regional Water Planning Group

C: Mr. David Meesey, TWDB

Enclosure: Summary of Region K WAM Modeling Assumptions

Texas Water
Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

August 9, 2012

Mr. John E. Burke, P.E.
Chair, Lower Colorado Regional Water Planning Group (Region K)
496 Shiloh Road
Bastrop, TX 78602

Re: Request for Use of Alternative Methodologies to WAM Run 3

Dear ~~Chairman Burke~~: John

This is in response to your request dated April 13, 2012 to use the Region K WAM Run 3 Cutoff Model. The cutoff model is approved for use in determining surface water availability in the development of the 2016 Region K regional water plan.

Your request stated that the cutoff model began with the TCEQ WAM Run 3 and was modified to more accurately reflect the historical operation of water rights and existing contracts in the basin. Since the cutoff model was approved for use in the 2011 Region K plan, the model was updated as follows:

1. The naturalized flow data set was expanded to include the period of record 1940-2009;
2. The latest TCEQ-approved permits were included; and
3. The 2010 Lower Colorado River Authority (LCRA) Water Management Plan's operation rules and environmental flow criteria were used.

While TWDB authorizes these modifications to evaluate existing water supplies for development of the 2016 regional water plan, it is the responsibility of the planning group to ensure that the resulting estimates of water availability are reasonable for drought planning purposes and will reflect conditions expected in the event of actual drought conditions; and in all other regards will be evaluated in accordance with the contract Exhibit C, General Guidelines for Regional Water Plan Development.

Please note that the unmodified TCEQ WAM Run 3 is to be used in the analysis and development of water management strategies. Assumptions 3, 5-8, 10-12, and 15-20 from the attachment to your April 13, 2012 request letter are not acceptable for strategy analysis if they are not already included in WAM Run 3.

If you have any further questions, please contact Region K Project Manager David Meesey at (512) 936-0852 or by e-mail at david.meesey@twdb.texas.gov.

Sincerely,

Carolyn L. Brittin
Deputy Executive Administrator,
Water Resources Planning and Information

c: Mr. James Kowis, LCRA
Ms. Jaime Burke, AECOM
Mr. David Carter, TWDB
Mr. David Meesey, TWDB

Lower Colorado River Authority, Administrative Agent
P.O. Box 220, Austin, Texas 78767
(512) 473-3200, Fax (512) 473-4026

April 23, 2013

Ms. Carolyn L. Brittin
Deputy Executive Administrator, Water Resources Planning and Information
Texas Water Development Board
P. O. Box 13231
Austin, Texas 78711-3231

Dear Ms. Brittin:

As I am sure you are aware, on October 2, 2012, James Kowis, Chair of the Modeling Committee met with TWDB staff to gain further clarification regarding the use of certain surface water availability models (WAMs) in the development of the 2016 Region K regional water plan. This meeting was held in response to direction provided in your letter of August 9, 2012 to me. After this meeting, I believe we now have identified a clear path forward with regard to how the different WAMs for the Colorado River Basin will be employed in support of the Region K planning process, a path that should be acceptable with regard to the modeling of strategies for new appropriations of surface water. The purpose of this letter is to outline for your concurrence our understanding of which models can be used for specific purposes in the planning process and to identify the basic assumptions underlying each of these models.

As referenced in your August 9th letter, there are two basic purposes for applying a WAM in the context of regional water planning. One is to establish the available firm supply of surface water under drought-of-record conditions for each individual existing surface water right and for each decade of the planning period. The second is to analyze potential strategies for meeting projected future water demand shortages by decade, including strategies that involve new appropriations of state water. Our understanding of the application and use of WAMs for these different purposes in the Region K planning process is described in the following sections.

REGION K SUPPLY ANALYSES

As you noted in your letter, water supply analyses will be performed using the Region K WAM Run 3 Cutoff Model, hereafter referred to as the Cutoff Model. This Cutoff Model reflects historical and current water management operations in the basin with regard to existing water rights, and as such, it provides the most realistic representation of available water supplies during drought-of-record conditions for individual water rights. The basic assumptions included in this model as it is to be applied for purposes of the supply analyses for Region K are identified in the attached **Table A column 1**. As noted, it is our understanding that estimates of future drought-of-record surface water supplies for specific water rights are to be made by decade through the year 2070 assuming that reservoir capacities will be gradually reduced over time due to sedimentation. The changing reservoir capacities would be the only variables in these simulations of future supply quantities.

REGION K STRATEGY ANALYSES

The analysis of potential surface water supply strategies can involve different WAM modeling approaches depending on the nature of a particular strategy and the purpose for which the analysis is being made. First and foremost, for a strategy that represents a new appropriation of surface water from TCEQ, the amount of water that the strategy is capable of producing under drought-of-record conditions should be determined under the same permitting assumptions used by TCEQ. This means that the strategy should be analyzed using TCEQ's full-basin WAM Run 3 as it currently exists with all existing water rights in the entire Colorado River Basin fully exercised in accordance with their authorized impoundment and diversion amounts and with no return flows. The result of this analysis will define a reasonable estimate of the legal quantity of water available from implementing the strategy, and this will be the maximum amount of water that can be relied upon for the strategy in the Region K planning process. The basic assumptions included in this WAM Run 3 model as it is to be applied for purposes of analyzing new surface water appropriations for potential Region K strategies also are identified in the attached **Table A column 2**.

The other important application of a WAM for strategy analysis involves the evaluation of how a particular water supply strategy will serve to meet the projected future water demands of a particular water user over time on a decade-by-decade basis through 2070. This is fundamental to the regional water planning process, and according to TWDB guidance, should reflect realistic future conditions. In this regard, the Cutoff Model provides the most useful tool for making these evaluations since it reflects historical and current water management operations in the basin with regard to existing water rights and provides the most realistic representation of water availability during drought-of-record conditions for individual water rights. It is significant to note that we have had discussions with TCEQ staff regarding the Cutoff Model and understand that TCEQ staff is agreeable to its use in establishing the firm yield of the lakes Buchanan-Travis reservoir system for purposes of the pending revision of LCRA's Water Management Plan for the Lower Colorado Basin, so we believe it is reasonable to also use this model for evaluating water supply strategies for purposes of Region K regional water planning.

For the strategy evaluations undertaken in support of the Region K planning process, the effects of different types of water supply strategies can be incorporated into the Cutoff Model in terms of new supplies, including strategies such as a new groundwater source, an aquifer storage-recovery project, seawater or brackish groundwater desalinization, indirect reuse of return flows, an interbasin surface water or groundwater transfer, or a new surface water appropriation. Once included in the Cutoff Model, these new sources of supply then would be available to meet the projected demands for specific surface water users at different decades in the future. These simulations with the Cutoff Model would be made for specific decadal conditions with regard to the water demands of individual surface water users and with regard to reservoir storage capacities as influenced by future sedimentation. For a strategy involving a new appropriation of surface water, the maximum amount of water available under the strategy would be limited to that amount determined from the previous analysis of the strategy using the TCEQ's full-basin WAM Run 3 model under fully-authorized water rights conditions. This would ensure that the available supply of water relied upon from the strategy for planning purposes would be consistent with the legal amount of water that could potentially be permitted by TCEQ. While the specific assumptions incorporated in the Cutoff Model for these types of strategy planning simulations may vary depending on the particular strategies being evaluated, the basic assumptions are listed in the attached **Table A column 3**.

CONCLUSION

We believe that the WAM modeling approach outlined above is consistent with directives from TWDB regarding regional water planning and meets the requirements of TCEQ with regard to how strategies involving potential new appropriations of surface water are analyzed and represented in the regional planning process. Furthermore, we believe that this approach will provide the most realistic estimates of future available surface water supplies that reflect actual water management operations in the basin with regard to existing water rights.

If you have questions regarding our proposed WAM modeling approach or if you need additional information, please contact me at your convenience.

Sincerely,

John E. Burke
Chair, Region K

Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

June 3, 2013

Mr. John E. Burke, P.E.
Chair, Lower Colorado Regional Water Planning Group (Region K)
496 Shiloh Road
Bastrop, TX 78602

Re: Request for Use of Alternative Methodologies to WAM Run 3

Dear ~~Chairman Burke~~ John:

This is in response to your request dated April 23, 2013, to use the Region K WAM Run 3 Cutoff Model for water management strategy evaluation in situations where there would be no new appropriation of surface water. This is in addition to use of the cutoff model for water supply availability evaluation which was previously authorized on August 9, 2012. The cutoff model is approved for use in water management strategy evaluations where no new surface water appropriations are required as summarized in Table A of your letter.

The cutoff model reflects decadal changes in reservoir storage volumes due to sedimentation and contains other operational assumptions found in the Lower Colorado River Authority's (LCRA) 2010 Water Management Plan. Your letter indicates that the cutoff model provides the most useful tool for strategy evaluations because it reflects historical and current water management operations in the basin and provides the most realistic representation of water availability during drought conditions for individual water rights. Table A contains additional details about modeling assumptions used in water supply analysis and strategy evaluation, and conditions under which the cutoff model would be used.

While TWDB authorizes these modifications to evaluate existing supplies and potentially feasible water management strategies for development of the 2016 regional water plan, it is the responsibility of the planning group to ensure that the resulting estimates of water availability are reasonable for drought planning purposes and will reflect conditions expected on the event of actual drought conditions; and in all other regards will be evaluated in accordance with the contract Exhibit C, General Guidelines for Regional Water Plan Development. Also, please remember that the firm yield of existing water supplies and all future water management strategies must be provided in the online database and in the regional water plan.

If you have further questions, please contact Region K Project Manager David Meesey at 512-936-0852 or via e-mail at david.meesey@twdb.texas.gov.

Sincerely,

Dan Hardin

Daniel Hardin, Ph.D.
Interim Deputy Executive Administrator
Water Resources Planning and Information

c: Mr. David Wheelock, LCRA
Ms. Jaime Burke, AECOM
Mr. David Carter, TWDB
Mr. David Meesey, TWDB

TABLE A
SUMMARY OF REGION K WAM MODELING ASSUMPTIONS REGARDING SUPPLY AND STRATEGY ANALYSES FOR 2016 REGIONAL PLAN DEVELOPMENT

NO.	ASSUMPTION	(1) SUPPLY ANALYSIS	(2) STRATEGY ANALYSIS	(3)
		Cutoff WAM By Decade	TCEQ Full-Basin WAM Run 3	Cutoff WAM By Decade
1	Use TCEQ Full-Basin WAM Run 3 Without Modification for New Appropriation Water Supply Strategies Analysis	No	Yes	No
2	All Rights at and Above Ivie/Brownwood Senior to Downstream Rights (maintaining relative date priority in rights upstream)	Yes	No	Yes
3	Use Expanded 1940-2009 Naturalized Flows	Yes	No	Yes
4	Determine Firm Yield for Buchanan-Travis Reservoir System	Yes	No	No
5	Use Sediment-Adjusted Future Reservoir Storage by Decade	Yes	No	Yes
6	Use 2010 Water Mgt Plan Environmental Flow Criteria	No	Yes	Yes
7	Set All Water Right Demands at Authorized Diversion Amounts	Yes	Yes	No
8	Include Provisions of LCRA-STP 2006 Settlement Agreement	Yes	No	Yes
9	Include Operating Rules for Lakes Buchanan and Travis to Maintain Consistent Levels of Drawdown in the Lakes	Yes	Yes	Yes
10	Include Latest Approved LCRA Permits and Amendments	Yes	Yes	Yes
11	Include 2010 Water Mgt Plan Highland Lakes Interruptible Water	No	Yes	Yes
12	Adjust 2010 Water Mgt Plan Environmental Flow Triggers	No	No	Yes
13	Set All Region K M&I Water Right Demands at Projected Future Demand Amounts by Decade	No	No	Yes
14	Modify Curtailment of Highland Lakes Interruptible Water as Necessary to Satisfy LCRA Future Firm M&I Demands	No	No	Yes
15	Set LCRA Lower Basin Irrigation Demands Equal to Projected Future Weather-Variable Demands by Decade	No	No	Yes
16	Include LCRA Irrigation Return Flows to the Colorado River	No	No	Only As A Strategy
17	Include Return Flows from Austin Wastewater Treatment Plants	No	Only As A Strategy	Only As A Strategy
18	Include Other M&I Return Flows	No	Only As A Strategy	Only As A Strategy
19	Include Reuse Provisions and Environmental Flow Requirements of LCRA-Austin 2007 Settlement Agreement	No	Only As A Strategy	Only As A Strategy

Note: TCEQ SB-3 requirements will be taken into consideration in strategies involving a new appropriation of water

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APPENDIX 3C

TWDB DB17 REPORTS FOR WATER AVAILABILITY AND WATER SUPPLIES

Source Availability

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
CARRIZO-WILCOX AQUIFER	BASTROP	BRAZOS	FRESH	4,864	4,013	4,497	4,293	4,372	4,372
CARRIZO-WILCOX AQUIFER	BASTROP	COLORADO	FRESH	15,109	16,647	19,641	22,360	22,734	22,734
CARRIZO-WILCOX AQUIFER	BASTROP	GUADALUPE	FRESH	6	6	695	1,365	1,392	1,392
CARRIZO-WILCOX AQUIFER	FAYETTE	COLORADO	FRESH	683	683	683	683	683	683
CARRIZO-WILCOX AQUIFER	FAYETTE	GUADALUPE	FRESH	317	317	317	317	317	317
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	FRESH	2,292	2,292	2,292	2,292	2,292	2,292
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	SALINE	9	9	9	9	9	9
EDWARDS-BFZ AQUIFER	TRAVIS	BRAZOS	FRESH	275	275	275	275	275	275
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH	6,128	6,128	6,128	6,128	6,128	6,128
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	SALINE	699	699	699	699	699	699
EDWARDS-BFZ AQUIFER	TRAVIS	GUADALUPE	SALINE	39	39	39	39	39	39
EDWARDS-BFZ AQUIFER	WILLIAMSON	BRAZOS	FRESH	6	6	6	6	6	6
EDWARDS-BFZ AQUIFER	WILLIAMSON	COLORADO	FRESH	4	4	4	4	4	4
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	COLORADO	FRESH	2,378	2,378	2,378	2,378	2,378	2,378
EDWARDS-TRINITY-PLATEAU AQUIFER	GILLESPIE	GUADALUPE	FRESH	136	136	136	136	136	136
ELLENBURGER-SAN SABA AQUIFER	BLANCO	COLORADO	FRESH	2,655	2,655	2,655	2,655	2,655	2,655
ELLENBURGER-SAN SABA AQUIFER	BLANCO	GUADALUPE	FRESH	6	6	6	6	6	6
ELLENBURGER-SAN SABA AQUIFER	BURNET	BRAZOS	FRESH	123	123	123	123	123	123
ELLENBURGER-SAN SABA AQUIFER	BURNET	COLORADO	FRESH	5,403	5,403	5,403	5,403	5,403	5,403
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	COLORADO	FRESH	6,270	6,270	6,270	6,270	6,270	6,270
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	GUADALUPE	FRESH	1	1	1	1	1	1
ELLENBURGER-SAN SABA AQUIFER	LLANO	COLORADO	FRESH	2,057	2,057	2,057	2,057	2,057	2,057
ELLENBURGER-SAN SABA AQUIFER	MILLS	BRAZOS	FRESH	5	5	5	5	5	5
ELLENBURGER-SAN SABA AQUIFER	MILLS	COLORADO	FRESH	494	494	494	494	494	494
ELLENBURGER-SAN SABA AQUIFER	SAN SABA	COLORADO	FRESH	10,893	10,893	10,893	10,893	10,893	10,893
GULF COAST AQUIFER	COLORADO	BRAZOS-COLORADO	FRESH	10,464	10,464	10,464	10,464	10,464	10,464
GULF COAST AQUIFER	COLORADO	COLORADO	FRESH	16,058	16,058	16,058	16,058	16,058	16,058
GULF COAST AQUIFER	COLORADO	LAVACA	FRESH	22,431	22,431	22,431	22,431	22,431	22,431
GULF COAST AQUIFER	FAYETTE	BRAZOS	FRESH	17	17	17	17	17	17
GULF COAST AQUIFER	FAYETTE	COLORADO	FRESH	6,123	5,961	5,956	5,952	5,924	5,924
GULF COAST AQUIFER	FAYETTE	LAVACA	FRESH	2,933	2,927	2,922	2,917	2,915	2,915
GULF COAST AQUIFER	MATAGORDA	BRAZOS-COLORADO	FRESH	23,055	23,055	23,055	23,055	23,055	23,055
GULF COAST AQUIFER	MATAGORDA	COLORADO	FRESH	4,179	4,179	4,179	4,179	4,179	4,179

Source Availability

REGION K									
				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
GROUNDWATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
GULF COAST AQUIFER	MATAGORDA	COLORADO-LAVACA	FRESH	18,662	18,662	18,662	18,662	18,662	18,662
GULF COAST AQUIFER	WHARTON	BRAZOS-COLORADO	FRESH	34,020	34,020	34,020	34,020	34,020	34,020
GULF COAST AQUIFER	WHARTON	COLORADO	FRESH	31,406	31,406	31,406	31,406	31,406	31,406
GULF COAST AQUIFER	WHARTON	COLORADO-LAVACA	FRESH	11,624	11,624	11,624	11,624	11,624	11,624
GULF COAST AQUIFER	WHARTON	LAVACA	FRESH	1,690	1,690	1,690	1,690	1,690	1,690
HICKORY AQUIFER	BLANCO	COLORADO	FRESH	1,162	1,162	1,162	1,162	1,162	1,162
HICKORY AQUIFER	BLANCO	GUADALUPE	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	BURNET	COLORADO	FRESH	2,148	2,148	2,148	2,148	2,148	2,148
HICKORY AQUIFER	GILLESPIE	COLORADO	FRESH	1,659	1,659	1,659	1,659	1,659	1,659
HICKORY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	LLANO	COLORADO	FRESH	2,018	2,018	2,018	2,018	2,018	2,018
HICKORY AQUIFER	MILLS	BRAZOS	FRESH	1	1	1	1	1	1
HICKORY AQUIFER	MILLS	COLORADO	FRESH	35	35	35	35	35	35
HICKORY AQUIFER	SAN SABA	COLORADO	FRESH	1,479	1,479	1,479	1,479	1,479	1,479
HICKORY AQUIFER	TRAVIS	BRAZOS	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	TRAVIS	COLORADO	FRESH	22	22	22	22	22	22
MARBLE FALLS AQUIFER	BLANCO	COLORADO	FRESH	261	261	261	261	261	261
MARBLE FALLS AQUIFER	BURNET	BRAZOS	FRESH	93	93	93	93	93	93
MARBLE FALLS AQUIFER	BURNET	COLORADO	FRESH	1,885	1,885	1,885	1,885	1,885	1,885
MARBLE FALLS AQUIFER	SAN SABA	COLORADO	FRESH	11,063	11,063	11,063	11,063	11,063	11,063
OTHER AQUIFER	BURNET	BRAZOS	FRESH	2,053	2,053	2,053	2,053	2,053	2,053
OTHER AQUIFER	TRAVIS	GUADALUPE	FRESH	112	112	112	112	112	112
OTHER AQUIFER | ALLUVIUM	BURNET	COLORADO	FRESH	3,672	3,672	3,672	3,672	3,672	3,672
OTHER AQUIFER | ALLUVIUM	LLANO	COLORADO	FRESH	629	629	629	629	629	629
OTHER AQUIFER | CITY OF BASTROP	BASTROP	COLORADO	FRESH	5,340	5,340	5,340	5,340	5,340	5,340
OTHER AQUIFER | COUNTY-OTHER, IRRIGATION	TRAVIS	COLORADO	FRESH	1,453	1,453	1,453	1,453	1,453	1,453
OTHER AQUIFER | FAYETTE WSC, COUNTY-OTHER	FAYETTE	COLORADO	FRESH	834	834	834	834	834	834
QUEEN CITY AQUIFER	BASTROP	BRAZOS	FRESH	244	598	219	216	216	216
QUEEN CITY AQUIFER	BASTROP	COLORADO	FRESH	659	1,626	599	591	590	590
QUEEN CITY AQUIFER	BASTROP	GUADALUPE	FRESH	192	541	213	216	216	216
QUEEN CITY AQUIFER	FAYETTE	COLORADO	FRESH	436	478	513	565	570	570
QUEEN CITY AQUIFER	FAYETTE	GUADALUPE	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	BASTROP	BRAZOS	FRESH	65	170	58	55	55	55
SPARTA AQUIFER	BASTROP	COLORADO	FRESH	1,761	4,606	1,538	1,460	1,453	1,453
SPARTA AQUIFER	BASTROP	GUADALUPE	FRESH	87	228	79	76	75	75
SPARTA AQUIFER	FAYETTE	COLORADO	FRESH	3,161	3,206	3,226	3,278	3,294	3,294

Source Availability

REGION K

GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
SPARTA AQUIFER	FAYETTE	GUADALUPE	FRESH	431	431	430	433	435	435
TRINITY AQUIFER	BLANCO	COLORADO	FRESH	1,322	1,322	1,322	1,322	1,322	1,322
TRINITY AQUIFER	BLANCO	GUADALUPE	FRESH	1,251	1,251	1,251	1,251	1,251	1,251
TRINITY AQUIFER	BURNET	BRAZOS	FRESH	2,723	2,723	2,723	2,723	2,723	2,723
TRINITY AQUIFER	BURNET	COLORADO	FRESH	823	823	823	823	823	823
TRINITY AQUIFER	GILLESPIE	COLORADO	FRESH	2,482	2,482	2,482	2,482	2,482	2,482
TRINITY AQUIFER	GILLESPIE	GUADALUPE	FRESH	46	46	46	46	46	46
TRINITY AQUIFER	HAYS	COLORADO	FRESH	5,665	5,662	5,661	5,661	5,661	5,661
TRINITY AQUIFER	MILLS	BRAZOS	FRESH	1,273	1,273	1,273	1,273	1,273	1,273
TRINITY AQUIFER	MILLS	COLORADO	FRESH	1,128	1,128	1,128	1,128	1,128	1,128
TRINITY AQUIFER	TRAVIS	BRAZOS	FRESH	8	8	8	8	8	8
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH	13,188	13,171	13,159	13,143	13,114	13,114
TRINITY AQUIFER	TRAVIS	GUADALUPE	FRESH	7	7	7	7	7	7
TRINITY AQUIFER	WILLIAMSON	BRAZOS	FRESH	157	157	157	157	157	157
TRINITY AQUIFER	WILLIAMSON	COLORADO	FRESH	61	61	61	61	61	61
YEGUA-JACKSON AQUIFER	FAYETTE	COLORADO	FRESH	5,065	5,065	5,065	5,065	5,065	5,065
YEGUA-JACKSON AQUIFER	FAYETTE	GUADALUPE	FRESH	650	650	650	650	650	650
YEGUA-JACKSON AQUIFER	FAYETTE	LAVACA	FRESH	47	47	47	47	47	47
	GROUNDWATER TOTAL SOURCE AVAILABILITY			**322,366**	**327,713**	**326,848**	**330,023**	**330,458**	**330,458**

REGION K

REUSE	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
DIRECT REUSE	LLANO	COLORADO	FRESH	516	516	516	516	516	516
DIRECT REUSE	TRAVIS	COLORADO	FRESH	19,500	33,457	45,648	55,598	60,848	60,848
DIRECT REUSE | CITY OF BUDA WWTP/SUNFIELD SUBDIVISION	HAYS	COLORADO	FRESH	2,240	2,240	2,240	2,240	2,240	2,240
DIRECT REUSE | CITY OF MARBLE FALLS WWTP/ CITY PARKS ; CITY OF BURNET WWTP/ REC CENTER	BURNET	COLORADO	FRESH	1,270	1,270	1,270	1,270	1,270	1,270
	REUSE TOTAL SOURCE AVAILABILITY			**23,526**	**37,483**	**49,674**	**59,624**	**64,874**	**64,874**

REGION K

SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BLANCO LAKE/RESERVOIR	RESERVOIR	GUADALUPE	FRESH	596	596	596	596	596	596
BRAZOS LIVESTOCK LOCAL SUPPLY	BASTROP	BRAZOS	FRESH	94	94	94	94	94	94
BRAZOS LIVESTOCK LOCAL SUPPLY	BURNET	BRAZOS	FRESH	311	311	311	311	311	311
BRAZOS LIVESTOCK LOCAL SUPPLY	MILLS	BRAZOS	FRESH	321	321	321	321	321	321

Source Availability

REGION K									
				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SURFACE WATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
BRAZOS LIVESTOCK LOCAL SUPPLY	WILLIAMSON	BRAZOS	FRESH	1	1	1	1	1	1
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	BRAZOS-COLORADO	FRESH	203	203	203	203	203	203
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	BRAZOS-COLORADO	FRESH	664	664	664	664	664	664
BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	371	371	371	371	371	371
BRAZOS-COLORADO OTHER LOCAL SUPPLY	WHARTON	BRAZOS-COLORADO	FRESH	1,900	1,900	1,900	1,900	1,900	1,900
BRAZOS-COLORADO RUN-OF-RIVER	MATAGORDA	BRAZOS-COLORADO	FRESH	4,000	4,000	4,000	4,000	4,000	4,000
BRAZOS-COLORADO RUN-OF-RIVER	WHARTON	BRAZOS-COLORADO	FRESH	2,000	2,000	2,000	2,000	2,000	2,000
BRAZOS-COLORADO RUN-OF-RIVER | SAN BERNARD	WHARTON	BRAZOS-COLORADO	FRESH	597	597	597	597	597	597
COLORADO LIVESTOCK LOCAL SUPPLY	BASTROP	COLORADO	FRESH	1,356	1,356	1,356	1,356	1,356	1,356
COLORADO LIVESTOCK LOCAL SUPPLY	BLANCO	COLORADO	FRESH	435	435	435	435	435	435
COLORADO LIVESTOCK LOCAL SUPPLY	BURNET	COLORADO	FRESH	524	524	524	524	524	524
COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	COLORADO	FRESH	922	922	922	922	922	922
COLORADO LIVESTOCK LOCAL SUPPLY	FAYETTE	COLORADO	FRESH	1,903	1,903	1,903	1,903	1,903	1,903
COLORADO LIVESTOCK LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	1,030	1,030	1,030	1,030	1,030	1,030
COLORADO LIVESTOCK LOCAL SUPPLY	HAYS	COLORADO	FRESH	220	220	220	220	220	220
COLORADO LIVESTOCK LOCAL SUPPLY	LLANO	COLORADO	FRESH	751	751	751	751	751	751
COLORADO LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	131	131	131	131	131	131
COLORADO LIVESTOCK LOCAL SUPPLY	MILLS	COLORADO	FRESH	623	623	623	623	623	623
COLORADO LIVESTOCK LOCAL SUPPLY	SAN SABA	COLORADO	FRESH	1,191	1,191	1,191	1,191	1,191	1,191
COLORADO LIVESTOCK LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	680	680	680	680	680	680
COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO	FRESH	277	277	277	277	277	277
COLORADO OTHER LOCAL SUPPLY	BASTROP	COLORADO	FRESH	58	58	58	58	58	58
COLORADO OTHER LOCAL SUPPLY	BLANCO	COLORADO	FRESH	57	57	57	57	57	57
COLORADO OTHER LOCAL SUPPLY	COLORADO	COLORADO	FRESH	16,883	16,883	16,883	16,883	16,883	16,883
COLORADO OTHER LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	158	158	158	158	158	158
COLORADO OTHER LOCAL SUPPLY	MATAGORDA	COLORADO	FRESH	5,000	5,000	5,000	5,000	5,000	5,000
COLORADO OTHER LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	7,070	7,070	7,070	7,070	7,070	7,070

Source Availability

REGION K

SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
COLORADO RUN-OF-RIVER	BASTROP	COLORADO	FRESH	786	786	786	786	786	786
COLORADO RUN-OF-RIVER	BLANCO	COLORADO	FRESH	67	67	67	67	67	67
COLORADO RUN-OF-RIVER	BURNET	COLORADO	FRESH	3,521	3,521	3,521	3,521	3,521	3,521
COLORADO RUN-OF-RIVER	COLORADO	COLORADO	FRESH	132,514	132,514	132,514	132,514	132,514	132,514
COLORADO RUN-OF-RIVER	FAYETTE	COLORADO	FRESH	534	534	534	534	534	534
COLORADO RUN-OF-RIVER	GILLESPIE	COLORADO	FRESH	880	880	880	880	880	880
COLORADO RUN-OF-RIVER	HAYS	COLORADO	FRESH	41	41	41	41	41	41
COLORADO RUN-OF-RIVER	LLANO	COLORADO	FRESH	440	440	440	440	440	440
COLORADO RUN-OF-RIVER	MATAGORDA	COLORADO	FRESH	93,821	93,821	93,821	93,821	93,821	93,821
COLORADO RUN-OF-RIVER	MILLS	COLORADO	FRESH	2,378	2,378	2,378	2,378	2,378	2,378
COLORADO RUN-OF-RIVER	SAN SABA	COLORADO	FRESH	8,800	8,800	8,800	8,800	8,800	8,800
COLORADO RUN-OF-RIVER	TRAVIS	COLORADO	FRESH	207,971	207,971	207,971	207,971	207,984	208,038
COLORADO RUN-OF-RIVER	WHARTON	COLORADO	FRESH	10,562	10,562	10,562	10,562	10,562	10,562
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	MATAGORDA	COLORADO-LAVACA	FRESH	708	708	708	708	708	708
COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO-LAVACA	FRESH	80	80	80	80	80	80
COLORADO-LAVACA RUN-OF-RIVER	MATAGORDA	COLORADO-LAVACA	FRESH	4,000	4,000	4,000	4,000	4,000	4,000
GOLDTHWAITE LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	0	0	0	0	0	0
GUADALUPE LIVESTOCK LOCAL SUPPLY	BASTROP	GUADALUPE	FRESH	72	72	72	72	72	72
GUADALUPE LIVESTOCK LOCAL SUPPLY	BLANCO	GUADALUPE	FRESH	129	129	129	129	129	129
GUADALUPE LIVESTOCK LOCAL SUPPLY	FAYETTE	GUADALUPE	FRESH	108	108	108	108	108	108
GUADALUPE LIVESTOCK LOCAL SUPPLY	GILLESPIE	GUADALUPE	FRESH	32	32	32	32	32	32
GUADALUPE LIVESTOCK LOCAL SUPPLY	TRAVIS	GUADALUPE	FRESH	24	24	24	24	24	24
GUADALUPE RUN-OF-RIVER	BLANCO	GUADALUPE	FRESH	9	9	9	9	9	9
HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	RESERVOIR	COLORADO	FRESH	418,812	413,298	407,774	401,744	395,201	389,125
LAVACA LIVESTOCK LOCAL SUPPLY	COLORADO	LAVACA	FRESH	465	465	465	465	465	465
LAVACA LIVESTOCK LOCAL SUPPLY	FAYETTE	LAVACA	FRESH	386	386	386	386	386	386

Source Availability

REGION K									
				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SURFACE WATER	COUNTY	BASIN	SALINITY	2020	2030	2040	2050	2060	2070
LAVACA RUN-OF-RIVER	COLORADO	LAVACA	FRESH	4,002	4,002	4,002	4,002	4,002	4,002
LAVACA RUN-OF-RIVER	FAYETTE	LAVACA	FRESH	20	20	20	20	20	20
LLANO LAKE/RESERVOIR	RESERVOIR	COLORADO	FRESH	417	417	417	417	417	417
SURFACE WATER TOTAL SOURCE AVAILABILITY				**941,906**	**936,392**	**930,868**	**924,838**	**918,308**	**912,286**
REGION K TOTAL SOURCE AVAILABILITY				**1,287,798**	**1,301,588**	**1,307,390**	**1,314,485**	**1,313,640**	**1,307,618**

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
BASTROP COUNTY							
BRAZOS BASIN							
AQUA WSC	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	350	350	350	350	350	350
LEE COUNTY WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	138	158	189	234	292	362
LEE COUNTY WSC	G | QUEEN CITY AQUIFER | LEE COUNTY	2	2	4	3	4	6
LEE COUNTY WSC	G | SPARTA AQUIFER | LEE COUNTY	6	7	7	9	10	14
COUNTY-OTHER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	91	91	91	91	91	91
MINING		0	0	0	0	0	0
LIVESTOCK	K | BRAZOS LIVESTOCK LOCAL SUPPLY	94	94	94	94	94	94
IRRIGATION	K | QUEEN CITY AQUIFER | BASTROP COUNTY	50	50	50	50	50	50
BRAZOS BASIN TOTAL EXISTING SUPPLY		**731**	**752**	**785**	**831**	**891**	**967**
COLORADO BASIN							
AQUA WSC	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	4,775	5,218	6,147	6,805	6,805	6,805
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	1,764	1,764	1,764	1,764	1,764	1,764
BASTROP	K | OTHER AQUIFER | BASTROP COUNTY	1,927	1,927	1,927	1,927	1,927	1,927
BASTROP COUNTY WCID #2	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	659	715	834	917	917	917
BASTROP COUNTY WCID #2	K | OTHER AQUIFER | BASTROP COUNTY	472	472	472	472	472	472
CREEDMOOR-MAHA WSC	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	40	40	40	40	40	40
CREEDMOOR-MAHA WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	0	4	17	34
ELGIN	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	826	919	1,112	1,249	1,249	1,249
LEE COUNTY WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	184	211	255	317	396	489
LEE COUNTY WSC	G | QUEEN CITY AQUIFER | LEE COUNTY	4	4	4	5	6	7
LEE COUNTY WSC	G | SPARTA AQUIFER | LEE COUNTY	8	8	10	12	15	18
POLONIA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	29	36	45	58	75	99
SMITHVILLE	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	1,848	2,006	2,338	2,480	2,480	2,480
COUNTY-OTHER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	709	922	1,198	1,709	2,382	3,282
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	744	744	744	744	744	744
MANUFACTURING	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	81	81	81	81	81	81
MANUFACTURING	K | COLORADO OTHER LOCAL SUPPLY	48	48	48	48	48	48
MINING	K | COLORADO OTHER LOCAL SUPPLY	8	7	7	9	9	9
MINING	K | OTHER AQUIFER | BASTROP COUNTY	2,110	2,110	2,110	2,110	2,110	2,110
STEAM ELECTRIC POWER	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	4,500	4,886	5,694	6,149	6,149	6,149
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	12,220	11,834	11,026	10,571	10,571	10,571
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	696	696	696	696	696	696
LIVESTOCK	K | QUEEN CITY AQUIFER | BASTROP COUNTY	218	218	218	218	218	218
LIVESTOCK	K | SPARTA AQUIFER | BASTROP COUNTY	442	442	442	442	442	442
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	852	742	649	565	492	443

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BASTROP COUNTY							
COLORADO BASIN							
IRRIGATION	K | QUEEN CITY AQUIFER | BASTROP COUNTY	197	197	197	197	197	197
IRRIGATION	K | SPARTA AQUIFER | BASTROP COUNTY	147	147	147	147	147	147
COLORADO BASIN TOTAL EXISTING SUPPLY		**35,508**	**36,394**	**38,205**	**39,736**	**40,449**	**41,438**
GUADALUPE BASIN							
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	250	250	250	250	250	250
COUNTY-OTHER	K | QUEEN CITY AQUIFER | BASTROP COUNTY	35	35	35	35	35	35
MANUFACTURING	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	12	12	12	12	12	12
MANUFACTURING	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	5	5	5	5	5	5
MINING	K | SPARTA AQUIFER | BASTROP COUNTY	34	34	34	34	34	34
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	72	72	72	72	72	72
IRRIGATION	K | QUEEN CITY AQUIFER | BASTROP COUNTY	41	41	41	41	41	41
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**449**	**449**	**449**	**449**	**449**	**449**
BASTROP COUNTY TOTAL EXISTING SUPPLY		**36,688**	**37,595**	**39,439**	**41,016**	**41,789**	**42,854**
BLANCO COUNTY							
COLORADO BASIN							
JOHNSON CITY	K | TRINITY AQUIFER | BLANCO COUNTY	306	306	306	306	306	306
COUNTY-OTHER	K | COLORADO OTHER LOCAL SUPPLY	49	55	57	56	56	56
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	249	249	249	249	249	249
COUNTY-OTHER	K | HICKORY AQUIFER | BLANCO COUNTY	76	76	76	76	76	76
COUNTY-OTHER	K | TRINITY AQUIFER | BLANCO COUNTY	332	332	332	332	332	332
MANUFACTURING	K | TRINITY AQUIFER | BLANCO COUNTY	15	15	15	15	15	15
MINING	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	5	5	5	5	5	5
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	101	101	101	101	101	101
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	255	255	255	255	255	255
LIVESTOCK	K | TRINITY AQUIFER | BLANCO COUNTY	82	82	82	82	82	82
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	208	208	208	208	208	208
COLORADO BASIN TOTAL EXISTING SUPPLY		**1,678**	**1,684**	**1,686**	**1,685**	**1,685**	**1,685**
GUADALUPE BASIN							
BLANCO	K | BLANCO LAKE/RESERVOIR	596	596	596	596	596	596
BLANCO	L | CANYON LAKE/RESERVOIR	600	600	600	600	600	600
CANYON LAKE WATER SERVICE COMPANY	L | CANYON LAKE/RESERVOIR	128	150	163	169	174	177
COUNTY-OTHER	K | TRINITY AQUIFER | BLANCO COUNTY	873	873	873	873	873	873
COUNTY-OTHER	L | CANYON LAKE/RESERVOIR	60	60	60	60	60	60
MANUFACTURING	K | TRINITY AQUIFER | BLANCO COUNTY	5	5	5	5	5	5
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	101	101	101	101	101	101
LIVESTOCK	K | TRINITY AQUIFER | BLANCO COUNTY	62	62	62	62	62	62
IRRIGATION	K | GUADALUPE RUN-OF-RIVER	9	9	9	9	9	9
IRRIGATION	K | TRINITY AQUIFER | BLANCO COUNTY	107	107	107	107	107	107

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
BLANCO COUNTY							
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**2,541**	**2,563**	**2,576**	**2,582**	**2,587**	**2,590**
BLANCO COUNTY TOTAL EXISTING SUPPLY		**4,219**	**4,247**	**4,262**	**4,267**	**4,272**	**4,275**
BURNET COUNTY							
BRAZOS BASIN							
BERTRAM	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	367	367	367	367	367	367
BERTRAM	K | TRINITY AQUIFER | BURNET COUNTY	3	3	3	3	3	3
BURNET	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	14	14	14	14	14	14
CHISHOLM TRAIL SUD	G | BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	66	79	92	103	113	121
CHISHOLM TRAIL SUD	G | EDWARDS-BFZ AQUIFER | WILLIAMSON COUNTY	4	4	3	3	3	3
KEMPNER WSC	G | BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	135	160	181	201	220	237
COUNTY-OTHER	K | TRINITY AQUIFER | BURNET COUNTY	1,578	1,578	1,578	1,578	1,578	1,578
MINING	K | OTHER AQUIFER | BURNET COUNTY	823	1,053	1,295	1,514	1,766	2,053
MINING	K | TRINITY AQUIFER | BURNET COUNTY	300	300	300	300	300	300
LIVESTOCK	K | BRAZOS LIVESTOCK LOCAL SUPPLY	311	311	311	311	311	311
LIVESTOCK	K | TRINITY AQUIFER | BURNET COUNTY	205	205	205	205	205	205
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	123	123	123	123	123	123
IRRIGATION	K | TRINITY AQUIFER | BURNET COUNTY	430	430	430	430	430	430
BRAZOS BASIN TOTAL EXISTING SUPPLY		**4,359**	**4,627**	**4,902**	**5,152**	**5,433**	**5,745**
COLORADO BASIN							
BURNET	K | DIRECT REUSE	520	520	520	520	520	520
BURNET	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	887	887	887	887	887	887
BURNET	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,226	3,226	3,226	3,226	3,226	3,226
COTTONWOOD SHORES	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	495	495	495	495	495	495
GRANITE SHOALS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	830	830	830	830	830	830
KINGSLAND WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	56	58	67	77	78	80
MARBLE FALLS	K | DIRECT REUSE	750	750	750	750	750	750
MARBLE FALLS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,000	3,000	3,000	3,000	3,000	3,000
MEADOWLAKES	K | COLORADO RUN-OF-RIVER	567	567	567	567	567	567
MEADOWLAKES	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	75	75	75	75	75	75
HORSESHOE BAY	K | DIRECT REUSE	148	148	148	148	148	148
HORSESHOE BAY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	700	700	700	700	700	700
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	1,363	1,363	1,363	1,363	1,363	1,363
COUNTY-OTHER	K | HICKORY AQUIFER | BURNET COUNTY	184	184	184	184	184	184
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,205	2,205	2,205	2,205	2,205	2,205
COUNTY-OTHER	K | MARBLE FALLS AQUIFER | BURNET COUNTY	134	134	134	134	134	134
COUNTY-OTHER	K | OTHER AQUIFER | BURNET COUNTY	958	958	958	958	958	958
COUNTY-OTHER	K | TRINITY AQUIFER | BURNET COUNTY	477	477	477	477	477	477
MANUFACTURING	K | COLORADO RUN-OF-RIVER	1,503	1,503	1,503	1,503	1,503	1,503
MANUFACTURING	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	500	500	500	500	500	500

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
BURNET COUNTY							
COLORADO BASIN							
MANUFACTURING	K | TRINITY AQUIFER | BURNET COUNTY	9	9	9	9	9	9
MINING	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	1	1	1	1	1	1
MINING	K | OTHER AQUIFER | BURNET COUNTY	2,351	2,351	2,351	2,351	2,351	2,351
MINING	K | TRINITY AQUIFER | BURNET COUNTY	4	4	4	4	4	4
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	210	210	210	210	210	210
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	311	311	311	311	311	311
LIVESTOCK	K | HICKORY AQUIFER | BURNET COUNTY	10	10	10	10	10	10
LIVESTOCK	K | MARBLE FALLS AQUIFER | BURNET COUNTY	40	40	40	40	40	40
LIVESTOCK	K | TRINITY AQUIFER | BURNET COUNTY	97	97	97	97	97	97
IRRIGATION	K | COLORADO RUN-OF-RIVER	276	276	276	276	276	276
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	675	675	675	675	675	675
IRRIGATION	K | HICKORY AQUIFER | BURNET COUNTY	92	92	92	92	92	92
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	416	416	416	416	416	416
IRRIGATION	K | TRINITY AQUIFER | BURNET COUNTY	115	115	115	115	115	115
COLORADO BASIN TOTAL EXISTING SUPPLY		**23,185**	**23,187**	**23,196**	**23,206**	**23,207**	**23,209**
BURNET COUNTY TOTAL EXISTING SUPPLY		**27,544**	**27,814**	**28,098**	**28,358**	**28,640**	**28,954**
COLORADO COUNTY							
BRAZOS-COLORADO BASIN							
EAGLE LAKE	K | GULF COAST AQUIFER | COLORADO COUNTY	177	177	177	177	177	177
COUNTY-OTHER	K | GULF COAST AQUIFER | COLORADO COUNTY	210	210	210	210	210	210
MANUFACTURING	K | GULF COAST AQUIFER | COLORADO COUNTY	8	8	8	8	8	8
MINING	K | GULF COAST AQUIFER | COLORADO COUNTY	170	170	170	170	170	170
LIVESTOCK	K | BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	39	39	39	39	39	39
LIVESTOCK	K | GULF COAST AQUIFER | COLORADO COUNTY	164	164	164	164	164	164
IRRIGATION	K | COLORADO RUN-OF-RIVER	18,162	18,162	18,162	18,162	18,162	18,162
IRRIGATION	K | GULF COAST AQUIFER | COLORADO COUNTY	9,735	9,735	9,735	9,735	9,735	9,735
BRAZOS-COLORADO BASIN TOTAL EXISTING SUPPLY		**28,665**	**28,665**	**28,665**	**28,665**	**28,665**	**28,665**
COLORADO BASIN							
COLUMBUS	K | GULF COAST AQUIFER | COLORADO COUNTY	1,150	1,150	1,150	1,150	1,150	1,150
EAGLE LAKE	K | GULF COAST AQUIFER | COLORADO COUNTY	402	402	402	402	402	402
WEIMAR	K | GULF COAST AQUIFER | COLORADO COUNTY	210	210	210	210	210	210
COUNTY-OTHER	K | GULF COAST AQUIFER | COLORADO COUNTY	877	877	877	877	877	877
MANUFACTURING	K | GULF COAST AQUIFER | COLORADO COUNTY	20	20	20	20	20	20
MINING	K | COLORADO RUN-OF-RIVER	1,808	1,808	1,808	1,808	1,808	1,808
MINING	K | GULF COAST AQUIFER | COLORADO COUNTY	3,398	3,398	3,398	3,398	3,398	3,398
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	860	860	860	860	860	860
LIVESTOCK	K | GULF COAST AQUIFER | COLORADO COUNTY	127	127	127	127	127	127
IRRIGATION	K | COLORADO RUN-OF-RIVER	13,299	13,299	13,299	13,299	13,299	13,299
IRRIGATION	K | GULF COAST AQUIFER | COLORADO COUNTY	9,648	9,648	9,648	9,648	9,648	9,648
COLORADO BASIN TOTAL EXISTING SUPPLY		**31,799**	**31,799**	**31,799**	**31,799**	**31,799**	**31,799**

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
COLORADO COUNTY							
LAVACA BASIN							
WEIMAR	K | GULF COAST AQUIFER | COLORADO COUNTY	429	429	429	429	429	429
COUNTY-OTHER	K | GULF COAST AQUIFER | COLORADO COUNTY	938	938	938	938	938	938
MANUFACTURING	K | GULF COAST AQUIFER | COLORADO COUNTY	816	816	816	816	816	816
MINING	K | GULF COAST AQUIFER | COLORADO COUNTY	280	280	280	280	280	280
LIVESTOCK	K | GULF COAST AQUIFER | COLORADO COUNTY	288	288	288	288	288	288
LIVESTOCK	K | LAVACA LIVESTOCK LOCAL SUPPLY	177	177	177	177	177	177
IRRIGATION	K | COLORADO RUN-OF-RIVER	32,366	32,366	32,366	32,366	32,366	32,366
IRRIGATION	K | GULF COAST AQUIFER | COLORADO COUNTY	19,680	19,680	19,680	19,680	19,680	19,680
IRRIGATION	K | LAVACA RUN-OF-RIVER	4,002	4,002	4,002	4,002	4,002	4,002
LAVACA BASIN TOTAL EXISTING SUPPLY		**58,976**	**58,976**	**58,976**	**58,976**	**58,976**	**58,976**
COLORADO COUNTY TOTAL EXISTING SUPPLY		**119,440**	**119,440**	**119,440**	**119,440**	**119,440**	**119,440**
FAYETTE COUNTY							
COLORADO BASIN							
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	6	6	6	6	6	6
FAYETTE WSC	K | OTHER AQUIFER | FAYETTE COUNTY	675	675	675	675	675	675
FAYETTE WSC	K | SPARTA AQUIFER | FAYETTE COUNTY	230	230	230	230	230	230
LA GRANGE	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	1,294	1,294	1,294	1,294	1,294	1,294
LEE COUNTY WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	463	462	458	459	450	434
LEE COUNTY WSC	G | QUEEN CITY AQUIFER | LEE COUNTY	9	8	7	7	7	6
LEE COUNTY WSC	G | SPARTA AQUIFER | LEE COUNTY	19	18	18	17	17	16
COUNTY-OTHER	K | GULF COAST AQUIFER | FAYETTE COUNTY	526	526	526	526	526	526
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	102	102	102	102	102	102
COUNTY-OTHER	K | OTHER AQUIFER | FAYETTE COUNTY	159	159	159	159	159	159
COUNTY-OTHER	K | SPARTA AQUIFER | FAYETTE COUNTY	24	24	24	24	24	24
MINING	K | GULF COAST AQUIFER | FAYETTE COUNTY	103	103	103	103	103	103
MINING	K | SPARTA AQUIFER | FAYETTE COUNTY	367	367	367	367	367	367
STEAM ELECTRIC POWER	K | COLORADO RUN-OF-RIVER	871	871	871	871	871	871
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	45,117	45,117	45,117	45,117	45,117	45,117
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	1,746	1,746	1,746	1,746	1,746	1,746
LIVESTOCK	K | GULF COAST AQUIFER | FAYETTE COUNTY	140	140	140	140	140	140
LIVESTOCK	K | SPARTA AQUIFER | FAYETTE COUNTY	733	733	733	733	733	733
IRRIGATION	K | GULF COAST AQUIFER | FAYETTE COUNTY	775	775	775	775	775	775
IRRIGATION	K | SPARTA AQUIFER | FAYETTE COUNTY	172	172	172	172	172	172
COLORADO BASIN TOTAL EXISTING SUPPLY		**53,531**	**53,528**	**53,523**	**53,523**	**53,514**	**53,496**
GUADALUPE BASIN							
FAYETTE WSC	K | SPARTA AQUIFER | FAYETTE COUNTY	57	57	57	57	57	57
FLATONIA	K | CARRIZO-WILCOX AQUIFER | FAYETTE COUNTY	61	61	61	61	60	60
FLATONIA	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	31	31	31	31	30	30
COUNTY-OTHER	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	76	76	76	76	76	76

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
FAYETTE COUNTY							
GUADALUPE BASIN							
MINING	K | SPARTA AQUIFER | FAYETTE COUNTY	60	60	60	60	60	60
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	108	108	108	108	108	108
LIVESTOCK	K | SPARTA AQUIFER | FAYETTE COUNTY	179	179	179	179	179	179
IRRIGATION	K | SPARTA AQUIFER | FAYETTE COUNTY	62	62	62	62	62	62
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**634**	**634**	**634**	**634**	**632**	**632**
LAVACA BASIN							
FAYETTE WSC	K | SPARTA AQUIFER | FAYETTE COUNTY	101	101	101	101	101	101
FLATONIA	K | CARRIZO-WILCOX AQUIFER | FAYETTE COUNTY	256	256	256	256	257	257
FLATONIA	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	131	131	131	131	132	132
SCHULENBURG	K | GULF COAST AQUIFER | FAYETTE COUNTY	706	706	706	706	706	706
SCHULENBURG	K | YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	30	30	30	30	30	30
COUNTY-OTHER	K | GULF COAST AQUIFER | FAYETTE COUNTY	115	115	115	115	115	115
MANUFACTURING	K | GULF COAST AQUIFER | FAYETTE COUNTY	152	152	152	152	152	152
MINING	K | GULF COAST AQUIFER | FAYETTE COUNTY	10	10	10	10	10	10
LIVESTOCK	K | GULF COAST AQUIFER | FAYETTE COUNTY	176	176	176	176	176	176
LIVESTOCK	K | LAVACA LIVESTOCK LOCAL SUPPLY	386	386	386	386	386	386
IRRIGATION	K | GULF COAST AQUIFER | FAYETTE COUNTY	181	181	181	181	181	181
LAVACA BASIN TOTAL EXISTING SUPPLY		**2,244**	**2,244**	**2,244**	**2,244**	**2,246**	**2,246**
FAYETTE COUNTY TOTAL EXISTING SUPPLY		**56,409**	**56,406**	**56,401**	**56,401**	**56,392**	**56,374**
GILLESPIE COUNTY							
COLORADO BASIN							
FREDERICKSBURG	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	3,174	3,174	3,174	3,174	3,174	3,174
FREDERICKSBURG	K | HICKORY AQUIFER | GILLESPIE COUNTY	662	662	662	662	662	662
COUNTY-OTHER	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	968	968	968	968	968	968
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	542	542	542	542	542	542
COUNTY-OTHER	K | HICKORY AQUIFER | GILLESPIE COUNTY	183	183	183	183	183	183
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	56	56	56	56	56	56
COUNTY-OTHER	K | TRINITY AQUIFER | GILLESPIE COUNTY	566	566	566	566	566	566
MANUFACTURING	K | COLORADO OTHER LOCAL SUPPLY	158	158	158	158	158	158
MANUFACTURING	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	34	34	34	34	34	34
MANUFACTURING	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	398	398	398	398	398	398
MANUFACTURING	K | HICKORY AQUIFER | GILLESPIE COUNTY	150	150	150	150	150	150
MINING	K | HICKORY AQUIFER | GILLESPIE COUNTY	5	5	5	5	5	5
MINING	K | TRINITY AQUIFER | GILLESPIE COUNTY	50	50	50	50	50	50
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	515	515	515	515	515	515
LIVESTOCK	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	300	300	300	300	300	300
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	266	266	266	266	266	266

Water User Group (WUG) Existing Water Supply

REGION K		EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	SOURCE REGION | SOURCE NAME	2020	2030	2040	2050	2060	2070
GILLESPIE COUNTY							
COLORADO BASIN							
LIVESTOCK	K | HICKORY AQUIFER | GILLESPIE COUNTY	266	266	266	266	266	266
LIVESTOCK	K | TRINITY AQUIFER | GILLESPIE COUNTY	211	211	211	211	211	211
IRRIGATION	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	163	163	163	163	163	163
IRRIGATION	K | ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	652	652	652	652	652	652
IRRIGATION	K | HICKORY AQUIFER | GILLESPIE COUNTY	210	210	210	210	210	210
IRRIGATION	K | TRINITY AQUIFER | GILLESPIE COUNTY	1,477	1,477	1,477	1,477	1,477	1,477
COLORADO BASIN TOTAL EXISTING SUPPLY		**11,006**	**11,006**	**11,006**	**11,006**	**11,006**	**11,006**
GUADALUPE BASIN							
COUNTY-OTHER	K | EDWARDS-TRINITY-PLATEAU AQUIFER | GILLESPIE COUNTY	90	90	90	90	90	90
COUNTY-OTHER	K | TRINITY AQUIFER | GILLESPIE COUNTY	5	5	5	5	5	5
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	13	13	13	13	13	13
LIVESTOCK	K | TRINITY AQUIFER | GILLESPIE COUNTY	41	41	41	41	41	41
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**149**	**149**	**149**	**149**	**149**	**149**
GILLESPIE COUNTY TOTAL EXISTING SUPPLY		**11,155**	**11,155**	**11,155**	**11,155**	**11,155**	**11,155**
HAYS COUNTY							
COLORADO BASIN							
AUSTIN	K | COLORADO RUN-OF-RIVER	13	127	249	631	1,519	2,749
BUDA	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	549	549	549	549	549	549
BUDA	L | CANYON LAKE/RESERVOIR	1,381	1,292	1,181	1,041	882	701
CIMARRON PARK WATER COMPANY	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	249	249	249	249	249	249
DRIPPING SPRINGS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	506	506	506	506	506	506
DRIPPING SPRINGS WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	133	280	461	691	953	1,126
DRIPPING SPRINGS WSC	K | TRINITY AQUIFER | HAYS COUNTY	400	400	400	400	400	400
MOUNTAIN CITY	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	57	56	54	54	54	54
PLUM CREEK WATER COMPANY	L | TRINITY AQUIFER | HAYS COUNTY	163	264	283	300	312	322
GOFORTH SUD	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	1	1	1	1
GOFORTH SUD	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	6	7	8	10	10	10
GOFORTH SUD	L | TRINITY AQUIFER | HAYS COUNTY	79	123	176	244	323	414
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | DIRECT REUSE	300	300	300	300	300	300
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	4,521	4,521	4,521	4,521	4,521	4,521
COUNTY-OTHER	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	829	829	829	829	829	829
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,401	1,401	1,401	1,401	1,401	1,401
COUNTY-OTHER	K | TRINITY AQUIFER | HAYS COUNTY	1,860	1,860	1,860	1,860	1,860	1,860
MANUFACTURING	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	583	583	583	583	583	583
MINING	K | TRINITY AQUIFER | HAYS COUNTY	314	314	314	314	314	314
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	192	192	192	192	192	192
LIVESTOCK	K | TRINITY AQUIFER | HAYS COUNTY	30	30	30	30	30	30

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
HAYS COUNTY							
COLORADO BASIN							
IRRIGATION	K | EDWARDS-BFZ AQUIFER | HAYS COUNTY	10	10	10	10	10	10
IRRIGATION	K | TRINITY AQUIFER | HAYS COUNTY	430	430	430	430	430	430
COLORADO BASIN TOTAL EXISTING SUPPLY		**14,006**	**14,323**	**14,587**	**15,146**	**16,228**	**17,551**
HAYS COUNTY TOTAL EXISTING SUPPLY		**14,006**	**14,323**	**14,587**	**15,146**	**16,228**	**17,551**
LLANO COUNTY							
COLORADO BASIN							
KINGSLAND WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,094	1,092	1,083	1,073	1,072	1,070
KINGSLAND WSC	K | OTHER AQUIFER | LLANO COUNTY	49	49	49	49	49	49
LLANO	K | LLANO LAKE/RESERVOIR	417	417	417	417	417	417
SUNRISE BEACH VILLAGE	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	69	69	69	69	69	69
SUNRISE BEACH VILLAGE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	200	200	200	200	200	200
HORSESHOE BAY	K | DIRECT REUSE	368	368	368	368	368	368
HORSESHOE BAY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,525	1,525	1,525	1,525	1,525	1,525
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	115	115	115	115	115	115
COUNTY-OTHER	K | HICKORY AQUIFER | LLANO COUNTY	143	143	143	143	143	143
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,586	3,586	3,586	3,586	3,586	3,586
COUNTY-OTHER	K | OTHER AQUIFER | LLANO COUNTY	412	412	412	412	412	412
MANUFACTURING	K | HICKORY AQUIFER | LLANO COUNTY	3	3	3	3	3	3
MINING	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	3	3	3	3	3	3
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,500	2,500	2,500	2,500	2,500	2,500
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	414	414	414	414	414	414
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	20	20	20	20	20	20
LIVESTOCK	K | HICKORY AQUIFER | LLANO COUNTY	179	179	179	179	179	179
LIVESTOCK	K | OTHER AQUIFER | LLANO COUNTY	138	138	138	138	138	138
IRRIGATION	K | COLORADO RUN-OF-RIVER	439	439	439	439	439	439
IRRIGATION	K | HICKORY AQUIFER | LLANO COUNTY	400	400	400	400	400	400
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,514	1,514	1,514	1,514	1,514	1,514
COLORADO BASIN TOTAL EXISTING SUPPLY		**13,588**	**13,586**	**13,577**	**13,567**	**13,566**	**13,564**
LLANO COUNTY TOTAL EXISTING SUPPLY		**13,588**	**13,586**	**13,577**	**13,567**	**13,566**	**13,564**
MATAGORDA COUNTY							
BRAZOS-COLORADO BASIN							
BAY CITY	K | GULF COAST AQUIFER | MATAGORDA COUNTY	4,715	4,715	4,715	4,715	4,714	4,714
COUNTY-OTHER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	980	980	980	980	980	980
MANUFACTURING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	823	823	823	823	823	823
MINING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	55	55	55	55	55	55
LIVESTOCK	K | BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	329	329	329	329	329	329
LIVESTOCK	K | GULF COAST AQUIFER | MATAGORDA COUNTY	335	335	335	335	335	335

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
MATAGORDA COUNTY							
BRAZOS-COLORADO BASIN							
IRRIGATION	K | BRAZOS-COLORADO RUN-OF-RIVER	4,000	4,000	4,000	4,000	4,000	4,000
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,053	2,053	2,053	2,053	2,053	2,053
IRRIGATION	K | GULF COAST AQUIFER | MATAGORDA COUNTY	16,000	16,000	16,000	16,000	16,000	16,000
BRAZOS-COLORADO BASIN TOTAL EXISTING SUPPLY		**29,290**	**29,290**	**29,290**	**29,290**	**29,289**	**29,289**
COLORADO BASIN							
BAY CITY	K | GULF COAST AQUIFER | MATAGORDA COUNTY	10	10	10	10	11	11
COUNTY-OTHER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	503	503	503	503	503	503
MANUFACTURING	K | COLORADO RUN-OF-RIVER	3,960	3,960	3,960	3,960	3,960	3,960
MANUFACTURING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	1,143	1,143	1,143	1,143	1,143	1,143
MANUFACTURING	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	14,222	14,222	14,222	14,222	14,222	14,222
MINING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	9	9	9	9	9	9
STEAM ELECTRIC POWER	K | COLORADO RUN-OF-RIVER	44,397	44,397	44,397	44,397	44,397	44,397
STEAM ELECTRIC POWER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	3,000	3,000	3,000	3,000	3,000	3,000
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	32,240	32,226	32,202	32,172	32,142	32,120
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	25	25	25	25	25	25
LIVESTOCK	K | GULF COAST AQUIFER | MATAGORDA COUNTY	106	106	106	106	106	106
IRRIGATION	K | COLORADO RUN-OF-RIVER	1,193	1,193	1,193	1,193	1,193	1,193
COLORADO BASIN TOTAL EXISTING SUPPLY		**100,808**	**100,794**	**100,770**	**100,740**	**100,711**	**100,689**
COLORADO-LAVACA BASIN							
PALACIOS	K | GULF COAST AQUIFER | MATAGORDA COUNTY	1,064	1,064	1,064	1,064	1,064	1,064
COUNTY-OTHER	K | GULF COAST AQUIFER | MATAGORDA COUNTY	681	681	681	681	681	681
MANUFACTURING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	203	203	203	203	203	203
MINING	K | GULF COAST AQUIFER | MATAGORDA COUNTY	36	36	36	36	36	36
LIVESTOCK	K | COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	215	215	215	215	215	215
LIVESTOCK	K | GULF COAST AQUIFER | MATAGORDA COUNTY	493	493	493	493	493	493
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,293	2,293	2,293	2,293	2,293	2,293
IRRIGATION	K | COLORADO-LAVACA RUN-OF-RIVER	4,000	4,000	4,000	4,000	4,000	4,000
IRRIGATION	K | GULF COAST AQUIFER | MATAGORDA COUNTY	13,000	13,000	13,000	13,000	13,000	13,000
COLORADO-LAVACA BASIN TOTAL EXISTING SUPPLY		**21,985**	**21,985**	**21,985**	**21,985**	**21,985**	**21,985**
MATAGORDA COUNTY TOTAL EXISTING SUPPLY		**152,083**	**152,069**	**152,045**	**152,015**	**151,985**	**151,963**
MILLS COUNTY							
BRAZOS BASIN							
GOLDTHWAITE	K | TRINITY AQUIFER | MILLS COUNTY	10	10	10	10	11	11
COUNTY-OTHER	K | TRINITY AQUIFER | MILLS COUNTY	128	128	128	128	128	128
MINING	K | TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
LIVESTOCK	K | BRAZOS LIVESTOCK LOCAL SUPPLY	321	321	321	321	321	321

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
MILLS COUNTY							
BRAZOS BASIN							
IRRIGATION	K | TRINITY AQUIFER | MILLS COUNTY	810	810	810	810	810	810
BRAZOS BASIN TOTAL EXISTING SUPPLY		**1,271**	**1,271**	**1,271**	**1,271**	**1,272**	**1,272**
COLORADO BASIN							
BROOKESMITH SUD	F | BROWNWOOD LAKE/RESERVOIR	8	8	8	8	8	8
GOLDTHWAITE	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	245	245	245	245	245	245
GOLDTHWAITE	K | TRINITY AQUIFER | MILLS COUNTY	58	58	58	58	57	57
COUNTY-OTHER	K | TRINITY AQUIFER | MILLS COUNTY	331	331	331	331	331	331
MANUFACTURING	K | TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
MINING	K | TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	360	360	360	360	360	360
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | MILLS COUNTY	94	94	94	94	94	94
LIVESTOCK	K | TRINITY AQUIFER | MILLS COUNTY	169	169	169	169	169	169
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,377	2,377	2,377	2,377	2,377	2,377
IRRIGATION	K | TRINITY AQUIFER | MILLS COUNTY	76	76	76	76	76	76
COLORADO BASIN TOTAL EXISTING SUPPLY		**3,722**	**3,722**	**3,722**	**3,722**	**3,721**	**3,721**
MILLS COUNTY TOTAL EXISTING SUPPLY		**4,993**	**4,993**	**4,993**	**4,993**	**4,993**	**4,993**
SAN SABA COUNTY							
COLORADO BASIN							
RICHLAND SUD	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	112	113	112	111	112	113
RICHLAND SUD	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	187	188	188	185	187	189
SAN SABA	K | COLORADO RUN-OF-RIVER	10	10	10	10	10	10
SAN SABA	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	1,040	1,040	1,040	1,040	1,040	1,040
COUNTY-OTHER	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	322	322	322	322	322	322
COUNTY-OTHER	K | HICKORY AQUIFER | SAN SABA COUNTY	165	165	165	165	165	165
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	20	20	20	20	20	20
COUNTY-OTHER	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	24	24	24	24	24	24
MANUFACTURING	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	8	8	8	8	8	8
MINING	K | HICKORY AQUIFER | SAN SABA COUNTY	301	301	301	301	301	301
MINING	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	1,238	1,238	1,238	1,238	1,238	1,238
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	900	900	900	900	900	900
LIVESTOCK	K | ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	198	198	198	198	198	198
LIVESTOCK	K | HICKORY AQUIFER | SAN SABA COUNTY	111	111	111	111	111	111
LIVESTOCK	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	9	9	9	9	9	9
IRRIGATION	K | COLORADO RUN-OF-RIVER	2,000	2,000	2,000	2,000	2,000	2,000
IRRIGATION	K | MARBLE FALLS AQUIFER | SAN SABA COUNTY	4,000	4,000	4,000	4,000	4,000	4,000
COLORADO BASIN TOTAL EXISTING SUPPLY		**10,645**	**10,647**	**10,646**	**10,642**	**10,645**	**10,648**
SAN SABA COUNTY TOTAL EXISTING SUPPLY		**10,645**	**10,647**	**10,646**	**10,642**	**10,645**	**10,648**

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
TRAVIS COUNTY							
COLORADO BASIN							
AUSTIN	K | COLORADO RUN-OF-RIVER	137,829	129,682	112,223	100,459	88,585	75,600
AUSTIN	K | DIRECT REUSE	4,571	4,571	4,571	4,571	4,571	4,571
AUSTIN	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	123,626	123,626	123,626	123,626	123,613	123,046
CEDAR PARK	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,927	1,638	1,646	1,776	1,677	1,566
ROUND ROCK	G | BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	225	203	177	146	123	102
ROUND ROCK	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	1	1	1	1	1	1
ROUND ROCK	G | DIRECT REUSE	41	37	32	28	25	22
ROUND ROCK	G | EDWARDS-BFZ AQUIFER | WILLIAMSON COUNTY	1	0	0	0	0	0
ROUND ROCK	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
AQUA WSC	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	1,810	1,810	1,810	1,810	1,810	1,810
BARTON CREEK WEST WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	760	760	760	760	760	760
CREEDMOOR-MAHA WSC	K | COLORADO RUN-OF-RIVER	241	241	241	241	241	241
CREEDMOOR-MAHA WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	484	441	397	344	278	210
ELGIN	K | CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	251	251	251	251	251	251
JONESTOWN	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	315	315	315	315	315	315
LAGO VISTA	K | DIRECT REUSE	574	574	574	574	574	574
LAGO VISTA	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,451	3,451	3,451	3,451	3,451	3,451
LAKEWAY	K | DIRECT REUSE	896	896	896	896	896	896
LAKEWAY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	4,249	4,249	4,249	4,249	4,249	4,249
LAKEWAY	K | TRINITY AQUIFER | TRAVIS COUNTY	363	363	363	363	363	363
LEANDER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,202	1,684	1,738	1,269	1,079	941
LOOP 360 WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,250	1,250	1,250	1,250	1,250	1,250
LOST CREEK MUD	K | COLORADO RUN-OF-RIVER	1,092	1,072	1,057	1,056	1,054	1,054
MANOR	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	1,200	1,200	1,200	1,200	1,200	1,200
MANOR	K | COLORADO RUN-OF-RIVER	1,141	0	0	0	0	0
MANOR	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	159	159	159	159	159	159
MANOR	K | OTHER AQUIFER | TRAVIS COUNTY	661	661	661	661	661	661
MANOR	K | TRINITY AQUIFER | TRAVIS COUNTY	296	296	296	296	296	296
MANVILLE WSC	G | CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	753	748	733	722	705	689
MANVILLE WSC	G | CARRIZO-WILCOX AQUIFER | LEE COUNTY	2,660	2,641	2,583	2,544	2,481	2,036
MANVILLE WSC	G | OTHER AQUIFER | WILLIAMSON COUNTY	188	186	183	180	176	172
MANVILLE WSC	K | COLORADO RUN-OF-RIVER	2,240	0	0	0	0	0
MANVILLE WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	293	291	285	281	275	268
MANVILLE WSC	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	307	305	299	295	288	281
MANVILLE WSC	K | TRINITY AQUIFER | TRAVIS COUNTY	308	306	300	295	288	282
MUSTANG RIDGE	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	22	24	26	29	32	34
MUSTANG RIDGE	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	13	12	12	11	10	9

Water User Group (WUG) Existing Water Supply

REGION K		EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	SOURCE REGION | SOURCE NAME	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY							
COLORADO BASIN							
MUSTANG RIDGE	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	10	10	9	8	8	8
NORTH AUSTIN MUD #1	K | COLORADO RUN-OF-RIVER	82	79	77	75	75	75
PFLUGERVILLE	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	1,856	1,856	1,856	1,856	1,856	1,856
PFLUGERVILLE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	10,314	10,314	10,314	10,313	10,284	10,254
ROLLINGWOOD	K | COLORADO RUN-OF-RIVER	384	0	0	0	0	0
SHADY HOLLOW MUD	K | COLORADO RUN-OF-RIVER	779	758	741	731	730	730
THE HILLS	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,533	1,533	1,533	1,533	1,533	1,533
TRAVIS COUNTY WCID #17	K | DIRECT REUSE	122	122	122	122	122	122
TRAVIS COUNTY WCID #17	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	8,027	8,027	8,027	8,027	8,027	8,027
TRAVIS COUNTY WCID #18	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,736	1,736	1,736	1,736	1,736	1,736
TRAVIS COUNTY WCID #19	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	498	496	494	493	493	493
TRAVIS COUNTY WCID #20	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,135	1,135	1,135	1,135	1,135	1,135
WELLS BRANCH MUD	K | COLORADO RUN-OF-RIVER	1,638	1,602	1,577	1,563	1,559	1,558
WEST LAKE HILLS	K | COLORADO RUN-OF-RIVER	1,605	0	0	0	0	0
WILLIAMSON-TRAVIS COUNTY MUD #1	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	201	201	201	202	201	202
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | DIRECT REUSE	173	173	173	173	173	173
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,615	2,615	2,615	2,615	2,615	2,615
NORTHTOWN MUD	K | COLORADO RUN-OF-RIVER	691	798	898	1,011	1,111	1,203
NORTHTOWN MUD	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	339	339	339	339	339	339
TRAVIS COUNTY MUD #4	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,818	3,820	3,822	3,823	3,823	3,823
TRAVIS COUNTY WCID #10	K | COLORADO RUN-OF-RIVER	2,128	0	0	0	0	0
BEE CAVE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,552	1,552	1,552	1,552	1,552	1,552
BRIARCLIFF	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	400	400	400	400	400	400
POINT VENTURE	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	360	360	360	360	360	360
SUNSET VALLEY	K | COLORADO RUN-OF-RIVER	386	499	606	727	834	934
SUNSET VALLEY	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	27	27	27	27	27	27
VOLENTE	K | TRINITY AQUIFER | TRAVIS COUNTY	76	76	76	76	76	76
COUNTY-OTHER	K | COLORADO RUN-OF-RIVER	4,520	4,108	3,740	3,138	2,298	1,555
COUNTY-OTHER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	14,463	14,463	14,463	14,463	14,463	14,463
MANUFACTURING	K | COLORADO RUN-OF-RIVER	35,430	48,350	63,498	72,631	81,421	91,270
MANUFACTURING	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	78	78	78	78	78	78
MANUFACTURING	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	282	282	282	282	282	282
MINING	K | COLORADO OTHER LOCAL SUPPLY	2,143	2,743	3,390	3,996	4,662	5,425
MINING	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	87	87	87	87	87	87

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
TRAVIS COUNTY							
COLORADO BASIN							
MINING	K | TRINITY AQUIFER | TRAVIS COUNTY	1,237	1,237	1,237	1,237	1,237	1,237
STEAM ELECTRIC POWER	K | COLORADO RUN-OF-RIVER	4,970	4,970	4,970	4,970	4,970	4,970
STEAM ELECTRIC POWER	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	16,156	16,156	16,156	11,987	5,487	0
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	680	680	680	680	680	680
LIVESTOCK	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	1	1	1	1	1	1
LIVESTOCK	K | TRINITY AQUIFER | TRAVIS COUNTY	2	2	2	2	2	2
IRRIGATION	K | COLORADO RUN-OF-RIVER	755	755	755	755	755	755
IRRIGATION	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	300	300	300	300	300	300
IRRIGATION	K | HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	2,596	2,596	2,596	2,596	2,596	2,596
IRRIGATION	K | OTHER AQUIFER | TRAVIS COUNTY	680	680	680	680	680	680
IRRIGATION	K | TRINITY AQUIFER | TRAVIS COUNTY	800	800	800	800	800	800
COLORADO BASIN TOTAL EXISTING SUPPLY		**423,065**	**420,760**	**418,770**	**411,689**	**401,605**	**391,772**
GUADALUPE BASIN							
CREEDMOOR-MAHA WSC	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	27	30	33	36	40	43
MUSTANG RIDGE	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	8	9	10	11	12	13
MUSTANG RIDGE	L | CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	5	5	4	4	4	4
MUSTANG RIDGE	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	4	3	3	3	3	3
GOFORTH SUD	K | EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	0	0	0	0	0	0
GOFORTH SUD	L | EDWARDS-BFZ AQUIFER | HAYS COUNTY	1	1	1	0	0	0
GOFORTH SUD	L | TRINITY AQUIFER | HAYS COUNTY	8	9	10	12	13	14
COUNTY-OTHER	K | OTHER AQUIFER | TRAVIS COUNTY	112	112	112	112	112	112
COUNTY-OTHER	K | TRINITY AQUIFER | TRAVIS COUNTY	7	7	7	7	7	7
MINING	K | COLORADO OTHER LOCAL SUPPLY	35	41	48	54	60	68
LIVESTOCK	K | GUADALUPE LIVESTOCK LOCAL SUPPLY	24	24	24	24	24	24
GUADALUPE BASIN TOTAL EXISTING SUPPLY		**231**	**241**	**252**	**263**	**275**	**288**
TRAVIS COUNTY TOTAL EXISTING SUPPLY		**423,296**	**421,001**	**419,022**	**411,952**	**401,880**	**392,060**
WHARTON COUNTY							
BRAZOS-COLORADO BASIN							
WHARTON	K | GULF COAST AQUIFER | WHARTON COUNTY	1,693	1,693	1,693	1,693	1,693	1,693
EAST BERNARD	K | GULF COAST AQUIFER | WHARTON COUNTY	457	457	457	457	457	457
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	1,851	1,851	1,851	1,851	1,851	1,851
MANUFACTURING	K | COLORADO RUN-OF-RIVER	700	700	700	700	700	700
MANUFACTURING	K | GULF COAST AQUIFER | WHARTON COUNTY	32	32	32	32	32	32
MINING	K | GULF COAST AQUIFER | WHARTON COUNTY	41	41	41	41	41	41
STEAM ELECTRIC POWER	K | BRAZOS-COLORADO RUN-OF-RIVER	597	597	597	597	597	597
LIVESTOCK	K | BRAZOS-COLORADO LIVESTOCK LOCAL SUPPLY	149	149	149	149	149	149
LIVESTOCK	K | GULF COAST AQUIFER | WHARTON COUNTY	222	222	222	222	222	222
IRRIGATION	K | BRAZOS-COLORADO OTHER LOCAL SUPPLY	1,900	1,900	1,900	1,900	1,900	1,900
IRRIGATION	K | COLORADO RUN-OF-RIVER	14,168	14,168	14,168	14,168	14,168	14,168

Water User Group (WUG) Existing Water Supply

REGION K	SOURCE REGION | SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR) 2020	2030	2040	2050	2060	2070
WHARTON COUNTY							
BRAZOS-COLORADO BASIN							
IRRIGATION	K | GULF COAST AQUIFER | WHARTON COUNTY	29,000	29,000	29,000	29,000	29,000	29,000
BRAZOS-COLORADO BASIN TOTAL EXISTING SUPPLY		**50,810**	**50,810**	**50,810**	**50,810**	**50,810**	**50,810**
COLORADO BASIN							
EL CAMPO	P | GULF COAST AQUIFER | WHARTON COUNTY	6	6	6	6	6	6
WHARTON	K | GULF COAST AQUIFER | WHARTON COUNTY	661	661	661	661	661	661
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	1,106	1,106	1,106	1,106	1,106	1,106
COUNTY-OTHER	P | GULF COAST AQUIFER | WHARTON COUNTY	57	57	57	57	57	57
MINING	K | GULF COAST AQUIFER | WHARTON COUNTY	27	27	27	27	27	27
STEAM ELECTRIC POWER	K | GULF COAST AQUIFER | WHARTON COUNTY	2,400	2,400	2,400	2,400	2,400	2,400
LIVESTOCK	K | COLORADO LIVESTOCK LOCAL SUPPLY	115	115	115	115	115	115
LIVESTOCK	K | GULF COAST AQUIFER | WHARTON COUNTY	171	171	171	171	171	171
IRRIGATION	K | COLORADO RUN-OF-RIVER	15,259	15,259	15,259	15,259	15,259	15,259
IRRIGATION	K | GULF COAST AQUIFER | WHARTON COUNTY	27,000	27,000	27,000	27,000	27,000	27,000
COLORADO BASIN TOTAL EXISTING SUPPLY		**46,802**	**46,802**	**46,802**	**46,802**	**46,802**	**46,802**
COLORADO-LAVACA BASIN							
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	274	274	274	274	274	274
MINING	K | GULF COAST AQUIFER | WHARTON COUNTY	6	6	6	6	6	6
LIVESTOCK	K | COLORADO-LAVACA LIVESTOCK LOCAL SUPPLY	74	74	74	74	74	74
LIVESTOCK	K | GULF COAST AQUIFER | WHARTON COUNTY	113	113	113	113	113	113
IRRIGATION	K | COLORADO RUN-OF-RIVER	4,460	4,460	4,460	4,460	4,460	4,460
IRRIGATION	K | GULF COAST AQUIFER | WHARTON COUNTY	11,060	11,060	11,060	11,060	11,060	11,060
COLORADO-LAVACA BASIN TOTAL EXISTING SUPPLY		**15,987**	**15,987**	**15,987**	**15,987**	**15,987**	**15,987**
LAVACA BASIN							
COUNTY-OTHER	K | GULF COAST AQUIFER | WHARTON COUNTY	21	21	21	21	21	21
LAVACA BASIN TOTAL EXISTING SUPPLY		**21**	**21**	**21**	**21**	**21**	**21**
WHARTON COUNTY TOTAL EXISTING SUPPLY		**113,620**	**113,620**	**113,620**	**113,620**	**113,620**	**113,620**
WILLIAMSON COUNTY							
BRAZOS BASIN							
AUSTIN	K | COLORADO RUN-OF-RIVER	7,697	9,691	12,161	14,834	17,693	20,208
NORTH AUSTIN MUD #1	K | COLORADO RUN-OF-RIVER	774	748	726	714	711	711
WELLS BRANCH MUD	K | COLORADO RUN-OF-RIVER	118	115	113	112	112	112
COUNTY-OTHER	K | COLORADO RUN-OF-RIVER	2,586	3,504	3,467	3,451	3,444	3,441
MINING	K | TRINITY AQUIFER | WILLIAMSON COUNTY	5	5	5	5	5	5
LIVESTOCK	K | TRINITY AQUIFER | WILLIAMSON COUNTY	1	1	1	1	1	1
BRAZOS BASIN TOTAL EXISTING SUPPLY		**11,181**	**14,064**	**16,473**	**19,117**	**21,966**	**24,478**
WILLIAMSON COUNTY TOTAL EXISTING SUPPLY		**11,181**	**14,064**	**16,473**	**19,117**	**21,966**	**24,478**
	REGION K TOTAL EXISTING SUPPLY	**998,867**	**1,000,960**	**1,003,758**	**1,001,689**	**996,571**	**991,929**

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APPENDICES

CHAPTER 4.0: IDENTIFICATION OF WATER NEEDS

4.1 IDENTIFICATION OF WATER NEEDS

The comparison of water demands for each water user group (WUG) to the water supplies available to each WUG within the Lower Colorado Regional Water Planning Area (LCRWPA) is a simple mathematical comparison of the estimates developed in Chapters 2 and 3 of this report. This comparison was completed and summarized in three different ways. First, a comparison of water demands and supplies was completed on a county-by-county basis. Second, the comparison was completed and summarized for each of the six river basins that are in Region K. Finally, a comparison of the water demands and supplies for the two designated wholesale water providers within the LCRWPA was also completed.

Region-wide, the comparison of available water supplies and water demands identified 75 separate WUGs that have projected water supply shortages, or "needs," by the year 2040, and an additional 15 WUGs with projected water supply shortages before the year 2070. **Note that throughout this chapter, the word "need" is consistently used to indicate a water supply shortage.** The estimated water need is approximately 387,000 acre-feet per year (ac-ft/yr) in 2040 and 512,000 ac-ft/yr in 2070. This identified shortage is based on conservative water availability estimates, which assume (1) only water that is available during a repeat of the historical drought of record (DOR), (2) that all water rights in the basin are being fully and simultaneously utilized, (3) excludes both water available from the Lower Colorado River Authority (LCRA) on an interruptible basis and water projected to potentially be available, for planning purposes, as a result of municipal return flows to the Colorado River, and (4) groundwater availability is limited to the modeled available groundwater (MAG) based on desired future conditions (DFC). Based upon the assumptions above, water needs have been identified in all of the six water use categories. *Figure 4.1* contains an illustration of the distribution, by use category, of the number of WUGs with identified water needs in the years 2040 and 2070. *Figure 4.2* contains an illustration of the magnitude of the identified needs, by use category, for the years 2040 and 2070.

Figure 4.1: Number of WUGs With Identified Water Needs in the LCRWPA

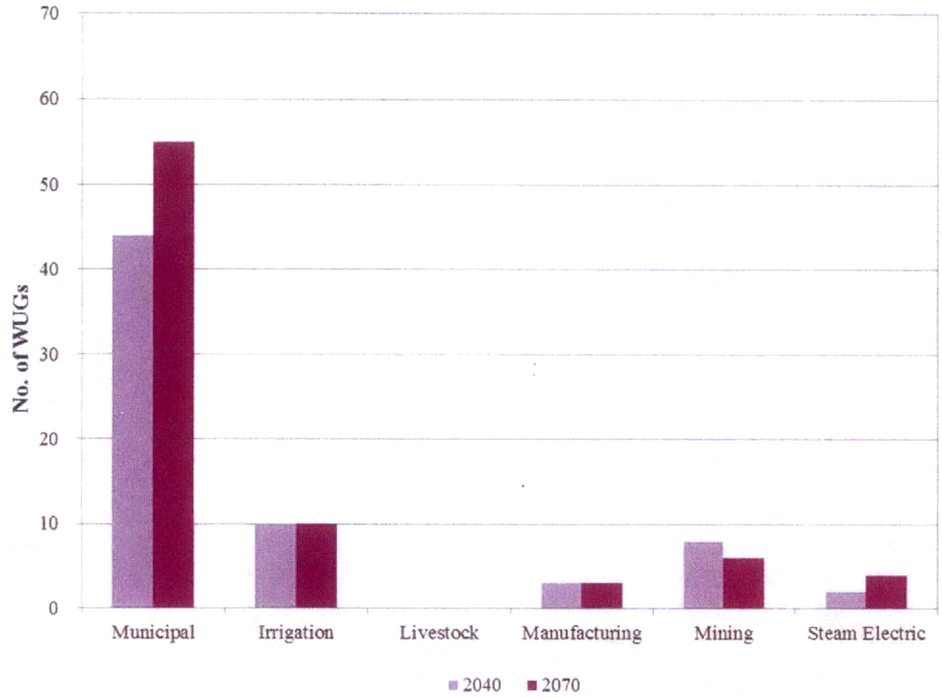
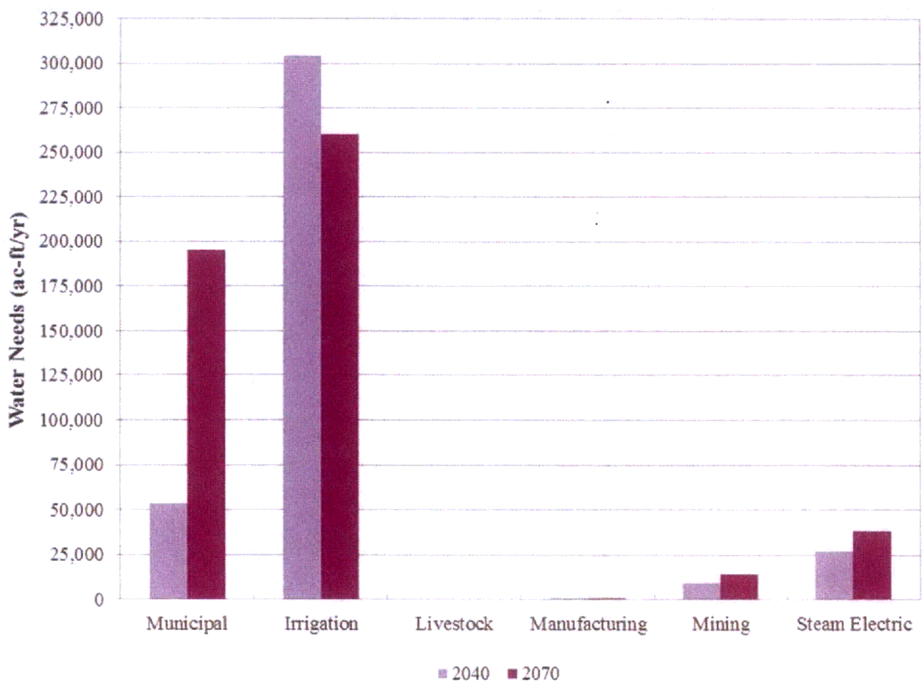


Figure 4.2: Identified Amount of Water Needs in the LCRWPA



The majority of the identified water supply shortages fall into three main categories. The first shortage is associated with rice irrigation demands in the lower three counties of Colorado, Matagorda and Wharton. It is estimated that irrigators in these three counties would experience a water supply shortage of approximately 335,000 ac-ft/yr under the existing demand conditions (year 2020 scenario), should a repeat of the driest year during the DOR occur. This shortage is estimated to decrease to 304,000 ac-ft/yr in 2040 (9 percent decrease) and to 260,000 ac-ft/yr in 2070 (22 percent decrease) due to projected declining rice irrigation acreage.

These estimated shortfalls are based on the available supply determined in Chapter 3. In accordance with Texas Water Development Board (TWDB) rules, the available supply of water for irrigation was estimated based on the available run-of-river (ROR) water rights and groundwater supplies in the area. The interruptible supply of water provided by the LCRA and municipal return flows were not considered in these calculations.

The second category of major identified shortages includes WUGs that purchase water from one of the two wholesale water providers within the LCRWPA - the COA and the LCRA. The renewal of these current wholesale water contracts is assumed and shown as a continued supply, while amendments to these contracts to increase supply will be considered as a water management strategy. However, the COA's current policy is that much of its water currently being supplied under contract to wholesale customers may need to be provided under new contracts with LCRA as Austin wholesale customer contracts, identified in *Table 3.28*, reach their expiration or renewal dates. The COA is planning to continue to treat and transport this water from the supply source to the wholesale customer.

LCRA is the major water supplier for the Lower Colorado Region. The COA also supplies a major portion of the municipal needs. LCRA holds water rights to use annually about 2.1 million acre-feet (ac-ft) of water and provides water to approximately 125 entities under long-term contracts for municipal, industrial, irrigation, recreational, and other purposes. LCRA also provides water to about 4,000 domestic lakeside contract holders and to environmental uses.

The third category of major identified shortages includes steam-electric demands. This is a water usage type that is expected to expand over the future decades, as electrical demand increases due to population growth. The majority of the steam-electric water demands in the LCRWPA are currently in Matagorda County, but water demands in Travis County continue to increase to approximately match that of Matagorda County by year 2070.

4.2 COUNTY SUMMARIES OF WATER NEEDS

The following sections provide summaries of the needs identified for each county within the LCRWPA. The tables presented in these sections provide a listing of individual WUGs with identified water supply needs (negative numbers in the tables indicate a water supply shortage). Following the information for the individual WUGs with water supply needs is a summation of the total needs identified within the county. This information is also included in the TWDB online database, DB17. The TWDB DB17 report entitled *WUG Needs Report*, can be found in *Appendix 4A*.

4.2.1 Bastrop County

The primary sources of water for Bastrop County are the Carrizo-Wilcox and Queen City aquifers. Surface water supplies are primarily associated with power generation and are supplied by firm water from the Highland Lakes. Local surface water supplies are available to irrigation and livestock users. Municipal water needs is about 80% of the total water needs in Bastrop County. Mining accounts for approximately 17% of the total needs. A summary of the estimated water shortages identified for Bastrop County is presented in *Table 4.1*.

Table 4.1 Bastrop County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
AQUA WSC	(2,534)	(4,656)	(7,145)	(11,210)	(17,667)	(26,269)
BASTROP	(30)	(671)	(1,519)	(2,685)	(4,274)	(6,390)
BASTROP COUNTY WCID #2	0	0	0	0	(93)	(644)
COUNTY-OTHER	(361)	(519)	(739)	(907)	(1,158)	(1,490)
CREEDMOOR-MAHA WSC	0	0	0	0	0	0
ELGIN	(472)	(732)	(1,013)	(1,533)	(2,432)	(3,631)
LEE COUNTY WSC [1]	0	0	0	0	0	0
POLONIA WSC [2]	0	0	0	0	0	0
SMITHVILLE	0	0	0	0	0	(721)
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	(55)	(87)	(120)	(151)	(174)	(199)
MINING	(732)	(4,662)	(5,347)	(6,110)	(6,932)	(7,843)
STEAM-ELECTRIC	0	0	0	0	0	0
BASTROP COUNTY TOTAL NEEDS	**(4,184)**	**(11,327)**	**(15,883)**	**(22,596)**	**(32,730)**	**(47,187)**

[1] Primary region for this WUG is Region G. Please refer to the Region G Plan for additional information.

[2] Primary region for this WUG is Region L. Please refer to the Region L Plan for additional information.

4.2.2 Blanco County

Groundwater is available to users in Blanco County from the Ellenburger-San Saba, Trinity, Edwards-Trinity Plateau, and Hickory aquifers. Surface water supplies in the county are available from the City of Blanco's reservoirs and other local supplies. Municipal water needs account for all of the total water needs in Blanco County. A summary of the estimated water shortages identified for Blanco County is presented in *Table 4.2*.

Table 4.2 Blanco County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
BLANCO	0	0	0	0	0	0
CANYON LAKE WSC [1]	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	(24)	(42)	(55)
JOHNSON CITY	(48)	(105)	(138)	(155)	(167)	(175)
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM-ELECTRIC	0	0	0	0	0	0
BLANCO COUNTY TOTAL NEEDS	**(48)**	**(105)**	**(138)**	**(179)**	**(209)**	**(230)**

[1] Primary region for this WUG is Region L. Please refer to the Region L Plan for additional information.

4.2.3 Burnet County

Groundwater is available to users in Burnet County from the Ellenburger-San Saba, Trinity, Marble Falls, and Hickory aquifers. Surface water supplies in the county are available from the Highland Lakes through contracts with the LCRA and other local supplies. Mining water needs account for 40 to 75% of total water needs in Burnet County, with municipal water needs accounting for the remaining water needs. A summary of the estimated water shortages identified for Burnet County is presented in *Table 4.3*.

Table 4.3 Burnet County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
BERTRAM	(40)	(118)	(184)	(249)	(307)	(358)
BURNET	0	0	0	0	0	0
CHISHOLM TRAIL SUD [1]	0	0	0	0	0	0
COTTONWOOD SHORES	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	(158)	(318)	(460)
GRANITE SHOALS	0	0	(38)	(137)	(226)	(306)
HORSESHOE BAY	0	(201)	(454)	(697)	(912)	(1,098)
KEMPNER WSC [1]	0	0	0	0	0	0
KINGSLAND WSC	0	0	0	0	0	0
MARBLE FALLS	0	0	(1,089)	(1,859)	(2,377)	(2,636)
MEADOWLAKES	(207)	(379)	(525)	(665)	(788)	(896)
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	(1,011)	(1,703)	(2,428)	(3,085)	(3,841)	(4,703)
STEAM-ELECTRIC	0	0	0	0	0	0
BURNET COUNTY TOTAL NEEDS	**(1,258)**	**(2,401)**	**(4,718)**	**(6,850)**	**(8,769)**	**(10,457)**

[1] Primary region for this WUG is Region G. Please refer to the Region G Plan for additional information.

4.2.4 Colorado County

The primary source of groundwater in Colorado County is the Gulf Coast aquifer. Surface water supplies are available pursuant to LCRA's ROR rights, presently being used within LCRA's Lakeside and Garwood Irrigation Divisions, as well as other local supply sources. Irrigation water needs in Colorado County represent over 98% of the water needs in the county, with the municipal needs making the remaining 2% water needs. A summary of the estimated water shortages identified for Colorado County is presented in *Table 4.4*.

Table 4.4 Colorado County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
COLUMBUS	0	(15)	(36)	(80)	(122)	(163)
COUNTY-OTHER	(121)	(127)	(130)	(158)	(191)	(226)
EAGLE LAKE	0	0	0	0	0	0
WEIMAR	0	0	0	0	0	0
IRRIGATION	(58,954)	(54,493)	(50,152)	(45,927)	(41,817)	(37,816)
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM-ELECTRIC	0	0	0	0	0	0
COLORADO COUNTY TOTAL NEEDS	**(59,075)**	**(54,635)**	**(50,318)**	**(46,165)**	**(42,130)**	**(38,205)**

4.2.5 Fayette County

Groundwater supplies in Fayette County are available from the Carrizo-Wilcox, Gulf Coast, Sparta, Queen City, and Yegua-Jackson aquifers. Surface water is available for steam electric generation through the LCRA and the COA. Currently in year 2020, mining water needs account for about 80% of total water needs in the Fayette County, but this need drops near zero by year 2070. Conversely, the water needs for steam electric generation continues to increase to account for approximately 85% of total water needs in the county by year 2070. The estimated water shortages identified for Fayette are presented in *Table 4.5*.

Table 4.5 Fayette County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
AQUA WSC	0	0	0	0	0	0
COUNTY-OTHER	(272)	(385)	(456)	(523)	(587)	(639)
FAYETTE WSC	0	0	0	0	0	0
FLATONIA	0	0	0	0	0	0
LA GRANGE	0	0	0	0	0	0
LEE COUNTY WSC [1]	0	0	0	0	0	0
SCHULENBURG	0	(85)	(142)	(191)	(234)	(267)
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	(206)	(243)	(279)	(310)	(349)	(391)
MINING	(1,986)	(1,492)	(925)	(393)	(40)	(39)
STEAM ELECTRIC POWER [2]	0	0	0	0	(2,614)	(7,414)
FAYETTE COUNTY TOTAL NEEDS	**(2,464)**	**(2,205)**	**(1,802)**	**(1,417)**	**(3,824)**	**(8,750)**

[1] Primary region for this WUG is Region G. Please refer to the Region G Plan for additional information.

[2] Steam-electric needs shown are overall for the County, which take into consideration surpluses for LCRA. Please refer to *Table 4.19* for steam-electric needs specifically related to the City of Austin.

4.2.6 Gillespie County

Groundwater supplies in Gillespie County are available from the Ellenburger-San Saba, Edwards-Trinity, Trinity, and Hickory aquifers. Surface water is available from local sources. Manufacturing water needs represents 75% to all of the total water demand in the county between planning years 2020 thru 2070.

Table 4.6 Gillespie County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
COUNTY-OTHER	0	0	0	0	0	0
FREDERICKSBURG	0	0	0	0	(30)	(222)
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	(309)	(362)	(411)	(452)	(536)	(626)
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
GILLESPIE COUNTY TOTAL NEEDS	**(309)**	**(362)**	**(411)**	**(452)**	**(566)**	**(848)**

4.2.7 Hays County

Groundwater supplies in Hays County are available from the Edwards-Balcones Fault Zone (BFZ) and Trinity aquifers. Surface water is available from the Highland Lakes System and COA ROR rights. Municipal need represents over 70 percent of the total needs in the county and represents the majority of supply shortages identified for Hays County, as presented in *Table 4.7*.

Table 4.7 Hays County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
AUSTIN	0	0	0	0	0	0
BUDA	0	(667)	(1,690)	(2,974)	(4,429)	(6,088)
CIMARRON PARK WATER COMPANY	0	0	0	0	0	0
COUNTY-OTHER	0	0	(530)	(1,587)	(2,489)	(3,382)
DRIPPING SPRINGS	0	(31)	(104)	(198)	(307)	(432)
DRIPPING SPRINGS WSC	0	0	0	0	0	(126)
GOFORTH WSC [1]	0	0	0	0	0	0
MOUNTAIN CITY	0	0	0	0	0	0
PLUM CREEK WATER COMPANY [1]	0	0	0	0	0	0
WEST TRAVIS COUNTY PUA	0	(937)	(2,974)	(5,522)	(8,405)	(11,687)
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	(531)	(761)	(1,047)	(1,131)	(1,340)	(1,579)
STEAM ELECTRIC POWER	0	0	0	0	0	0
HAYS COUNTY TOTAL NEEDS	**(531)**	**(2,396)**	**(6,345)**	**(11,412)**	**(16,970)**	**(23,294)**

[1] Primary region for this WUG is Region L. Please refer to the Region L Plan for additional information.

4.2.8 Llano County

Groundwater supplies in Llano County are available from the Hickory and Ellenburger-San Saba aquifers. Surface water is available from the City of Llano Reservoir, the Highland Lakes, and local sources. Municipal needs account for all of total needs in the county and all of the identified water supply shortage. A summary of the estimated water shortages identified for Llano County is presented in *Table 4.8*.

Table 4.8 Llano County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
COUNTY-OTHER	0	0	0	0	0	0
HORSESHOE BAY	0	(50)	(41)	(4)	(67)	(133)
KINGSLAND WSC	0	0	0	0	0	0
LLANO	(445)	(475)	(461)	(439)	(467)	(496)
SUNRISE BEACH VILLAGE	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
LLANO COUNTY TOTAL NEEDS	**(445)**	**(525)**	**(502)**	**(443)**	**(534)**	**(629)**

4.2.9 Matagorda County

The primary source of groundwater in Matagorda County is the Gulf Coast aquifer. Surface water supplies are available pursuant to LCRA's ROR rights, presently being used within LCRA's Gulf Coast Irrigation Division, and the LCRA-STPNOC water right, STPNOC's contract with LCRA for backup firm water, as well as LCRA firm water contracts for other industrial needs and other local supply sources. Irrigation water needs in Matagorda County represent over 85 percent of the water need in the county with steam electric generation accounting for the remainder of the water needs. A summary of the estimated water shortages identified for Matagorda County is presented in *Table 4.9*.

Table 4.9 Matagorda County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
BAY CITY	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
PALACIOS	0	0	0	0	0	0
IRRIGATION	(166,548)	(160,843)	(155,291)	(149,889)	(144,632)	(139,516)
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	(25,363)	(25,377)	(25,401)	(25,431)	(25,461)	(25,483)
MATAGORDA COUNTY TOTAL NEEDS	**(191,911)**	**(186,220)**	**(180,692)**	**(175,320)**	**(170,093)**	**(164,999)**

4.2.10 Mills County

The primary source of groundwater in Mills County is the Trinity aquifer. Surface water supplies are available through the City of Goldthwaite Reservoir and other local supply sources. Irrigation needs in Mills County represent over 55 percent of the water needs in the county with most of the remainder of the demand being municipal need. A summary of the estimated water shortages identified for Mills County is presented in *Table 4.10*.

Table 4.10 Mills County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
BROOKSMITH SUD [1]	0	0	0	0	0	0
COUNTY-OTHER	(16)	(15)	(14)	(18)	(23)	(29)
GOLDTHWAITE	(48)	(51)	(53)	(64)	(77)	(94)
IRRIGATION	(605)	(575)	(545)	(516)	(487)	(460)
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
MILLS COUNTY TOTAL NEEDS	**(669)**	**(641)**	**(612)**	**(598)**	**(587)**	**(583)**

[1] Primary region for this WUG is Region F. Please refer to the Region F Plan for additional information.

4.2.11 San Saba County

Groundwater supplies in San Saba County are available from the Ellenburger-San Saba, Marble Falls, and Hickory aquifers. Surface water availability is primarily limited to local sources. Municipal needs account for all of water needs San Saba County. The water needs for San Saba County are listed in Table *4.11*.

Table 4.11 San Saba County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
COUNTY-OTHER	0	0	0	0	0	0
RICHLAND SUD [1]	0	0	0	0	0	0
SAN SABA	(88)	(128)	(124)	(99)	(125)	(152)
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
SAN SABA COUNTY TOTAL NEEDS	**(88)**	**(128)**	**(124)**	**(99)**	**(125)**	**(152)**

[1] Primary region for this WUG is Region F. Please refer to the Region F Plan for additional information.

4.2.12 Travis County

Groundwater supplies in Travis County are available from the Edwards-BFZ and Trinity aquifers. Surface water is available through the LCRA and COA ROR water rights. Municipal water needs represent well over 80 percent of the total needs in the county. Steam electric generation accounts for the remaining needs. A summary of the estimated water shortages identified for Travis County is presented in *Table 4.12.*

Table 4.12 Travis County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
AQUA WSC	0	0	0	0	0	0
AUSTIN	0	0	0	(1,231)	(29,821)	(63,194)
BARTON CREEK WEST WSC	0	0	0	0	0	0
BEE CAVE VILLAGE	(225)	(491)	(745)	(1,030)	(1,282)	(1,518)
BRIARCLIFF VILLAGE	0	0	0	0	(3)	(36)
CEDAR PARK [1]	(505)	(941)	(1,121)	(987)	(1,084)	(1,194)
COUNTY-OTHER	0	0	0	0	0	0
CREEDMOOR-MAHA WSC	0	0	(43)	(171)	(309)	(445)
ELGIN	0	(101)	(196)	(305)	(402)	(493)
GOFORTH WSC [2]	0	0	0	0	0	0
JONESTOWN	(93)	(113)	(133)	(158)	(182)	(206)
LAGO VISTA	0	0	0	0	0	0
LAKEWAY	(1,469)	(3,607)	(3,585)	(3,573)	(3,568)	(3,567)
LEANDER [1]	0	(1,224)	(3,282)	(4,153)	(4,544)	(4,937)
LOOP 360 WSC	0	0	(14)	(66)	(113)	(157)
LOST CREEK MUD	0	0	0	0	0	0
MANOR	0	0	0	(94)	(494)	(867)
MANVILLE WSC	0	0	0	(568)	(1,286)	(2,346)
MUSTANG RIDGE	0	0	0	0	0	0
NORTH AUSTIN MUD #1	0	0	0	0	0	0
NORTHTOWN MUD	0	0	0	0	0	0
PFLUGERVILLE	(605)	(4,935)	(9,073)	(13,727)	(17,872)	(21,741)
POINT VENTURE	0	(83)	(174)	(278)	(369)	(455)
ROLLINGWOOD	0	(379)	(376)	(375)	(376)	(378)
ROUND ROCK [1]	0	(60)	(126)	(202)	(265)	(323)
SHADY HOLLOW MUD	0	0	0	0	0	0
SUNSET VALLEY	0	0	0	0	0	0
THE HILLS	0	0	0	0	0	0
TRAVIS COUNTY MUD #4	0	0	0	0	(361)	(710)
TRAVIS COUNTY WCID #10	0	(2,428)	(2,715)	(3,044)	(3,341)	(3,619)
TRAVIS COUNTY WCID #17	(302)	(1,904)	(2,868)	(3,038)	(3,330)	(3,693)
TRAVIS COUNTY WCID #18	0	0	0	0	0	(131)
TRAVIS COUNTY WCID #19	0	0	0	0	0	0
TRAVIS COUNTY WCID #20	0	0	0	0	0	0
VOLENTE	0	(13)	(25)	(40)	(54)	(66)
WELLS BRANCH MUD	0	0	0	0	0	0
WEST LAKE HILLS	0	(1,550)	(1,539)	(1,533)	(1,532)	(1,532)
WEST TRAVIS COUNTY PUA	0	0	(269)	(650)	(986)	(1,300)
WILLIAMSON-TRAVIS COUNTY MUD #1 [1]	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	(1,374)	(1,374)	(6,543)	(14,043)	(21,530)
TRAVIS COUNTY TOTAL NEEDS	**(3,199)**	**(19,203)**	**(27,658)**	**(41,766)**	**(85,617)**	**(134,438)**

[1] Primary region for this WUG is Region G. Please refer to the Region G Plan for additional information.
[2] Primary region for this WUG is Region L. Please refer to the Region L Plan for additional information.

4.2.13 Wharton County

The primary source of groundwater in Wharton County is the Gulf Coast aquifer. Surface water supplies are available pursuant to LCRA's ROR rights, presently being used within LCRA's Lakeside, Garwood Irrigation Divisions and by Pierce Ranch. In addition, surface water is available from other local supply sources. Irrigation need in Wharton County represent over 99 percent of the water needs in the county with steam electric generation need accounting for the remaining water needs. A summary of the estimated water shortages identified for Wharton County is presented in *Table 4.13*.

Table 4.13 Wharton County Water Supply Needs (ac-ft/yr)

Water User Group Name	2020 Needs	2030 Needs	2040 Needs	2050 Needs	2060 Needs	2070 Needs
COUNTY-OTHER	0	0	0	0	0	0
EAST BERNARD	0	0	0	0	0	0
EL CAMPO [1]	0	0	0	0	0	0
WHARTON	0	0	0	0	0	0
IRRIGATION	(109,382)	(103,673)	(98,118)	(92,712)	(87,451)	(82,332)
LIVESTOCK	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	(94)	(200)
WHARTON COUNTY TOTAL NEEDS	**(109,382)**	**(103,673)**	**(98,118)**	**(92,712)**	**(87,545)**	**(82,532)**

[1] Primary region for this WUG is Region P. Please refer to the Region P Plan for additional information.

4.2.14 Williamson County

Groundwater supplies in Williamson County are available from the Trinity and Edwards-BFZ aquifers. Surface water is available through the COA and LCRA. There are no water shortages expected for any of the WUGs in Williamson County within the LCRWPA.

4.2.15 County-Wide Surpluses

As part of the 2016 regional water planning process, areas with water supply surpluses were identified as well as areas with water supply needs. This analysis was conducted by comparing the county-wide estimated water supplies with the county-wide estimated water demands. It is important to note that although a particular county may have a county-wide water supply surplus, individual WUGs within that county may have water supply needs because they do not have access to the surplus water. *Table 4.14* contains a summary of the water supply condition within each county. It is also important to note that the regional totals shown in *Table 4.14* are less than the water supply needs identified in *Figure 4.2* due to surpluses in some counties. The fact that the regional totals show water supply needs despite considering the surpluses in some counties indicates that additional strategies must be developed to meet all of the needs in the LCRWPA. Simply moving surplus water from one area to another will not be sufficient to meet the needs of all WUGs in the LCRWPA. Additionally, movement of surplus water can be very costly and requires the consent of the entity with the surplus.

Table 4.14 County and Regional Water Supply Condition Summary (surplus/deficit, ac-ft/yr)

County[1]	2020	2030	2040	2050	2060	2070
Bastrop	1,500	(8,583)	(13,251)	(20,512)	(31,613)	(46,230)
Blanco	1,594	1,324	1,194	1,125	1,072	1,044
Burnet	8,352	5,149	2,027	(679)	(3,233)	(5,611)
Colorado	(57,393)	(53,068)	(48,841)	(44,811)	(40,921)	(37,145)
Fayette	10,724	10,786	8,969	2,965	(1,221)	(6,226)
Gillespie	2,013	1,731	1,497	1,182	817	446
Hays	1,750	(1,763)	(6,242)	(11,483)	(17,247)	(23,686)
Llano	4,090	3,949	4,015	4,134	4,024	3,902
Matagorda	(185,539)	(180,660)	(175,811)	(171,049)	(166,883)	(162,353)
Mills	216	282	348	390	425	450
San Saba	1,197	1,324	1,658	1,902	2,068	2,206
Travis	132,599	74,934	20,380	(25,040)	(68,560)	(116,975)
Wharton	(106,712)	(101,215)	(95,843)	(90,687)	(85,714)	(80,878)
Williamson	0	152	322	519	569	2
Regional Totals[2]	**(185,609)**	**(245,658)**	**(299,578)**	**(352,044)**	**(406,417)**	**(471,054)**

[1] Overall County Surplus/Deficit = Countywide Water Supply – Countywide Water Demand
[2] Overall Regional Surplus/Deficit = Summation of County Surplus/Deficit

By comparison, *Table 4.15* shows all of the water supply needs by county in Region K if the surpluses are not taken into account. Region K is tasked with developing water management strategies to meet all of these needs. One potential strategy is to identify the WUGs with surpluses and determine if it is possible for this surplus water to meet the needs of WUGs with shortages.

Table 4.15 County and Regional Water Supply Condition Summary Excluding Surpluses (deficit, ac-ft/yr)

County[1]	2020	2030	2040	2050	2060	2070
Bastrop	(4,184)	(11,327)	(15,883)	(22,596)	(32,730)	(47,187)
Blanco	(48)	(105)	(138)	(179)	(209)	(230)
Burnet	(1,258)	(2,401)	(4,718)	(6,850)	(8,769)	(10,457)
Colorado	(59,075)	(54,635)	(50,318)	(46,165)	(42,130)	(38,205)
Fayette	(2,464)	(2,205)	(1,802)	(1,417)	(3,824)	(8,750)
Gillespie	(309)	(362)	(411)	(452)	(566)	(848)
Hays	(531)	(2,396)	(6,345)	(11,412)	(16,970)	(23,294)
Llano	(445)	(525)	(502)	(443)	(534)	(629)
Matagorda	(191,911)	(186,220)	(180,692)	(175,320)	(170,093)	(164,999)
Mills	(669)	(641)	(612)	(598)	(587)	(583)
San Saba	(88)	(128)	(124)	(99)	(125)	(152)
Travis	(3,199)	(19,203)	(27,658)	(41,766)	(85,617)	(134,438)
Wharton	(109,382)	(103,673)	(98,118)	(92,712)	(87,545)	(82,532)
Williamson	0	0	0	0	0	0
Regional Totals[2]	**(373,563)**	**(383,821)**	**(387,321)**	**(400,009)**	**(449,699)**	**(512,304)**

[1] Overall County Deficit

[2] Overall Regional Deficit = Summation of County Deficit

4.3 WHOLESALE WATER PROVIDER NEEDS

As previously discussed, the LCRA and COA have been identified as wholesale water providers within the LCRWPA. The following sections present a comparison of the water supplies for these two entities and their water supply commitments.

4.3.1 Lower Colorado River Authority

The LCRA has three sources for its water. These sources include the Highland Lakes System and ROR water rights in the lower portion of the basin. The LCRA also has developed groundwater in Bastrop County. The LCRA has commitments to provide water to individual users and cities throughout the LCRWPA. In addition, the LCRA uses water at its electric generating facilities. LCRA also provides water for agricultural irrigation and environmental needs of the river and bay according to the LCRA Water Management Plan. *Table 4.16* contains a comparison of LCRA's supplies and water commitments. *Table 4.17* contains a comparison of LCRA's irrigation water supplies and projected irrigation demands.

Table 4.16 LCRA Firm Water Supply/Commitment Comparison (ac-ft/yr)

LCRA Water Supply	2020	2030	2040	2050	2060	2070
Firm Water Supply	461,559	456,431	451,715	446,140	439,597	433,521
Firm Water Commitments	441,821	441,817	441,803	441,783	441,750	441,684
Water Surplus/Deficit	**19,738**	**14,614**	**9,912**	**4,357**	**(2,153)**	**(8,163)**

Note: The water supply is detailed in *Table 3.25*. The water commitments are detailed in *Tables 2.23* and *3.26*. Commitments include the out-of-basin 25,000 ac-ft/yr demand from Region G in Williamson County under the HB 1437 program and other current, separate out-of-region commitments (Leander, Cedar Park, and others). Environmental commitments are included in this table as part of the firm water commitments, but are not one of the six water uses planned for in the regional planning process.

Table 4.17 LCRA Irrigation Water Supply and Projected Demands[1] Comparison (ac-ft/yr)

LCRA Water Supply	2020	2030	2040	2050	2060	2070
Irrigation Water Supply	107,703	107,703	107,703	107,703	107,703	107,703
Irrigation Water Projected Demands (Region K)	423,016	411,567	400,426	389,584	379,035	368,768
Irrigation Water Projected Demands (Region P)	16,000	16,000	16,000	16,000	16,000	16,000
Water Surplus/Deficit	**(331,313)**	**(319,864)**	**(308,723)**	**(297,881)**	**(287,332)**	**(277,065)**

Note: The water supply is detailed in *Table 3.25*. The irrigation water projected demands are detailed in *Tables 2.23* and *3.26*. Projected water demands presented in *Table 4.17* include a portion of the rice irrigation demands for Region K (ratio for Colorado, Matagorda and Wharton Counties applied from the 2001 plan: 0.75, 0.87 and 0.55).

As shown in Table 4.16, LCRA has sufficient water supply to meet all of its current water commitments under the assumptions being used in this plan through 2050. Beginning in 2060, LCRA shows a water shortage and in 2070 LCRA needs an additional 8,160 ac-ft/yr of supply to meet current commitments. Regarding irrigation, as shown in *Table 4.17*, LCRA does not have sufficient water supply to meet all projected irrigation demands. This analysis does not include interruptible water supplies projected to be available over the planning horizon through the implementation of the Water Management Plan (WMP) or projected municipal return flows. Strategies to meet projected shortages are discussed in Chapter 5.

4.3.2 City of Austin

The COA currently has two major sources for its surface water. These sources include the ROR water rights and a contract with LCRA to receive firm water from any source under the LCRA water rights system. The COA water rights contain separate authorizations for municipal and manufacturing uses and steam electric power generation. *Tables 4.18* and *4.19* contain comparisons of the COA's water supplies to its projected water demands and commitments for these main use types.

[1] The irrigation water commitments discussed here reflect the projected demands within LCRA's Irrigation Divisions and Pierce Ranch which are currently being met by LCRA's ROR water rights and supplemental interruptible stored water from lakes Buchanan and Travis in accordance with LCRA's Water Management Plan on an annual contract basis.

Table 4.18 COA Municipal and Manufacturing Water Supply/Projected Demand and Commitment Comparison (ac-ft/yr)

COA Water Supply	2020	2030	2040	2050	2060	2070
Municipal and Manufacturing Water Supply	325,000	325,000	325,000	325,000	325,000	325,000
Municipal and Manufacturing Projected Demand and Commitments	220,990	254,475	298,804	328,878	358,825	392,252
Water Surplus/Need	**104,010**	**70,525**	**26,196**	**(3,878)**	**(33,825)**	**(67,252)**

Note: The water supply is detailed in *Table 3.26*. The projected water demands and commitments are detailed in *Tables 2.21* and *3.28*. Note that it is anticipated that some current COA wholesale customers will be transferring to new LCRA raw water contracts. COA will continue to treat and transport their potable water supplies.

Based on the information developed through the regional water plan analysis process, this table indicates that the COA has sufficient water to meet its municipal and manufacturing needs through the year 2040. By the year 2050, it is anticipated that the COA will have a deficit of approximately 4,000 ac-ft/yr. By the year 2070, it is anticipated that the COA will have a deficit of approximately 67,000 ac-ft/yr.

It should be noted that the current drought in the Colorado Basin is on-going and historical in proportion. At the time of development of this plan's information, preliminary analysis indicates that system firm yields have been reduced. The City of Austin is working to develop drought response strategies to assure that the City of Austin water supply remains reliable taking into consideration the on-going current drought. These near-term City of Austin drought response strategies and other water management strategies are referenced in Chapter 5.

Table 4.19 COA Steam Electric Water Supply/Projected Demand Comparison (ac-ft/yr)

COA Water Supply	2020	2030	2040	2050	2060	2070
Steam Electric Water Supply	29,013	29,013	29,013	29,013	29,013	29,013
Steam Electric Projected Water Demand	33,202	37,202	37,202	38,202	45,202	49,202
Water Surplus/Need	**(4,189)**	**(8,189)**	**(8,189)**	**(9,189)**	**(16,189)**	**(20,189)**

Note: The water supply is detailed in *Table 3.27*. The projected water demands are detailed in *Tables 2.22* and *3.28*. The water demands presented in *Table 4.19* represent all of the steam electric generating demands for Travis County plus a portion of the Fayette County demands (based on estimated current supply levels and approved projections).

This table indicates that by the year 2020, it is anticipated that the COA will have a 4,000 ac-ft/yr deficit in the steam-electric category of use. By 2030, it is anticipated that the COA will have a deficit of approximately 8,000 ac-ft/yr for steam-electric. By 2070, the COA will have a deficit of approximately 20,000 ac-ft/yr.

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APPENDIX 4A

DB17 WUG NEEDS/SURPLUS REPORT

WWP CONTRACT DEMANDS/NEEDS BY WUG, COUNTY, AND BASIN, BASED ON DB17 OUTPUT

WUG (NEEDS)/SURPLUS

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BASTROP COUNTY						
BRAZOS BASIN						
AQUA WSC	260	234	200	153	89	2
LEE COUNTY WSC	102	111	128	152	182	217
COUNTY-OTHER	67	60	51	38	22	0
MINING	(173)	(409)	(450)	(496)	(545)	(600)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	6	12	17	21	24
COLORADO BASIN						
AQUA WSC	(2,534)	(4,656)	(7,145)	(11,210)	(17,667)	(26,269)
BASTROP	(30)	(671)	(1,519)	(2,685)	(4,274)	(6,390)
BASTROP COUNTY WCID #2	753	643	541	320	(93)	(644)
CREEDMOOR-MAHA WSC	16	12	5	0	0	0
ELGIN	(472)	(732)	(1,013)	(1,533)	(2,432)	(3,631)
LEE COUNTY WSC	137	148	172	207	248	291
POLONIA WSC	0	0	0	0	0	0
SMITHVILLE	1,006	932	953	663	70	(721)
COUNTY-OTHER	(361)	(519)	(739)	(907)	(1,158)	(1,490)
MANUFACTURING	(55)	(87)	(120)	(151)	(174)	(199)
MINING	(449)	(3,947)	(4,556)	(5,235)	(5,967)	(6,777)
STEAM ELECTRIC POWER	2,720	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	435	423	413	404	397	391
GUADALUPE BASIN						
AQUA WSC	185	167	143	110	64	4
COUNTY-OTHER	0	1	3	4	6	8
MANUFACTURING	7	6	4	2	1	0
MINING	(110)	(306)	(341)	(379)	(420)	(466)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	6	10	14	17	20
BLANCO COUNTY						
COLORADO BASIN						
JOHNSON CITY	(48)	(105)	(138)	(155)	(167)	(175)
COUNTY-OTHER	130	49	2	(24)	(42)	(55)
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	3	3	3	3	3	3
IRRIGATION	29	40	51	56	59	65
GUADALUPE BASIN						
BLANCO	831	773	740	723	710	702
CANYON LAKE WATER SERVICE COMPANY	0	0	0	0	0	0
COUNTY-OTHER	545	486	454	437	423	415
MANUFACTURING	0	0	0	0	0	0
LIVESTOCK	34	34	34	34	34	34
IRRIGATION	39	44	48	51	52	55
BURNET COUNTY						
BRAZOS BASIN						
BERTRAM	(40)	(118)	(184)	(249)	(307)	(358)
BURNET	6	5	4	2	1	0

WUG (NEEDS)/SURPLUS

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BURNET COUNTY						
BRAZOS BASIN						
CHISHOLM TRAIL SUD	0	0	0	0	0	0
KEMPNER WSC	0	0	0	0	0	0
COUNTY-OTHER	412	198	20	(158)	(318)	(460)
MINING	0	0	0	0	0	0
LIVESTOCK	205	205	205	205	205	205
IRRIGATION	0	0	0	0	0	0
COLORADO BASIN						
BURNET	2,793	2,440	2,141	1,849	1,586	1,356
COTTONWOOD SHORES	268	226	191	156	124	96
GRANITE SHOALS	177	62	(38)	(137)	(226)	(306)
HORSESHOE BAY	101	(201)	(454)	(697)	(912)	(1,098)
KINGSLAND WSC	10	4	5	9	3	0
MARBLE FALLS	1,418	381	(1,089)	(1,859)	(2,377)	(2,636)
MEADOWLAKES	(207)	(379)	(525)	(665)	(788)	(896)
COUNTY-OTHER	2,981	2,929	3,215	3,104	2,905	2,623
MANUFACTURING	903	764	628	510	376	230
MINING	(1,011)	(1,703)	(2,428)	(3,085)	(3,841)	(4,703)
LIVESTOCK	144	144	144	144	144	144
IRRIGATION	623	623	623	623	623	623
COLORADO COUNTY						
BRAZOS-COLORADO BASIN						
EAGLE LAKE	17	16	16	11	6	0
COUNTY-OTHER	56	55	54	51	45	40
MANUFACTURING	4	4	4	4	3	3
MINING	10	9	7	5	4	2
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(21,628)	(20,296)	(19,000)	(17,738)	(16,511)	(15,316)
COLORADO BASIN						
COLUMBUS	15	(15)	(36)	(80)	(122)	(163)
EAGLE LAKE	39	36	35	25	12	0
WEIMAR	27	23	20	13	7	0
COUNTY-OTHER	(121)	(127)	(130)	(158)	(191)	(226)
MANUFACTURING	9	8	7	6	5	4
MINING	307	258	208	158	107	57
LIVESTOCK	65	65	65	65	65	65
IRRIGATION	(5,126)	(4,371)	(3,636)	(2,921)	(2,225)	(1,548)
LAVACA BASIN						
WEIMAR	56	47	41	27	13	0
COUNTY-OTHER	615	612	612	602	592	580
MANUFACTURING	448	423	400	381	347	309
MINING	14	11	8	6	3	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(32,200)	(29,826)	(27,516)	(25,268)	(23,081)	(20,952)
FAYETTE COUNTY						
COLORADO BASIN						
AQUA WSC	2	1	1	1	0	0
FAYETTE WSC	266	196	150	110	74	45

WUG (NEEDS)/SURPLUS

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
FAYETTE COUNTY						
COLORADO BASIN						
LA GRANGE	429	335	274	219	171	132
LEE COUNTY WSC	343	324	309	299	282	258
COUNTY-OTHER	(74)	(157)	(210)	(259)	(306)	(345)
MINING	(1,576)	(1,176)	(717)	(274)	179	186
STEAM ELECTRIC POWER	10,286	10,286	8,186	1,886	(2,614)	(7,414)
LIVESTOCK	716	716	716	716	716	716
IRRIGATION	567	592	615	636	655	671
GUADALUPE BASIN						
FAYETTE WSC	15	11	8	5	3	1
FLATONIA	28	21	16	12	7	4
COUNTY-OTHER	38	35	33	30	28	26
MINING	(66)	(42)	(13)	15	42	43
LIVESTOCK	179	179	179	179	179	179
IRRIGATION	0	4	7	11	14	17
LAVACA BASIN						
FAYETTE WSC	25	18	12	7	3	0
FLATONIA	117	86	66	48	33	21
SCHULENBURG	1	(85)	(142)	(191)	(234)	(267)
COUNTY-OTHER	(198)	(228)	(246)	(264)	(281)	(294)
MANUFACTURING	(206)	(243)	(279)	(310)	(349)	(391)
MINING	(344)	(274)	(195)	(119)	(40)	(39)
LIVESTOCK	176	176	176	176	176	176
IRRIGATION	0	11	23	32	41	49
GILLESPIE COUNTY						
COLORADO BASIN						
FREDERICKSBURG	690	509	360	164	(30)	(222)
COUNTY-OTHER	559	486	424	325	217	107
MANUFACTURING	(309)	(362)	(411)	(452)	(536)	(626)
MINING	51	51	51	51	51	51
LIVESTOCK	528	528	528	528	528	528
IRRIGATION	444	471	499	524	549	574
GUADALUPE BASIN						
COUNTY-OTHER	28	26	24	20	16	12
LIVESTOCK	22	22	22	22	22	22
HAYS COUNTY						
COLORADO BASIN						
AUSTIN	0	0	0	0	0	0
BUDA	161	(667)	(1,690)	(2,974)	(4,429)	(6,088)
CIMARRON PARK WATER COMPANY	0	8	15	19	20	20
DRIPPING SPRINGS	27	(31)	(104)	(198)	(307)	(432)
DRIPPING SPRINGS WSC	0	0	0	0	0	(126)
GOFORTH SUD	0	0	0	0	0	0
MOUNTAIN CITY	0	0	0	0	0	0
PLUM CREEK WATER COMPANY	0	0	0	0	0	0
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	728	(937)	(2,974)	(5,522)	(8,405)	(11,687)
COUNTY-OTHER	983	394	(530)	(1,587)	(2,489)	(3,382)
MANUFACTURING	236	185	134	88	46	0

WUG (NEEDS)/SURPLUS

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
HAYS COUNTY						
COLORADO BASIN						
MINING	(531)	(761)	(1,047)	(1,131)	(1,340)	(1,579)
LIVESTOCK	2	2	2	2	2	2
IRRIGATION	333	333	333	333	333	333
LLANO COUNTY						
COLORADO BASIN						
HORSESHOE BAY	39	(50)	(41)	(4)	(67)	(133)
KINGSLAND WSC	237	123	131	173	90	1
LLANO	(445)	(475)	(461)	(439)	(467)	(496)
SUNRISE BEACH VILLAGE	195	197	199	201	201	201
COUNTY-OTHER	3,646	3,702	3,703	3,689	3,723	3,756
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	417	451	483	513	543	572
MATAGORDA COUNTY						
BRAZOS-COLORADO BASIN						
BAY CITY	1,878	1,826	1,811	1,766	1,724	1,689
COUNTY-OTHER	146	143	148	145	134	124
MANUFACTURING	173	143	116	93	52	9
MINING	2	0	14	25	36	43
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(70,487)	(67,962)	(65,505)	(63,114)	(60,787)	(58,523)
COLORADO BASIN						
BAY CITY	4	4	4	4	4	4
COUNTY-OTHER	332	331	332	331	329	327
MANUFACTURING	3,885	3,184	2,523	1,979	1,021	0
MINING	1	0	2	4	6	7
STEAM ELECTRIC POWER	(25,363)	(25,377)	(25,401)	(25,431)	(25,461)	(25,483)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(12,024)	(11,663)	(11,312)	(10,971)	(10,639)	(10,315)
COLORADO-LAVACA BASIN						
PALACIOS	385	373	370	364	354	346
COUNTY-OTHER	85	83	86	84	76	69
MANUFACTURING	40	33	26	20	11	0
MINING	1	0	9	16	23	28
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(84,037)	(81,218)	(78,474)	(75,804)	(73,206)	(70,678)
MILLS COUNTY						
BRAZOS BASIN						
GOLDTHWAITE	0	0	0	0	0	0
COUNTY-OTHER	(16)	(15)	(14)	(18)	(23)	(29)
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(605)	(575)	(545)	(516)	(487)	(460)
COLORADO BASIN						
BROOKESMITH SUD	0	0	0	0	0	0

WUG (NEEDS)/SURPLUS

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MILLS COUNTY						
COLORADO BASIN						
GOLDTHWAITE	(48)	(51)	(53)	(64)	(77)	(94)
COUNTY-OTHER	90	92	94	87	78	68
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	794	830	865	900	933	964
SAN SABA COUNTY						
COLORADO BASIN						
RICHLAND SUD	131	129	131	131	131	130
SAN SABA	(88)	(128)	(124)	(99)	(125)	(152)
COUNTY-OTHER	215	211	217	222	216	209
MANUFACTURING	0	0	0	0	0	0
MINING	451	446	595	639	675	701
LIVESTOCK	27	27	27	27	27	27
IRRIGATION	461	639	812	982	1,144	1,291
TRAVIS COUNTY						
COLORADO BASIN						
AQUA WSC	721	584	447	286	138	0
AUSTIN	108,581	74,946	30,447	(1,231)	(29,821)	(63,194)
BARTON CREEK WEST WSC	328	333	336	337	338	338
BEE CAVE	(225)	(491)	(745)	(1,030)	(1,282)	(1,518)
BRIARCLIFF	140	105	72	32	(3)	(36)
CEDAR PARK	(505)	(941)	(1,121)	(987)	(1,084)	(1,194)
CREEDMOOR-MAHA WSC	160	59	(43)	(171)	(309)	(445)
ELGIN	0	(101)	(196)	(305)	(402)	(493)
JONESTOWN	(93)	(113)	(133)	(158)	(182)	(206)
LAGO VISTA	2,157	1,840	1,537	1,193	885	597
LAKEWAY	(1,469)	(3,607)	(3,585)	(3,573)	(3,568)	(3,567)
LEANDER	68	(1,224)	(3,282)	(4,153)	(4,544)	(4,937)
LOOP 360 WSC	76	30	(14)	(66)	(113)	(157)
LOST CREEK MUD	0	0	0	0	0	0
MANOR	2,316	757	357	(94)	(494)	(867)
MANVILLE WSC	3,765	873	182	(568)	(1,286)	(2,346)
MUSTANG RIDGE	0	0	0	0	0	0
NORTH AUSTIN MUD #1	0	0	0	0	0	0
NORTHTOWN MUD	339	339	339	339	339	339
PFLUGERVILLE	(605)	(4,935)	(9,073)	(13,727)	(17,872)	(21,741)
POINT VENTURE	13	(83)	(174)	(278)	(369)	(455)
ROLLINGWOOD	0	(379)	(376)	(375)	(376)	(378)
ROUND ROCK	3	(60)	(126)	(202)	(265)	(323)
SHADY HOLLOW MUD	0	0	0	0	0	0
SUNSET VALLEY	27	27	27	27	27	27
THE HILLS	84	89	92	94	95	95
TRAVIS COUNTY MUD #4	1,207	810	435	13	(361)	(710)
TRAVIS COUNTY WCID #10	0	(2,428)	(2,715)	(3,044)	(3,341)	(3,619)
TRAVIS COUNTY WCID #17	(302)	(1,904)	(2,868)	(3,038)	(3,330)	(3,693)
TRAVIS COUNTY WCID #18	613	469	329	163	11	(131)

WUG (NEEDS)/SURPLUS

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
TRAVIS COUNTY						
COLORADO BASIN						
TRAVIS COUNTY WCID #19	0	0	0	0	0	0
TRAVIS COUNTY WCID #20	545	548	551	552	553	553
VOLENTE	0	(13)	(25)	(40)	(54)	(66)
WELLS BRANCH MUD	0	0	0	0	0	0
WEST LAKE HILLS	41	(1,550)	(1,539)	(1,533)	(1,532)	(1,532)
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	421	68	(269)	(650)	(986)	(1,300)
WILLIAMSON-TRAVIS COUNTY MUD #1	48	52	54	55	55	56
COUNTY-OTHER	10,613	10,963	11,278	11,790	12,505	13,139
MANUFACTURING	0	0	0	0	0	0
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	2,626	(1,374)	(1,374)	(6,543)	(14,043)	(21,530)
LIVESTOCK	3	3	3	3	3	3
IRRIGATION	809	1,156	1,474	1,767	2,034	2,246
GUADALUPE BASIN						
CREEDMOOR-MAHA WSC	0	0	0	0	0	0
GOFORTH SUD	0	0	0	0	0	0
MUSTANG RIDGE	0	0	0	0	0	0
COUNTY-OTHER	94	86	78	75	74	70
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
WHARTON COUNTY						
BRAZOS-COLORADO BASIN						
EAST BERNARD	77	62	51	39	25	12
WHARTON	590	553	524	488	447	410
COUNTY-OTHER	642	617	596	550	506	467
MANUFACTURING	229	195	160	131	84	33
MINING	2	0	11	18	27	32
STEAM ELECTRIC POWER	246	184	109	17	(94)	(200)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(69,536)	(66,452)	(63,453)	(60,534)	(57,693)	(54,929)
COLORADO BASIN						
EL CAMPO	0	0	0	0	0	0
WHARTON	93	73	58	39	19	0
COUNTY-OTHER	583	571	560	538	518	498
MINING	1	0	7	12	17	21
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	9	9	9	9	9	9
IRRIGATION	(19,287)	(17,632)	(16,021)	(14,453)	(12,927)	(11,443)
COLORADO-LAVACA BASIN						
COUNTY-OTHER	88	84	80	73	67	61
MINING	0	0	1	3	4	4
LIVESTOCK	107	107	107	107	107	107
IRRIGATION	(20,559)	(19,589)	(18,644)	(17,725)	(16,831)	(15,960)
LAVACA BASIN						
COUNTY-OTHER	3	3	2	1	1	0

WUG (NEEDS)/SURPLUS

REGION K	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
WILLIAMSON COUNTY						
BRAZOS BASIN						
AUSTIN	0	150	320	517	567	0
NORTH AUSTIN MUD #1	0	0	0	0	0	0
WELLS BRANCH MUD	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	2	2	2	2	2
LIVESTOCK	0	0	0	0	0	0

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2017 RWP Sales/Transfer Data by Seller & Buyer							Contract Demand by Planning Decade (ac-ft/yr)						Total Sold/Transferred by Planning Decade (ac-ft/yr)						Contract Demand Needs/Surplus by Planning Decade (ac-ft/yr)					
Seller Entity	Seller Entity Region	Buyer Entity	Buyer Entity Region	Buyer Entity County	Buyer Entity Basin	Buyer WUG Category	CD2020	CD2030	CD2040	CD2050	CD2060	CD2070	TS2020	TS2030	TS2040	TS2050	TS2060	TS2070	CNS2020	CNS2030	CNS2040	CNS2050	CNS2060	CNS2070
AUSTIN	K	COUNTY-OTHER, TRAVIS	K	TRAVIS	COLORADO	MUNICIPAL	4,520	4,108	3,740	3,138	2,298	1,555	4,520	4,108	3,740	3,138	2,298	1,555	0	0	0	0	0	0
AUSTIN	K	COUNTY-OTHER, WILLIAMSON	G	WILLIAMSON	BRAZOS	MUNICIPAL	2,586	3,504	3,467	3,451	3,444	3,441	2,586	3,504	3,467	3,451	3,444	3,441	0	0	0	0	0	0
AUSTIN	K	CREEDMOOR-MAHA WSC	K	TRAVIS	COLORADO	MUNICIPAL	241	241	241	241	241	241	241	241	241	241	241	241	0	0	0	0	0	0
AUSTIN	K	LOST CREEK MUD	K	TRAVIS	COLORADO	MUNICIPAL	1,092	1,072	1,057	1,056	1,054	1,054	1,092	1,072	1,057	1,056	1,054	1,054	0	0	0	0	0	0
AUSTIN	K	MANOR	K	TRAVIS	COLORADO	MUNICIPAL	1,141	0	0	0	0	0	1,141	0	0	0	0	0	0	0	0	0	0	0
AUSTIN	K	MANUFACTURING, TRAVIS	K	TRAVIS	COLORADO	MANUFACTURING	35,430	48,350	63,498	72,631	81,421	91,270	35,430	48,350	63,498	72,631	81,421	91,270	0	0	0	0	0	0
AUSTIN	K	MANVILLE WSC	K	TRAVIS	COLORADO	MUNICIPAL	2,240	0	0	0	0	0	2,240	0	0	0	0	0	0	0	0	0	0	0
AUSTIN	K	NORTH AUSTIN MUD #1	K	TRAVIS	COLORADO	MUNICIPAL	82	79	77	75	75	75	82	79	77	75	75	75	0	0	0	0	0	0
AUSTIN	K	NORTH AUSTIN MUD #1	K	WILLIAMSON	BRAZOS	MUNICIPAL	774	748	726	714	711	711	774	748	726	714	711	711	0	0	0	0	0	0
AUSTIN	K	NORTHTOWN MUD	K	TRAVIS	COLORADO	MUNICIPAL	691	798	898	1,011	1,111	1,203	691	798	898	1,011	1,111	1,203	0	0	0	0	0	0
AUSTIN	K	ROLLINGWOOD	K	TRAVIS	COLORADO	MUNICIPAL	384	0	0	0	0	0	384	0	0	0	0	0	0	0	0	0	0	0
AUSTIN	K	SHADY HOLLOW MUD	K	TRAVIS	COLORADO	MUNICIPAL	779	758	741	731	730	730	779	758	741	731	730	730	0	0	0	0	0	0
AUSTIN	K	SUNSET VALLEY	K	TRAVIS	COLORADO	MUNICIPAL	386	499	606	727	834	934	386	499	606	727	834	934	0	0	0	0	0	0
AUSTIN	K	TRAVIS COUNTY WCID #10	K	TRAVIS	COLORADO	MUNICIPAL	3,733	0	0	0	0	0	3,733	0	0	0	0	0	0	0	0	0	0	0
AUSTIN	K	WELLS BRANCH MUD	K	TRAVIS	COLORADO	MUNICIPAL	1638	1602	1577	1563	1559	1558	1638	1602	1577	1563	1559	1558	0	0	0	0	0	0
AUSTIN	K	WELLS BRANCH MUD	K	WILLIAMSON	BRAZOS	MUNICIPAL	118	115	113	112	112	112	118	115	113	112	112	112	0	0	0	0	0	0
AUSTIN SUMMARY							**55,835**	**61,874**	**76,741**	**85,450**	**93,590**	**102,884**	**55,835**	**61,874**	**76,741**	**85,450**	**93,590**	**102,884**	**0**	**0**	**0**	**0**	**0**	**0**
LOWER COLORADO RIVER AUTHORITY	K	AUSTIN	K	TRAVIS	COLORADO	MUNICIPAL	138,560	138,560	138,560	138,560	138,560	138,560	123,626	123,626	123,626	123,626	123,613	123,046	-14,934	-14,934	-14,934	-14,934	-14,947	-15,514
LOWER COLORADO RIVER AUTHORITY	K	BRAZOS RIVER AUTHORITY	G	N/A	N/A	WWP	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	BRIARCLIFF	K	TRAVIS	COLORADO	MUNICIPAL	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	BURNET	K	BURNET	COLORADO	MUNICIPAL	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	CEDAR PARK	G	WILLIAMSON	BRAZOS	MUNICIPAL	18,000	18,000	18,000	18,000	18,000	18,000	18000	18000	18000	18000	18000	18000	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	CEDAR PARK	G	TRAVIS	COLORADO	MUNICIPAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COTTONWOOD SHORES	K	BURNET	COLORADO	MUNICIPAL	495	495	495	495	495	495	495	495	495	495	495	495	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, BASTROP	K	BASTROP	COLORADO	MUNICIPAL	744	744	744	744	744	744	744	744	744	744	744	744	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, BURNET	K	BURNET	COLORADO	MUNICIPAL	2,205	2,205	2,205	2,205	2,205	2,205	2,205	2,205	2,205	2,205	2,205	2,205	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, FAYETTE	K	FAYETTE	COLORADO	MUNICIPAL	102	102	102	102	102	102	102	102	102	102	102	102	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, GILLESPIE	K	GILLESPIE	COLORADO	MUNICIPAL	56	56	56	56	56	56	56	56	56	56	56	56	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, HAYS	K	HAYS	COLORADO	MUNICIPAL	1,401	1,401	1,401	1,401	1,401	1,401	1,401	1,401	1,401	1,401	1,401	1,401	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, LLANO	K	LLANO	COLORADO	MUNICIPAL	3,586	3,586	3,586	3,586	3,586	3,586	3,586	3,586	3,586	3,586	3,586	3,586	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, SAN SABA	K	SAN SABA	COLORADO	MUNICIPAL	20	20	20	20	20	20	20	20	20	20	20	20	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	COUNTY-OTHER, TRAVIS	K	TRAVIS	COLORADO	MUNICIPAL	14,617	14,617	14,617	14,617	14,617	14,617	14,617	14,617	14,617	14,617	14,617	14,617	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	DRIPPING SPRINGS	K	HAYS	COLORADO	MUNICIPAL	506	506	506	506	506	506	506	506	506	506	506	506	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	DRIPPING SPRINGS WSC	K	HAYS	COLORADO	MUNICIPAL	1,126	1,126	1,126	1,126	1,126	1,126	1,126	1,126	1,126	1,126	1,126	1,126	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	GRANITE SHOALS	K	BURNET	COLORADO	MUNICIPAL	830	830	830	830	830	830	830	830	830	830	830	830	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	HORSESHOE BAY	K	BURNET	COLORADO	MUNICIPAL	2,225	2,225	2,225	2,225	2,225	2,225	2,225	2,225	2,225	2,225	2,225	2,225	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	HORSESHOE BAY	K	LLANO	COLORADO	MUNICIPAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0

2017 RWP Sales/Transfer Data by Seller & Buyer							Contract Demand by Planning Decade (ac-ft/yr)						Total Sold/Transferred by Planning Decade (ac-ft/yr)						Contract Demand Needs/Surplus by Planning Decade (ac-ft/yr)					
Seller Entity	Seller Entity Region	Buyer Entity	Buyer Entity Region	Buyer Entity County	Buyer Entity Basin	Buyer WUG Category	CD2020	CD2030	CD2040	CD2050	CD2060	CD2070	TS2020	TS2030	TS2040	TS2050	TS2060	TS2070	CNS2020	CNS2030	CNS2040	CNS2050	CNS2060	CNS2070
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, BASTROP	K	BASTROP	COLORADO	IRRIGATION	955	955	955	955	955	955	955	955	955	955	955	955	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, BURNET	K	BURNET	COLORADO	IRRIGATION	416	416	416	416	416	416	416	416	416	416	416	416	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, LLANO	K	LLANO	COLORADO	IRRIGATION	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, MASON	F	MASON	COLORADO	IRRIGATION	59	59	59	59	59	59	59	59	59	59	59	59	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	IRRIGATION, TRAVIS	K	TRAVIS	COLORADO	IRRIGATION	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	KINGSLAND WSC	K	BURNET	COLORADO	MUNICIPAL	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	KINGSLAND WSC	K	LLANO	COLORADO	MUNICIPAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	LAGO VISTA	K	TRAVIS	COLORADO	MUNICIPAL	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	LAKEWAY	K	TRAVIS	COLORADO	MUNICIPAL	3,069	3,069	3,069	3,069	3,069	3,069	3,069	3,069	3,069	3,069	3,069	3,069	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	LEANDER	G	WILLIAMSON	BRAZOS	MUNICIPAL	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	LEANDER	G	TRAVIS	COLORADO	MUNICIPAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	LOMETA	G	LAMPASAS	BRAZOS	MUNICIPAL	522	522	522	522	522	522	56	61	64	69	73	76	-466	-461	-458	-453	-449	-446
LOWER COLORADO RIVER AUTHORITY	K	LOMETA	G	LAMPASAS	COLORADO	MUNICIPAL	150	150	150	150	150	150	110	119	126	134	142	150	-40	-31	-24	-16	-8	0
LOWER COLORADO RIVER AUTHORITY	K	LOOP 360 WSC	K	TRAVIS	COLORADO	MUNICIPAL	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	MANUFACTURING, BURNET	K	BURNET	COLORADO	MANUFACTURING	500	500	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	MANUFACTURING, MATAGORDA	K	MATAGORDA	COLORADO	MANUFACTURING	14,222	14,222	14,222	14,222	14,222	14,222	14,222	14,222	14,222	14,222	14,222	14,222	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	MANUFACTURING, TRAVIS	K	TRAVIS	COLORADO	MANUFACTURING	282	282	282	282	282	282	282	282	282	282	282	282	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	MARBLE FALLS	K	BURNET	COLORADO	MUNICIPAL	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	MEADOWLAKES	K	BURNET	COLORADO	MUNICIPAL	75	75	75	75	75	75	75	75	75	75	75	75	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	MINING, MASON	F	MASON	COLORADO	MINING	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	PFLUGERVILLE	K	WILLIAMSON	BRAZOS	MUNICIPAL	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	PFLUGERVILLE	K	TRAVIS	COLORADO	MUNICIPAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	POINT VENTURE	K	TRAVIS	COLORADO	MUNICIPAL	360	360	360	360	360	360	360	360	360	360	360	360	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, BASTROP	K	BASTROP	COLORADO	STEAM ELECTRIC POWER	16,720	16,720	16,720	16,720	16,720	16,720	12,220	11,834	11,026	10,571	10,571	10,571	-4,500	-4,886	-5,694	-6,149	-6,149	-6,149
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, FAYETTE	K	FAYETTE	COLORADO	STEAM ELECTRIC POWER	45,601	45,601	45,601	45,601	45,601	45,601	45,117	45,117	45,117	45,117	45,117	45,117	-484	-484	-484	-484	-484	-484
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, LLANO	K	LLANO	COLORADO	STEAM ELECTRIC POWER	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, MATAGORDA	K	MATAGORDA	COLORADO	STEAM ELECTRIC POWER	40,000	40,000	40,000	40,000	40,000	40,000	32,240	32,226	32,202	32,172	32,142	32,120	-7,760	-7,774	-7,798	-7,828	-7,858	-7,880
LOWER COLORADO RIVER AUTHORITY	K	STEAM ELECTRIC POWER, TRAVIS	K	TRAVIS	COLORADO	STEAM ELECTRIC POWER	16,156	16,156	16,156	16,156	16,156	16,156	16,156	16,156	16,156	11,987	5,487	0	0	0	0	-4,169	-10,669	-16,156
LOWER COLORADO RIVER AUTHORITY	K	SUNRISE BEACH VILLAGE	K	LLANO	COLORADO	MUNICIPAL	200	200	200	200	200	200	200	200	200	200	200	200	0	0	0	0	0	0

2017 RWP Sales/Transfer Data by Seller & Buyer							Contract Demand by Planning Decade (ac-ft/yr)						Total Sold/Transferred by Planning Decade (ac-ft/yr)						Contract Demand Needs/Surplus by Planning Decade (ac-ft/yr)					
Seller Entity	Seller Entity Region	Buyer Entity	Buyer Entity Region	Buyer Entity County	Buyer Entity Basin	Buyer WUG Category	CD2020	CD2030	CD2040	CD2050	CD2060	CD2070	TS2020	TS2030	TS2040	TS2050	TS2060	TS2070	CNS2020	CNS2030	CNS2040	CNS2050	CNS2060	CNS2070
LOWER COLORADO RIVER AUTHORITY	K	THE HILLS	K	TRAVIS	COLORADO	MUNICIPAL	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY MUD #4	K	TRAVIS	COLORADO	MUNICIPAL	4,316	4,316	4,316	4,316	4,316	4,316	4,316	4,316	4,316	4,316	4,316	4,316	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY WCID #17	K	TRAVIS	COLORADO	MUNICIPAL	9,299	9,299	9,299	9,299	9,299	9,299	9,299	9,299	9,299	9,299	9,299	9,299	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY WCID #18	K	TRAVIS	COLORADO	MUNICIPAL	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	TRAVIS COUNTY WCID #20	K	TRAVIS	COLORADO	MUNICIPAL	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	HAYS	COLORADO	MUNICIPAL	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	0	0	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	K	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	TRAVIS	COLORADO	MUNICIPAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
LCRA SUMMARY							435,308	435,308	435,308	435,308	435,308	435,308	407,124	406,738	405,916	401,275	394,744	388,679	-28,184	-28,570	-29,392	-34,033	-40,564	-46,629

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