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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 17 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 Lower Colorado Regional Water Planning Area (LCRWPA). This chapter also presents regional water supplies by county, major water providers, 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 definition of Drought of Record is "the period of time when historical records indicate that natural hydrological conditions would have provided the least amount of water supply," per TAC Title 31, Part 10, Chapter 357, Subchapter A, Rule 357.10. 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 (defined as having a defined bed and banks, a current of water, and a permanent source of supply, and includes 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. Availability of water to ROR rights is greatly impacted by drought conditions, particularly in the upper portions of a river basin.

- Stored Water Rights – Allow the impoundment of water by an owner 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. In general, water captured or diverted for domestic and livestock purposes can be difficult to quantify and account for. The LCRWPG has had discussions regarding the volume of water that may be used for domestic and livestock purposes that may not be accounted for, and its potential impacts on the overall water supply in the region.

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 an individual reservoir, firm yield is defined as the maximum water volume a reservoir can provide each year under a repeat of the Drought of Record using anticipated sedimentation rates and assuming that: all senior water rights will attempt to divert at their full authorized amounts, no return flows are included, and, all applicable permit conditions are met. 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. In addition, the firm yield calculation for Region K does not provide for any reserve water in the reservoir during a Drought of Record determination. 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 (currently 2011 for the majority of run-of-river water rights in Region K). 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.

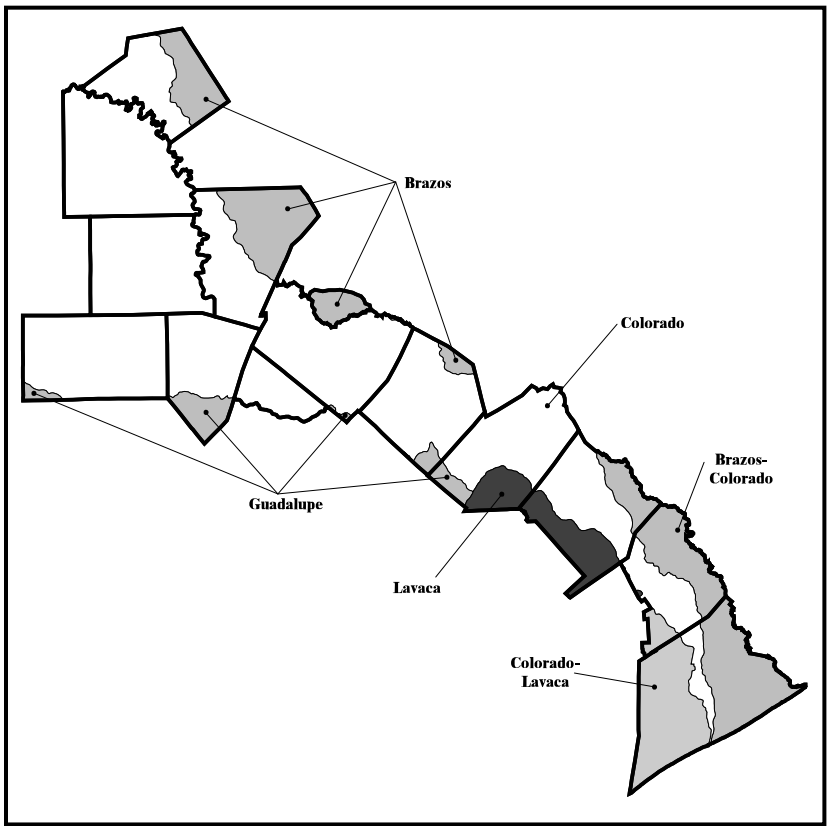
- Water availability will be based on the assumption that all senior water rights in the basin are being fully utilized. That is, water user groups cannot depend on "borrowing" water from unused water rights.

- 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.

The TWDB water planning guidelines provide regional planners the flexibility to request variances to the standard water supply modeling framework to address local issues related to current or future water supply modeling assumptions. Regional planning groups should strive to incorporate realistic modeling assumptions while balancing the need to plan for the full authorization of state granted water rights.

The LCRWPA extends across 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 surface 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 small off-channel reservoirs, including stock ponds.

3.2.1.1.1 Water Availability Modeling for the 2021 Region K Water Plan

This is the fourth 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 2021 planning cycle. Region K Water Modeling Committee meeting minutes are provided in *Appendix 3D*. 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

LCRA operates the Highland Lakes System, consisting of Lakes Buchanan, Inks, LBJ, Marble Falls and Austin. Lakes Buchanan and Travis are major water supply reservoirs, while the other lakes are generally used as pass-through lakes. LCRA holds the water rights for each lake, other than Lake Austin which is owned by the City of Austin but operated by LCRA. The City of Austin holds the water right for and operates Lady Bird Lake.

LCRA operates the Highland Lakes as a system to provide a reliable source of water to its customers. LCRA has developed a "Water Management Plan for Lakes Buchanan and Travis" in response to requirements contained in a final order of adjudication of water rights for Lakes Buchanan and Travis. The Water Management Plan (WMP) was originally adopted in 1989 and has been amended several times, most recently in November 2015, although LCRA submitted an amended plan to TCEQ for approval in 2019. In WMP updates, 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 water supply conditions that take into account inflows into and the combined storage of Lakes Buchanan and Travis on March 1 and July 1 of each year. The interruptible supply is generally comprised of uncommitted firm supply and committed firm supply that is not projected to be used within the planning period covered by the plan. As firm commitments and demands for water under those commitments increase over time, interruptible supplies are expected to be reduced more often to ensure the availability of water to firm customers in DOR conditions. Interruptible supplies are designed with curtailment triggers to provide more water per year during wetter times than the firm yield amount; however, curtailments based on the combined storage of Lakes Buchanan and Travis ensure that the Drought of Record average impact of interruptible water is less than the firm yield amount.

For the Regional Water Plan, the supply version of the Region K Cutoff Model does not incorporate the LCRA WMP and requires that interruptible supplies and environmental releases be turned off in order to calculate the firm yield calculation of Lakes Buchanan and Travis. The strategy version of the Region K Cutoff Model does incorporate the LCRA 2015 WMP including the components for curtailment triggers and environmental flow releases, used for the development and evaluation of some of the water management strategies in Chapter 5 of this Regional Water Plan.

[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 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;
- The hydrologic conditions in the 1940-2016 period are repeated. Hydrology previously had been through 2013. It should be noted that this hydrology is not the same as was used in the LCRA 2015 WMP. Evaluating the surface water availability using hydrology through 2016 changed the Drought of Record period from 1947-1957 to 2007-2016;
- 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 LCRA 2015 WMP is not included in the supply version of the Region K Cutoff Model and is disengaged in determining the firm yield of the Highland Lakes System;
- Return flows are not used in the Region K Cutoff Model for the purposes of determining the firm yield of the system. Return flows are included in the modeling as a water management strategy later in the planning process.
- 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 2016 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. The methodology used to determine the projected reservoir capacity and related area-capacity-elevation curves for lakes Buchanan and Travis for 2020 through 2070 is from a memorandum authored by R.J. Brandes, dated 11/10/2010, which summarizes the basis and revised estimated quantities for sedimentation condition out to the year 2100. A copy of this memorandum is included in *Appendix 3B*.

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*	275,589	274,891	274,142	273,494	272,756	271,988
LCRA Backup of STPNOC Run-of-River Water Right	19,567	19,562	19,557	19,553	19,548	19,543
LCRA Backup of City of Austin Municipal Run-of-River Water Rights**	90,310	90,310	90,310	90,310	90,310	90,310
LCRA Backup to Interruptible Run-of-River Water Rights	0	0	0	0	0	0
Total Highland Lakes Firm Yield	**385,466**	**384,763**	**384,009**	**383,357**	**382,614**	**381,841**
Total Highland Lakes Firm Yield Available for Consumptive Use#	**352,026**	**351,323**	**350,569**	**349,917**	**349,174**	**348,401**

Notes:

Colorado WAM provided by TCEQ, February 2018, Run 3. Hydrology extended through 2016. WRAP program by Dr. Ralph Wurbs, Texas A&M University, April 2018. Modeling performed by TES in August 2018.

Drought of Record (DOR) is October 2007 through December 2016 (9.25 years) for all decades.

* Includes firm water supplies for municipal, industrial, irrigation, and other water contracts. The LCRA 2015 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 the additional firm water provided by a contractual commitment with LCRA for Austin's full municipal water supply of 325,000 AFY. The additional firm water is reflected in the table in the first row of modeled values.

The amount of firm water allocated for environmental purposes (33,440 AFY) has been removed from the total in order to show the firm yield available for consumptive use allocation purposes.

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 April 2018 version of the WRAP modeling program. The firm yields were calculated for the 9.25-year DOR period (October 2007 through December 2016) for the 2020 through 2070 analyses. This analysis incorporated a full-to-full scenario, rather than a full-to-empty scenario for the reservoirs. Both scenarios were analyzed, with the full-to-full scenario producing a more conservative firm yield. It should be noted that incorporating months after the critical period (April 2015 – "empty") may skew the firm yield calculation slightly because of the variability of the Austin and STPNOC backup. The firm yield commitments are releases from system storage; they do not consist of run-of-river water.

New for this planning cycle, as required by TWDB, an additional firm yield analysis for the Highland Lakes was performed using the unmodified TCEQ Colorado River WAM Run 3, in order to show the planning impacts of using the Region K Cutoff Model to determine firm yields. The total Highland Lakes firm yield, as determined using the unmodified TCEQ Colorado River WAM Run 3 is 480,291 acre-feet/year. When compared to the Total Highland Lakes Firm Yield listed in *Table 3.1*, it can be seen that using the Region K Cutoff Model provides a more conservative firm yield value in any decade.

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.

During and since the recent drought, reservoir inflows have been relatively low in comparison to historical inflows, even during periodic significant rainfall events. The Texas Water Development Board (TWDB) has undertaken two projects to evaluate rainfall-runoff trends in the Upper Colorado River Basin of Texas,

including the San Saba Watershed. The Phase I report identified several potential causes, including: 1) construction of small reservoirs, 2) groundwater use, 3) average temperature changes, 4) changes to rainfall patterns, and 5) land use changes, including the existence of noxious brush. The Phase II effort evaluated rainfall patterns and reported:

- Most precipitation stations experienced increasing frequencies of rain events, with the number of annual rainy days increasing.
- Runoff-generating rainfall events tended to occur with equal frequency and magnitude over the 1940-2016 period of record for this analysis.

Regarding the other potential study issues, some of the relevant results and conclusions that were noted include:

- Most temperature gauges throughout the study area watersheds demonstrated increasing minimum temperatures with decreasing or stable maximum daily temperatures.
- Land use/cover change was noted as a large driver in some areas, resulting in reduction in runoff and streamflow. However, attempts to quantify acreage of noxious brush extent over time were not successful.
- Small pond usage (and construction) was noted to appear to be a driver of hydrologically significant changes in runoff and streamflow. For the San Saba Watershed, the analysis identified 7,191 small non-permitted ponds with an estimated storage of 17,243 acre feet.
- Attempts to analyze streamflow depletion due to groundwater pumping were not successful, primarily due to a lack of good data on alluvial well pumping and the number of active alluvial wells over time.

The new September 2019 Phase II report provided good additional information to help better understand the low inflows issue. However, additional comprehensive hydrologic study and analysis is still needed to understand the current correlation between precipitation and runoff and the cause(s) for the diminished inflows. The LCRWPG includes a legislative recommendation discussing this item in Chapter 8.

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)

Reservoir Name or Owner	Region K Cutoff Model Results (Ac-Ft/Yr)					
	2020	2030	2040	2050	2060	2070
Highland Lakes	**352,026**	**351,323**	**350,569**	**349,917**	**349,174**	**348,401**
Arbuckle Reservoir	*	*	*	*	*	*
Goldthwaite	0	0	0	0	0	0
Llano	*	*	*	*	*	*
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
Lometa	0	0	0	0	0	0
STPNOC Reservoir	66,260	66,260	66,260	66,260	66,260	66,260
Minor Reservoir Subtotal	**66,260**	**66,260**	**66,260**	**66,260**	**66,260**	**66,260**
TOTAL	**418,286**	**417,583**	**416,829**	**416,177**	**415,434**	**414,661**

Notes:

Colorado WAM provided by TCEQ, February 2018, Run 3. WRAP program by Dr. Ralph Wurbs, Texas A&M University, April 2018. Modeling performed by TES in August 2018.

Drought of Record (DOR) is October 2007 through December 2016 (9.25 years) for all decades.

*Availability for these reservoirs was not determined using a firm yield analysis, although run-of-river water rights are associated with them. The Arbuckle Reservoir is associated with the Gulf Coast run-of-river water right, with the availability shown in *Table 3.3*. The Llano Reservoir is associated with Llano's run-of-river water rights, with an availability of 271 ac-ft/yr, as shown in *Table 3.24* (Llano ROR).

The Highland Lakes firm yield is discussed in detail in *Section 3.2.1.1.2.1*. 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.

- LCRA's new lower basin off-channel reservoir (Arbuckle) has been included in the 2021 Region K Water Plan as an existing supply reservoir. In the 2016 Region K Water Plan, it was included as a water management strategy called the "Lane City Off-Channel Reservoir." The reservoir is located in Wharton County and has a capacity of 40,000 acre-feet, with water being pumped from the Colorado River to fill it, allowing the capture and storage of a significant amount of water downstream of the Highland Lakes. The reservoir is expected to be in operation by the end of 2020. The benefits of the reservoir are accounted for under the Gulf Coast run-of-river water right in *Table 3.3*.

- 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 utility's water demand, which is projected to increase from 400 ac-ft in the year 2020 to 451 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 formed by 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. More recent surveys were performed in 2012, but the information from those surveys has not been received. Llano has two run-of-river water rights (1650 and 1655) on the Llano River that provide firm water during the Drought of Record of 271 ac-ft/yr, as shown in *Table 3.24*. Llano is one of the water right holders that have their regional water planning Drought of Record water availability significantly affected by the WAM modeling assumption that senior water right holders simultaneously divert and totally consume the water up to their full authorizations.

- **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 Region K Cutoff Model 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. Lake Bastrop is now primarily supplied from groundwater, although 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, and the groundwater supply is included as a groundwater source from the Carrizo-Wilcox Aquifer in Bastrop County. Therefore, because the water from Lake Bastrop has already been accounted for in groundwater supplies, run-of-river and LCRA backup amounts, the firm yield of the lake itself due to the Region K Cutoff Model is considered 0 ac-ft/yr. LCRA's groundwater production permit from the Lost Pines Groundwater Conservation District to use groundwater from the Simsboro formation at this site for industrial purposes is for 10,000 ac-ft/yr, with a five-year average of 6,500 ac-ft/yr.

- **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 and/or water can be provided under the Garwood water right permit CA 14-5434. 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 Region K Cutoff Model 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 Region K Cutoff Model is 66,260 ac-ft/yr.

  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.

3.2.1.1.2.3 Run-of-River Water

Historically, the State of Texas has granted many of the run-of-river rights through an adjudication process that considered maximum historical uses. By rule, irrigation and other non-municipal water rights can be granted with availabilities less than 100%. 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 with a basin water management scenario consistent with run-of-river availability calculated according to the doctrine of prior appropriation. 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 Austin and STP Nuclear Operating Company water rights is based on the average annual water availability during the Drought of Record (DOR) period (2007-2016). This average availability was used since Austin has contracted with LCRA to supply stored water to firm up its run-of-river water rights during drought conditions. Because the Highland Lakes firm yield is averaged over the Drought of Record, including the stored water for Austin, it is appropriate to average the water rights' availabilities over the same period. Section 3.3.2 provides details of how 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 along the Colorado River within the Lower Colorado Regional Water Planning Area. 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.

Austin
Austin has two municipal water rights shown in the table, CA 14-5471 and CA 14-5489. Because these water rights are backed up by LCRA through contract each year, an average during the DOR was used.

Austin has steam-electric water rights as shown in the table. The steam-electric water use portion of water right CA 14-5489 is backed up by a contract with LCRA, so an average during the DOR was used. The steam-electric water use portion of water right CA 14-5471 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 Right Holder	Maximum Permitted Dixersion (ac-ft/yr)	Priority Date	Region K Cutoff Model	
				2020	2070
CA 14-5434	LCRA - Garwood	133,000	Nov 1, 1900	121,845	121,845
	Garwood	**Sub-Total**		**121,845**	**121,845**
CA 14-5475	LCRA - Lakeside #1 Sr	52,500	Jan 4, 1901	2,780	2,780
CA 14-5475	LCRA - Lakeside #1 Jr	78,750	Nov 1, 1987	0	0
CA 14-5475	LCRA - Lakeside #2	55,000	Sep 2, 1907	2,912	2,912
	Lakeside #1 and #2	**Sub-Total**		**5,692**	**5,692**
CA 14-5476	LCRA - Gulf Coast Sr [1]	228,570	Dec 1, 1900	53,815	53,815
CA 14-5476	LCRA - Gulf Coast Jr	33,930	Nov 1, 1987	0	0
	Gulf Coast	**Sub-Total**		**53,815**	**53,815**
CA 14-5477	LCRA - Pierce Ranch	55,000	Sep 1, 1907	2,912	2,912
	Pierce Ranch	**Sub-Total**		**2,912**	**2,912**
CA 14-5471	City of Austin - (mun.) [2,3]	250,000	Jun 30, 1913	185,016	185,016
CA 14-5471	City of Austin - (mun.) [2, 4]	21,403	Jun 27, 1914	8,583	8,583
CA 14-5471	City of Austin - (stm.)	24,000	Jun 27, 1914	4,480	4,480
CA 14-5489	City of Austin - (mun.) [2]	20,300	Aug 20, 1945	7,247	7,247
CA 14-5489	City of Austin - (stm.)	16,156	Aug 20, 1945	5,099	5,099
CA 14-5437	STP Nuclear Operating Co.[5]	102,000	Jun 10, 1974	n/a	n/a
CA 14-5434	City of Corpus Christi [6]	35,000	Nov 2, 1900	22,101	22,101
Totals		**1,433,200**		**416,790**	**416,790**

Data Source: WRAP modeling program provided by Dr. Ralph Wurbs, Texas A&M University, April 2018 version. Region K Cutoff Model updated for 2021 plan. Modeling performed by TES in August 2018.

Notes:

Water availability reflects driest year during period of record (1940-2016) unless otherwise noted and does not include return flows. An explanation of the firm yield calculations is provided in Chapter 3, *Section 3.2.1.1.2.1*.

The Drought of Record (DOR) is October 2007 – December 2016 for 2020-2070.

[1] The Gulf Coast water right is associated with diverting water for storage in the Arbuckle Reservoir. See *Section 3.2.1.1.2.2*.

[2] The water availability was averaged over the Drought of Record period because of LCRA backup water.

[3] LCRA's water rights with a priority date junior to November 15, 1900, are subordinated in accordance with the City of Austin Certificate of Adjudication 14-5471, Amendment A, Section 5.a.

[4] The City of Austin's municipal water right authorization under 14-5471A with a priority date of June 27, 1914 is 22,403 ac-ft/yr. The annual authorizations of the City's municipal water rights were clarified in amendment 14-5471D. For modeling purposes in this plan, an annual authorization of 21,403 ac-ft/yr was used. However, the annual authorization will be corrected in future Region K models and plans.

[5] The water availability for STP is included as the firm yield of the STPNOC reservoir, shown in *Table 3.2* in *Section 3.2.1.1.2.2*.

[6] The water availability for this run-of-river water right was determined by using the minimum 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 CA 14-5437, 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 during Drought of Record conditions with some numbers decreasing during plan updates to reflect the new Drought of Record. The results of this process are presented in *Table 3.4,* developed for the 2001 Region K Plan and updated for the 2021 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	6,596	6,596	6,596	6,596	6,596	6,596
Other - basinwide*	5,747	5,747	5,747	5,747	5,747	5,747
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.	756	756	756	756	756	756
Irrig. - Wharton Co.	7,650	7,650	7,650	7,650	7,650	7,650
Totals	**38,851**	**38,851**	**38,851**	**38,851**	**38,851**	**38,851**

Note: All of the sources listed in the table above are Local Supply Sources, which were updated for the 2021 Plan.
* Other includes uses such as mining and manufacturing.

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 3.5* contains a summary of the surface water available to the LCRWPA from the Brazos River Basin.

Table 3.5: Surface Water Sources in the Brazos River Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
Livestock - basinwide	1,046	1,046	1,046	1,046	1,046	1,046
Other - basinwide*	966	966	966	966	966	966
Totals	**2,012**	**2,012**	**2,012**	**2,012**	**2,012**	**2,012**

Note: All of the sources listed in the table above are Local Supply Sources, which were updated for the 2021 Plan.
* Other includes uses such as mining and manufacturing.

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 3.6* contains a summary of the surface water available to the LCRWPA from the Brazos-Colorado Coastal Basin.

Table 3.6: Surface Water Sources in the Brazos-Colorado Coastal Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
San Bernard ROR	2,332	2,332	2,332	2,332	2,332	2,332
Livestock - basinwide	1,238	1,238	1,238	1,238	1,238	1,238
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	**9,570**	**9,570**	**9,570**	**9,570**	**9,570**	**9,570**

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 2021 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 3.7* contains a summary of the surface water available to the LCRWPA from the Colorado-Lavaca Coastal Basin.

Table 3.7: 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 2021 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 3.8* contains a summary of the surface water available to the LCRWPA from the Lavaca River Basin.

Table 3.8: 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 2021 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, Gillespie, 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-San Antonio River Basin WAM Run 3 from TCEQ, dated October 2014, the firm yield of the reservoir system is 463 ac-ft (water right C3877_1). *Table 3.9* contains a summary of the surface water available to the LCRWPA from the Guadalupe River Basin.

Table 3.9: Surface Water Sources in the Guadalupe River Basin (ac-ft/yr)

Source Name	2020	2030	2040	2050	2060	2070
Livestock - basinwide [1]	399	399	399	399	399	399
Irrig. - Blanco Co. [1]	9	9	9	9	9	9
Blanco Reservoirs [2]	463	463	463	463	463	463
Totals	**871**	**871**	**871**	**871**	**871**	**871**

[1] Local Supply Sources determined in the 2001 Plan, which were updated for the 2021 Plan.
[2] Firm Yield Data Source: Guadalupe-San Antionio River Basin WAM provided by TCEQ, October 2014, Run 3. WRAP modeling program provided by Dr. Ralph Wurbs, Texas A&M University, April 2018 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 since the Southwestern Travis County GCD was confirmed in November 2019. The Hill Country Underground Water Conservation District (UWCD) in Gillespie County was created prior to the designation of the PGMA. The Blanco-Pedernales GCD in Blanco County was created after the PGMA designation, as was the Hays-Trinity GCD in Hays County. 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.texas.gov/groundwater/index.asp.

Early in the 2016-2021 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 with groundwater supplies 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.

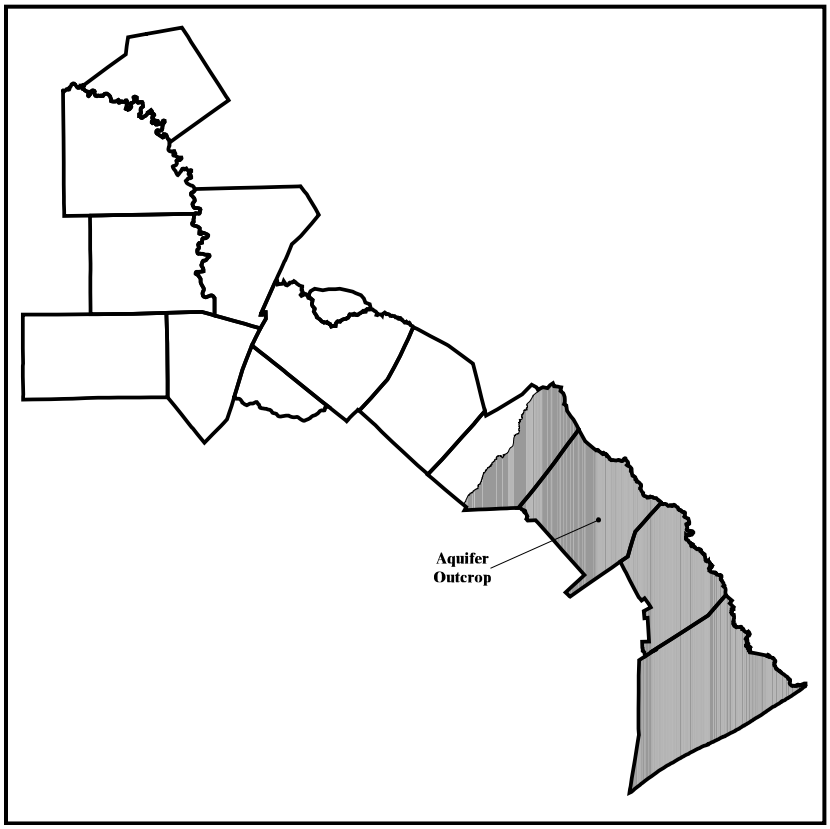
3.2.2.1.1 Gulf Coast Aquifer System

Location and Use

The Gulf Coast Aquifer System 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 System 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 System Within the Lower Colorado Regional Water Planning Area



Hydrogeology

The Gulf Coast Aquifer System 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 Gulf Coast Aquifer System. 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 System 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 April 29, 2016, is summarized as follows:

- No more than 13 feet of average drawdown by 2069 relative to January 2000 conditions.

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. This annual 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 16-025_MAG, dated March 22, 2017. The report provides the MAG values for the Gulf Coast Aquifer System by county and basin, as shown in *Table 3.10* below.

Table 3.10: Region K Water Availability* for the Gulf Coast Aquifer System (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Colorado	Brazos-Colorado	15,391	15,391	15,391	15,391	15,391	15,391
Colorado	Colorado	20,779	20,779	20,339	20,339	20,339	20,339
Colorado	Lavaca	39,712	39,712	37,953	37,953	36,806	36,806
	County Total	***75,882***	***75,882***	***73,683***	***73,683***	***72,536***	***72,536***
Fayette	Brazos	2	2	2	2	2	2
Fayette	Colorado	989	989	989	989	989	989
Fayette	Lavaca	862	862	862	862	862	862
	County Total	***1,853***	***1,853***	***1,853***	***1,853***	***1,853***	***1,853***
Matagorda	Brazos-Colorado	15,282	15,282	15,282	15,282	15,282	15,282
Matagorda	Colorado	3,217	3,217	3,217	3,217	3,217	3,217
Matagorda	Colorado-Lavaca	20,329	20,329	20,329	20,329	20,329	20,329
	County Total	***38,828***	***38,828***	***38,828***	***38,828***	***38,828***	***38,828***
Wharton	Brazos-Colorado	50,527	50,527	50,527	50,527	50,527	50,527
Wharton	Colorado	35,910	35,910	35,910	35,910	35,910	35,910
Wharton	Colorado-Lavaca	16,196	16,196	16,196	16,196	16,196	16,196
Wharton	Lavaca	579	579	579	579	579	579
	County Total	***103,212***	***103,212***	***103,212***	***103,212***	***103,212***	***103,212***
Region K	**Region Total**	**219,775**	**219,775**	**217,576**	**217,576**	**216,429**	**216,429**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.1.1 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

3.2.2.1.2 Carrizo-Wilcox Aquifer

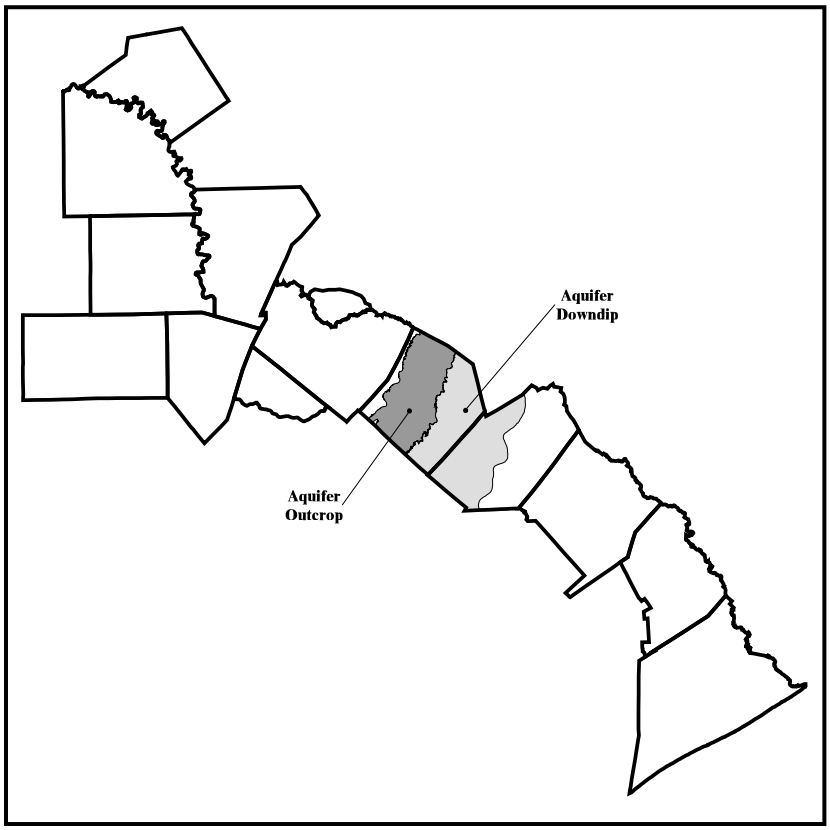
Location and Use

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 Lower 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 May 25, 2017, is summarized as follows:

- Carrizo Aquifer: No more than 62 feet of average drawdown between January 2000 and December 2069 within the Lost Pines Groundwater Conservation District (Bastrop County).
- Carrizo Aquifer: No more than 110 feet of average drawdown between January 2000 and December 2069 within the Fayette County Groundwater Conservation District (Fayette County).
- Simsboro (Middle Wilcox) Aquifer: No more than 240 feet of average drawdown between January 2000 and December 2069 within the Lost Pines Groundwater Conservation District (Bastrop County).

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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 17-030_MAG, dated December 15, 2017. The report provides the MAG values for the Carrizo-Wilcox Aquifer by county and basin, as shown in *Table 3.11* below.

Table 3.11: Region K Water Availability* for the Carrizo-Wilcox Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Bastrop	Brazos	752	847	960	1,233	1,113	1,113
Bastrop	Colorado	20,696	23,206	25,169	28,570	27,823	27,823
Bastrop	Guadalupe	212	172	147	248	167	167
	County Total	***21,660***	***24,225***	***26,276***	***30,051***	***29,103***	***29,103***
Fayette	Colorado	4,565	4,565	4,565	4,565	4,565	4,565
Fayette	Lavaca	0	0	0	0	0	0
Fayette	Guadalupe	909	909	909	909	909	909
	County Total	***5,474***	***5,474***	***5,474***	***5,474***	***5,474***	***5,474***
Region K	**Region Total**	**27,134**	**29,699**	**31,750**	**35,525**	**34,577**	**34,577**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.1.2 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

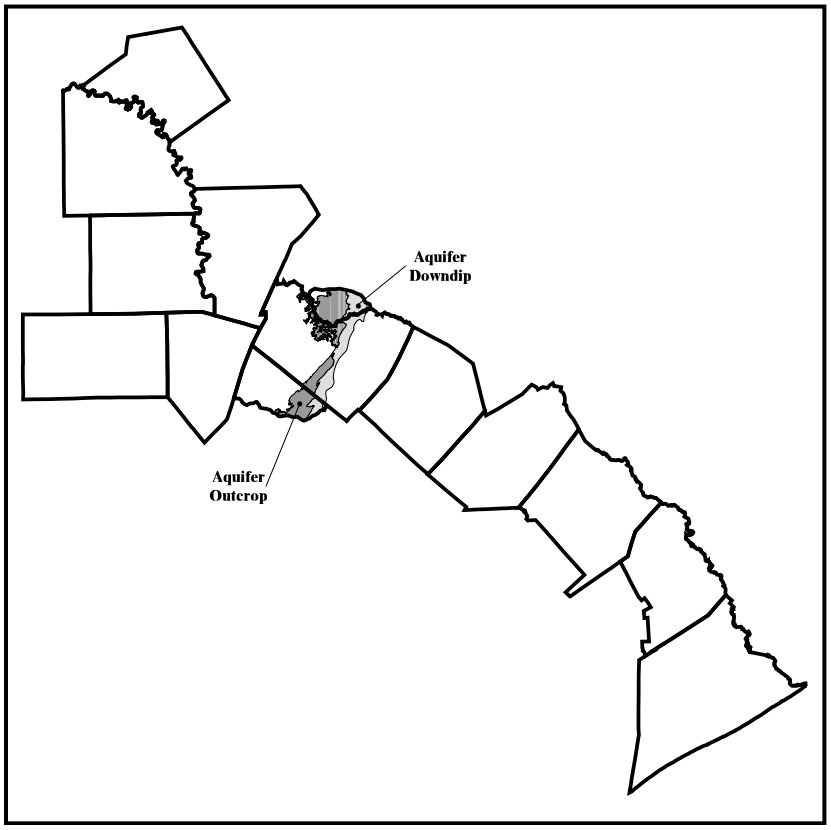
3.2.2.1.3 Edwards Aquifer (Balcones Fault Zone)

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. This area is known as the Saline Zone of the Edwards Aquifer (BFZ). The position of the bad water line generally coincides with the alignment of IH 35 in the LCRWPA. The connection between the freshwater and saline zones is considered to be somewhat limited based on the fact that droughts and pumping have not caused the freshwater zone to become significantly more saline.

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 January 31, 2017. 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) for the freshwater and saline zones was established by the TWDB based on DFCs adopted by GMA 10 on June 26, 2017. 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

- No more than 75 feet of regional average potentiometric surface drawdown due to pumping when compared to pre-development conditions.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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 17-029_MAG, dated January 19, 2018. The GMA 10 Edwards (BFZ) Aquifer MAG is documented in TWDB report GR 16-033_MAG, dated July 20, 2018. The GMA 10 Saline Edwards (BFZ) Aquifer MAG is documented in TWDB report GR 16-033 MAG, dated July 20, 2018. 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 3.12* and *Table 3.13* below.

Table 3.12: Region K Water Availability* for 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 information presented in this table is provided in Section 3.2.2.1.3 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

Table 3.13: Region K Water Availability* for the Saline Edwards Aquifer (BFZ) (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070	Source
Hays	Colorado	66	66	66	66	66	66	GMA 10
	County Total	***2,292***	***2,292***	***2,292***	***2,292***	***2,292***	***2,292***	
Travis	Colorado	5,073	5,073	5,073	5,073	5,073	5,073	GMA 10
Travis	Guadalupe	280	280	280	280	280	280	GMA 10
	County Total	***5,353***	***5,353***	***5,353***	***5,353***	***5,353***	***5,353***	
Region K	**Region Total**	**7,645**	**7,645**	**7,645**	**7,645**	**7,645**	**7,645**	

Note: An explanation of the information presented in this table is provided in Section 3.2.2.1.3 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

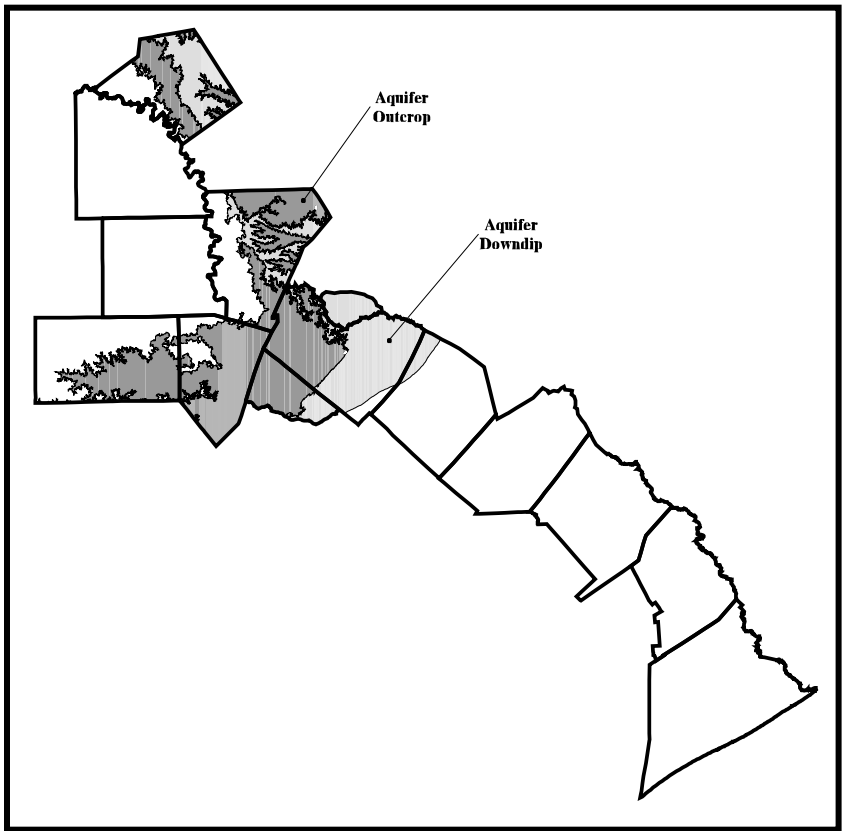
3.2.2.1.4 Trinity Aquifer

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, Travis, and Williamson 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 adopted by GMA 8 on January 31, 2017. The DFCs for the above mentioned counties within GMA 8 are as follows:

Burnet County
- Average drawdown of the Glen Rose aquifer should not exceed approximately 2 feet from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hensell aquifer should not exceed approximately 7 feet from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hosston aquifer should not exceed approximately 20 feet from January 1, 2010 through December 31, 2070.

Mills County
- Average drawdown of the Paluxy aquifer should not exceed approximately 1 foot from January 1, 2010 through December 31, 2070.
- Average drawdown of the Glen Rose aquifer should not exceed approximately 1 foot from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hensell aquifer should not exceed approximately 2 feet from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hosston aquifer should not exceed approximately 13 feet from January 1, 2010 through December 31, 2070.

Travis County
- Average drawdown of the Glen Rose aquifer should not exceed approximately 85 feet from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hensell aquifer should not exceed approximately 50 feet from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hosston aquifer should not exceed approximately 146 feet from January 1, 2010 through December 31, 2070.

Williamson County

- Average drawdown of the Glen Rose aquifer should not exceed approximately 77 feet from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hensell aquifer should not exceed approximately 74 feet from January 1, 2010 through December 31, 2070.
- Average drawdown of the Hosston aquifer should not exceed approximately 177 feet from January 1, 2010 through December 31, 2070.

The groundwater availability estimate values for the Trinity aquifer in Blanco, Hays, and Travis Counties are based on DFCs submitted by GMA 9. The DFC for the Trinity aquifer within GMA 9 is as follows:

- Average drawdown of approximately 30 feet through 2060.

The groundwater availability estimate values for the Trinity aquifer in a portion of Travis County and a portion of Hays County are based on DFCs submitted by GMA 10. The DFC for the Trinity aquifer within GMA 10 is as follows:

- Average drawdown not to exceed 25 feet during average recharge conditions (including exempt and non-exempt use).

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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 17-029_MAG, dated January 19, 2018. The GMA 9 Trinity Aquifer MAG being documented in TWDB report GR 16-023_MAG, dated February 28, 2017. The GMA 10 Trinity Aquifer MAG being documented in TWDB Report GR 16-033_MAG, dated July 20, 2018. The reports provide the MAG values for the Trinity Aquifer by county and basin, as shown in *Table 3.14* below.

Table 3.14: Region K 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	3,138	3,131	3,138	3,131	3,138	3,131
Burnet	Colorado	759	756	759	756	759	756
	County Total	***3,897***	***3,887***	***3,897***	***3,887***	***3,897***	***3,887***
Hays	Colorado	5,690	5,687	5,686	5,686	5,686	5,686
Hays	Guadalupe	9	9	9	9	9	9
	County Total	***5,699***	***5,696***	***5,695***	***5,695***	***5,695***	***5,695***
Mills	Brazos	808	805	808	805	808	805
Mills	Colorado	1,669	1,665	1,669	1,665	1,669	1,665
	County Total	***2,477***	***2,470***	***2,477***	***2,470***	***2,477***	***2,470***
Travis	Brazos	1	1	1	1	1	1
Travis	Colorado	14,439	14,407	14,410	14,379	14,365	14,350
Travis	Guadalupe	2	2	2	2	2	2
	County Total	***14,442***	***14,410***	***14,413***	***14,382***	***14,368***	***14,353***
Williamson	Brazos	0	0	0	0	0	0
Williamson	Colorado	67	67	67	67	67	67
	County Total	***67***	***67***	***67***	***67***	***67***	***67***
Region K	**Region Total**	**29,155**	**29,103**	**29,122**	**29,074**	**29,077**	**29,045**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.1.4 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

3.2.2.1.5 Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifer

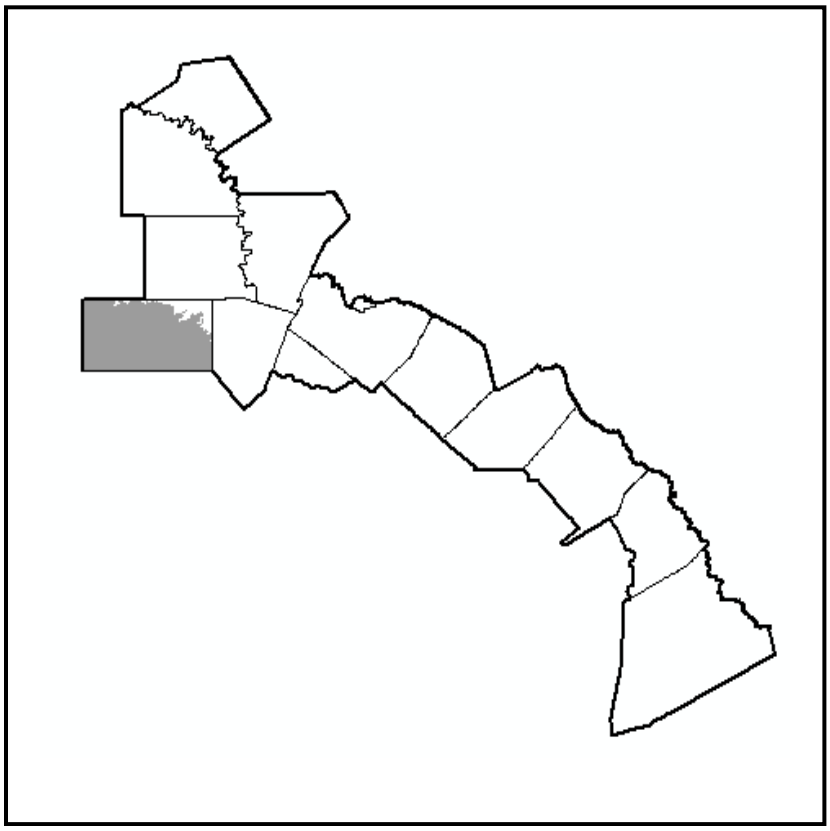
Location and Use

This planning cycle, the Edwards-Trinity (Plateau), Pecos Valley, and Trinity aquifers were considered by GMA 7 to be undifferentiated and were combined together when determining the DFC. A single-layer alternative groundwater flow model was used to determine the MAG for the combined aquifer.

The Edwards-Trinity-Plateau, Pecos Valley, and Trinity 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-Plateau, Pecos Valley, and 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 (Plateau), Pecos Valley, and 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, Pecos Valley, and Trinity aquifer 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, Pecos Valley, and Trinity aquifer in Gillespie County is within GMA 7, although the Pecos Valley portion is not actually in Gillespie County. The Groundwater Conservation Districts (GCD) within GMA 7 worked together to determine the desired future condition (DFC) of the Edwards-Trinity-Plateau, Pecos Valley, and Trinity aquifer. Desired future conditions are essentially management goals for each aquifer. The DFC for the Edwards-Trinity-Plateau, Pecos Valley, and Trinity aquifer, adopted by GMA 7 on March 22, 2018, is summarized as follows:

- Average drawdown not to exceed 5 feet of drawdown from 2010 to 2070.

The Texas Water Development Board (TWDB) took the DFC for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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, Pecos Valley, and Trinity aquifer MAG being documented in TWDB report GR 16-026_MAG, Version 2, dated September 21, 2018. The report provides the MAG values for the Edwards-Trinity-Plateau, Pecos Valley, and Trinity aquifer by county and basin, as shown in *Table 3.15* below.

Table 3.15: Region K Water Availability* for the Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifer (ac-ft/yr)**

County	Basin	2020	2030	2040	2050	2060	2070
Gillespie	Colorado	4,843	4,843	4,843	4,843	4,843	4,843
Gillespie	Guadalupe	136	136	136	136	136	136
	County Total	***4,979***	***4,979***	***4,979***	***4,979***	***4,979***	***4,979***
Region K	**Region Total**	**4,979**	**4,979**	**4,979**	**4,979**	**4,979**	**4,979**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.1.5 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.
**Note that the Pecos Valley Aquifer is not in Gillespie County.

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.

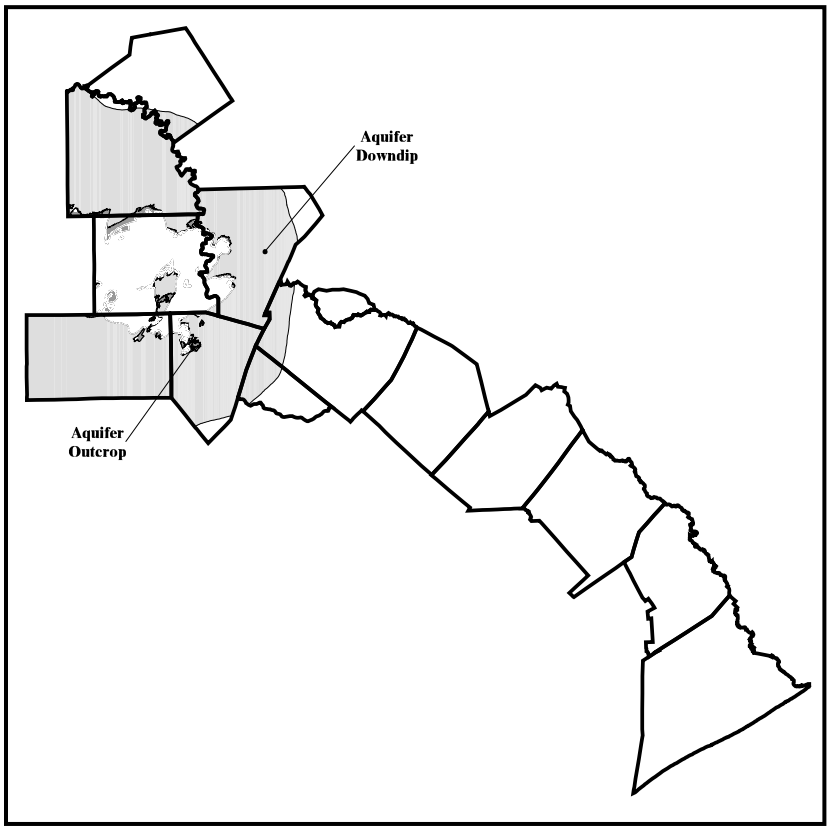
3.2.2.2.1 Hickory Aquifer

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 Blanco, Burnet, Gillespie, Llano, and San Saba Counties. TWDB records indicate that irrigation is the largest use category 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:

Burnet County (GMA 8) – DFC adopted on January 31, 2017
- Burnet County should maintain approximately 90 percent of saturated thickness from 2010 to 2070.

Gillespie County (GMA 7) – DFC adopted on September 22, 2016
- Total net decline in water levels shall not exceed nine (9) feet below 2010 water levels in the aquifer by 2070.

Mills County (GMA 8) – DFC adopted on January 31, 2017
- Mills County should maintain approximately 90 percent of saturated thickness from 2010 to 2070.

San Saba County (GMA 7) – DFC adopted on September 22, 2016
- Total net decline in water levels shall not exceed six (6) feet below 2010 water levels in the aquifer by 2070.

If a GMA determines that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a DFC, the aquifer can be classified “non-relevant” for joint groundwater planning purposes. When an aquifer or portion of an aquifer is identified as “non-relevant” and does not have a MAG

associated with it, it is up to the planning group to determine the water availability of that aquifer or portion of aquifer for regional water planning purposes. GMA 7, the GMA managing the Hickory aquifer in Llano County, declared the aquifer as "non-relevant" in the September 21, 2018 TWDB report GR 16-026, Version 2. GMA 9, the GMA managing the Hickory aquifer in Blanco County, declared the aquifer as "non-relevant" in the February 28, 2017 TWDB report GR 16-023.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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 GR 16-026_MAG, Version 2, dated September 21, 2018.
- The GMA 8 Hickory aquifer MAG being documented in TWDB report GR 17-029_MAG, dated January 19, 2018.

As part of TWDB's informal comments on the Region K Technical Memorandum, the TWDB staff conducted a modeling analysis related to the Llano Uplift aquifers and provided DFC-compatible "non-relevant" groundwater availability values for the Hickory Aquifer in Blanco County and Llano County. *Table 3.16* below lists the MAG values and the "non-relevant" groundwater availabilities for the Hickory Aquifer by county and basin.

Table 3.16: Region K Water Availability* for the Hickory Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Blanco	Colorado	383	382	383	382	383	382
Blanco	Guadalupe	0	0	0	0	0	0
	County Total	***383***	***382***	***383***	***382***	***383***	***382***
Burnet	Brazos	1,240	1,236	1,240	1,236	1,240	1,236
Burnet	Colorado	2,183	2,177	2,183	2,177	2,183	2,177
	County Total	***3,423***	***3,413***	***3,423***	***3,413***	***3,423***	***3,413***
Gillespie	Colorado	1,751	1,751	1,751	1,751	1,751	1,751
Gillespie	Guadalupe	0	0	0	0	0	0
	County Total	***1,751***	***1,751***	***1,751***	***1,751***	***1,751***	***1,751***
Llano	Colorado	2,027	2,021	2,027	2,021	2,027	2,021
	County Total	***2,027***	***2,021***	***2,027***	***2,021***	***2,027***	***2,021***
Mills	Brazos	7	7	7	7	7	7
Mills	Colorado	29	29	29	29	29	29
	County Total	***36***	***36***	***36***	***36***	***36***	***36***
San Saba	Colorado	7,680	7,680	7,680	7,680	7,680	7,680
	County Total	***7,680***	***7,680***	***7,680***	***7,680***	***7,680***	***7,680***
Region K	**Region Total**	**15,300**	**15,283**	**15,300**	**15,283**	**15,300**	**15,283**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.2.1 *Availability*.

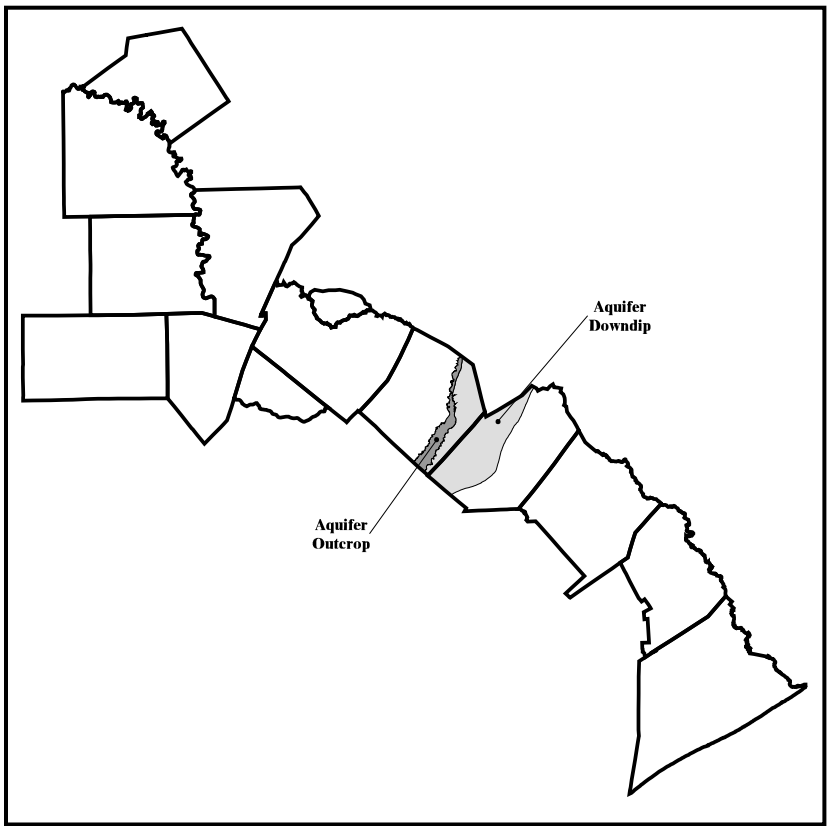
*All groundwater availability values in this table with the exception of those listed for Blanco County and Llano County are based on Modeled Available Groundwater (MAG) numbers. Blanco County and Llano County values are DFC-compatible "non-relevant" groundwater availabilities provided by TWDB staff.

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 May 25, 2017, is summarized as follows:

- No more than 15 feet of average drawdown between January 2000 and December 2069 within the Lost Pines Groundwater Conservation District (Bastrop County).
- No more than 64 feet of average drawdown between January 2000 and December 2069 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) to estimate what annual production volume would meet the DFC conditions. 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 17-030_MAG, dated December 15, 2017. The report provides the MAG values for the Queen City aquifer by county and basin, as shown in *Table 3.17* below.

Table 3.17: Region K Water Availability* for the Queen City Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Bastrop	Brazos	49	47	46	44	42	42
Bastrop	Colorado	353	333	311	288	264	264
Bastrop	Guadalupe	156	161	166	173	180	180
	County Total	***558***	***541***	***523***	***505***	***486***	***486***
Fayette	Colorado	2,278	2,278	2,278	2,278	2,278	2,278
Fayette	Lavaca	0	0	0	0	0	0
Fayette	Guadalupe	430	430	430	430	430	430
	County Total	***2,708***	***2,708***	***2,708***	***2,708***	***2,708***	***2,708***
Region K	**Region Total**	**3,266**	**3,249**	**3,231**	**3,213**	**3,194**	**3,194**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.2.2 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

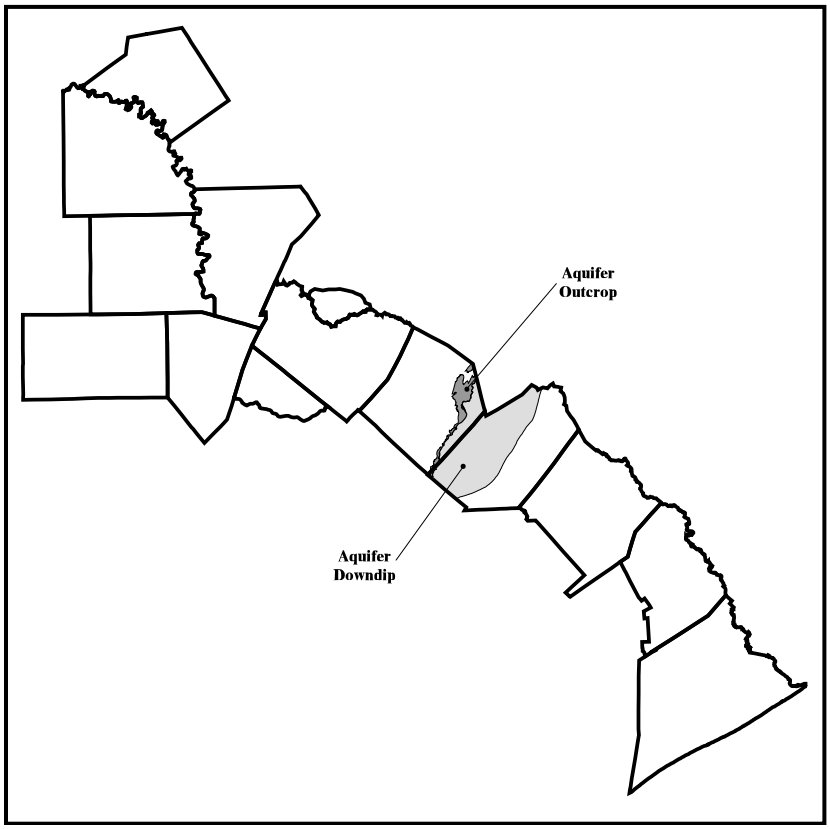
3.2.2.2.3 Sparta Aquifer

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, livestock, and mining 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 May 25, 2017, is summarized as follows:

- No more than 5 feet of average drawdown between January 2000 and December 2069 within the Lost Pines Groundwater Conservation District (Bastrop County).
- No more than 47 feet of average drawdown between January 2000 and December 2069 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) to estimate what annual production volume would meet the DFC conditions. 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 17-030_MAG, dated December 15, 2017. The report provides the MAG values for the Sparta aquifer by county and basin, as shown in *Table 3.18* below.

Table 3.18: Region K Water Availability* for the Sparta Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Bastrop	Brazos	89	87	85	84	82	82
Bastrop	Colorado	785	784	783	782	781	781
Bastrop	Guadalupe	33	33	33	33	33	33
	County Total	***907***	***904***	***901***	***899***	***896***	***896***
Fayette	Colorado	1,659	1,649	1,626	1,612	1,619	1,619
Fayette	Lavaca	0	0	0	0	0	0
Fayette	Guadalupe	1,172	1,176	1,177	1,182	1,183	1,183
	County Total	***2,831***	***2,825***	***2,803***	***2,794***	***2,802***	***2,802***
Region K	**Region Total**	**3,738**	**3,729**	**3,704**	**3,693**	**3,698**	**3,698**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.2.3, *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

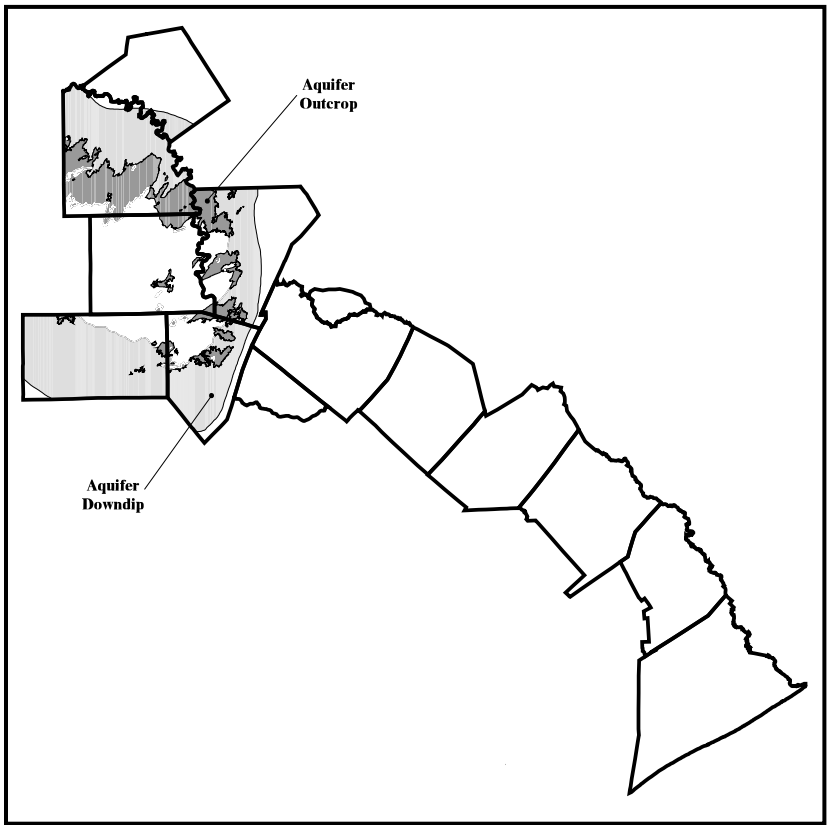
3.2.2.2.4 Ellenburger-San Saba Aquifer

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, Mills, 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:

Burnet County (GMA 8) – DFC adopted on January 31, 2017
- Burnet County should maintain approximately 90 percent of the saturated thickness from 2010 to 2070.

Gillespie County (GMA 7) – DFC adopted on September 22, 2016
- Total net decline in water levels shall not exceed eight (8) feet below 2010 water levels in the aquifer by 2070.

Mills County (GMA 8) – DFC adopted on January 31, 2017
- Mills County should maintain approximately 90 percent of the saturated thickness from 2010 to 2070.

San Saba County (GMA 7) – DFC adopted on September 22, 2016
- Total net decline in water levels shall not exceed five (5) feet below 2010 water levels in the aquifer by 2070.

If a GMA determines that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a DFC, the aquifer can be classified “non-relevant” for joint groundwater planning purposes. When an aquifer or portion of an aquifer is identified as “non-relevant” and does not have a MAG associated with it, it is up to the planning group to determine the water availability of that aquifer or portion of aquifer for regional water planning purposes. GMA 7, the GMA managing the Ellenburger-San Saba aquifer in Llano County, declared the aquifer as “non-relevant” in the September 21, 2018 TWDB report GR 16-026, Version 2. GMA 9, the GMA managing the Ellenburger-San Saba aquifer in Blanco County, declared the aquifer as “non-relevant” in the February 28, 2017 TWDB report GR 16-023.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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 GR 16-026_MAG, dated September 21, 2018.
- The GMA 8 Ellenburger-San Saba aquifer MAG being documented in TWDB report GR 17-029_MAG, dated January 19, 2018.

As part of TWDB's informal comments on the Region K Technical Memorandum, the TWDB staff conducted a modeling analysis related to the Llano Uplift aquifers and provided DFC-compatible "non-relevant" groundwater availability values for the Ellenburger-San Saba Aquifer in Blanco County and Llano County. *Table 3.19* below lists the MAG values and the "non-relevant" groundwater availabilities for the Ellenburger-San Saba Aquifer by county and basin.

Table 3.19: Region K Water Availability* for the Ellenburger-San Saba Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Blanco	Colorado	1,952	1,946	1,952	1,946	1,952	1,946
	County Total	***1,952***	***1,946***	***1,952***	***1,946***	***1,952***	***1,946***
Burnet	Brazos	3,833	3,822	3,833	3,822	3,833	3,822
Burnet	Colorado	7,024	7,005	7,024	7,005	7,024	7,005
	County Total	***10,857***	***10,827***	***10,857***	***10,827***	***10,857***	***10,827***
Gillespie	Colorado	6,294	6,294	6,294	6,294	6,294	6,294
Gillespie	Guadalupe	0	0	0	0	0	0
	County Total	***6,294***	***6,294***	***6,294***	***6,294***	***6,294***	***6,294***
Llano	Colorado	409	408	409	408	409	408
	County Total	***409***	***408***	***409***	***408***	***409***	***408***
Mills	Brazos	93	93	93	93	93	93
Mills	Colorado	407	406	407	406	407	406
	County Total	***500***	***499***	***500***	***499***	***500***	***499***
San Saba	Colorado	7,890	7,890	7,890	7,890	7,890	7,890
	County Total	***7,890***	***7,890***	***7,890***	***7,890***	***7,890***	***7,890***
Region K	**Region Total**	**27,902**	**27,864**	**27,902**	**27,864**	**27,902**	**27,864**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.2.4 *Availability*.

*All groundwater availability values in this table with the exception of those listed for Blanco County and Llano County are based on Modeled Available Groundwater (MAG) numbers. Blanco County and Llano County values are DFC-compatible "non-relevant" groundwater availabilities provided by TWDB staff.

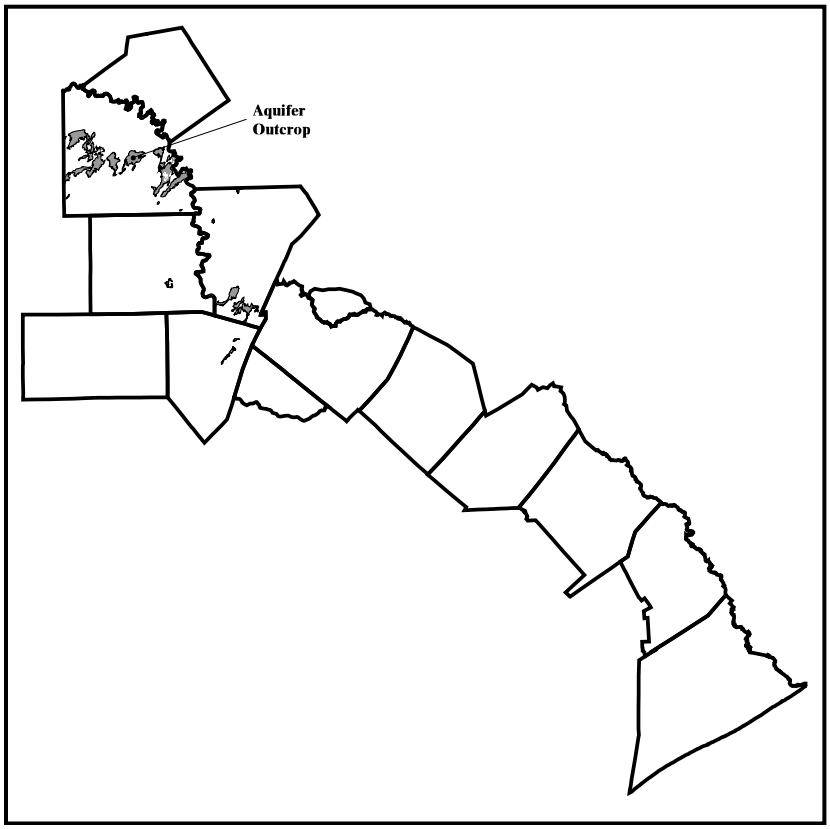
3.2.2.2.5 Marble Falls Aquifer

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.

Current groundwater use from the Marble Falls aquifer within the LCRWPA occurs in Burnet and San Saba Counties. TWDB records indicate that mining 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:

Burnet County (GMA 8) – DFC adopted on January 31, 2017
- Burnet County should maintain approximately 90 percent of the saturated thickness from 2010 to 2070.

Mills County (GMA 8) – DFC adopted on January 31, 2017
- Mills County should maintain approximately 90 percent of the saturated thickness from 2010 to 2070

If a GMA determines that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a DFC, the aquifer can be classified “non-relevant” for joint groundwater planning purposes. When an aquifer or portion of an aquifer is identified as “non-relevant” and does not have a MAG associated with it, it is up to the planning group to determine the water availability of that aquifer or portion of aquifer for regional water planning purposes. GMA 7, the GMA managing the Marble Falls aquifer in San Saba County, declared the aquifer as “non-relevant” in the September 21, 2018 TWDB report GR 16-026 Version 2. GMA 9, the GMA managing the Marble Falls aquifer in Blanco County, declared the aquifer as “non-relevant” in the February 28, 2017 TWDB report GR 16-023.

The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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 Marble Falls aquifer MAG being documented in TWDB report GR17-029_MAG dated January 19, 2018.

Availability of the Marble Falls aquifer in Blanco County was determined based on the estimated recharge listed in the GAM Run 18-003 Blanco-Pedernales Groundwater Conservation District Groundwater Management Plan (TWDB, April 3, 2018).

As part of TWDB's informal comments on the Region K Technical Memorandum, the TWDB staff conducted a modeling analysis related to the Llano Uplift aquifers and provided DFC-compatible “non-relevant” groundwater availability values for the Marble Falls Aquifer in San Saba County.

Table 3.20 below lists the MAG values and the "non-relevant" groundwater availabilities for the Marble Falls Aquifer by county and basin.

Table 3.20: Region K Water Availability* for the Marble Falls Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Blanco	Colorado	199	199	199	199	199	199
	County Total	***199***	***199***	***199***	***199***	***199***	***199***
Burnet	Brazos	1,387	1,383	1,387	1,383	1,387	1,383
Burnet	Colorado	1,357	1,353	1,357	1,353	1,357	1,353
	County Total	***2,744***	***2,736***	***2,744***	***2,736***	***2,744***	***2,736***
Mills	Brazos	1	1	1	1	1	1
Mills	Colorado	24	24	24	24	24	24
	County Total	***25***	***25***	***25***	***25***	***25***	***25***
San Saba	Colorado	4,355	4,343	4,355	4,343	4,355	4,343
	County Total	***4,355***	***4,343***	***4,355***	***4,343***	***4,355***	***4,343***
Region K	**Region Total**	**7,323**	**7,303**	**7,323**	**7,303**	**7,323**	**7,303**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.2.5 *Availability*.

*All groundwater availability values in this table with the exception of those listed for Blanco County and San Saba County are based on Modeled Available Groundwater (MAG) numbers. Blanco County values are based on the estimated recharge listed in the GAM Run 18-003 Blanco-Pedernales Groundwater Conservation District Groundwater Management Plan (TWDB, April 3, 2018). San Saba County values are DFC-compatible "non-relevant" groundwater availabilities provided by TWDB staff.

3.2.2.2.6 Yegua-Jackson Aquifer

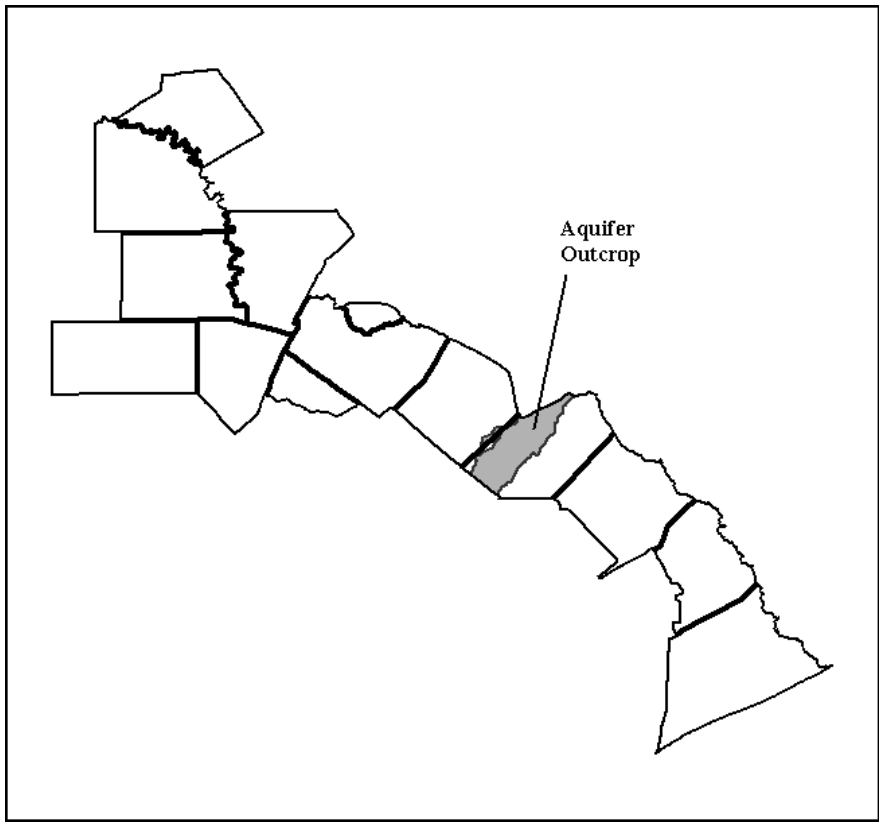
Location and Use

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 May 25, 2017, is summarized as follows:

- No more than 77 feet of average drawdown between January 2010 and December 2069 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) The Texas Water Development Board (TWDB) took the DFCs for the aquifer and ran a groundwater availability model (GAM) to estimate what annual production volume would meet the DFC conditions. 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 17-030_MAG, dated December 15, 2017. The report provides the MAG values for the Yegua-Jackson aquifer by county and basin, as shown in *Table 3.21* below.

Table 3.21: Region K Water Availability* for the Yegua-Jackson Aquifer (ac-ft/yr)

County	Basin	2020	2030	2040	2050	2060	2070
Fayette	Colorado	7,075	7,075	7,075	7,075	7,074	7,074
Fayette	Guadalupe	694	694	694	694	694	694
Fayette	Lavaca	1,493	1,493	1,493	1,493	1,493	1,493
	County Total	***9,262***	***9,262***	***9,262***	***9,262***	***9,261***	***9,261***
Region K	**Region Total**	**9,262**	**9,262**	**9,262**	**9,262**	**9,261**	**9,261**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.2.6 *Availability*.
*All groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

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 is not based on Modeled Available Groundwater (MAG) and instead, 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. Specific methodologies for each county and basin are listed below:

Other Aquifer (Bastrop County, Colorado Basin)

- The availability was determined based on TCEQ Drinking Water Watch (DWW) database listed total production for City of Bastrop, along with published TWDB historical groundwater pumpage data for Bastrop County WCID 2 and Mining in Bastrop County, Colorado Basin. Same methodology used for 2016 Plan.

Other Aquifer (Burnet County, Brazos Basin)

- The availability was determined based on mining groundwater usage listed in the TWDB historical groundwater pumpage data. Same methodology used for 2016 Plan.

Other Aquifer (Burnet County, Colorado Basin)

- The availability was determined based on discussion with Central Texas Groundwater Conservation District regarding alluvial permits and Granite/Granite Gravel Aquifer permits, as well as published TWDB historical groundwater pumpage data for other/unknown aquifers for exempt uses. Same methodology used for 2016 Plan.

Other Aquifer (Fayette County, Colorado Basin)

- The availability was determined based on discussion with Fayette County Groundwater Conservation District regarding alluvial supplies during the 2016 planning cycle. No changes to the methodology for this cycle.

Other Aquifer (Llano County, Colorado Basin)

- The availability was determined based on review of published TWDB historical groundwater pumpage data for County-Other, Kingsland WSC, and Livestock in Llano County. Same methodology used for 2016 Plan.

Other Aquifer (Travis County, Colorado Basin)

- The availability was determined based on review of published TWDB historical groundwater pumpage data for water uses in Travis County. In addition, the TCEQ DWW database lists the source of the City of Manor's groundwater wells as alluvial. Same methodology used for 2016 Plan.

Other Aquifer (Travis County, Guadalupe Basin)

- The availability was determined based on review of published TWDB historical groundwater pumpage data for water uses in Travis County. Same methodology used for 2016 Plan.

Table 3.22 contains a summary of the Other Aquifer sources available to the LCRWPA.

Table 3.22: Region K 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	433	433	433	433	433	433
Burnet	Colorado	3,672	3,672	3,672	3,672	3,672	3,672
	County Total	***4,105***	***4,105***	***4,105***	***4,105***	***4,105***	***4,105***
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	3,770	3,770	3,770	3,770	3,770	3,770
Travis	Guadalupe	112	112	112	112	112	112
	County Total	***3,882***	***3,882***	***3,882***	***3,882***	***3,882***	***3,882***
Region K	**Region Total**	**14,790**	**14,790**	**14,790**	**14,790**	**14,790**	**14,790**

Note: An explanation of the information presented in this table is provided in Section 3.2.2.2.6.
*No groundwater availability values in this table are based on Modeled Available Groundwater (MAG) numbers.

3.2.3 Current Available Reclaimed Water

Another category of 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 Austin, Burnet, Horseshoe Bay, Hurst Creek MUD, Lago Vista, Marble Falls, Travis County WCID 17, West Travis County PUA, and Manufacturing in Travis County. *Table 3.23* contains a summary of the reclaimed water supplies that are currently being used, as reported through WUG surveys.

Table 3.23: 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]	2,200	2,200	2,200	2,200	2,200	2,200
Direct Reuse – Llano Co.[2]	589	589	589	589	589	589
Direct Reuse – Travis Co.[3]	6,989	6,989	6,989	6,989	6,989	6,989
Totals	**9,778**	**9,778**	**9,778**	**9,778**	**9,778**	**9,778**

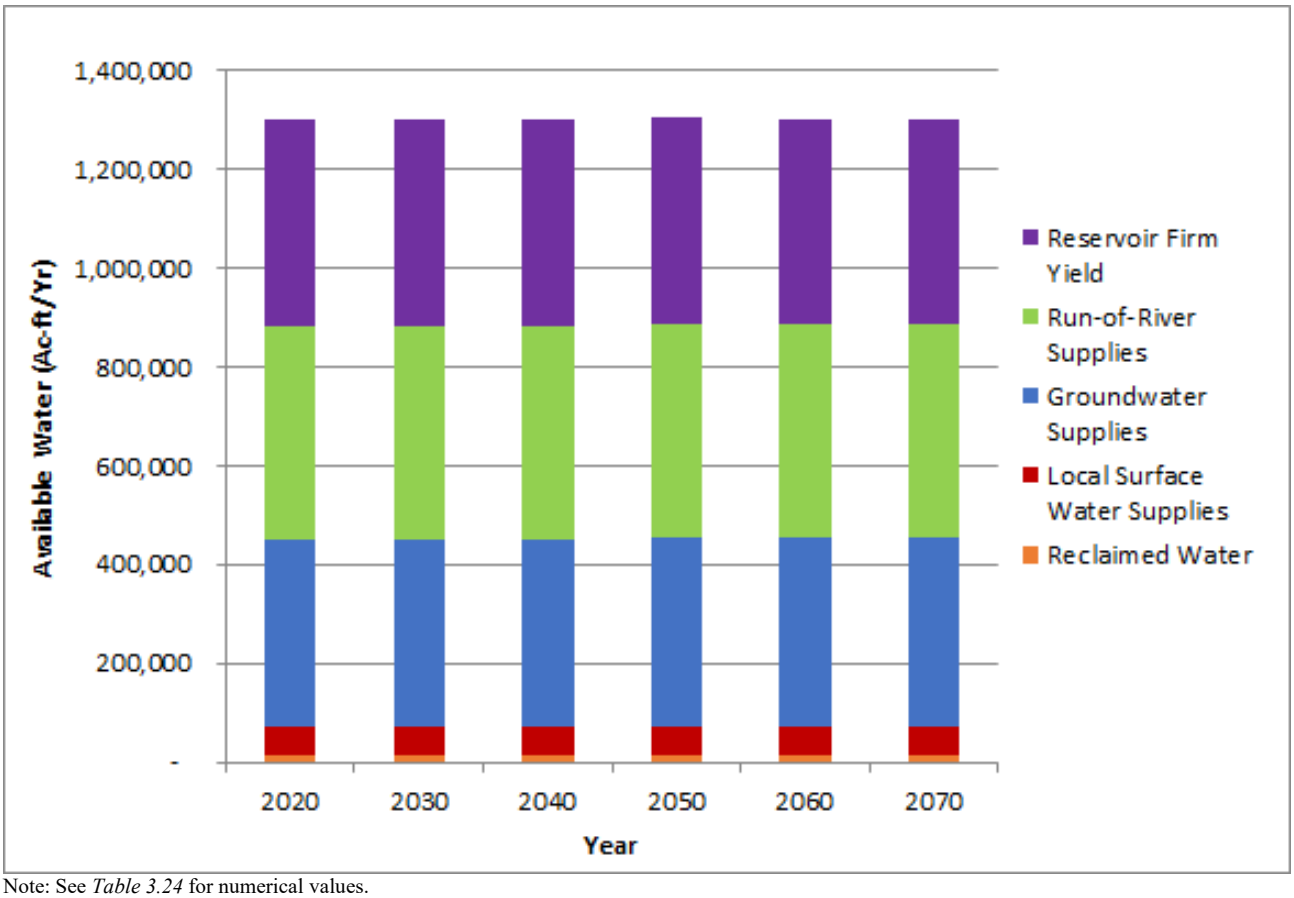
[1] Burnet County WUGs using direct reuse for irrigation purposes include Burnet (520 AFY) and Marble Falls (1,680 AFY)

[2] Llano County WUG using direct reuse for irrigation purposes is Horseshoe Bay (589 AFY, shared between Burnet and Llano Counties.)
[3] Travis County WUGs using direct reuse include Austin (4,571 AFY, selling a portion to Manufacturing in Travis County), Hurst Creek MUD (106 AFY), Lago Vista (415 AFY), Travis County WCID 17 (1,205 AFY), and West Travis County PUA (692 AFY, shared between Hays and Travis Counties.)

3.2.4 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* which contains the DB22 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 1.3 million ac-ft of water is available annually to the LCRWPA under Drought of Record conditions. Of this amount, approximately 71 percent is from surface water sources and 29 percent is from groundwater sources.

Figure 3.13: Total Water Available in Region K During a Drought of Record



Note: See *Table 3.24* for numerical values.

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
Run-of-River Water	**432,896**	**432,896**	**432,896**	**432,896**	**432,896**	**432,896**
City of Austin - ROR Municipal [1]	201,393	201,393	201,393	201,393	201,393	201,393
City of Austin - ROR Steam Electric [1]	9,636	9,636	9,636	9,636	9,636	9,636
LCRA - Garwood ROR	121,845	121,845	121,845	121,845	121,845	121,845
LCRA - Gulf Coast ROR	53,815	53,815	53,815	53,815	53,815	53,815
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
San Bernard ROR	2,332	2,332	2,332	2,332	2,332	2,332
Llano ROR	271	271	271	271	271	271
Garwood (Corpus Christi) ROR	35,000	35,000	35,000	35,000	35,000	35,000
Reservoir Water	**418,749**	**418,046**	**417,292**	**416,640**	**415,897**	**415,124**
Highland Lakes [2]	352,026	351,323	350,569	349,917	349,174	348,401
STPNOC Reservoir	66,260	66,260	66,260	66,260	66,260	66,260
Goldthwaite Reservoir	0	0	0	0	0	0
Llano Reservoir	0	0	0	0	0	0
Blanco Reservoir	463	463	463	463	463	463
Reclaimed Water	**12,567**	**12,567**	**12,567**	**12,567**	**12,567**	**12,567**
Reclaimed Water (Reuse)	12,567	12,567	12,567	12,567	12,567	12,567
Local Surface Water [3]	**59,599**	**59,599**	**59,599**	**59,599**	**59,599**	**59,599**
Irrigation Local Supply [4]	41,106	41,106	41,106	41,106	41,106	41,106
Livestock Local Supply	10,918	10,918	10,918	10,918	10,918	10,918
Other Local Supply	7,575	7,575	7,575	7,575	7,575	7,575
Groundwater	**376,748**	**379,160**	**379,283**	**382,906**	**381,321**	**381,214**
Carrizo-Wilcox Aquifer	27,134	29,699	31,750	35,525	34,577	34,577
Edwards (BFZ) Aquifer (includes Saline Zone)	14,124	14,124	14,124	14,124	14,124	14,124
Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifer	4,979	4,979	4,979	4,979	4,979	4,979
Ellenburger-San Saba Aquifer	27,902	27,864	27,902	27,864	27,902	27,864
Gulf Coast Aquifer	219,775	219,775	217,796	217,796	217,096	217,096
Hickory Aquifer	15,300	15,283	15,300	15,283	15,300	15,283
Marble Falls Aquifer	7,323	7,303	7,323	7,303	7,323	7,303
Queen City Aquifer	3,266	3,249	3,231	3,213	3,194	3,194
Sparta Aquifer	3,738	3,729	3,704	3,693	3,698	3,698
Trinity Aquifer	29,155	29,103	29,122	29,074	29,077	29,045
Yegua-Jackson Aquifer	9,262	9,262	9,262	9,262	9,261	9,261
Other Aquifer	14,790	14,790	14,790	14,790	14,790	14,790
Totals	**1,300,559**	**1,302,268**	**1,301,637**	**1,304,608**	**1,302,280**	**1,301,400**

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 3.33*.
Groundwater availabilities are discussed in Section 3.2.2.
[1] Refer to *Table 3.3* and *Table 3.28* 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, 3.6, 3.7, 3.8, 3.9, and 3.10*.
[4] Irrigation Local Supply Sources are included in the TWDB database (DB22) with the Run-of-River sources.

3.3 MAJOR WATER PROVIDERS

The RWPGs are required to prepare estimates of the water available to the Major Water Providers within each region. The LCRWPG has identified three Major Water Providers: LCRA, Austin, and West Travis County Public Utility Agency. The water supplies available to these three entities are discussed in the following sections.

3.3.1 LCRA Water Availability

The LCRA owns 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. 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), although no water availability is specifically associated with those reservoirs for regional water planning purposes. LCRA has developed groundwater supplies in Bastrop County as another source of water. In addition, the LCRA has acquired many of the senior run-of-river water rights in the lower basin. LCRA recently constructed the Arbuckle Reservoir in Wharton County, but the water availability associated with that reservoir is included under the LCRA-Gulf Coast water right. *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	121,845	121,845	121,845	121,845	121,845	121,845
LCRA - Gulf Coast [2]	53,815	53,815	53,815	53,815	53,815	53,815
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	352,026	351,323	350,569	349,917	349,174	348,401
Carrizo-Wilcox Aquifer [3]	2,609	3,522	4,022	5,156	4,836	4,727
Totals	**538,899**	**539,109**	**538,855**	**539,337**	**538,274**	**537,392**

Data Source: Colorado WAM provided by TCEQ, Feb 2018, Run 3 – modified to Region K Cutoff Model with hydrology through 2016. WRAP program by Dr. Ralph Wurbs, Texas A&M University, April 2018.
Note: Downstream water availability does not include return flows.
[1] The firm yield determinations for the LCRA ROR rights are discussed in Section 3.2.1.1.2.3 and are presented in *Table 3.3*. The Highland Lakes firm yield determination is discussed in Section 3.2.1.1.2.1 and is presented in *Table 3.1*.
[2] The benefit of the Arbuckle Reservoir is included in the Gulf Coast water right.
[3] 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. 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* and *3.27* contain summaries of current LCRA water supply commitments and projected irrigation demands, by Water User Groups. The firm commitments from LCRA total 391,758 ac-ft/yr in 2020 (which does not include environmental commitments) and decrease over the planning period to 391,735 ac-ft/yr in 2070. *Table 3.27* lists the projected irrigation demands in the Lower Basin using water supplies from LCRA, some of which are met through portions of the run-of-river water rights for Garwood,

Gulf Coast, Lakeside, and Pierce Ranch, listed in the table above, as well as in *Table 3.3*. Footnotes for *Table 3.26* are on page 3-55.

Table 3.26: LCRA Firm Water Commitment 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	850	850	850	850	850	850
Steam Electric	9,720	9,720	9,720	9,720	9,720	9,720
Burnet County						
Burnet	4,100	4,100	4,100	4,100	4,100	4,100
Cottonwood Shores	495	495	495	495	495	495
Corix Utilities Texas Inc. (also in Llano, Mills, and San Saba Counties)	475	475	475	475	475	475
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
County-Other	2,249	2,249	2,249	2,249	2,249	2,249
Irrigation	333	333	333	333	333	333
Manufacturing	500	500	500	500	500	500
Fayette County						
County-Other	27	27	27	27	27	27
Steam Electric (LCRA)	37,500	37,500	37,500	37,500	37,500	37,500
Steam Electric (COA)	7,500	7,500	7,500	7,500	7,500	7,500
Gillespie County						
County-Other	56	56	56	56	56	56
Hays County						
Dripping Springs WSC	1,632	1,632	1,632	1,632	1,632	1,632
Hays County WCID 1	717	717	717	717	717	717
Hays County WCID 2	684	684	684	684	684	684
Lampasas County (Region G)						
Corix Utilities Texas Inc. (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	2,272	2,272	2,272	2,272	2,272	2,272
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
Matagorda County						
Manufacturing	16,955	16,955	16,955	16,955	16,955	16,955

County/WUG	2020	2030	2040	2050	2060	2070
Steam Electric [1]	19,567	19,562	19,557	19,552	19,547	19,543
San Saba County						
County-Other	20	20	20	20	20	20
Travis County						
Austin - Municipal [2]	123,607	123,607	123,607	123,607	123,607	123,607
Austin - Steam Electric [3]	11,056	11,056	11,056	11,056	11,056	11,057
Briarcliff	400	400	400	400	400	400
Cypress Ranch WCID 1	436	436	436	436	436	436
Deer Creek Ranch Water	250	250	250	250	250	250
Hurst Creek MUD	1,600	1,600	1,600	1,600	1,600	1,600
Jonestown WSC	526	526	526	526	526	526
Lago Vista	6,500	6,500	6,500	6,500	6,500	6,500
Lakeway MUD	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
Oak Shores Water System	203	203	203	203	203	203
Pflugerville	12,000	12,000	12,000	12,000	12,000	12,000
Rough Hollow in Travis County	1,795	1,795	1,795	1,795	1,795	1,795
Senna Hills MUD	404	404	404	404	404	404
Sweetwater Community	1,514	1,514	1,514	1,514	1,514	1,514
Travis County MUD 10	96	96	96	96	96	96
Travis County MUD 4	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	1,400	1,400	1,400	1,400	1,400	1,400
Travis County WCID 20	1,135	1,135	1,135	1,135	1,135	1,135
Travis County WCID Point Venture	285	285	285	285	285	285
West Travis County PUA [4] (also in Hays County)	9,450	9,450	9,450	9,450	9,450	9,450
County-Other	8,626	8,626	8,626	8,626	8,626	8,626
County-Other (Aqua Texas - Rivercrest)	467	467	467	467	467	467
Irrigation	4,018	4,018	4,018	4,018	4,018	4,018
Manufacturing	76	76	76	76	76	76
Williamson County (Region G)						
Cedar Park [5] (also in Travis County, Region K)	20,500	20,500	20,500	20,500	20,500	20,500
Leander [6] (also in Travis County, Region K)	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
TOTAL*	**391,758**	**391,753**	**391,748**	**391,743**	**391,738**	**391,735**

Footnotes are on the following page

*Environmental demands are not one of the six water uses planned for in regional water planning. These commitments are not included in the Total for this table in order to be comparable to Table 3.25. The Highland Lakes yield in Table 3.25 does not include firm environmental commitments.

[1] 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.

[2] 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.

[3] 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.

[4] Cedar Park is located in both Region G and Region K, and it serves Williamson-Travis Counties MUD #1 (WUG).

[5] West Travis County PUA serves multiple Water User Groups in Hays and Travis Counties including Dripping Springs WSC, Hays County WCID 1 and 2, Barton Creek West WSC, Deer Creek Ranch Water, Rough Hollow in Travis County, Senna Hills MUD, Sweetwater Community, Irrigation, and County-Other. Those listed in this table have water contracts with LCRA, and contracts for treatment and transport/delivery of water with West Travis County PUA.

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

Table 3.27: LCRA Projected Irrigation Division Demand Summary (ac-ft/yr)

County/WUG	2020	2030	2040	2050	2060	2070
Colorado County						
Irrigation [1, 4]	155,478	151,295	147,226	143,265	139,411	135,662
Matagorda County						
Irrigation [2, 4]	148,855	144,851	140,954	137,163	133,473	129,883
Wharton County						
Irrigation [3, 4]	117,668	114,503	111,423	108,426	105,509	102,671
TOTAL	422,001	410,649	399,603	388,853	378,393	368,215

[1] The LCRA Colorado County Irrigation Demand represents the portion of the total Colorado County Irrigation demand that includes supplies from LCRA ROR water rights and supplemental interruptible stored water from the Highland Lakes on an annual contract basis. The methodology for determining these demands is discussed in Chapter 2. The decrease over time is proportional to the total demand's decrease.

[2] The LCRA Matagorda County Irrigation Demand represents the portion of the total Matagorda County Irrigation demand that includes supplies from LCRA ROR water rights and supplemental interruptible stored water from the Highland Lakes on an annual contract basis. The methodology for determining these demands is discussed in Chapter 2. The decrease over time is proportional to the total demand's decrease.

[3] The LCRA Wharton County Irrigation Demand represents the portion of the total Wharton County Irrigation demand (K and P) that includes supplies from LCRA ROR water rights and supplemental interruptible stored water from the Highland Lakes on an annual contract basis. The methodology for determining these demands is discussed in Chapter 2. The decrease over time is proportional to the total demand's decrease.

[4] These are not firm commitments.

Based on the current 2015 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 Austin Water Availability

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, Austin has entered into a contract with LCRA to firm up these water rights with water stored in the Highland Lakes. In addition, Austin uses reclaimed water (reuse) to currently meet a portion of its demands. *Table 3.28* contains a summary of the water available to Austin.

Table 3.28: Austin Water Availability (ac-ft/yr)

Water Right / Agreement	Water Right Holder	Water Supply Source	Water Availabilty During Drought of Record (Ac-Ft/Yr)					
			2020	2030	2040	2050	2060	2070
5471	COA [1]	ROR - Municipal	150,765	150,765	150,765	150,765	150,765	150,765
5471	COA [1]	ROR - Municipal	34,798	34,798	34,798	34,798	34,798	34,798
5471	COA [2]	ROR - Municipal	8,583	8,583	8,583	8,583	8,583	8,583
5489	COA [3]	ROR - Municipal	7,247	7,247	7,247	7,247	7,247	7,247
COA Municipal & Manufacturing ROR Subtotal			201,393	201,393	201,393	201,393	201,393	201,393
5471	LCRA Backup [1]	Highland Lakes	64,437	64,437	64,437	64,437	64,437	64,437
5471	LCRA Backup [2]	Highland Lakes	12,820	12,820	12,820	12,820	12,820	12,820
5489	LCRA Backup [3]	Highland Lakes	13,053	13,053	13,053	13,053	13,053	13,053
Remaining Contract	LCRA Contract	Highland Lakes	33,297	33,297	33,297	33,297	33,297	33,297
LCRA Municipal & Manufacturing Backup Subtotal			123,607	123,607	123,607	123,607	123,607	123,607
Austin Reclaimed Water (Reuse)			4,571	4,571	4,571	4,571	4,571	4,571
Municipal & Manufacturing Total			**329,571**	**329,571**	**329,571**	**329,571**	**329,571**	**329,571**
5471 (Lady Bird Lake)	COA	ROR - Steam Electric	4,140	4,140	4,140	4,140	4,140	4,140
5471 (FPP)	COA	ROR - Steam Electric	396	396	396	396	396	396
5489 (Decker)	COA	ROR - Steam Electric	0	0	0	0	0	0
5489 (Decker) [4]	COA	ROR - Steam Electric	5,100	5,100	5,100	5,100	5,100	5,100
COA Steam Electric ROR Subtotal			9,636	9,636	9,636	9,636	9,636	9,636
Lady Bird Lake Contract	LCRA Contract	Highland Lakes	0	0	0	0	0	0
Decker Contract [4]	LCRA Contract	Highland Lakes	11,056	11,056	11,056	11,056	11,056	11,056
FPP & Sandhill Contract	LCRA Contract	Highland Lakes	7,016	7,016	7,016	7,016	7,016	7,016
LCRA Steam Electric Backup Subtotal			18,072	18,072	18,072	18,072	18,072	18,072
Steam Electric Total			**27,708**	**27,708**	**27,708**	**27,708**	**27,708**	**27,708**

[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.

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 3.29* contains a summary of the 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*. Austin will continue to treat and deliver the LCRA contracted water for those entities.

Table 3.29: Austin Water Commitment Summary (ac-ft/yr)

Water User Group (WUG)	County	Basin	2020	2030	2040	2050	2060	2070
Austin	Hays	Colorado	188	827	1,304	2,063	3,025	4,357
Austin	Travis	Colorado	170,686	198,992	230,751	252,570	269,954	293,513
Manufacturing [1]	Travis	Colorado	12,422	14,111	14,397	14,853	14,853	14,853
Creedmoor-Maha WSC [1]	Travis	Colorado	839	839	0	0	0	0
Manor [1]	Travis	Colorado	1,680	1,680	0	0	0	0
North Austin MUD 1	Travis	Colorado	81	78	0	0	0	0
Northtown MUD	Travis	Colorado	728	841	0	0	0	0
Rollingwood	Travis	Colorado	1,120	1,120	0	0	0	0
Shady Hollow MUD	Travis	Colorado	793	775	759	750	749	749
Sunset Valley	Travis	Colorado	716	716	0	0	0	0
Travis County WCID 10 [2]	Travis	Colorado	3,360	3,360	0	0	0	0
Wells Branch MUD	Travis	Colorado	1,397	1,352	0	0	0	0
Windermere Utility	Travis	Colorado	2,240	2,240	0	0	0	0
Austin	Williamson	Brazos	10,787	13,742	16,122	18,685	21,592	24,782
County-Other (COA Retail portion)	Williamson	Brazos	87	87	87	87	87	87
North Austin MUD 1	Williamson	Brazos	774	747	0	0	0	0
Wells Branch MUD	Williamson	Brazos	80	77	0	0	0	0
TOTAL			**207,978**	**241,584**	**263,420**	**289,008**	**310,260**	**338,341**

Steam-Electric [3]	Fayette [4]	Colorado	10,300	10,300	10,300	10,300	10,300	10,300
Steam-Electric [3]	Travis	Colorado	10,253	10,253	10,253	10,253	10,253	10,253
TOTAL			**20,553**	**20,553**	**20,553**	**20,553**	**20,553**	**20,553**

[1] These WUGs are also served by other entities.

[2] Travis County WCID 10 sells 1,564 ac-ft of the Austin commitment to West Lake Hills.

[3] Austin's portion of the STPNOC demand is included in the STPNOC total steam-electric demand in Matagorda County.

[4] Austin's portion based on estimated current supply levels and approved projections.

3.3.3 West Travis County Public Utility Agency Water Availability

West Travis County Public Utility Agency (WTCPUA) is a publicly owned utility providing water and wastewater services to both retail and wholesale customers in western Travis and northern Hays counties. Nearly all of the wholesale water customers WTCPUA delivers to has a contract for water from LCRA and a contract for treatment and transport from WTCPUA. Because WTCPUA is responsible for developing the infrastructure to deliver the water to its wholesale customers, Region K determined it most appropriate to associate the wholesale customer demands and water sales with WTCPUA. Water supplies and commitments for the WUG and its wholesale customers are listed below in *Tables 3.30* and *3.31*.

Table 3.30: Total Water Available to the West Travis County Public Utility Agency (ac-ft/yr)

Water Supply Source	Water Availability During Drought of Record					
	2020	2030	2040	2050	2060	2070
LCRA Contract with WTCPUA	9,450	9,450	9,450	9,450	9,450	9,450
WTCPUA Reclaimed Water	692	692	692	692	692	692
LCRA Contracts with WTCPUA Wholesale Customers	8,537	8,537	8,537	8,537	8,537	8,537
Totals	**18,679**	**18,679**	**18,679**	**18,679**	**18,679**	**18,679**

Table 3.31: West Travis County PUA Treat and Transport (ac-ft/yr)

Water User Group (WUG)	2020	2030	2040	2050	2060	2070
Hays County						
West Travis County PUA	4,499	5,590	6,273	7,711	9,151	10,593
Dripping Springs WSC [1]	1,632	1,632	1,632	1,632	1,632	1,632
Hays County WCID 1 [1]	717	717	717	717	717	717
Hays County WCID 2 [1]	684	684	684	684	684	684
Travis County						
West Travis County PUA	6,698	7,357	7,925	8,824	9,398	9,914
Barton Creek West WSC	440	440	440	440	440	440
County-Other [2]	1,640	1,640	1,640	1,640	1,640	1,640
Deer Creek Ranch Water [1]	250	250	250	250	250	250
Irrigation [1]	62	62	62	62	62	62
Rough Hollow in Travis County [1]	1,795	1,795	1,795	1,795	1,795	1,795
Senna Hills MUD [1]	404	404	404	404	404	404
Sweetwater Community [1]	1,514	1,514	1,514	1,514	1,514	1,514
TOTAL	**20,335**	**22,085**	**23,336**	**25,673**	**27,687**	**29,645**

[1] These wholesale customers have water contracts for these volumes with LCRA, but WTCPUA provides the treatment and transport of the water to their community

[2] For County-Other in Travis County, several smaller communities make up the wholesale customers that are delivered water by WTCPUA. One of these smaller communities, Crystal Mountain HOA, does not have a water contract with LCRA; they purchase 161 AFY directly from WTCPUA. The rest of the wholesale customers falling under County-Other have a water contract with LCRA, while WTCPUA provides the treatment and transport of the water to their community,

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 the WUGs in the LCRWPA. Firm contacts are assumed to be renewed through the planning period, unless identified specifically in *Table 3.29*. 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 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 three designated Major 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 3.32*. Detailed information concerning water supply availability for individual WUGs is presented in *Appendix 3C* in the DB22 reports from TWDB.

Table 3.32: 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	10,143	9,229	8,729	7,597	7,917	8,026
Blanco	1,383	1,384	1,383	1,383	1,383	1,384
Burnet	16,614	16,644	16,670	16,697	16,722	16,744
Colorado	70,735	70,735	70,735	70,735	70,735	70,735
Fayette	47,263	47,263	47,263	47,263	47,263	47,263
Gillespie	742	742	742	742	742	742
Hays	11,272	11,822	12,188	12,807	13,610	14,761
Llano	10,100	10,100	10,100	10,100	10,100	10,100
Matagorda	127,125	127,125	127,125	127,125	127,125	127,125
Mills	3,082	3,082	3,082	3,082	3,082	3,083
San Saba	4,235	4,235	4,235	4,235	4,235	4,235
Travis	399,534	397,019	395,958	392,865	389,485	385,598
Wharton	36,125	36,125	36,125	36,125	36,125	36,125
Williamson	11,728	14,653	16,209	18,772	21,679	24,869
Regional Totals	**750,081**	**750,158**	**750,544**	**749,528**	**750,203**	**750,790**

Note: The supplies presented in this table are supplies currently available to the WUGs (current contracts and infrastructure capacities). Surface water availability excludes 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 3.33*. Detailed information concerning water supply availability for individual WUGs is presented in *Appendix 3C* in the DB22 reports from TWDB.

Table 3.33: 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	26,479	28,262	30,312	33,676	32,432	32,371
Blanco	3,887	3,895	3,898	3,900	3,903	3,904
Burnet	11,159	11,159	11,159	11,159	11,159	11,159
Colorado	61,038	61,038	61,038	61,038	61,038	61,038
Fayette	8,484	8,426	8,352	8,340	8,342	8,336
Gillespie	11,015	11,015	11,015	11,015	11,015	11,015
Hays	7,971	7,958	7,956	7,960	7,962	7,966
Llano	1,527	1,527	1,527	1,527	1,527	1,527
Matagorda	37,544	37,544	37,544	37,544	37,544	37,544
Mills	2,426	2,426	2,426	2,426	2,426	2,426
San Saba	7,756	7,756	7,756	7,752	7,756	7,758
Travis	20,199	20,621	21,332	21,907	22,055	21,572
Wharton	92,528	92,528	92,528	92,528	92,528	92,528
Williamson	41	41	41	41	41	41
Regional Totals	**292,054**	**294,196**	**296,884**	**300,813**	**299,728**	**299,185**

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 3.34.* 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 3.34* 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* which contains the DB22 reports from TWDB.

Table 3.34: Total Water Supply to WUGs by County (ac-ft/yr)

County	2020 Supply	2030 Supply	2040 Supply	2050 Supply	2060 Supply	2070 Supply
Bastrop	36,622	37,491	39,041	41,273	40,349	40,397
Blanco	5,270	5,279	5,281	5,283	5,286	5,288
Burnet	27,773	27,803	27,829	27,856	27,881	27,903
Colorado	131,773	131,773	131,773	131,773	131,773	131,773
Fayette	55,747	55,689	55,615	55,603	55,605	55,599
Gillespie	11,757	11,757	11,757	11,757	11,757	11,757
Hays	19,243	19,780	20,144	20,767	21,572	22,727
Llano	11,627	11,627	11,627	11,627	11,627	11,627
Matagorda	164,669	164,669	164,669	164,669	164,669	164,669
Mills	5,508	5,508	5,508	5,508	5,508	5,509
San Saba	11,991	11,991	11,991	11,987	11,991	11,993
Travis	419,733	417,640	417,290	414,772	411,540	407,170
Wharton	128,653	128,653	128,653	128,653	128,653	128,653
Williamson	11,769	14,694	16,250	18,813	21,720	24,910
Regional Totals	**1,042,135**	**1,044,354**	**1,047,428**	**1,050,341**	**1,049,931**	**1,049,975**

Note: The supplies presented in this table are supplies currently available to the WUGs (current permits/contracts and infrastructure capacities).

APPENDIX 3A

LOWER COLORADO REGIONAL WATER PLANNING AREA TCEQ ACTIVE WATER RIGHTS

Lower Colorado Regional Water Planning Area
TCEQ Active Water Rights - December 14, 2018

WR NO	WR ISSUE DATE	AMENDMENT LETTER	OWNER NAME	DIVERSION AMOUNT (AFY)	USE	PRIORITY DATE	CONSUMPTIVE AMOUNT (AFY)	STORAGE AMOUNT (AF)	BASIN	WATER MASTER AREA	COUNTY
3448	04/29/1977		WHITE, JOHN W		RECREATION	11/15/1976		36.0000	14	NOT IN WM AREA	BASTROP
3491	09/09/1977		FRIENDS OF CLEAR SPRINGS LAKE		RECREATION	03/14/1977		83.0000	14	NOT IN WM AREA	BASTROP
3849	07/16/1985		DUNCAN, DAN L		RECREATION	08/30/1976		427.0000	18	SOUTH TEXAS	BASTROP
5084	10/31/1986		SUN WEST INVESTMENTS INC	4.00	AGRICULTURE - IRRIGATION | RECREATION	08/14/1986		14.5000	14	NOT IN WM AREA	BASTROP
5398	08/26/1988		HORTON, JOHN COLEMAN III | HORTON, WILMOT ROBERDEAU	120.00	AGRICULTURE - IRRIGATION	03/31/1954			14	NOT IN WM AREA	BASTROP
5399	08/26/1988		PENDLETON, BELLE	26.00	AGRICULTURE - IRRIGATION	06/30/1955			14	NOT IN WM AREA	BASTROP
5400	08/26/1988		DONALDSON, JERRY B	8.00	AGRICULTURE - IRRIGATION	04/30/1955			14	NOT IN WM AREA	BASTROP
5402	08/26/1988		LLOYD, KETHA	348.00	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	BASTROP
5403	08/26/1988		PROKOP, MERLE A JR	5.00	AGRICULTURE - IRRIGATION	07/31/1966			14	NOT IN WM AREA	BASTROP
5404	08/26/1988		TEXAS PARKS AND WILDLIFE DEPARTMENT		RECREATION	05/19/1969		68.0000	14	NOT IN WM AREA	BASTROP
5405	08/26/1988		HUGHES, EDWARD L	8.40	AGRICULTURE - IRRIGATION	12/31/1960		18.0000	14	NOT IN WM AREA	BASTROP
5406	08/26/1988		LOVEJOY, J B	2.10	AGRICULTURE - IRRIGATION	12/31/1962		16.0000	14	NOT IN WM AREA	BASTROP
5407	08/26/1988		ROD, AJ	80.00	AGRICULTURE - IRRIGATION	12/09/1974			14	NOT IN WM AREA	BASTROP
5408	08/26/1988		TEXAS PARKS AND WILDLIFE DEPARTMENT		RECREATION	08/25/1969		177.0000	14	NOT IN WM AREA	BASTROP
5411	08/26/1988		CLAUSEN, STEPHEN WAYNE | HALL, SUSAN GRACE TRAMP	15.00	AGRICULTURE - IRRIGATION	02/23/1970		50.0000	14	NOT IN WM AREA	BASTROP
5412	08/26/1988		HORSESHOE LAKE PROPERTY OWNERS ASSOCIATION INC		RECREATION	04/08/1975		8.2000	14	NOT IN WM AREA	BASTROP
5413	08/26/1988		DROEMER, CARL	61.00	AGRICULTURE - IRRIGATION	09/16/1974		465.0000	14	NOT IN WM AREA	BASTROP
5414	08/26/1988		LAKE THUNDERBIRD OWNERS ASSOCIATION INC		RECREATION	01/27/1975		56.0000	14	NOT IN WM AREA	BASTROP
5414	08/26/1988		LAKE THUNDERBIRD OWNERS ASSOCIATION INC		RECREATION	10/15/1973		103.0000	14	NOT IN WM AREA	BASTROP
5415	08/26/1988		INDIAN LAKE OWNERS ASSOCIATION		RECREATION	10/01/1973		540.0000	14	NOT IN WM AREA	BASTROP
5473	06/28/1989	A	LOWER COLORADO RIVER AUTHORITY	10750.00	INDUSTRIAL | INDUSTRIAL - POWER GENERATION | RECREATION | WA	03/04/1963		16590.0000	14	NOT IN WM AREA	BASTROP
1470	08/15/1980		SCHUMANN, WERNER | TEXAS PARKS AND WILDLIFE DEPARTMENT	50.00	AGRICULTURE - IRRIGATION	12/31/1967			14	NOT IN WM AREA	BLANCO
1472	08/15/1980		LINDIG, AL LOUIS | LINDIG, BRENDA	7.00	AGRICULTURE - IRRIGATION	12/31/1933			14	NOT IN WM AREA	BLANCO
1473	08/15/1980		OBOYLE, JOHN W JR	276.00	AGRICULTURE - IRRIGATION	12/31/1964		10.5000	14	NOT IN WM AREA	BLANCO
1477	08/15/1980		KELLER EQUIPMENT COMPANY	4.25	AGRICULTURE - IRRIGATION	12/31/1964		15.0000	14	NOT IN WM AREA	BLANCO
1478	08/15/1980		MOONEY, JAMES J	9.00	AGRICULTURE - IRRIGATION	08/16/1965			14	NOT IN WM AREA	BLANCO
1479	08/15/1980		CITY OF JOHNSON CITY	220.00	MUNICIPAL/DOMESTIC	11/29/1966			14	NOT IN WM AREA	BLANCO
1479	08/15/1980		CITY OF JOHNSON CITY		RECREATION	11/29/1966		345.0000	14	NOT IN WM AREA	BLANCO
1480	08/15/1980		MILLER CREEK RV RESORT INC | ROUNTREE, JUDY | ROUNTREE, PAUL		RECREATION	04/17/1967		30.0000	14	NOT IN WM AREA	BLANCO
1481	08/15/1980		TEXAS PARKS AND WILDLIFE DEPARTMENT	30.00	MUNICIPAL/DOMESTIC	04/24/1972			14	NOT IN WM AREA	BLANCO
1482	08/15/1980		FRASHER, NANCY WARREN	34.00	AGRICULTURE - IRRIGATION	09/07/1962			14	NOT IN WM AREA	BLANCO
3673	06/18/1979		WRC LAKESIDE PARTNERS LP	7.00	AGRICULTURE - IRRIGATION	02/05/1979			18	SOUTH TEXAS	BLANCO
3728	04/23/1980		FICKLE, ERIKA H | MARSHALL, MARIE | MARSHALL, STEVE		RECREATION	01/07/1980		6.0000	18	SOUTH TEXAS	BLANCO
3871	07/16/1985		HAAS, W J	6.00	AGRICULTURE - IRRIGATION	09/30/1957		4.0000	18	SOUTH TEXAS	BLANCO
3871	07/16/1985		HAAS, W J	6.00	AGRICULTURE - IRRIGATION	09/30/1967		2.0000	18	SOUTH TEXAS	BLANCO
3872	07/19/1985		THE KYLE BENNETT LIVING TRUST	4.60	AGRICULTURE - IRRIGATION	11/25/1974			18	SOUTH TEXAS	BLANCO
3872	07/19/1985		HAMMOND FAMILY FARM LTD	20.31	AGRICULTURE - IRRIGATION	11/25/1974			18	SOUTH TEXAS	BLANCO
3872	07/19/1985		HAMMOND FAMILY FARM LTD		AGRICULTURE - IRRIGATION	11/25/1974		23.0000	18	SOUTH TEXAS	BLANCO
3872	07/19/1985		STETLER FAMILY LIVING TRUST	7.09	AGRICULTURE - IRRIGATION	11/25/1974			18	SOUTH TEXAS	BLANCO
3872	07/19/1985		STETLER FAMILY LIVING TRUST		AGRICULTURE - IRRIGATION	11/25/1974		9.0000	18	SOUTH TEXAS	BLANCO
3873	07/19/1985		MCCLAIN, ELSIE LEE | MCCLAIN, HENRY	48.00	AGRICULTURE - IRRIGATION	06/30/1957		9.0150	18	SOUTH TEXAS	BLANCO
3873	07/19/1985		MCCLAIN, ELSIE LEE | MCCLAIN, HENRY	1.00	AGRICULTURE - STOCKRAISING | INDUSTRIAL	06/30/1957			18	SOUTH TEXAS	BLANCO
3874	07/16/1985		DRENTH, JUDITH D | DRENTH, ROBERT C	24.00	AGRICULTURE - IRRIGATION	11/30/1963			18	SOUTH TEXAS	BLANCO
3874	07/16/1985		DRENTH, JUDITH D | DRENTH, ROBERT C		AGRICULTURE - IRRIGATION	11/30/1963		5.0000	18	SOUTH TEXAS	BLANCO
3875	07/16/1985		MCCOMBS LEGACY LTD	45.00	AGRICULTURE - IRRIGATION	05/31/1963		10.0000	18	SOUTH TEXAS	BLANCO
3876	07/16/1985		ATWELL, WILLIAM W		RECREATION	05/28/1974			18	SOUTH TEXAS	BLANCO
3876	07/16/1985		HAILE, NORVAL K | HAILE, STEPHNE K | ZERCHER, WAYNE A		RECREATION	05/28/1974		30.0000	18	SOUTH TEXAS	BLANCO
3877	07/16/1985		CITY OF BLANCO	600.00	MUNICIPAL/DOMESTIC	08/29/1955		168.4700	18	SOUTH TEXAS	BLANCO
3878	07/16/1985		TEXAS PARKS AND WILDLIFE DEPARTMENT		RECREATION	05/26/1969		62.0000	18	SOUTH TEXAS	BLANCO
3879	07/16/1985		MARSHALL, MARIE | MARSHALL, STEPHEN E		RECREATION	06/14/1976		30.0000	18	SOUTH TEXAS	BLANCO
3930	12/23/1982		WAYMOND LIGHTFOOT TRUSTEE		RECREATION	09/20/1982		16.8000	18	SOUTH TEXAS	BLANCO
3988	06/24/1983		A DEAN MABRY ET AL | MABRY, A DEAN		RECREATION	01/10/1983		2.0000	18	SOUTH TEXAS	BLANCO
4041	10/28/1983		LUXURY TRAILS INC		RECREATION	05/23/1983		2.5200	14	NOT IN WM AREA	BLANCO
5556	12/30/1996		LUCAS, MARCIA R	20.00	AGRICULTURE - IRRIGATION	07/31/1996			18	SOUTH TEXAS	BLANCO
1468	08/15/1980		REDSTONE RANCH II LTD	400.00	AGRICULTURE - IRRIGATION	04/01/1963			14	NOT IN WM AREA	BLANCO | GILLESPIE
1468	08/15/1980		MATTHEWS, MARY F | MATTHEWS, RAYMOND T	84.00	AGRICULTURE - IRRIGATION	04/01/1963			14	NOT IN WM AREA	BLANCO | GILLESPIE
1468	08/15/1980		CURRIER, JAN | CURRIER, JOHN	16.00	AGRICULTURE - IRRIGATION	04/01/1963			14	NOT IN WM AREA	BLANCO | GILLESPIE
2607	08/31/1983		GOODRICH RANCH COMPANY	43.42	AGRICULTURE - IRRIGATION	03/31/1955			14	NOT IN WM AREA	BURNET
2607	08/31/1983		JGE HOLDINGS LTD	121.58	AGRICULTURE - IRRIGATION	03/31/1955			14	NOT IN WM AREA	BURNET
2608	08/31/1983		GOODRICH RANCH COMPANY		DOMESTIC AND LIVESTOCK	09/07/1950		780.0000	14	NOT IN WM AREA	BURNET
2609	08/31/1983		JOHANSON, JAMES BARBER	33.00	AGRICULTURE - IRRIGATION	12/31/1948			14	NOT IN WM AREA	BURNET
2614	08/31/1983		WENDAL LEE PHILLIPS FAMILY PARTNERSHIP LTD	27.30	AGRICULTURE - IRRIGATION	12/31/1953			14	NOT IN WM AREA	BURNET
2614	08/31/1983		STUSIE LLC	18.70	AGRICULTURE - IRRIGATION	12/31/1953			14	NOT IN WM AREA	BURNET
2615	08/31/1983		FOX, TROY	149.07	AGRICULTURE - IRRIGATION	12/31/1959			14	NOT IN WM AREA	BURNET
2615	08/31/1983		ESTATE OF C A BARNETT	0.93	AGRICULTURE - IRRIGATION	12/31/1959			14	NOT IN WM AREA	BURNET
2629	08/31/1983		RHOADES, ARLENE B	8.00	AGRICULTURE - IRRIGATION	12/31/1956			14	NOT IN WM AREA	BURNET
2630	08/31/1983		HEFNER, AGNES ANDERSON	438.00	AGRICULTURE - IRRIGATION	07/04/1956			14	NOT IN WM AREA	BURNET
2631	08/31/1983		TEXAS GRANITE CORPORATION	33.00	INDUSTRIAL	05/23/1950		13.0000	14	NOT IN WM AREA	BURNET
2631	08/31/1983		TEXAS GRANITE CORPORATION	55.00	AGRICULTURE - IRRIGATION	07/15/1965			14	NOT IN WM AREA	BURNET
2632	08/31/1983	B	CITY OF MEADOWLAKES	89.00	AGRICULTURE - IRRIGATION | MUNICIPAL/DOMESTIC	03/27/1905			14	NOT IN WM AREA	BURNET
2632	08/31/1983	B	CITY OF MEADOWLAKES	400.00	AGRICULTURE | MUNICIPAL/DOMESTIC	03/27/1905			14	NOT IN WM AREA	BURNET
2632	08/31/1983	B	CITY OF MEADOWLAKES	78.00	AGRICULTURE - IRRIGATION | MUNICIPAL/DOMESTIC	04/04/1895			14	NOT IN WM AREA	BURNET
2633	08/31/1983		BREWER, JOAN	18.00	AGRICULTURE - IRRIGATION	12/31/1934			14	NOT IN WM AREA	BURNET
2634	08/31/1983		ABOU SAMRA, JOAN ESTELLE | ABOU SAMRA, MOUSTAPHA	144.00	AGRICULTURE - IRRIGATION	12/31/1953			14	NOT IN WM AREA	BURNET
2635	08/31/1983		FELPS LLC	11.00	AGRICULTURE - IRRIGATION	12/31/1953			14	NOT IN WM AREA	BURNET
2636	08/31/1983		PRATT, BILLIE J	2.20	AGRICULTURE - IRRIGATION	03/31/1966			14	NOT IN WM AREA	BURNET
2637	08/31/1983		PRATT, BILLIE J	5.50	AGRICULTURE - IRRIGATION	03/31/1966			14	NOT IN WM AREA	BURNET
2638	08/31/1983		PRATT, BILLIE J	5.50	AGRICULTURE - IRRIGATION	03/31/1966			14	NOT IN WM AREA	BURNET
2639	08/31/1983		SMITH, JANICE L | SMITH, P H	9.70	AGRICULTURE - IRRIGATION	03/31/1966			14	NOT IN WM AREA	BURNET
2640	08/31/1983		FUSSELL, BLANCHE | FUSSELL, R G	10.10	AGRICULTURE - IRRIGATION	03/31/1966		3.0000	14	NOT IN WM AREA	BURNET
2641	08/31/1983		ALLEN, G S	253.00	AGRICULTURE - IRRIGATION	02/28/1958			14	NOT IN WM AREA	BURNET
2642	08/31/1983		CIMARRON RANCH PROPERTIES LP	89.00	AGRICULTURE - IRRIGATION	12/31/1961			14	NOT IN WM AREA	BURNET
2643	08/31/1983		LEWIS, COSTILLO C	80.00	AGRICULTURE - IRRIGATION	04/30/1967			14	NOT IN WM AREA	BURNET

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2989	04/30/1984		HOLLOWAY, JAMES | HOLLOWAY, LINDA	9.33	AGRICULTURE - IRRIGATION	12/31/1923			12	BRAZOS	BURNET
2989	04/30/1984		REID, GARY L | REID, LORETTA J	18.67	AGRICULTURE - IRRIGATION	12/31/1923			12	BRAZOS	BURNET
2990	04/30/1984		MAAS, BARBARA | MAAS, HERBERT A	63.00	AGRICULTURE - IRRIGATION	04/30/1966			12	BRAZOS	BURNET
2991	04/30/1984	A	SAWTOOTH ENTERPRISES LTD	145.00	AGRICULTURE - IRRIGATION	12/31/1965			12	BRAZOS	BURNET
2991	04/30/1984	A	SAWTOOTH ENTERPRISES LTD		AGRICULTURE - IRRIGATION	04/29/2002		4.0200	12	BRAZOS	BURNET
2992	04/30/1984	B	BROWN, JOSEPH CARLTON | BROWN, MARY KATHYRN | BROWN, WALTER O	34.00	AGRICULTURE - IRRIGATION	03/14/1954		8.0000	12	BRAZOS	BURNET
2992	04/30/1984	B	GAGE, MARY ANGELINE | MARY ANGELINE GAGE HERITAGE TRUST	34.00	AGRICULTURE - IRRIGATION	03/14/1954			12	BRAZOS	BURNET
2993	04/30/1984		SMITH, ARTHUR PAUL | SMITH, THELMA	24.59	AGRICULTURE - IRRIGATION	12/31/1925		25.0000	12	BRAZOS	BURNET
2993	04/30/1984		G BAR M RANCH INC	19.24	AGRICULTURE - IRRIGATION	12/31/1925			12	BRAZOS	BURNET
2993	04/30/1984		LANE, BEN G JR | LANE, KAY K	0.17	AGRICULTURE - IRRIGATION	12/31/1925			12	BRAZOS	BURNET
2994	04/30/1984		SPENCER, BETTY LOU RACHEL | SPENCER, THOMAS MORRIS	6.00	AGRICULTURE - IRRIGATION	12/31/1925			12	BRAZOS	BURNET
2995	04/30/1984		MORSE RANCH A PARTNERSHIP	120.00	AGRICULTURE - IRRIGATION	03/07/1966			12	BRAZOS	BURNET
3411	02/23/1977		CITY OF MEADOWLAKES	403.00	AGRICULTURE - IRRIGATION | MUNICIPAL/DOMESTIC | RECREATION	11/22/1976		140.0000	14	NOT IN WM AREA	BURNET
3735	02/28/1985		RYLANDER, GARY RAY | RYLANDER, HENRY GRADY III	26.00	AGRICULTURE - IRRIGATION	06/30/1963			12	BRAZOS	BURNET
5116	03/18/1987		BUCKNER BAPTIST BENEVOLENCES		RECREATION	12/30/1986		3.0000	14	NOT IN WM AREA	BURNET
5193	12/15/1988		GREENSMITHS INC		RECREATION | WATER QUALITY	09/06/1988		6.1400	14	NOT IN WM AREA	BURNET
5327	02/14/1991		CITY OF BURNET		RECREATION	10/26/1990		10.0000	14	NOT IN WM AREA	BURNET
5452	04/16/1993		BASKIN FAMILY CAMPS LP		RECREATION	02/23/1993		160.0000	14	NOT IN WM AREA	BURNET
5480	06/28/1989		LOWER COLORADO RIVER AUTHORITY	15700.00	INDUSTRIAL	03/29/1926	15700.0000	138500.0000	14	NOT IN WM AREA	BURNET
5480	06/28/1989		LOWER COLORADO RIVER AUTHORITY		HYDROELECTRIC | WATER QUALITY	03/29/1926			14	NOT IN WM AREA	BURNET
5481	06/28/1989		LOWER COLORADO RIVER AUTHORITY		HYDROELECTRIC | WATER QUALITY	03/29/1926		8760.0000	14	NOT IN WM AREA	BURNET
5593	02/20/1998		GLAZE, JENNIFER S | GLAZE, JERRY W	130.00	AGRICULTURE - IRRIGATION	07/01/1997			12	BRAZOS	BURNET | LAMPASAS
5478	06/29/1989	C	LOWER COLORADO RIVER AUTHORITY	1500000.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MINING | MUNICIPAL/DO	03/29/1926		992475.0000	14	NOT IN WM AREA	BURNET | LLANO
5478	06/29/1989	C	LOWER COLORADO RIVER AUTHORITY		DOMESTIC AND LIVESTOCK | HYDROELECTRIC | RECHARGE | RECREAT	03/29/1926			14	NOT IN WM AREA	BURNET | LLANO
5479	06/28/1989		LOWER COLORADO RIVER AUTHORITY		HYDROELECTRIC | RECREATION | WATER QUALITY	03/29/1926		17545.0000	14	NOT IN WM AREA	BURNET | LLANO
5058	08/18/1986		HHCC PROPERTIES INC		RECREATION	05/16/1986		37.0000	14	NOT IN WM AREA	BURNET | TRAVIS
2079	07/03/1981		LAKE SHERIDAN ESTATES INC		RECREATION	10/07/1963		455.0000	16	SOUTH TEXAS	COLORADO
2080	07/03/1981		ENGSTROM BROTHERS PARTNERSHIP	248.00	AGRICULTURE - IRRIGATION	12/31/1938			16	SOUTH TEXAS	COLORADO
2081	07/03/1981		ENGSTROM, BRAD | ENGSTROM, BRADLEY ELVEN | ENGSTROM, CHARLES K	683.27	AGRICULTURE - IRRIGATION	04/30/1955			16	SOUTH TEXAS	COLORADO
2085	07/03/1981		WIED, WILLIAM MARK	13.00	AGRICULTURE - IRRIGATION	12/31/1962			16	SOUTH TEXAS	COLORADO
2086	07/03/1981		MATZKE, JEANETTER RICHTER | TAMORA PARTNERS LTD	282.00	AGRICULTURE - IRRIGATION	04/30/1955			16	SOUTH TEXAS	COLORADO
2087	07/03/1981		KORENEK, LEO M	84.00	AGRICULTURE - IRRIGATION	04/30/1946		20.0000	16	SOUTH TEXAS	COLORADO
2088	07/03/1981		KORENEK, LEO M	45.00	AGRICULTURE - IRRIGATION	04/30/1924			16	SOUTH TEXAS	COLORADO
2089	07/03/1981		HOFFMAN, LOUIS P	48.00	AGRICULTURE - IRRIGATION	05/31/1966			16	SOUTH TEXAS	COLORADO
3415	02/07/1985		HUBENAK, DEBORAH ANN | KENNEDY, DONNA PLENGEYER | OTETER, DIAN	13.52	AGRICULTURE - IRRIGATION	05/31/1964			13	NOT IN WM AREA	COLORADO
3415	02/07/1985		STALNAKER, GEORGE F | STALNAKER, PHYLLYS A	10.03	AGRICULTURE - IRRIGATION	05/31/1964			13	NOT IN WM AREA	COLORADO
3415	02/07/1985		JORDAN, JAMES ROBERT	1.17	AGRICULTURE - IRRIGATION	05/31/1964			13	NOT IN WM AREA	COLORADO
3415	02/07/1985		CORLEY, MARIDEE BATLA	0.28	AGRICULTURE - IRRIGATION	05/31/1964			13	NOT IN WM AREA	COLORADO
3416	02/07/1985		ADKINS, JOHN W	150.00	AGRICULTURE - IRRIGATION	07/14/1980			13	NOT IN WM AREA	COLORADO
3417	02/07/1985		ADKINS, ALICE M	150.00	AGRICULTURE - IRRIGATION	07/14/1980			13	NOT IN WM AREA	COLORADO
3904	10/14/1982		WEID, NOBERT | WISHERT, PAT	60.00	AGRICULTURE - IRRIGATION	11/16/1981			16	SOUTH TEXAS	COLORADO
3906	10/14/1982		POPP, HERBERT J | POPP, JOSEPHINE	140.00	AGRICULTURE - IRRIGATION	11/16/1981		20.0000	16	SOUTH TEXAS	COLORADO
3908	10/14/1982		MILLER, ELIZABETH B	279.00	AGRICULTURE - IRRIGATION	11/16/1981			16	SOUTH TEXAS	COLORADO
5156	11/23/1987		US DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE		AGRICULTURE - WILDLIFE MANAGEMENT	09/15/1987		91.0000	13	NOT IN WM AREA	COLORADO
5425	08/26/1988		TREFNY, CHARLES T	76.00	AGRICULTURE - IRRIGATION	07/31/1956		10.0000	14	NOT IN WM AREA	COLORADO
5429	08/26/1988		JOHNSON, C G	73.00	AGRICULTURE - IRRIGATION	07/31/1949			14	NOT IN WM AREA	COLORADO
5432	08/26/1988	A	TREFNY, CHARLES T	21.00	AGRICULTURE - IRRIGATION	08/31/1951			14	NOT IN WM AREA	COLORADO
5475	06/28/1989	B	LOWER COLORADO RIVER AUTHORITY	186250.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MINING | MUNICIPAL/DO	01/04/1901		9600.0000	14	NOT IN WM AREA	COLORADO
5523	06/01/1995		POWERS, CLARK | POWERS, VICKI	300.00	AGRICULTURE - IRRIGATION	03/01/1995			13	NOT IN WM AREA	COLORADO
5728	08/10/2001		CITY OF WEIMAR	23.00	AGRICULTURE - IRRIGATION	01/25/2001		12.5000	14	NOT IN WM AREA	COLORADO
5434	06/28/1989	F	LOWER COLORADO RIVER AUTHORITY	133000.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MUNICIPAL/DOMESTIC	11/01/1900		86.0000	14	NOT IN WM AREA	COLORADO | MATAGORDA | WHARTON
5434	06/28/1989	F	CITY OF CORPUS CHRISTI	35000.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MUNICIPAL/DOMESTIC	11/02/1900			14	NOT IN WM AREA	COLORADO | MATAGORDA | WHARTON
5731	04/29/2011		LOWER COLORADO RIVER AUTHORITY	853514.00	AGRICULTURE - IRRIGATION | FLOOD CONTROL | INDUSTRIAL | MUNI	02/28/2001		500000.0000	14	NOT IN WM AREA	COLORADO | MATAGORDA | WHARTON
2075	07/03/1981		TOWNSEND, O C	2.00	AGRICULTURE - IRRIGATION	12/31/1954		1.7500	16	SOUTH TEXAS	FAYETTE
2075	07/03/1981		WRIGHT, H D | WRIGHT, LETA	2.00	AGRICULTURE - IRRIGATION	12/31/1954			16	SOUTH TEXAS	FAYETTE
3469	06/22/1977		ZAVODA, JEAN HOLLAND		RECREATION	06/14/1976		44.0000	14	NOT IN WM AREA	FAYETTE
3522	11/10/1977		WETH, JOHN	35.00	AGRICULTURE - IRRIGATION	06/20/1977		33.0000	14	NOT IN WM AREA	FAYETTE
5410	08/26/1988		FIVE H AND ONE LTD		RECREATION	02/17/1975		391.0000	14	NOT IN WM AREA	FAYETTE
5416	08/26/1988		CLEAR LAKE PINES MAINTENANCE CORPORATION		RECREATION	09/16/1974		322.0000	14	NOT IN WM AREA	FAYETTE
5417	08/26/1988		OEDING, G W		RECREATION	09/17/1973		181.4000	14	NOT IN WM AREA	FAYETTE
5418	08/26/1988		KAPPLER, EDMUND | KAPPLER, RUBEN H | KAPPLER, WANDA	128.00	AGRICULTURE - IRRIGATION	02/10/1975		189.0000	14	NOT IN WM AREA	FAYETTE
5420	08/26/1988		GOLDAPP, WILLIAM	32.00	AGRICULTURE - IRRIGATION	06/10/1968		32.0000	14	NOT IN WM AREA	FAYETTE
5421	08/26/1988		LEHMANN, WILLIE G	30.00	AGRICULTURE - IRRIGATION	05/22/1972			14	NOT IN WM AREA	FAYETTE
5422	08/26/1988		LEHMANN, ROBERT	3.00	AGRICULTURE - IRRIGATION	06/30/1967			14	NOT IN WM AREA	FAYETTE
5423	08/26/1988		CLEAR LAKE PINES INC		RECREATION	07/05/1976		59.0000	14	NOT IN WM AREA	FAYETTE
5424	08/26/1988		BARTEK, DOLORES M | BARTEK, ERNEST G	47.00	AGRICULTURE - IRRIGATION	07/31/1967		59.0000	14	NOT IN WM AREA	FAYETTE
5426	08/26/1988		HAGEMANN, HOWARD RAY | JACKSON, BETTY RUTH	10.00	AGRICULTURE - IRRIGATION	07/31/1956			14	NOT IN WM AREA	FAYETTE
5427	08/26/1988		HENSEL, C A	14.00	AGRICULTURE - IRRIGATION	07/31/1956		7.5000	14	NOT IN WM AREA	FAYETTE
5428	08/26/1988		JOHNSON, BETTY R | JOHNSON, RALPH T	15.00	AGRICULTURE - IRRIGATION	07/31/1956			14	NOT IN WM AREA	FAYETTE
5433	08/26/1988		REYNOLDS, KELLY K	35.00	AGRICULTURE - IRRIGATION	11/04/1974		200.0000	14	NOT IN WM AREA	FAYETTE
5474	06/28/1989	A	LOWER COLORADO RIVER AUTHORITY		INDUSTRIAL | INDUSTRIAL - POWER GENERATION | WATER QUALITY	02/03/1975		122530.0000	14	NOT IN WM AREA	FAYETTE
5474	06/28/1989	A	LOWER COLORADO RIVER AUTHORITY		INDUSTRIAL | INDUSTRIAL - POWER GENERATION | WATER QUALITY	02/03/1975			14	NOT IN WM AREA	FAYETTE
5471	06/28/1989	D	CITY OF AUSTIN		RECREATION	12/31/1928		10.7000	14	NOT IN WM AREA	FAYETTE | TRAVIS
5471	06/28/1989	D	CITY OF AUSTIN	24000.00	HYDROELECTRIC | INDUSTRIAL | INDUSTRIAL - POWER GENERATION |	06/27/1914	24000.0000		14	NOT IN WM AREA	FAYETTE | TRAVIS
5471	06/28/1989	D	CITY OF AUSTIN		INDUSTRIAL | INDUSTRIAL - POWER GENERATION | RECREATION | WA	06/27/1914			14	NOT IN WM AREA	FAYETTE | TRAVIS
5471	06/28/1989	D	CITY OF AUSTIN	271403.00	MUNICIPAL/DOMESTIC	06/30/1913		24520.0000	14	NOT IN WM AREA	FAYETTE | TRAVIS
5471	06/28/1989	D	CITY OF AUSTIN	1150.00	AGRICULTURE - IRRIGATION	06/30/1913			14	NOT IN WM AREA	FAYETTE | TRAVIS
5471	06/28/1989	D	CITY OF AUSTIN		HYDROELECTRIC | WATER QUALITY	06/30/1913			14	NOT IN WM AREA	FAYETTE | TRAVIS
1405	08/15/1980	A	CUATRO ESTRELLAS LTD	5.64	AGRICULTURE - IRRIGATION	12/31/1959			14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	VEHLE, MARY C	15.41	AGRICULTURE - IRRIGATION	12/31/1959			14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	SECHRIST, RICHARD L	12.38	AGRICULTURE - IRRIGATION	12/31/1959		15.0000	14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	REDDING RANCH LTD	9.07	AGRICULTURE - IRRIGATION	12/31/1959			14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	CUATRO ESTRELLAS LTD	1.86	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	GILLESPIE

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1405	08/15/1980	A	VEHLE, MARY C	5.07	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	SECHRIST, RICHARD L	4.08	AGRICULTURE - IRRIGATION	12/31/1964		15.0000	14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	REDDING RANCH LTD	2.99	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	CUATRO ESTRELLAS LTD	2.07	AGRICULTURE - IRRIGATION	12/31/1965			14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	VEHLE, MARY C	5.65	AGRICULTURE - IRRIGATION	12/31/1965			14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	SECHRIST, RICHARD L	4.55	AGRICULTURE - IRRIGATION	12/31/1965		15.0000	14	NOT IN WM AREA	GILLESPIE
1405	08/15/1980	A	REDDING RANCH LTD	3.33	AGRICULTURE - IRRIGATION	12/31/1965			14	NOT IN WM AREA	GILLESPIE
1406	08/15/1980		REDDING RANCH LTD	8.00	AGRICULTURE - IRRIGATION	09/30/1957			14	NOT IN WM AREA	GILLESPIE
1407	08/15/1980		CRENWELGE, GENE | CRENWELGE, PENNY LEIGH GRONA	17.38	AGRICULTURE - IRRIGATION	12/31/1940			14	NOT IN WM AREA	GILLESPIE
1407	08/15/1980		FALCON SEABOARD DIVERSIFIED INC	24.55	AGRICULTURE - IRRIGATION	12/31/1940		75.0000	14	NOT IN WM AREA	GILLESPIE
1407	08/15/1980		FIELDLER, SANDRA GRONA | GRONA, CLETIS | REID, KYNA GRONA	11.75	AGRICULTURE - IRRIGATION	12/31/1940			14	NOT IN WM AREA	GILLESPIE
1407	08/15/1980		ROBINSON, JOHN | ROBINSON, LYNEE E C	6.32	AGRICULTURE - IRRIGATION	12/31/1940			14	NOT IN WM AREA	GILLESPIE
1408	08/15/1980		VEHLE, MARY C	8.25	AGRICULTURE - IRRIGATION	12/31/1955		27.0000	14	NOT IN WM AREA	GILLESPIE
1409	08/15/1980		BIERSCHWALE, KEYSER	12.50	AGRICULTURE - IRRIGATION	12/31/1958		8.0000	14	NOT IN WM AREA	GILLESPIE
1410	08/15/1980		HARRIS, SCOTT | HARRIS, TAMMY	25.34	AGRICULTURE - IRRIGATION	12/31/1970			14	NOT IN WM AREA	GILLESPIE
1411	08/15/1980		MEEK, BETTY | MEEK, PAUL D	50.00	AGRICULTURE - IRRIGATION	12/31/1951			14	NOT IN WM AREA	GILLESPIE
1412	08/15/1980		BONN, TERRY	118.00	AGRICULTURE - IRRIGATION	03/31/1955			14	NOT IN WM AREA	GILLESPIE
1413	08/15/1980		HENKE, EDWIN | HENKE, WERNER	20.60	AGRICULTURE - IRRIGATION	09/30/1954		2.0000	14	NOT IN WM AREA	GILLESPIE
1414	08/15/1980		KOTT, ERNEST W	12.00	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	GILLESPIE
1415	08/15/1980		JUENKE, HILMER | JUENKE, STEVE	12.50	AGRICULTURE - IRRIGATION	07/01/1974		9.0000	14	NOT IN WM AREA	GILLESPIE
1416	08/15/1980		BONN, CORRINE | BONN, MELVIN	21.75	AGRICULTURE - IRRIGATION	04/30/1955			14	NOT IN WM AREA	GILLESPIE
1417	08/15/1980		HENKE, ROY RICHARDS	10.90	AGRICULTURE - IRRIGATION	05/31/1938			14	NOT IN WM AREA	GILLESPIE
1417	08/15/1980		BRYLA, SUSAN GAIL | HENKE, ALLEN ROY	93.60	AGRICULTURE - IRRIGATION	05/31/1938			14	NOT IN WM AREA	GILLESPIE
1417	08/15/1980		COP, E J	2.90	AGRICULTURE - IRRIGATION	05/31/1938			14	NOT IN WM AREA	GILLESPIE
1417	08/15/1980		CHEYENNE INTERESTS INC | WILLIAM E COOPER INC	116.30	AGRICULTURE - IRRIGATION	05/31/1938			14	NOT IN WM AREA	GILLESPIE
1417	08/15/1980		HENKE, ALLEN ROY	16.30	AGRICULTURE - IRRIGATION	05/31/1938			14	NOT IN WM AREA	GILLESPIE
1417	08/15/1980		BRYLA, SUSAN GAIL | CHEYENNE INTERESTS INC | HENKE, ALLEN ROY | WILLIAM E COOP		AGRICULTURE - IRRIGATION	05/31/1938		145.0000	14	NOT IN WM AREA	GILLESPIE
1418	08/15/1980		KOTT, NATHAN	44.00	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	GILLESPIE
1419	08/15/1980		HEIMANN, WALTON JAMES	3.00	AGRICULTURE - IRRIGATION	04/30/1960			14	NOT IN WM AREA	GILLESPIE
1420	08/15/1980		WISSEMANN, LILLIAN M | WISSEMANN, STANLEY	9.86	AGRICULTURE - IRRIGATION	01/10/1967			14	NOT IN WM AREA	GILLESPIE
1420	08/15/1980		YUCA LILY LIMITED	10.14	AGRICULTURE - IRRIGATION	01/10/1967			14	NOT IN WM AREA	GILLESPIE
1421	08/15/1980		PARRISH, BARBARA H | PARRISH, DONALD M	66.71	AGRICULTURE - IRRIGATION	12/31/1935		5.0000	14	NOT IN WM AREA	GILLESPIE
1421	08/15/1980		MCLAUGHLIN, BRIAN THOMAS	31.29	AGRICULTURE - IRRIGATION	12/31/1935			14	NOT IN WM AREA	GILLESPIE
1422	08/15/1980	A	WEIRICH BROS INC	50.20	MINING	12/31/1959			14	NOT IN WM AREA	GILLESPIE
1423	08/15/1980		HAGEL, BARBARA BECKMANN | HAGEL, BRAIDEN BEN | HAGEL, HOLLI KATE	80.00	AGRICULTURE - IRRIGATION	04/15/1967		8.0000	14	NOT IN WM AREA	GILLESPIE
1424	08/15/1980		RODRIGUEZ, A JABLER | RODRIGUEZ, DEBRA J	33.00	AGRICULTURE - IRRIGATION	06/30/1964			14	NOT IN WM AREA	GILLESPIE
1425	08/15/1980		GILBERT, ANNETTE | GILBERT, RAY E	2.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	GILLESPIE
1426	08/15/1980		BURGESS, F W	17.00	AGRICULTURE - IRRIGATION	04/30/1963			14	NOT IN WM AREA	GILLESPIE
1427	08/15/1980	A	CITY OF FREDERICKSBURG		RECREATION	04/01/1968		100.0000	14	NOT IN WM AREA	GILLESPIE
1428	08/15/1980		RIOS, GUSTAVO | RIOS, JACQUELYN	1.50	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1428	08/15/1980		BROWN, WILLIAM GOULD | JEANETTE BROWN	9.68	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1428	08/15/1980		HOLLIMON, DABS BROWN | HOLLIMON, JOHN E	9.82	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1429	08/15/1980		ERNST, KERMIT	5.75	AGRICULTURE - IRRIGATION	12/31/1951			14	NOT IN WM AREA	GILLESPIE
1429	08/15/1980		GILLESPIE COUNTY	0.25	AGRICULTURE - IRRIGATION	12/31/1951			14	NOT IN WM AREA	GILLESPIE
1430	08/15/1980		BOOS, RICKY DEAN	25.00	AGRICULTURE - IRRIGATION	12/31/1950			14	NOT IN WM AREA	GILLESPIE
1431	08/15/1980		WISSEMANN, LILLIAN M	11.00	AGRICULTURE - IRRIGATION	04/15/1967			14	NOT IN WM AREA	GILLESPIE
1432	08/15/1980		SOLBRIG, BETTY | SOLBRIG, DAYTON	25.00	AGRICULTURE - IRRIGATION	12/31/1947		16.0000	14	NOT IN WM AREA	GILLESPIE
1432	08/15/1980		PIPKIN, DRU C | PIPKIN, MARVIN G	11.50	AGRICULTURE - IRRIGATION	12/31/1947			14	NOT IN WM AREA	GILLESPIE
1433	08/15/1980		STEHLING, THEODORE J	30.00	AGRICULTURE - IRRIGATION	01/11/1949		7.8100	14	NOT IN WM AREA	GILLESPIE
1434	08/15/1980		PERRY, J HARDIN	6.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	GILLESPIE
1435	08/15/1980		ESTATE OF CLEMENS IMMEL	4.00	AGRICULTURE - IRRIGATION	12/31/1957			14	NOT IN WM AREA	GILLESPIE
1435	08/15/1980		ESTATE OF CLEMENS IMMEL	8.00	INDUSTRIAL	12/31/1957			14	NOT IN WM AREA	GILLESPIE
1436	08/15/1980		MILLARD, GAY NELL | VESTAL, DAN ROBERT | VESTAL, HAL EDWARD	12.00	AGRICULTURE - IRRIGATION	05/31/1965			14	NOT IN WM AREA	GILLESPIE
1437	08/15/1980		BROWN, DOR W JR | BROWN, VIRGINIA | KLIER, KATHY L	30.00	AGRICULTURE - IRRIGATION	04/30/1964			14	NOT IN WM AREA	GILLESPIE
1438	08/15/1980		FRANTZEN, HENRY J	3.98	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1438	08/15/1980		FRANTZEN, LESTER C	33.02	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1438	08/15/1980		DWARHUS, ALBERT G JR	3.00	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1439	08/15/1980		WEINHEIMER, HILMER	221.00	AGRICULTURE - IRRIGATION	05/31/1948			14	NOT IN WM AREA	GILLESPIE
1440	08/15/1980	A	BOOT RANCH HOLDINGS LLC	121.00	AGRICULTURE - IRRIGATION | RECREATION	12/31/1943		195.0000	14	NOT IN WM AREA	GILLESPIE
1441	08/15/1980	A	BOOT RANCH HOLDINGS LLC		AGRICULTURE - IRRIGATION | RECREATION	11/08/2005		87.0000	14	NOT IN WM AREA	GILLESPIE
1441	08/15/1980	A	BOOT RANCH HOLDINGS LLC		AGRICULTURE - IRRIGATION | RECREATION	12/31/1943		6.0000	14	NOT IN WM AREA	GILLESPIE
1441	08/15/1980	A	BOOT RANCH HOLDINGS LLC		AGRICULTURE - IRRIGATION | RECREATION	12/31/1943		56.0000	14	NOT IN WM AREA	GILLESPIE
1441	08/15/1980	A	BOOT RANCH HOLDINGS LLC	34.00	AGRICULTURE - IRRIGATION	12/31/1943			14	NOT IN WM AREA	GILLESPIE
1442	08/15/1980		MANER, LISTON	12.00	AGRICULTURE - IRRIGATION	12/31/1940		13.0000	14	NOT IN WM AREA	GILLESPIE
1443	08/15/1980		PATTESON, EUGENE	13.18	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1443	08/15/1980		PATTESON, JANICE C	0.25	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1443	08/15/1980		PATTESON, EUGENE | PATTESON, TROY L	1.57	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1444	08/15/1980		K & S SUPPLY CORPORATION	100.00	AGRICULTURE - IRRIGATION	12/31/1915		60.0000	14	NOT IN WM AREA	GILLESPIE
1445	08/15/1980	A	MOHR, WAYNE E	30.00	MINING	12/31/1951		5.0000	14	NOT IN WM AREA	GILLESPIE
1446	08/15/1980		MEDICINE BOW RIVER RANCH LIMITED PARTNERSHIP	45.00	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	GILLESPIE
1447	08/15/1980		PAINTER, MICHAEL G	21.00	AGRICULTURE - IRRIGATION	08/31/1964			14	NOT IN WM AREA	GILLESPIE
1447	08/15/1980		SMITH, CONNIE | SMITH, ROBERT	10.00	AGRICULTURE - IRRIGATION	08/31/1964			14	NOT IN WM AREA	GILLESPIE
1449	08/15/1980		HOHENBERGER, DANIEL	26.00	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1450	08/15/1980		UNDERWOOD, JASON | UNDERWOOD, MARTHA	35.00	AGRICULTURE - IRRIGATION	12/31/1943		35.0000	14	NOT IN WM AREA	GILLESPIE
1452	08/15/1980		PETSCH, SHEILA E	18.50	AGRICULTURE - IRRIGATION	12/31/1952		37.0000	14	NOT IN WM AREA	GILLESPIE
1452	08/15/1980		BELL, JEANINE M	18.50	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1453	08/15/1980		WEHMEYER, WILLIE A JR	41.00	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	GILLESPIE
1454	08/15/1980		WEHMEYER, WILLIE A JR	67.50	AGRICULTURE - IRRIGATION	12/31/1962			14	NOT IN WM AREA	GILLESPIE
1456	08/15/1980		MIKOSH, ROSS	1.67	AGRICULTURE - IRRIGATION	12/31/1967			14	NOT IN WM AREA	GILLESPIE
1456	08/15/1980		BERHENDS, MELVIN RAY	6.50	AGRICULTURE - IRRIGATION	12/31/1967			14	NOT IN WM AREA	GILLESPIE
1456	08/15/1980		MIKOSH, BERT ALAN	2.33	AGRICULTURE - IRRIGATION	12/31/1967			14	NOT IN WM AREA	GILLESPIE
1457	08/15/1980		BERNARD STAUDT ESTATE	14.00	AGRICULTURE - IRRIGATION	12/31/1965			14	NOT IN WM AREA	GILLESPIE
1458	08/15/1980		NEBGEN, HILMAR O	1.70	AGRICULTURE - IRRIGATION	08/01/1966			14	NOT IN WM AREA	GILLESPIE

Lower Colorado Regional Water Planning Area
TCEQ Active Water Rights - December 14, 2018

WR NO	WR ISSUE DATE	AMENDMENT LETTER	OWNER NAME	DIVERSION AMOUNT (AFY)	USE	PRIORITY DATE	CONSUMPTIVE AMOUNT (AFY)	STORAGE AMOUNT (AF)	BASIN	WATER MASTER AREA	COUNTY
1459	08/15/1980	A	RUEBSAHM, RUBEN	25.50	AGRICULTURE - IRRIGATION	12/31/1953			14	NOT IN WM AREA	GILLESPIE
1460	08/15/1980	A	KIMBERLY S ZUBERBUELER TRUST	9.85	AGRICULTURE - IRRIGATION	12/31/1948			14	NOT IN WM AREA	GILLESPIE
1460	08/15/1980	A	KIMBERLEY S ZUBERBUELER	0.04	AGRICULTURE - IRRIGATION	12/31/1948			14	NOT IN WM AREA	GILLESPIE
1460	08/15/1980	A	ROBERT L ZUBERBUELER	0.12	AGRICULTURE - IRRIGATION	12/31/1948			14	NOT IN WM AREA	GILLESPIE
1461	08/15/1980		THE LBJ COMPANY	3.26	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1461	08/15/1980		FULTON, JOE KIRK	499.83	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1461	08/15/1980		HOWARD, J MIKE | HOWARD, MARTHA	13.81	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1461	08/15/1980		HULETT, BYRON C | HULETT, ELIZABETH C	13.10	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	GILLESPIE
1462	08/15/1980		TEXAS PARKS AND WILDLIFE DEPARTMENT		RECREATION	05/08/1972		73.0000	14	NOT IN WM AREA	GILLESPIE
1463	08/15/1980		ERNEST HODGES ESTATE | HODGES, WILLIAM BATTS	39.00	AGRICULTURE - IRRIGATION	12/31/1950		2.5000	14	NOT IN WM AREA	GILLESPIE
1464	08/15/1980		THE LBJ COMPANY	86.00	AGRICULTURE - IRRIGATION	01/08/1952		48.0000	14	NOT IN WM AREA	GILLESPIE
1465	08/15/1980		US DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE	114.00	AGRICULTURE - IRRIGATION	01/08/1952			14	NOT IN WM AREA	GILLESPIE
1466	08/15/1980	A	THE LBJ COMPANY | US DEPARTMENT OF THE INTERIOR NATIONAL PARK S	1243.96	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	GILLESPIE
1466	08/15/1980	A	FULTON, JOE KIRK	16.04	AGRICULTURE - IRRIGATION	04/08/1952			14	NOT IN WM AREA	GILLESPIE
1467	08/15/1980		AUSTIN INVESTMENTS CO | US DEPARTMENT OF THE INTERIOR NATIONAL	220.00	AGRICULTURE - IRRIGATION	12/31/1953		36.0000	14	NOT IN WM AREA	GILLESPIE
1469	08/15/1980		TEXAS PARKS AND WILDLIFE DEPARTMENT	160.00	AGRICULTURE - IRRIGATION	03/31/1964			14	NOT IN WM AREA	GILLESPIE
1471	08/15/1980		ESTATE OF J O TANNER	21.70	AGRICULTURE - IRRIGATION	12/31/1944		9.0000	14	NOT IN WM AREA	GILLESPIE
1471	08/15/1980		TANNER, GEORGE RICHARD	1.30	AGRICULTURE - IRRIGATION	12/31/1944			14	NOT IN WM AREA	GILLESPIE
1471	08/15/1980		LINDIG, KENNETH	33.00	AGRICULTURE - IRRIGATION	12/31/1944			14	NOT IN WM AREA	GILLESPIE
1474	08/15/1980		EP3 RANCH LLC	25.93	AGRICULTURE - IRRIGATION	12/31/1900		45.0000	14	NOT IN WM AREA	GILLESPIE
1474	08/15/1980		LIFE ESTATE OF KERMIT R ECKHARDT	0.07	AGRICULTURE - IRRIGATION	12/31/1900		45.0000	14	NOT IN WM AREA	GILLESPIE
1475	08/15/1980	A	OTTMERS, CHARLES	3.00	AGRICULTURE - IRRIGATION	12/31/1942		1.5000	14	NOT IN WM AREA	GILLESPIE
1476	08/15/1980		OTTMERS, JOHNNIE W	3.00	AGRICULTURE - IRRIGATION	12/31/1966		4.0000	14	NOT IN WM AREA	GILLESPIE
1632	08/15/1980		BAETHAGE, BRADLEY OWEN | BAETHAGE, EDNA M	5.73	AGRICULTURE - IRRIGATION	03/31/1954			14	NOT IN WM AREA	GILLESPIE
1632	08/15/1980		BAETHAGE, EDNA M | BAETHAGE, MICHAEL VANCE	7.75	AGRICULTURE - IRRIGATION	03/31/1954			14	NOT IN WM AREA	GILLESPIE
1632	08/15/1980		HOOPER, BYRON KEITH | HOOPER, LENNAH JO	9.52	AGRICULTURE - IRRIGATION	03/31/1954			14	NOT IN WM AREA	GILLESPIE
1988	07/17/1981		ESTATE OF JIMMIE L QUERNER SR	128.00	AGRICULTURE - IRRIGATION	12/31/1960			18	SOUTH TEXAS	GILLESPIE
2619	08/31/1983		TEAGUE, BILL	114.00	AGRICULTURE - IRRIGATION	09/30/1962			14	NOT IN WM AREA	GILLESPIE
2620	08/31/1983		ERSCH, LEVY	1.00	AGRICULTURE - IRRIGATION	04/30/1966			14	NOT IN WM AREA	GILLESPIE
2621	08/31/1983		PETERSEN, DANIEL J	15.00	AGRICULTURE - IRRIGATION	12/31/1935		55.0000	14	NOT IN WM AREA	GILLESPIE
2622	08/31/1983		RABKE, LEROY	0.50	INDUSTRIAL	09/30/1944		0.7500	14	NOT IN WM AREA	GILLESPIE
3405	02/10/1977		PETERSEN, DANIEL J	55.00	AGRICULTURE - IRRIGATION	11/08/1976		55.0000	14	NOT IN WM AREA	GILLESPIE
3409	02/17/1977		HEXT, J D	19.00	AGRICULTURE - IRRIGATION	11/22/1976		19.0000	14	NOT IN WM AREA	GILLESPIE
5427	12/08/1992		CITY OF FREDERICKSBURG		RECREATION	07/15/1992		0.0400	14	NOT IN WM AREA	GILLESPIE
1448	08/15/1980		KLINKSIEK, VICTOR	22.00	AGRICULTURE - IRRIGATION	12/31/1923			14	NOT IN WM AREA	GILLESPIE | KENDALL
5086	10/31/1986		CARRIGAN, STEPHEN P	88.00	AGRICULTURE - IRRIGATION	08/15/1986			14	NOT IN WM AREA	HAYS
5273	04/23/1990		COYOTE CREW RANCH LTD	60.00	AGRICULTURE - IRRIGATION	12/18/1989			14	NOT IN WM AREA	HAYS
5360	08/28/1991		RIVER OAKS RANCH DEVELOPMENT CORPORATION		RECREATION	05/15/1991		130.0000	14	NOT IN WM AREA	HAYS
5387	08/26/1988		ARNOLD, JAMES H JR | ARNOLD, JESSAMINE J | ARNOLD, PATRICIA	60.67	AGRICULTURE - IRRIGATION	01/13/1965			14	NOT IN WM AREA	HAYS
5387	08/26/1988		ARNOLD, JAMES H JR	60.67	AGRICULTURE - IRRIGATION	01/13/1965			14	NOT IN WM AREA	HAYS
5387	08/26/1988		CUNNINGHAM, ISABELLA C M | CUNNINGHAM, WILLIAM H	60.66	AGRICULTURE - IRRIGATION	01/13/1965			14	NOT IN WM AREA	HAYS
5388	08/26/1988		MATHIS, TRAVIS ALLISON	16.00	AGRICULTURE - IRRIGATION	07/31/1965			14	NOT IN WM AREA	HAYS
5389	08/26/1988		ALEXANDER, ALMA WIDEN | ALEXANDER, CHRISTOPHER PERRY | ALEXAND	4.86	AGRICULTURE - IRRIGATION	12/31/1939			14	NOT IN WM AREA	HAYS
5389	08/26/1988		HANCOCK HANKS INVESTMENTS LTD	0.14	AGRICULTURE - IRRIGATION	12/31/1939			14	NOT IN WM AREA	HAYS
5390	08/26/1988		DICKSON, BETTY SLAUGHTER | SLAUGHTER FAMILY RANCH LIMITED PARTN	6.00	AGRICULTURE - IRRIGATION	12/31/1954		6.0000	14	NOT IN WM AREA	HAYS
5391	08/26/1988		ELLIOTT, KATHRYN LAURA NAGEL	12.00	AGRICULTURE - IRRIGATION	05/31/1955		5.0000	14	NOT IN WM AREA	HAYS
5696	06/01/2001		LA VENTANA RANCH OWNERS ASSOCIATION INC		RECREATION	08/15/2000		0.0700	14	NOT IN WM AREA	HAYS
5696	06/01/2001		LA VENTANA RANCH OWNERS ASSOCIATION INC		RECREATION	08/15/2000		0.2500	14	NOT IN WM AREA	HAYS
5696	06/01/2001		LA VENTANA RANCH OWNERS ASSOCIATION INC		RECREATION	08/15/2000		1.0000	14	NOT IN WM AREA	HAYS
5768	07/28/2003		NATERRA LAND OF TEXAS LLC		RECREATION	03/25/2002		0.0734	14	NOT IN WM AREA	HAYS
1571	08/15/1980	B	KINGSLAND WATER SUPPLY CORPORATION	40.00	MUNICIPAL/DOMESTIC	05/31/1910			14	NOT IN WM AREA	LLANO
1639	08/15/1980	B	CHANAS RANCH LLC	25.00	AGRICULTURE - IRRIGATION	03/29/1976		60.0000	14	NOT IN WM AREA	LLANO
1639	08/15/1980	B	CHANAS RANCH LLC	84.00	AGRICULTURE - IRRIGATION	07/31/1963			14	NOT IN WM AREA	LLANO
1642	08/15/1980		LEIFESTE, RANDOLPH C	5.00	AGRICULTURE - IRRIGATION | INDUSTRIAL	12/31/1956			14	NOT IN WM AREA	LLANO
1643	08/15/1980		PERKINS, CHARLES T JR | PERKINS, RHONDA	1.00	INDUSTRIAL	12/31/1959			14	NOT IN WM AREA	LLANO
1644	08/15/1980		GRENWELGE, NORMAN H	30.00	AGRICULTURE - IRRIGATION | INDUSTRIAL	12/31/1947			14	NOT IN WM AREA	LLANO
1645	08/15/1980		COWAN, JANELL B		RECREATION	12/31/1960		16.0000	14	NOT IN WM AREA	LLANO
1645	08/15/1980		BUSH, THOMAS P		RECREATION	12/31/1960		16.0000	14	NOT IN WM AREA	LLANO
1645	08/15/1980		BUSH, THOMAS P		RECREATION	12/31/1960		36.0000	14	NOT IN WM AREA	LLANO
1646	08/15/1980		MOSS, LUKE		RECREATION	12/31/1954		40.0000	14	NOT IN WM AREA	LLANO
1647	08/15/1980		TALKINGTON, RACHEL E JONES	15.00	AGRICULTURE - IRRIGATION	12/31/1900			14	NOT IN WM AREA	LLANO
1648	08/15/1980		KOTHMANN, FLOYD	2.00	AGRICULTURE - IRRIGATION	12/31/1930			14	NOT IN WM AREA	LLANO
1649	08/15/1980		JONES, ODIS K	6.00	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	LLANO
1650	08/15/1980	A	CITY OF LLANO	400.00	MUNICIPAL/DOMESTIC	12/10/1956		317.0000	14	NOT IN WM AREA	LLANO
1650	08/15/1980	A	CITY OF LLANO	100.00	AGRICULTURE - IRRIGATION	06/01/1976			14	NOT IN WM AREA	LLANO
1651	08/15/1980		GRIFFIN, CELIA J | GRIFFIN, STEVE	24.00	AGRICULTURE - IRRIGATION	09/30/1964			14	NOT IN WM AREA	LLANO
1652	08/15/1980		COLLIER MATERIALS INC	11.00	AGRICULTURE - IRRIGATION	03/31/1966			14	NOT IN WM AREA	LLANO
1653	08/15/1980		MOSS, LUKE		RECREATION	12/31/1945		276.0000	14	NOT IN WM AREA	LLANO
1654	08/15/1980		MOSS, MAUD		RECREATION	12/31/1939		251.0000	14	NOT IN WM AREA	LLANO
1655	08/15/1980	A	CITY OF LLANO		MUNICIPAL/DOMESTIC	12/10/1956		183.0000	14	NOT IN WM AREA	LLANO
1655	08/15/1980	A	CITY OF LLANO	1200.00	MUNICIPAL/DOMESTIC	06/13/1914		200.0000	14	NOT IN WM AREA	LLANO
1655	08/15/1980	A	CITY OF LLANO	180.00	AGRICULTURE - IRRIGATION	06/13/1914			14	NOT IN WM AREA	LLANO
1656	08/15/1980		CLYMER, GUY L		RECREATION	11/29/1946		3.0000	14	NOT IN WM AREA	LLANO
1657	08/15/1980		TURBIVILLE, LEONARD	1.00	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	LLANO
1658	08/15/1980		LONG, D MALCOLM	60.00	AGRICULTURE - IRRIGATION	12/31/1904			14	NOT IN WM AREA	LLANO
1659	08/15/1980		FRANK M SILER TESTAMENTARY TRUST	24.00	AGRICULTURE - IRRIGATION	09/18/1918			14	NOT IN WM AREA	LLANO
2610	08/31/1983		T-BAR-O RANCH PARTNERSHIP LTD	99.00	AGRICULTURE - IRRIGATION	08/31/1957			14	NOT IN WM AREA	LLANO
2611	08/31/1983		BORDERS, PANSY | ESTATE OF ELLEN WILLIAMS | LYNN, BERNIS | WILLIAN	48.46	AGRICULTURE - IRRIGATION	12/31/1910			14	NOT IN WM AREA	LLANO
2611	08/31/1983		MCGINTY PROPERTIES LTD	3.54	AGRICULTURE - IRRIGATION	12/31/1910			14	NOT IN WM AREA	LLANO
2612	08/31/1983		LACKEY, JIMMEY GLYNN | LACKEY, SHEILAH JAN	12.00	AGRICULTURE - IRRIGATION	05/31/1955			14	NOT IN WM AREA	LLANO
2613	08/31/1983		SOUTHERN PACIFIC LINES	1.00	OTHER	01/19/1915			14	NOT IN WM AREA	LLANO
2616	08/31/1983		HALL, ANN ETTA		RECREATION	12/31/1935		24.0000	14	NOT IN WM AREA	LLANO
2617	08/31/1983		CARROLL, LILY E | CARROLL, TOM R | RATLIFF, J A | RATLIFF, J M | RATLIFF, LYNN		RECREATION	12/31/1950		20.0000	14	NOT IN WM AREA	LLANO

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2618	08/31/1983		DALRYMPLE, MILDRED INKS | INKS, JAMES M		RECREATION	12/31/1939		90.0000	14	NOT IN WM AREA	LLANO
2623	08/31/1983		OEHLER, SAMUEL	3.05	AGRICULTURE - IRRIGATION	12/31/1964		5.0000	14	NOT IN WM AREA	LLANO
2623	08/31/1983		JONATHAN, SCHOOLER C | SCHOOLER, MARIKA	3.96	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	LLANO
2624	08/31/1983		HOHMANN, HAROLD DONOVAN | HOHMANN, WINONA	6.56	AGRICULTURE - IRRIGATION	03/31/1966		11.0000	14	NOT IN WM AREA	LLANO
2625	08/31/1983		HOHMANN, HAROLD DONOVAN | HOHMANN, OTTO DOYLE	6.05	AGRICULTURE - IRRIGATION	03/31/1966			14	NOT IN WM AREA	LLANO
2626	08/31/1983		HOHMANN, OTTO DOYLE	10.39	AGRICULTURE - IRRIGATION	03/31/1966			14	NOT IN WM AREA	LLANO
2627	08/31/1983		MOSS, E J	1.00	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	LLANO
2628	08/31/1983		ESTATE OF ETHEL MAE MOSS	4.00	INDUSTRIAL	12/31/1955			14	NOT IN WM AREA	LLANO
3883	06/18/1982		LAKE LYNDON B JOHNSON IMPROVEMENT CORPORATION	750.00	AGRICULTURE - IRRIGATION | RECREATION	02/17/1982		26.4000	14	NOT IN WM AREA	LLANO
4121	06/07/1984		HORSESHOE BAY RESORT DESTINATIONS LLC		RECREATION	04/25/1983		21.3000	14	NOT IN WM AREA	LLANO
4152	11/01/1984		HORSESHOE BAY RESORT DESTINATIONS LLC		RECREATION	07/10/1984		3.6000	14	NOT IN WM AREA	LLANO
5033	08/04/1986		ESTATE OF C H SLATOR | GILLAN, DEBORAH SLATOR		DOMESTIC AND LIVESTOCK	12/12/1985			14	NOT IN WM AREA	LLANO
3426	02/07/1985		RUNNELLS, JOHN S	15.02	AGRICULTURE - IRRIGATION	03/01/1971			13	NOT IN WM AREA	MATAGORDA
3426	02/07/1985		BLAYLOCK, PATRICIA | BLAYLOCK, TIMOTHY R	26.16	AGRICULTURE - IRRIGATION	03/01/1971			13	NOT IN WM AREA	MATAGORDA
3426	02/07/1985		ESTATE OF C L SMITH	1.82	AGRICULTURE - IRRIGATION	03/01/1971			13	NOT IN WM AREA	MATAGORDA
3427	02/07/1985		TOWLER, BEN H JR	6.10	AGRICULTURE - IRRIGATION	11/07/1977			13	NOT IN WM AREA	MATAGORDA
3427	02/07/1985		MICHAEL D STONE | STONE, MICHAEL D	23.90	AGRICULTURE - IRRIGATION	11/07/1977			13	NOT IN WM AREA	MATAGORDA
3428	02/07/1985		ESTATE OF P J REEVES JR	20.00	AGRICULTURE - IRRIGATION	11/06/1978			13	NOT IN WM AREA	MATAGORDA
3429	02/07/1985		ALFORD, JANICE K	40.00	AGRICULTURE - IRRIGATION	06/27/1977			13	NOT IN WM AREA	MATAGORDA
3430	02/07/1985		HUDGINS DIVISION OF H D HUDGINS	800.00	AGRICULTURE - IRRIGATION	11/01/1954		190.0000	13	NOT IN WM AREA	MATAGORDA
3431	02/07/1985		PRUETT, MICHAEL J	44.47	AGRICULTURE - IRRIGATION	08/25/1964			13	NOT IN WM AREA	MATAGORDA
3431	02/07/1985		HUDGINS, SAMANTHA ANNETTE	40.53	AGRICULTURE - IRRIGATION	08/25/1964			13	NOT IN WM AREA	MATAGORDA
3432	02/07/1985		JONES, JOHNNY WAYNE | JONES, VICKI LYNN	2.00	AGRICULTURE - IRRIGATION	12/12/1977			13	NOT IN WM AREA	MATAGORDA
3432	02/07/1985		JONES, JOHNNY WAYNE | JONES, VICKI LYNN	78.00	AGRICULTURE - IRRIGATION	04/18/1983			13	NOT IN WM AREA	MATAGORDA
3434	02/07/1985		KOPNICKY, DONALD R | KOPNICKY, JANICE MARIE	30.00	AGRICULTURE - IRRIGATION	10/29/1979			13	NOT IN WM AREA	MATAGORDA
3435	02/07/1985		BLAIR, PAULINE H | COPPOCK, MICHAEL ANDREW | HUEBNER, JOHN A JR |	550.00	AGRICULTURE - IRRIGATION	04/02/1969		2.0000	13	NOT IN WM AREA	MATAGORDA
3435	02/07/1985		BLAIR, PAULINE H | COPPOCK, MICHAEL ANDREW | HUEBNER, JOHN A JR |	250.00	AGRICULTURE - IRRIGATION	04/26/1982			13	NOT IN WM AREA	MATAGORDA
3436	02/07/1985	A	STEPHEN T SLIVA INC	676.65	AGRICULTURE - IRRIGATION	12/16/1974		5.7000	13	NOT IN WM AREA	MATAGORDA
3436	02/07/1985	A	MATTHES, JUANITA LETULLE | MATTHES, RUSSELL A	203.35	AGRICULTURE - IRRIGATION	12/16/1974			13	NOT IN WM AREA	MATAGORDA
3437	02/07/1985		SAVAGE, FRANCIS I	410.96	AGRICULTURE - IRRIGATION	09/11/1967			13	NOT IN WM AREA	MATAGORDA
3437	02/07/1985		STANLEY, O B	2339.04	AGRICULTURE - IRRIGATION	09/11/1967			13	NOT IN WM AREA	MATAGORDA
3438	02/07/1985	A	E CROSS CATTLE CO INC	600.00	AGRICULTURE - IRRIGATION	06/21/1990			13	NOT IN WM AREA	MATAGORDA
3438	02/07/1985	A	E CROSS CATTLE CO INC	668.00	AGRICULTURE - IRRIGATION	06/25/1914			13	NOT IN WM AREA	MATAGORDA
3439	02/07/1985		E CROSS CATTLE CO INC	592.00	AGRICULTURE - IRRIGATION	06/25/1914			13	NOT IN WM AREA	MATAGORDA
3795	03/05/1981		LILLIAN G ZERNICEK TRUST	80.00	AGRICULTURE - IRRIGATION	12/22/1980			13	NOT IN WM AREA	MATAGORDA
3846	02/16/1982		MOORE, LINDA C	90.00	AGRICULTURE - IRRIGATION	11/09/1981		4.2000	13	NOT IN WM AREA	MATAGORDA
3895	09/14/1982		THE MINZE LAND INVESTMENTS LIMITED PARTNERSHIP	1000.00	AGRICULTURE - IRRIGATION	05/17/1982		3.0000	13	NOT IN WM AREA	MATAGORDA
3957	04/04/1983		FUTURO FARMS INC | HARDY, G P III	450.00	AGRICULTURE - IRRIGATION	01/10/1983		10.0000	13	NOT IN WM AREA	MATAGORDA
3967	04/29/1983		EASTMAN, MARY ANNIE | MCAFERTY, BETTY GENE	35.00	AGRICULTURE - IRRIGATION	12/20/1982			13	NOT IN WM AREA	MATAGORDA
3972	04/29/1983		JENKINS, KAREN H | JENKINS, WILLIAM R	1500.00	AGRICULTURE - IRRIGATION	01/31/1983			15	NOT IN WM AREA	MATAGORDA
3992	06/24/1983		RUNNELLS PASTURE COMPANY LTD	219.00	AGRICULTURE - IRRIGATION	02/28/1983			13	NOT IN WM AREA	MATAGORDA
4122	06/20/1984		COOK, ELAINE HOLUB | DAVIDSON, BARBARA ANN | EVERLING, KATHERINI	25.00	AGRICULTURE - IRRIGATION	11/28/1983			13	NOT IN WM AREA	MATAGORDA
4207	04/29/1985		APPELT, LESLIE L | CULWELL, DON A	750.00	AGRICULTURE - AQUACULTURE | INDUSTRIAL	01/03/1985		31.2800	15	NOT IN WM AREA	MATAGORDA
4207	04/29/1985		APPELT, LESLIE L | CULWELL, DON A	1500.00	AGRICULTURE | INDUSTRIAL	01/03/1985		79.4500	15	NOT IN WM AREA	MATAGORDA
4207	04/29/1985		APPELT, LESLIE L | CULWELL, DON A		RECREATION	01/03/1985		82.0000	15	NOT IN WM AREA	MATAGORDA
4780	01/20/1987		JOHNSON, MAX CORNELIUS | MARONEY, JOYCE JOHNSON	400.00	AGRICULTURE - IRRIGATION	11/24/1969		400.0000	15	NOT IN WM AREA	MATAGORDA
4781	01/20/1987		PETERSEN, GLORIA | PETERSEN, LAWRENCE J	400.00	AGRICULTURE - IRRIGATION	01/24/1916			15	NOT IN WM AREA	MATAGORDA
4782	01/20/1987	B	TRES CREEK LLC	120.00	AGRICULTURE - IRRIGATION	01/24/1916			15	NOT IN WM AREA	MATAGORDA
4783	01/20/1987		HARPER, LOUIS F	301.00	AGRICULTURE - IRRIGATION	12/31/1961			15	NOT IN WM AREA	MATAGORDA
4786	01/20/1987		PRIESMEYER, ARTHUR A	93.00	AGRICULTURE - IRRIGATION	12/31/1945			15	NOT IN WM AREA	MATAGORDA
4787	01/20/1987		TRES CREEK LLC	20615.00	AGRICULTURE - IRRIGATION	05/31/1909		457.3000	15	NOT IN WM AREA	MATAGORDA
4788	01/20/1987		CHAMBLEE, GUY CLIFFORD | HUTSON, GLEN | WASHINGTON, BONNIE JEAN	7.00	AGRICULTURE - IRRIGATION	12/31/1956			15	NOT IN WM AREA	MATAGORDA
5099	12/23/1986		MATAGORDA BAY AQUACULTURE INC	316.00	AGRICULTURE - AQUACULTURE | INDUSTRIAL	09/25/1986		50.0000	15	NOT IN WM AREA	MATAGORDA
5436	08/26/1988	A	WYLIE VENTURES LLC	1443.00	AGRICULTURE - IRRIGATION	06/26/1914			14	NOT IN WM AREA	MATAGORDA
5437	06/28/1989	B	STP NUCLEAR OPERATING COMPANY		INDUSTRIAL | INDUSTRIAL - POWER GENERATION	06/10/1974	80125.0000	202988.0000	14	NOT IN WM AREA	MATAGORDA
5437	06/28/1989	B	LOWER COLORADO RIVER AUTHORITY | NRG TEXAS LP | STP NUCLEAR OPE	102000.00	INDUSTRIAL | INDUSTRIAL - POWER GENERATION	06/10/1974			14	NOT IN WM AREA	MATAGORDA
5438	02/22/1993		MATAGORDA COUNTY DRAINAGE DISTRICT 1	260.00	FLOOD CONTROL	11/17/1992			13	NOT IN WM AREA	MATAGORDA
5609	06/05/1998		TEXAS BRINE COMPANY LLC		INDUSTRIAL	05/28/1998			14	NOT IN WM AREA	MATAGORDA
5682	04/25/2001	A	CORNELIUS, HERFF	2400.00	AGRICULTURE - AQUACULTURE | AGRICULTURE - IRRIGATION | INDUS	03/27/2000		404.0000	13	NOT IN WM AREA	MATAGORDA
12496	11/06/2017		POPEK AND SON	200.00	AGRICULTURE - IRRIGATION	04/08/2010		4.2000	13	NOT IN WM AREA	MATAGORDA
13333			OXEA CORPORATION	5334.00	INDUSTRIAL				14	NOT IN WM AREA	MATAGORDA
4790	01/20/1987		SOUTH TEXAS LAND LIMITED PARTNERSHIP	1500.00	AGRICULTURE - IRRIGATION	01/12/1976		271.0000	15	NOT IN WM AREA	MATAGORDA | WHARTON
5476	06/28/1989	D	LOWER COLORADO RIVER AUTHORITY	262500.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | INSTREAM | MINING | MU	12/01/1900		1865.0000	14	NOT IN WM AREA	MATAGORDA | WHARTON
5476	06/28/1989	D	LOWER COLORADO RIVER AUTHORITY		AGRICULTURE - IRRIGATION | INDUSTRIAL | INSTREAM | MINING | MU	12/01/1900		52000.0000	14	NOT IN WM AREA	MATAGORDA | WHARTON
1744	04/13/1981		GILGER, L L	95.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	MILLS
1745	04/13/1981		GRAVES, JOHN JUDSON | NORWOOD, MARJORIE JEAN GRAVES | WHITE, CA	20.00	AGRICULTURE - IRRIGATION	10/15/1974		20.0000	14	NOT IN WM AREA	MILLS
1745	04/13/1981		GRAVES, JOHN JUDSON | NORWOOD, MARJORIE JEAN GRAVES | WHITE, CA	80.00	AGRICULTURE - IRRIGATION	07/14/1969		80.0000	14	NOT IN WM AREA	MILLS
1746	04/13/1981		GRAVES, JOHN JUDSON | NORWOOD, MARJORIE JEAN GRAVES | WHITE, CA	118.00	AGRICULTURE - IRRIGATION	10/15/1974		118.0000	14	NOT IN WM AREA	MILLS
1746	04/13/1981		GRAVES, JOHN JUDSON | NORWOOD, MARJORIE JEAN GRAVES | WHITE, CA	160.00	AGRICULTURE - IRRIGATION	12/31/1906		72.0000	14	NOT IN WM AREA	MILLS
1748	04/13/1981		ZEPHYR LAND COMPANY	77.67	AGRICULTURE - IRRIGATION	12/31/1904		90.0000	14	NOT IN WM AREA	MILLS
1748	04/13/1981		SLEDGE CATTLE COMPANY INC	47.33	AGRICULTURE - IRRIGATION	12/31/1904			14	NOT IN WM AREA	MILLS
1749	04/13/1981		SLEDGE CATTLE COMPANY INC	20.00	AGRICULTURE - IRRIGATION	11/02/1964		18.0000	14	NOT IN WM AREA	MILLS
1750	04/13/1981		WYLIE, J DON	32.00	AGRICULTURE - IRRIGATION	11/12/1969		32.0000	14	NOT IN WM AREA	MILLS
1751	04/13/1981		STALCUP, MARY ALICE	200.00	AGRICULTURE - IRRIGATION	04/27/1970			14	NOT IN WM AREA	MILLS
1751	04/13/1981		ROSS, PEGGY JEAN		AGRICULTURE - IRRIGATION	04/27/1970		336.0000	14	NOT IN WM AREA	MILLS
1752	04/13/1981		KING, P V	127.00	AGRICULTURE - IRRIGATION	03/01/1973		127.0000	14	NOT IN WM AREA	MILLS
1753	04/13/1981		MANGHAM, HENRY T	52.00	AGRICULTURE - IRRIGATION	06/09/1969		83.0000	14	NOT IN WM AREA	MILLS
1754	04/13/1981		STARKS, ROBERT	60.00	AGRICULTURE - IRRIGATION	07/22/1968		85.0000	14	NOT IN WM AREA	MILLS
1755	04/13/1981		GUILBEAUX RANCH LLC	60.00	AGRICULTURE - IRRIGATION	02/02/1970		108.0000	14	NOT IN WM AREA	MILLS
1756	04/13/1981		ANDERSON, NANCY RUHMANN | ANDERSON, VIRGIL KEITH	16.00	AGRICULTURE - IRRIGATION	12/31/1964			14	NOT IN WM AREA	MILLS
1757	04/13/1981		MILLS COUNTY HUNTING AND FISHING CLUB		RECREATION	07/06/1916		650.0000	14	NOT IN WM AREA	MILLS
1758	04/13/1981		TUBB, HARVEY C	3.00	AGRICULTURE - IRRIGATION	08/31/1965			14	NOT IN WM AREA	MILLS
1758	04/13/1981		FARMER, JAMES R | FARMER, LYNN A	3.00	AGRICULTURE - IRRIGATION	08/31/1965			14	NOT IN WM AREA	MILLS

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1759	04/13/1981		STANSBERRY, W M	69.00	AGRICULTURE - IRRIGATION	03/31/1965			14	NOT IN WM AREA	MILLS
1760	04/13/1981		DUREN TRUST	60.00	AGRICULTURE - IRRIGATION	02/07/1972		70.0000	14	NOT IN WM AREA	MILLS
1761	04/13/1981		DOLLINS, JAMES G III | DOLLINS, THERESA K	4.00	AGRICULTURE - IRRIGATION	12/31/1957			14	NOT IN WM AREA	MILLS
1762	04/13/1981		STERLING SPIES, GINGER	26.59	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	MILLS
1762	04/13/1981		STERLING KAUFFMAN, GWEN	11.66	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	MILLS
1762	04/13/1981		DORIS CATHERINE STERLING TRUSTEE	2.74	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	MILLS
1920	04/20/1981	A	MADDOX, TOMMY | MADDOX, WALLACE	15.00	INDUSTRIAL	12/31/1915			14	NOT IN WM AREA	MILLS
1920	04/20/1981	A	MADDOX, TOMMY | MADDOX, WALLACE	14.00	INDUSTRIAL	06/03/1914			14	NOT IN WM AREA	MILLS
2524	08/31/1983		MIIW RANCH LLC	120.00	AGRICULTURE - IRRIGATION	12/31/1923			14	NOT IN WM AREA	MILLS
2526	08/31/1983		HICKS, CHARLES ALLEN	4.39	AGRICULTURE - IRRIGATION	05/15/1963			14	NOT IN WM AREA	MILLS
2526	08/31/1983		BEZNER, CHRISTOPHER N | BEZNER, PAGE	2.10	AGRICULTURE - IRRIGATION	05/15/1963			14	NOT IN WM AREA	MILLS
2526	08/31/1983		JOYCE GAYLE HICKS ESTATE	7.51	AGRICULTURE - IRRIGATION	05/15/1963			14	NOT IN WM AREA	MILLS
2527	08/31/1983		HICKS, CHARLES ALLEN	14.00	AGRICULTURE - IRRIGATION	05/15/1963			14	NOT IN WM AREA	MILLS
2528	08/31/1983		LONG, TRUMAN	203.00	AGRICULTURE - IRRIGATION	03/04/1916			14	NOT IN WM AREA	MILLS
2532	08/31/1983		ESTATE OF A J BECK	90.00	AGRICULTURE - IRRIGATION	05/07/1973		196.0000	14	NOT IN WM AREA	MILLS
2535	08/31/1983		CLAWSON, KATHLEEN | CLAWSON, LANCE | SWENSON, DAVID	163.00	AGRICULTURE - IRRIGATION	06/22/1914			14	NOT IN WM AREA	MILLS
2535	08/31/1983		PRATT, GEORGE M | PRATT, SUZANNE D	150.00	AGRICULTURE - IRRIGATION	06/22/1914			14	NOT IN WM AREA	MILLS
2535	08/31/1983		CLAWSON, KATHLEEN | CLAWSON, LANCE | SWENSON, DAVID	30.00	AGRICULTURE - IRRIGATION	09/19/1977			14	NOT IN WM AREA	MILLS
2535	08/31/1983		PRATT, GEORGE M | PRATT, SUZANNE D		AGRICULTURE - IRRIGATION	09/19/1977		30.0000	14	NOT IN WM AREA	MILLS
2537	08/31/1983		BENNETT, CRISTY TANNER	125.00	AGRICULTURE - IRRIGATION	12/31/1913			14	NOT IN WM AREA	MILLS
2538	08/31/1983		BERRY, GRENETTA BELL	16.70	AGRICULTURE - IRRIGATION	05/31/1913			14	NOT IN WM AREA	MILLS
2538	08/31/1983		BORHO, BILLY W | BORHO, GLORIA L	66.30	AGRICULTURE - IRRIGATION	05/31/1913			14	NOT IN WM AREA	MILLS
2539	08/31/1983		BERRY, GRENETTA BELL	102.00	AGRICULTURE - IRRIGATION	06/30/1906			14	NOT IN WM AREA	MILLS
2541	08/31/1983		LEWIS, KIMBERLY PRICE | NICKEL, RENEE RAINBOLT | RAINBOLT, SHERAL	57.00	AGRICULTURE - IRRIGATION	12/31/1905		100.0000	14	NOT IN WM AREA	MILLS
2542	08/31/1983		HALE, GERALD G	13.00	AGRICULTURE - IRRIGATION	08/15/1967			14	NOT IN WM AREA	MILLS
2543	08/31/1983		HALE, GERALD G	100.00	AGRICULTURE - IRRIGATION	12/31/1956			14	NOT IN WM AREA	MILLS
2544	08/31/1983		WILCOX, MARY BESS	16.00	AGRICULTURE - IRRIGATION	12/31/1957			14	NOT IN WM AREA	MILLS
2545	08/31/1983		GEESLIN, AMY J | GEESLIN, DAVID G	16.00	AGRICULTURE - IRRIGATION	12/31/1957			14	NOT IN WM AREA	MILLS
2547	08/31/1983		DUNLAP, ANDREA | DUNLAP, RYON	171.00	AGRICULTURE - IRRIGATION	09/30/1965		30.0000	14	NOT IN WM AREA	MILLS
2549	08/31/1983	B	NANCY A LEONARD INVESTMENT COMPANY LP | OP LEONARD JR INVESTME	249.00	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	MILLS
2551	08/31/1983		COCKRELL, WILLIAM HAYDEN | SMITH, MARGARET DOGGETT	81.00	AGRICULTURE - IRRIGATION	12/31/1926		12.0000	14	NOT IN WM AREA	MILLS
2552	08/31/1983		HUGHES, BARBARA | HUGHES, MARTIN DVM	36.90	AGRICULTURE - IRRIGATION	12/31/1950			14	NOT IN WM AREA	MILLS
2552	08/31/1983		LONG, AMANDA LOUISE | LONG, ROBERT LEE JR	72.91	AGRICULTURE - IRRIGATION	12/31/1950			14	NOT IN WM AREA	MILLS
2553	08/31/1983	A	CITY OF GOLDTHWAITE	800.00	MUNICIPAL/DOMESTIC	05/06/1960		315.0000	14	NOT IN WM AREA	MILLS
2553	08/31/1983	A	CITY OF GOLDTHWAITE	700.00	INDUSTRIAL	05/06/1960			14	NOT IN WM AREA	MILLS
2553	08/31/1983	A	CITY OF GOLDTHWAITE	250.00	AGRICULTURE - IRRIGATION	05/06/1960			14	NOT IN WM AREA	MILLS
2554	08/31/1983		MILLSAPPS, SIBYL W | MILLSAPPS, STUART C JR	24.00	AGRICULTURE - IRRIGATION	09/27/1949			14	NOT IN WM AREA	MILLS
2555	08/31/1983		HARTLEY, FRED E | HARTLEY, LILLIE MARGARET	34.00	AGRICULTURE - IRRIGATION	02/26/1968			14	NOT IN WM AREA	MILLS
2556	08/31/1983		A&A LANDSCAPE & IRRIGATION LP	75.00	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	MILLS
2565	08/31/1983		ESTATE OF OTHEL OTTO SMITH	100.00	AGRICULTURE - IRRIGATION	06/30/1964			14	NOT IN WM AREA	MILLS
2566	08/31/1983		WATSON, MARIE | WATSON, SAM	159.00	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	MILLS
2568	08/31/1983		LANDRUM, KELLIS	168.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	MILLS
2569	08/31/1983		JOHNSON, R C	105.61	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	MILLS
2569	08/31/1983		GBI TRUST	2.39	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	MILLS
2576	08/31/1983		BURNHAM, DONALD D	84.00	AGRICULTURE - IRRIGATION	12/31/1941			14	NOT IN WM AREA	MILLS
2916	04/30/1984		SCHWARTZ, LEE ROY	53.00	AGRICULTURE - IRRIGATION	05/31/1959			12	BRAZOS	MILLS
2917	04/30/1984		WITZSCHE, RUTH | WITZSCHE, WILFORD	25.00	AGRICULTURE - IRRIGATION	03/31/1963		8.0000	12	BRAZOS	MILLS
2918	04/30/1984		MARWITZ, PAMELA ANN	20.00	AGRICULTURE - IRRIGATION	04/30/1949		2.0000	12	BRAZOS	MILLS
2920	04/30/1984		HOPPER, ALAN DOUG	12.00	AGRICULTURE - IRRIGATION	05/31/1965		6.0000	12	BRAZOS	MILLS
2954	04/30/1984		MCCASLAND, CHARLES		DOMESTIC AND LIVESTOCK	07/11/1977		310.0000	12	BRAZOS	MILLS
2955	04/30/1984		SHELTON, CATHRYN A | SHELTON, MARTIN P | SHELTON, PAUL L	150.00	AGRICULTURE - IRRIGATION	07/01/1968		180.0000	12	BRAZOS	MILLS
2957	04/30/1984		MOORE, HOWARD K	65.00	AGRICULTURE - IRRIGATION	08/31/1940			12	BRAZOS	MILLS
5111	06/10/1987		NEW HORIZONS RANCH AND CENTER INC	15.00	MUNICIPAL/DOMESTIC | RECREATION	11/24/1986		62.7600	14	NOT IN WM AREA	MILLS
2472	08/31/1983	A	NANCY ALICE LEONARD INVESTMENT COMPANY LTD | OP LEONARD JR INVE	1460.00	AGRICULTURE - IRRIGATION	12/31/1961			14	NOT IN WM AREA	MILLS | SAN SABA
2536	08/31/1983	A	BRADLEY D BOYD AND REBECCA G BOYD LIVING TRUST	140.00	AGRICULTURE - IRRIGATION	12/31/1912			14	NOT IN WM AREA	MILLS | SAN SABA
2536	08/31/1983	A	STOWELL, ALBERT J	96.00	AGRICULTURE - IRRIGATION	12/31/1912			14	NOT IN WM AREA	MILLS | SAN SABA
2550	08/31/1983		NANCY ALICE LEONARD INVESTMENT COMPANY LTD | OP LEONARD JR INVE	3374.00	AGRICULTURE - IRRIGATION	12/31/1903		322.0000	14	NOT IN WM AREA	MILLS | SAN SABA
2550	08/31/1983		NANCY ALICE LEONARD INVESTMENT COMPANY LTD | OP LEONARD JR INVE	306.00	AGRICULTURE - IRRIGATION	12/31/1925			14	NOT IN WM AREA	MILLS | SAN SABA
2563	08/31/1983	A	WHITE, DAVID MARK | WHITE, SHELIA JEAN	70.00	AGRICULTURE - IRRIGATION	12/31/1937			14	NOT IN WM AREA	MILLS | SAN SABA
2563	08/31/1983	A	NANCY ALICE LEONARD INVESTMENT COMPANY LTD | OP LEONARD JR INVE	173.00	AGRICULTURE - IRRIGATION	12/31/1937			14	NOT IN WM AREA	MILLS | SAN SABA
1847	04/20/1981	A	LLANO PARTNERS LTD	200.00	AGRICULTURE - IRRIGATION	12/31/1951			14	NOT IN WM AREA	SAN SABA
1856	04/20/1981		HAWKINS, KATHLEEN	18.28	AGRICULTURE - IRRIGATION	06/24/1914			14	NOT IN WM AREA	SAN SABA
1856	04/20/1981		DUNNAGAN, JUDY	15.72	AGRICULTURE - IRRIGATION	06/26/1914			14	NOT IN WM AREA	SAN SABA
1857	04/20/1981		HAWKINS, KATHLEEN	6.00	AGRICULTURE - IRRIGATION	06/24/1914			14	NOT IN WM AREA	SAN SABA
1858	04/20/1981	A	BYRD, JOHN WORTH	19.00	AGRICULTURE - IRRIGATION	06/24/1914			14	NOT IN WM AREA	SAN SABA
1859	04/20/1981		BESSENT, CHRISTINE DIANE POOL | STEWART, PATSY MARSCHALL	171.00	AGRICULTURE - IRRIGATION	06/27/1914		3.0000	14	NOT IN WM AREA	SAN SABA
1860	04/20/1981		BAKER, DONNA B | BAKER, LARRY	96.00	AGRICULTURE - IRRIGATION	06/27/1914			14	NOT IN WM AREA	SAN SABA
1861	04/20/1981		BESSENT, CHRISTINE DIANE POOL | BESSENT, WILLARD KEITH	20.00	AGRICULTURE - IRRIGATION	06/27/1914			14	NOT IN WM AREA	SAN SABA
1862	04/20/1981		BESSENT, CHRISTINE DIANE POOL | BESSENT, WILLARD KEITH	28.00	AGRICULTURE - IRRIGATION	06/27/1914			14	NOT IN WM AREA	SAN SABA
1863	04/20/1981		CHURCHILL, BOBBIE | CHURCHILL, FRANK	15.00	AGRICULTURE - IRRIGATION	06/27/1914			14	NOT IN WM AREA	SAN SABA
1863	04/20/1981		SHOOK, JIMMY | SHOOK, LAURA | SHOOK, NANCY	35.00	AGRICULTURE - IRRIGATION	06/27/1914			14	NOT IN WM AREA	SAN SABA
1864	04/20/1981		ELLIS, SHARON KAY	7.26	AGRICULTURE - IRRIGATION	04/25/1914			14	NOT IN WM AREA	SAN SABA
1864	04/20/1981		FOWLER, BARBARA | FOWLER, DON D	25.74	AGRICULTURE - IRRIGATION	04/25/1914			14	NOT IN WM AREA	SAN SABA
1865	04/20/1981		JOHNSON, CLARENCE G III	15.00	AGRICULTURE - IRRIGATION	04/25/1914			14	NOT IN WM AREA	SAN SABA
1866	04/20/1981		SEIDERS SAN SABA RANCH LTD	93.00	AGRICULTURE - IRRIGATION	12/31/1947			14	NOT IN WM AREA	SAN SABA
1867	04/20/1981		JOHNSON REVOCABLE TRUST	54.00	AGRICULTURE - IRRIGATION	12/31/1935			14	NOT IN WM AREA	SAN SABA
1868	04/20/1981		JOHNSON REVOCABLE TRUST	190.00	AGRICULTURE - IRRIGATION	12/31/1918			14	NOT IN WM AREA	SAN SABA
1869	04/20/1981		OWENS, ELIZABETH E | OWENS, HOMER R	25.73	AGRICULTURE - IRRIGATION	12/31/1925			14	NOT IN WM AREA	SAN SABA
1869	04/20/1981		STENCIL, AMY | STENCIL, CRAIG	20.64	AGRICULTURE - IRRIGATION	12/31/1925			14	NOT IN WM AREA	SAN SABA
1869	04/20/1981		FISHER, CASEY JOE | FISHER, KRISTY LEIGH	20.64	AGRICULTURE - IRRIGATION	12/31/1925			14	NOT IN WM AREA	SAN SABA
1870	04/20/1981		OWENS, ELIZABETH E | OWENS, HOMER R	88.00	AGRICULTURE - IRRIGATION	05/02/1914			14	NOT IN WM AREA	SAN SABA
1871	04/20/1981		CONNER, LARRY GENE	120.00	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	SAN SABA
1872	04/20/1981		TRIPLE M CATTLE CO	225.00	AGRICULTURE - IRRIGATION	06/24/1914			14	NOT IN WM AREA	SAN SABA

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1873	04/20/1981		CONNER, EUGENE	104.00	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	SAN SABA
1874	04/20/1981		HARDMAN, DENNIS | HARDMAN, TERESA	34.10	AGRICULTURE - IRRIGATION	12/31/1922			14	NOT IN WM AREA	SAN SABA
1874	04/20/1981		AMONETT, BEN F | AMONETT, LURA L | SCARBOROUGH, TRACY S	0.90	AGRICULTURE - IRRIGATION	12/31/1922			14	NOT IN WM AREA	SAN SABA
1875	04/20/1981		MARTIN, CAROL SUGAR | MARTIN, JOHN MARCUS	114.00	AGRICULTURE - IRRIGATION	06/22/1914			14	NOT IN WM AREA	SAN SABA
1876	04/20/1981		ESTATE OF RILEY C HARKEY | HARKEY, BONNIE	112.00	AGRICULTURE - IRRIGATION	12/31/1922			14	NOT IN WM AREA	SAN SABA
1876	04/20/1981		MARTIN, CAROL ANN | MARTIN, JOHN MARCUS	30.00	AGRICULTURE - IRRIGATION	12/31/1922			14	NOT IN WM AREA	SAN SABA
1877	04/20/1981		HARKEY, BONNIE	146.00	AGRICULTURE - IRRIGATION	11/14/1914			14	NOT IN WM AREA	SAN SABA
1878	04/20/1981		ESTATE OF RILEY C HARKEY	120.00	AGRICULTURE - IRRIGATION	12/31/1910			14	NOT IN WM AREA	SAN SABA
1879	04/20/1981		CHILDRESS, MARSHA NELLE | HARKEY, RANDY KIRK	25.00	AGRICULTURE - IRRIGATION	12/31/1913			14	NOT IN WM AREA	SAN SABA
1880	04/02/1981		EDMONDSON, CHRISTINE BAGLEY	29.00	AGRICULTURE - IRRIGATION	12/31/1956			14	NOT IN WM AREA	SAN SABA
1881	04/20/1981	B	BAGLEY, DEAN JR	103.00	AGRICULTURE - IRRIGATION	12/31/1910			14	NOT IN WM AREA	SAN SABA
1881	04/20/1981	B	ADAMS, CONNIE BAGLEY	37.30	AGRICULTURE - IRRIGATION	12/31/1910			14	NOT IN WM AREA	SAN SABA
1881	04/20/1981	B	EDMONDSON, CHRISTINE BAGLEY	20.70	AGRICULTURE - IRRIGATION	12/31/1910			14	NOT IN WM AREA	SAN SABA
1882	04/20/1981		DICKENSON, PEGGY NELL | DICKENSON, RICHARD KEITH	150.00	AGRICULTURE - IRRIGATION	12/31/1919			14	NOT IN WM AREA	SAN SABA
1883	04/20/1981		LEWIS, BYRON E | LEWIS, GEORGIA L	31.00	AGRICULTURE - IRRIGATION	12/31/1933			14	NOT IN WM AREA	SAN SABA
1884	04/20/1981	B	JAMES B BONHAM CORPORATION	42.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	SAN SABA
1884	04/20/1981	B	SRK RANCH LLC	30.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	SAN SABA
1885	04/20/1981		WOOD, T N	64.00	AGRICULTURE - IRRIGATION	09/04/1962		81.0000	14	NOT IN WM AREA	SAN SABA
1886	04/20/1981		LAMBERT, RICKY | LAMBERT, SUSANA	30.60	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
1886	04/20/1981		MIFFLETON, MAXINE	4.20	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
1886	04/20/1981		MCBRIDE, JOSEPHINE | MCBRIDE, RONNIE	4.20	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
1887	04/20/1981		LAMBERT, ROGER RICKY | LAMBERT, SUSANA	329.00	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
1888	04/20/1981	A	SLOAN LIVESTOCK LTD	88.00	AGRICULTURE - IRRIGATION	12/31/1956			14	NOT IN WM AREA	SAN SABA
1889	04/20/1981		CRUTSINGER, HOPE	41.00	AGRICULTURE - IRRIGATION	12/31/1925			14	NOT IN WM AREA	SAN SABA
1890	04/20/1981		THE GREAT SAN SABA RIVER PECAN COMPANY INC	434.00	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
1892	04/20/1981		THE ESTATE OF JOHN P MCCONNELL JR	52.55	AGRICULTURE - IRRIGATION	12/31/1953			14	NOT IN WM AREA	SAN SABA
1892	04/20/1981		EARLY, JOHNETTE MCCONNELL | MCCONNELL, PATTY JOHNENE | THE ESTA	180.45	AGRICULTURE - IRRIGATION	12/31/1953			14	NOT IN WM AREA	SAN SABA
1893	04/20/1981		BAGLEY, DEAN JR	52.00	AGRICULTURE - IRRIGATION	12/31/1959			14	NOT IN WM AREA	SAN SABA
1894	04/20/1981	A	BAGLEY, GAILIAN DEAN JR	272.00	AGRICULTURE - IRRIGATION	12/31/1913			14	NOT IN WM AREA	SAN SABA
1895	04/20/1981		THE GREAT SAN SABA RIVER PECAN COMPANY INC	48.00	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	SAN SABA
1896	04/20/1981		BAGLEY, GAILIAN DEAN JR	64.00	AGRICULTURE - IRRIGATION	12/31/1950			14	NOT IN WM AREA	SAN SABA
1897	04/20/1981		MARTIN, BETTY | MARTIN, WILTON	80.00	AGRICULTURE - IRRIGATION	05/16/1914			14	NOT IN WM AREA	SAN SABA
1898	04/20/1981		GILGER, DAVID	40.00	AGRICULTURE - IRRIGATION	03/30/1914			14	NOT IN WM AREA	SAN SABA
1898	04/20/1981		GILGER, DAVID	20.00	AGRICULTURE - IRRIGATION	04/24/1914			14	NOT IN WM AREA	SAN SABA
1899	04/20/1981		OWEN-GILGER INC	340.00	AGRICULTURE - IRRIGATION	12/31/1929			14	NOT IN WM AREA	SAN SABA
1900	04/20/1981		STIFFLEMIRE, STEVE D	54.00	AGRICULTURE - IRRIGATION	12/31/1954			14	NOT IN WM AREA	SAN SABA
1901	04/20/1981		BAGLEY, ROY	49.00	AGRICULTURE - IRRIGATION	12/31/1940			14	NOT IN WM AREA	SAN SABA
1902	04/20/1981		SANDERSON, GLENNETTA | SANDERSON, JOHN T	2.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	SAN SABA
1903	04/20/1981	A	CITY OF SAN SABA	550.00	MUNICIPAL/DOMESTIC	06/29/1914		30.0000	14	NOT IN WM AREA	SAN SABA
1903	04/20/1981	A	CITY OF SAN SABA	245.00	MUNICIPAL/DOMESTIC	06/29/1914			14	NOT IN WM AREA	SAN SABA
1903	04/20/1981	A	CITY OF SAN SABA	245.00	AGRICULTURE - IRRIGATION	06/29/1914			14	NOT IN WM AREA	SAN SABA
1904	04/20/1981		MILLICAN, WINSTON MIKE	5.00	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	SAN SABA
1905	04/20/1981		TOWNSEND, L F | TOWNSEND, MARY B	38.00	AGRICULTURE - IRRIGATION	12/31/1912			14	NOT IN WM AREA	SAN SABA
1906	04/20/1981		CITY OF SAN SABA	54.00	AGRICULTURE - IRRIGATION	12/31/1920			14	NOT IN WM AREA	SAN SABA
1907	04/20/1981		MCCONNELL, PATSY RAYE	198.00	AGRICULTURE - IRRIGATION	12/31/1933			14	NOT IN WM AREA	SAN SABA
1908	04/20/1981		OWEN, W L JR	40.00	AGRICULTURE - IRRIGATION	10/08/1914			14	NOT IN WM AREA	SAN SABA
1908	04/20/1981		OWEN, W L JR	10.00	AGRICULTURE - IRRIGATION	12/31/1930			14	NOT IN WM AREA	SAN SABA
1909	04/20/1981		SMITH, JOE C	84.00	AGRICULTURE - IRRIGATION	12/31/1963			14	NOT IN WM AREA	SAN SABA
1910	04/20/1981		HUBBERT, EDGAR JR | HUBBERT, LORENA	14.00	AGRICULTURE - IRRIGATION	06/26/1914		1.0000	14	NOT IN WM AREA	SAN SABA
1911	04/20/1981	A	SHOOK, JIMMY N | SHOOK, NANCY	95.00	AGRICULTURE - IRRIGATION	12/31/1883		0.5000	14	NOT IN WM AREA	SAN SABA
1912	04/20/1981		GAGE, ERROL DEAN | GAGE, TONY MIKE	112.00	AGRICULTURE - IRRIGATION	12/31/1915			14	NOT IN WM AREA	SAN SABA
1914	04/20/1981		BURNHAM, MARTHA OWEN | BURNHAM, REAGAN O | BURNHAM, RENICE | S	207.00	AGRICULTURE - IRRIGATION	12/31/1931			14	NOT IN WM AREA	SAN SABA
1915	04/20/1981		MAHAN, MAX	220.00	AGRICULTURE - IRRIGATION	12/31/1918			14	NOT IN WM AREA	SAN SABA
1916	04/20/1981		JOHNSON, ALAN LANE | JOHNSON, DIANA R	103.00	AGRICULTURE - IRRIGATION	12/31/1908			14	NOT IN WM AREA	SAN SABA
1917	04/20/1981		BURNHAM, MARTHA OWEN | BURNHAM, REAGAN O | BURNHAM, RENICE | S	188.00	AGRICULTURE - IRRIGATION	12/31/1918			14	NOT IN WM AREA	SAN SABA
1918	04/20/1981		REAVIS, MIKE | REAVIS, VALERIE	40.00	AGRICULTURE - IRRIGATION	04/25/1914			14	NOT IN WM AREA	SAN SABA
1919	04/20/1981		2016 SHAHAN FAMILY PARTNERSHIP LP	15.00	AGRICULTURE - IRRIGATION	06/03/1914			14	NOT IN WM AREA	SAN SABA
1921	04/20/1981		SAN SABA IRREVOCABLE TRUST AGREEMENT	20.00	AGRICULTURE - IRRIGATION	12/31/1904			14	NOT IN WM AREA	SAN SABA
1922	04/20/1981		SHAHAN, WAYNE R	40.00	AGRICULTURE - IRRIGATION	06/03/1914			14	NOT IN WM AREA	SAN SABA
1924	04/20/1981		OLIVER, RAYMOND A	49.00	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	SAN SABA
1925	04/20/1981		HOLLADAY, SALLY ANN	37.00	AGRICULTURE - IRRIGATION	05/30/1914			14	NOT IN WM AREA	SAN SABA
1926	04/20/1981		OLIVER, NORMA R | OLIVER, R L JR | OLIVER, ROBERT CLEMENTS | OLIVER	4.85	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	SAN SABA
1926	04/20/1981		HILL, LANCE T | WELLS, KAREN A	0.33	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	SAN SABA
1926	04/20/1981		JOLLEY, BARBARA | JOLLEY, JOSEPH	0.82	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	SAN SABA
1927	04/20/1981		ALTIZER, MARJORIE ANN OBANON	54.00	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	SAN SABA
1928	04/20/1981		MILLICAN, ELSIE	118.00	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	SAN SABA
1929	04/20/1981		LIPTAK, WINNIFRED	53.00	AGRICULTURE - IRRIGATION	12/31/1907			14	NOT IN WM AREA	SAN SABA
2452	02/07/1983		LEONARD, O P JR	225.00	AGRICULTURE - IRRIGATION	06/26/1914		15.0000	14	NOT IN WM AREA	SAN SABA
2452	02/07/1983		LEONARD, O P JR	28.00	AGRICULTURE - IRRIGATION	06/26/1914			14	NOT IN WM AREA	SAN SABA
2452	02/07/1983		LEONARD, O P JR	750.00	AGRICULTURE - IRRIGATION	11/19/1973		470.0000	14	NOT IN WM AREA	SAN SABA
2452	02/07/1983		LEONARD, O P JR	145.00	AGRICULTURE - IRRIGATION	12/31/1864			14	NOT IN WM AREA	SAN SABA
2452	02/07/1983		LEONARD, O P JR	69.00	AGRICULTURE - IRRIGATION	12/31/1870			14	NOT IN WM AREA	SAN SABA
2452	02/07/1983		LEONARD, O P JR	85.00	AGRICULTURE - IRRIGATION	12/31/1938			14	NOT IN WM AREA	SAN SABA
2516	08/31/1983	A	KEETER, J PHILLIP	11.90	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	SAN SABA
2518	08/31/1983		GRANT, OSCAR L	6.10	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	SAN SABA
2519	08/31/1983		IRBY, JEAN	8.00	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	SAN SABA
2523	08/31/1983		LAFFERTY, TOM	90.00	AGRICULTURE - IRRIGATION	07/20/1970		90.0000	14	NOT IN WM AREA	SAN SABA
2525	08/31/1983		DRAPER, C BARTON | DRAPER, IDA LUCILLE	620.00	AGRICULTURE - IRRIGATION	12/31/1903			14	NOT IN WM AREA	SAN SABA
2529	08/31/1983		LOCKLEAR, T WARD	239.00	AGRICULTURE - IRRIGATION	12/31/1924			14	NOT IN WM AREA	SAN SABA
2530	08/31/1983		RIVER CREEK LIMITED A TX LIMITED PARTNERSHIP	41.00	AGRICULTURE - IRRIGATION	12/31/1904			14	NOT IN WM AREA	SAN SABA
2531	08/31/1983		BARNEY, RICHARD M	28.08	AGRICULTURE - IRRIGATION	12/31/1960		30.0000	14	NOT IN WM AREA	SAN SABA
2531	08/31/1983		STEWART LIVING TRUST	43.33	AGRICULTURE - IRRIGATION	12/31/1960			14	NOT IN WM AREA	SAN SABA
2531	08/31/1983		TAPP, DON | TAPP, JOYCE	73.48	AGRICULTURE - IRRIGATION	12/31/1960			14	NOT IN WM AREA	SAN SABA

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2531	08/31/1983		REAGAN, MARILYN | REAGAN, PAT	55.11	AGRICULTURE - IRRIGATION	12/31/1960			14	NOT IN WM AREA	SAN SABA
2533	08/31/1983		BUSH, NANCY C | BUSH, ROGER D	44.00	AGRICULTURE - IRRIGATION	12/31/1912			14	NOT IN WM AREA	SAN SABA
2533	08/31/1983		BUSH, NANCY C	44.00	AGRICULTURE - IRRIGATION	12/31/1912			14	NOT IN WM AREA	SAN SABA
2533	08/31/1983		CUMMINGS, KITTY JO SIMPSON	44.00	AGRICULTURE - IRRIGATION	12/31/1912			14	NOT IN WM AREA	SAN SABA
2534	08/31/1983		NETTLESHIP FAMILY TRUST	156.00	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	SAN SABA
2540	08/31/1983		EDMONDSON, J C	67.00	AGRICULTURE - IRRIGATION	12/31/1937			14	NOT IN WM AREA	SAN SABA
2546	08/31/1983		OREAR, CHERIE L | OREAR, KENNETH O	1600.00	AGRICULTURE - IRRIGATION	12/31/1956		180.0000	14	NOT IN WM AREA	SAN SABA
2557	08/31/1983		BARFIELD, JOHN	15.84	AGRICULTURE - IRRIGATION	08/31/1928			14	NOT IN WM AREA	SAN SABA
2558	08/31/1983		CAMPBELL, CECIL	71.10	AGRICULTURE - IRRIGATION	08/31/1928			14	NOT IN WM AREA	SAN SABA
2559	08/31/1983		OSWALD, J C | OSWALD, LOUISE	27.00	AGRICULTURE - IRRIGATION	08/31/1928			14	NOT IN WM AREA	SAN SABA
2560	08/31/1983		MILLICAN, DEBORAH | MILLICAN, ROBERT E	27.00	AGRICULTURE - IRRIGATION	08/31/1928			14	NOT IN WM AREA	SAN SABA
2561	08/31/1983		CAMPBELL, CECIL	39.06	AGRICULTURE - IRRIGATION	08/31/1928		3.5000	14	NOT IN WM AREA	SAN SABA
2562	08/31/1983		CHRISTIAN, JACKIE | LANGE, BONNIE | WHITT, JAMES MARVIN | WHITT, M	49.42	AGRICULTURE - IRRIGATION	07/31/1913			14	NOT IN WM AREA	SAN SABA
2562	08/31/1983		BANNISTER, JOHN H | BANNISTER, NANCY C	46.58	AGRICULTURE - IRRIGATION	07/31/1913			14	NOT IN WM AREA	SAN SABA
2564	08/31/1983		COX, MARILYNE	151.50	AGRICULTURE - IRRIGATION	12/31/1929			14	NOT IN WM AREA	SAN SABA
2564	08/31/1983		SCHIEFFER, CINDEE J	151.50	AGRICULTURE - IRRIGATION	12/31/1929			14	NOT IN WM AREA	SAN SABA
2564	08/31/1983		ESCANABA BEND LLC	151.50	AGRICULTURE - IRRIGATION	12/31/1929			14	NOT IN WM AREA	SAN SABA
2564	08/31/1983		OLIVER INVESTMENTS LLC	151.50	AGRICULTURE - IRRIGATION	12/31/1929			14	NOT IN WM AREA	SAN SABA
2564	08/31/1983		SIMPSON, IRMA NELL | SIMPSON, LUTHER W	474.00	AGRICULTURE - IRRIGATION	12/31/1929			14	NOT IN WM AREA	SAN SABA
2564	08/31/1983		MONTGOMERY, JULIE E | MONTGOMERY, KENDALL C	20.00	AGRICULTURE - IRRIGATION	12/31/1929			14	NOT IN WM AREA	SAN SABA
2571	08/31/1983		CROMER FAMILY RANCHES LTD	113.00	AGRICULTURE - IRRIGATION	07/31/1965			14	NOT IN WM AREA	SAN SABA
2572	08/31/1983		FREEMAN, ALTA FERN EDMONDSON	232.00	AGRICULTURE - IRRIGATION	06/30/1910			14	NOT IN WM AREA	SAN SABA
2573	08/31/1983		BURKE, N MONETTE | BURKE, STEPHEN	11.00	AGRICULTURE - IRRIGATION	12/31/1952			14	NOT IN WM AREA	SAN SABA
2574	08/31/1983	A	OLIVER, JOHN J	45.00	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
2575	08/31/1983		WELLS, JOYCE WOOD | WOOD, TOMMIE WORTH	93.00	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
2577	08/31/1983		HAMBLEN, CHEREE	44.00	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
2577	08/31/1983		WEINRICH, KEVIN F | WEINRICH, LESLIE	44.00	AGRICULTURE - IRRIGATION	12/31/1911			14	NOT IN WM AREA	SAN SABA
2578	08/31/1983		GRIMES, MICHAEL P | GRIMES, SUE BETH OBANON	30.00	AGRICULTURE - IRRIGATION	12/31/1940			14	NOT IN WM AREA	SAN SABA
2582	08/31/1983		ROCKAFELLOW, MICHAEL H | ROCKAFELLOW, TAMELA L	71.00	AGRICULTURE - IRRIGATION	12/31/1905			14	NOT IN WM AREA	SAN SABA
2582	08/31/1983		DICK GLOVER CO INC | GEMSTAR INC		DOMESTIC AND LIVESTOCK | RECREATION	12/31/1905		14.0000	14	NOT IN WM AREA	SAN SABA
2583	08/31/1983		ROCKAFELLOW, MICHAEL H | ROCKAFELLOW, TAMELA L	259.00	AGRICULTURE - IRRIGATION	12/31/1912			14	NOT IN WM AREA	SAN SABA
2584	08/31/1983		MCDOWELL, MARJORIE C | MYLES D MCDOWELL FAMILY TRUST	96.00	AGRICULTURE - IRRIGATION	06/23/1914			14	NOT IN WM AREA	SAN SABA
2591	08/31/1983		MCCOY, JUDITH ANNE | MCCOY, KENNETH R	73.00	AGRICULTURE - IRRIGATION	01/31/1911			14	NOT IN WM AREA	SAN SABA
2593	08/31/1983		MCCOY, JUDITH ANNE | MCCOY, KENNETH R	57.00	AGRICULTURE - IRRIGATION	09/30/1963			14	NOT IN WM AREA	SAN SABA
2595	08/31/1983		BURGESS, REBECCA F | BURGESS, WILLIAM G	205.00	AGRICULTURE - IRRIGATION	12/31/1914			14	NOT IN WM AREA	SAN SABA
2601	08/31/1983		WARREN, KELCY	105.00	AGRICULTURE - IRRIGATION	12/31/1957			14	NOT IN WM AREA	SAN SABA
2602	08/31/1983		PORCH, W D	30.00	AGRICULTURE - IRRIGATION	06/30/1964		4.0000	14	NOT IN WM AREA	SAN SABA
2603	08/31/1983		BRISTER, JACKIE	187.00	AGRICULTURE - IRRIGATION	05/31/1907			14	NOT IN WM AREA	SAN SABA
2604	08/31/1983		CLARK, W N	60.00	AGRICULTURE - IRRIGATION	05/31/1907			14	NOT IN WM AREA	SAN SABA
2606	08/31/1983		MILLICAN, ELSIE | MILLICAN, ROBERT EUGENE | MILLICAN, WINSTON MIKE	18.00	AGRICULTURE - IRRIGATION	12/31/1961		0.5000	14	NOT IN WM AREA	SAN SABA
3575	06/13/1978		BATES, LOU ERA | SOFGE, H D		DOMESTIC AND LIVESTOCK	02/27/1978		276.0000	14	NOT IN WM AREA	SAN SABA
5288	07/30/1990		JONES, KIMBERLEA GAYLE | JONES, TOMMY LEE	20.00	AGRICULTURE - IRRIGATION	03/20/1990			14	NOT IN WM AREA	SAN SABA
13395	12/14/2017		SLOAN LIVESTOCK LTD	24.50	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	SAN SABA
2644	08/31/1983	A	US DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE	27.67	AGRICULTURE - IRRIGATION | RECREATION	12/31/1954			14	NOT IN WM AREA	TRAVIS
2645	08/31/1983		CITY OF LAGO VISTA	9.00	AGRICULTURE - IRRIGATION	01/28/1974		5.0000	14	NOT IN WM AREA	TRAVIS
2646	08/31/1983		ANDERSON, JAMES L	0.07	AGRICULTURE - IRRIGATION	04/30/1964			14	NOT IN WM AREA	TRAVIS
2647	08/31/1983		TEXAS CONFERENCE ASSOCIATION OF SEVENTH-DAY ADVENTISTS	5.70	AGRICULTURE - IRRIGATION	04/30/1964			14	NOT IN WM AREA	TRAVIS
2648	08/31/1983		SAAAM LTD	0.23	AGRICULTURE - IRRIGATION	04/30/1964			14	NOT IN WM AREA	TRAVIS
2649	08/31/1983		ANDERSON, JAMES L	5.90	AGRICULTURE - IRRIGATION	07/31/1963			14	NOT IN WM AREA	TRAVIS
2649	08/31/1983		DOUGLASS, CAROLYN	4.10	AGRICULTURE - IRRIGATION	07/31/1963			14	NOT IN WM AREA	TRAVIS
2650	08/31/1983		TALBOTT, MARVIN T | TALBOTT, PEGGY JEAN	1.00	AGRICULTURE - IRRIGATION	07/31/1963			14	NOT IN WM AREA	TRAVIS
2651	08/31/1983	A	US DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE	14.33	AGRICULTURE - IRRIGATION | RECREATION	12/31/1954		9.0000	14	NOT IN WM AREA	TRAVIS
3344	10/21/1976		ONION CREEK CLUB	12.00	AGRICULTURE - IRRIGATION	08/02/1976		12.0000	14	NOT IN WM AREA	TRAVIS
3379	12/14/1976		HYDE PARK BAPTIST CHURCH		RECREATION	09/13/1976		64.0000	14	NOT IN WM AREA	TRAVIS
3414	02/28/1977		COE, ROBERT | SANSOM, CARROLL | SANSOM, JAMES	200.00	AGRICULTURE - IRRIGATION	09/27/1976			14	NOT IN WM AREA	TRAVIS
3815	06/23/1981		APACHE SHORES INC		RECREATION	03/30/1981		128.0000	14	NOT IN WM AREA	TRAVIS
3841	12/08/1981	A	BALCONES COUNTRY CLUB MEMBERSHIP ASSOCIATION INC	76.00	AGRICULTURE - IRRIGATION	09/21/1981		76.0000	14	NOT IN WM AREA	TRAVIS
3841	12/08/1981	A	BALCONES COUNTRY CLUB MEMBERSHIP ASSOCIATION INC		RECREATION	09/21/1981		36.0000	14	NOT IN WM AREA	TRAVIS
4008	08/31/1983		CITY OF AUSTIN		RECREATION	04/18/1983		5.2000	14	NOT IN WM AREA	TRAVIS
4025	09/09/1983		THE LAKEWAY COMPANY		AGRICULTURE - IRRIGATION	04/18/1983		19.0000	14	NOT IN WM AREA	TRAVIS
4169	01/21/1985	A	HURST CREEK MUD OF TRAVIS COUNTY TEXAS	700.00	AGRICULTURE - IRRIGATION	11/01/1982		76.0000	14	NOT IN WM AREA	TRAVIS
4169	01/21/1985	A	HURST CREEK MUD OF TRAVIS COUNTY TEXAS	1000.00	RECREATION	11/01/1982			14	NOT IN WM AREA	TRAVIS
5042	06/30/1986		TEXAS CONFERENCE ASSOCIATION OF SEVENTH-DAY ADVENTISTS		RECREATION	01/29/1986		32.0000	14	NOT IN WM AREA	TRAVIS
5070	09/29/1986		HH AUSTIN HOTEL ASSOCIATES LP		RECREATION	06/27/1986		1.0300	14	NOT IN WM AREA	TRAVIS
5070	09/29/1986		HH AUSTIN HOTEL ASSOCIATES LP	3395.00	RECREATION	06/27/1986			14	NOT IN WM AREA	TRAVIS
5095	12/15/1986		NORWOOD UNITED PARK		RECREATION	09/08/1986		10.0000	14	NOT IN WM AREA	TRAVIS
5102	12/23/1986		AUSTIN AQUAPLEX PUD HOA INC		RECREATION	10/08/1986		143.8700	14	NOT IN WM AREA	TRAVIS
5179	08/16/1988		WINDERMERE		OTHER	05/04/1988			14	NOT IN WM AREA	TRAVIS
5268	03/08/1990	B	APPLIED MATERIALS INC		RECREATION	12/06/1989		111.5000	14	NOT IN WM AREA	TRAVIS
5269	03/08/1990		MARKBOROUGH DEVELOPMENT COMPANY LIMITED		RECREATION	12/06/1989		6.6000	14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		TAYLOR WOODROW COMMUNITIES STEINER RANCH LTD	122.84	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		239 RIO VISTA LTD	13.50	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		LAKE AUSTIN LAND AND CATTLE LTD	1.13	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		MINI ME MGMT	11.81	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		THL INVESTMENTS LTD	7.99	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		LA DF WATERWORKS LTD	1.65	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		MCCARTHY, MICHAEL G	0.64	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		STEINER, ROBERT L	0.18	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		FINN, RONALD LEE	0.18	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		WILKERSON, DORIS	0.05	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5368	08/26/1988		CHOWNING, CLIFTON | CHOWNING, JAY C	0.03	AGRICULTURE - IRRIGATION	06/30/1954			14	NOT IN WM AREA	TRAVIS
5369	08/26/1988		BOHLS CATTLE RANCH AND INVESTMENTS VENTURE	22.00	AGRICULTURE - IRRIGATION	12/31/1939			14	NOT IN WM AREA	TRAVIS
5371	08/26/1988		FOWLER, MARION	8.00	AGRICULTURE - IRRIGATION	12/12/1956			14	NOT IN WM AREA	TRAVIS

Lower Colorado Regional Water Planning Area
TCEQ Active Water Rights - December 14, 2018

WR NO	WR ISSUE DATE	AMENDMENT LETTER	OWNER NAME	DIVERSION AMOUNT (AFY)	USE	PRIORITY DATE	CONSUMPTIVE AMOUNT (AFY)	STORAGE AMOUNT (AF)	BASIN	WATER MASTER AREA	COUNTY
5372	08/26/1988		NALLE BUNNY RUN FARM LIMITED LIABILITY COMPANY	23.84	AGRICULTURE - IRRIGATION	12/31/1948			14	NOT IN WM AREA	TRAVIS
5372	08/26/1988		HILL COUNTRY CONSERVANCY	1.16	AGRICULTURE - IRRIGATION	12/31/1948			14	NOT IN WM AREA	TRAVIS
5373	08/26/1988		GAMEL, WILLIAM G | GRANT, EARL L | JOHNSON, DAVID O | MUELLER, RAN	11.00	AGRICULTURE - IRRIGATION	12/31/1966			14	NOT IN WM AREA	TRAVIS
5374	08/26/1988		GREAT HILL LTD	13.00	AGRICULTURE - IRRIGATION	01/20/1976			14	NOT IN WM AREA	TRAVIS
5374	08/26/1988		GREAT HILL LTD		RECREATION	01/20/1976		31.0000	14	NOT IN WM AREA	TRAVIS
5375	08/26/1988	A	BROOK ANNE JOHNSON BROESCHE TRUST 1 | CURT D JOHNSON TRUST 1 |	40.00	AGRICULTURE - IRRIGATION	08/16/1965		6.5000	14	NOT IN WM AREA	TRAVIS
5376	08/26/1988		HILL COUNTRY GOLF INC		RECREATION	03/13/1972		44.4000	14	NOT IN WM AREA	TRAVIS
5377	08/26/1988	A	CITY OF AUSTIN		RECREATION	03/24/1975		2.0000	14	NOT IN WM AREA	TRAVIS
5378	12/18/1991		BALCONES COUNTRY CLUB MEMBERSHIP ASSOCIATION INC	60.00	AGRICULTURE - IRRIGATION	08/27/1991			14	NOT IN WM AREA	TRAVIS
5378	12/18/1991		BALCONES COUNTRY CLUB MEMBERSHIP ASSOCIATION INC		RECREATION	08/27/1991		14.5000	14	NOT IN WM AREA	TRAVIS
5379	08/26/1988		FISH, MELANIE BAILEY | FITZPATRICK, ARLENE BOLM | FITZPATRICK, CURT	1323.00	AGRICULTURE - IRRIGATION	06/10/1914			14	NOT IN WM AREA	TRAVIS
5380	08/26/1988	B	CAPITOL AGGREGATES INC	242.00	MINING	11/17/1964			14	NOT IN WM AREA	TRAVIS
5380	08/26/1988	B	CAPITOL AGGREGATES INC	27.00	INDUSTRIAL	11/17/1964			14	NOT IN WM AREA	TRAVIS
5380	08/26/1988	B	CAPITOL AGGREGATES INC	2540.00	INDUSTRIAL | MINING	09/11/1972	340.0000	115.0000	14	NOT IN WM AREA	TRAVIS
5382	08/26/1988		GILL, ROBERT M | MCMORRIS, JOANNA | MCMORRIS, NORMA JEAN | MCMO	50.00	AGRICULTURE - IRRIGATION	06/29/1914			14	NOT IN WM AREA	TRAVIS
5384	08/26/1988		MCMORRIS, WILLIAM D JR	74.00	AGRICULTURE - IRRIGATION	06/29/1914			14	NOT IN WM AREA	TRAVIS
5385	08/26/1988		GILL, ROBERT M | MCMORRIS, JOANNA | MCMORRIS, NORMA JEAN | MCMO	67.00	AGRICULTURE - IRRIGATION	03/04/1916			14	NOT IN WM AREA	TRAVIS
5386	08/26/1988		TEXAS INDUSTRIES INC	110.00	MINING	05/25/1970	11.0000		14	NOT IN WM AREA	TRAVIS
5392	08/26/1988		CLARK, JEANIE | CLARK, RANN L	2.00	AGRICULTURE - IRRIGATION | RECREATION	01/15/1973		2.0000	14	NOT IN WM AREA	TRAVIS
5393	06/28/1989	B	TEXAS REGIONAL LANDFILL COMPANY LP	17.00	INDUSTRIAL	06/30/1963			14	NOT IN WM AREA	TRAVIS
5393	06/28/1989	B	TEXAS REGIONAL LANDFILL COMPANY LP	3.00	AGRICULTURE - IRRIGATION	06/30/1963			14	NOT IN WM AREA	TRAVIS
5393	06/28/1989	B	TEXAS REGIONAL LANDFILL COMPANY LP	70.00	INDUSTRIAL	06/30/1963			14	NOT IN WM AREA	TRAVIS
5393	06/28/1989	B	TEXAS REGIONAL LANDFILL COMPANY LP	25.00	AGRICULTURE - IRRIGATION	06/30/1963		20.0000	14	NOT IN WM AREA	TRAVIS
5394	08/26/1988		JOHNSON, PEARCE	150.00	AGRICULTURE - IRRIGATION	04/25/1899			14	NOT IN WM AREA	TRAVIS
5396	08/26/1988	A	BASTROP ENERGY PARTNERS LP	180.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | INDUSTRIAL - POWER GE	11/12/1913			14	NOT IN WM AREA	TRAVIS
5397	08/26/1988		WASHINGTON, CLARENCE	17.00	AGRICULTURE - AQUACULTURE | INDUSTRIAL | RECREATION	11/20/1967		64.0000	14	NOT IN WM AREA	TRAVIS
5401	08/26/1988		SIMECEK, J W	30.00	AGRICULTURE - IRRIGATION	04/30/1963		77.0000	14	NOT IN WM AREA	TRAVIS
5482	06/28/1989	C	LOWER COLORADO RIVER AUTHORITY		MUNICIPAL/DOMESTIC	03/29/1926		1170752.0000	14	NOT IN WM AREA	TRAVIS
5482	06/28/1989	C	LOWER COLORADO RIVER AUTHORITY	1470.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MINING	03/29/1926			14	NOT IN WM AREA	TRAVIS
5482	06/28/1989	C	LOWER COLORADO RIVER AUTHORITY		HYDROELECTRIC | INSTREAM | RECREATION	03/29/1926			14	NOT IN WM AREA	TRAVIS
5483	08/26/1988	A	BODDEN, CARLEEN | BODDEN, NIX O	0.50	AGRICULTURE - IRRIGATION	12/31/1961			14	NOT IN WM AREA	TRAVIS
5483	08/26/1988	A	MURRAY, JEROME	0.50	AGRICULTURE - IRRIGATION	12/31/1961			14	NOT IN WM AREA	TRAVIS
5489	06/28/1989	A	CITY OF AUSTIN		INDUSTRIAL | INDUSTRIAL - POWER GENERATION | RECREATION | WA	02/23/1965		33940.0000	14	NOT IN WM AREA	TRAVIS
5489	06/28/1989	A	CITY OF AUSTIN	20300.00	MUNICIPAL/DOMESTIC	08/20/1945			14	NOT IN WM AREA	TRAVIS
5489	06/28/1989	A	CITY OF AUSTIN	16156.00	INDUSTRIAL | INDUSTRIAL - POWER GENERATION | WATER QUALITY	08/20/1945			14	NOT IN WM AREA	TRAVIS
5491	06/28/1989		HEJL, ROBERT D	22.00	AGRICULTURE - IRRIGATION | INDUSTRIAL	12/31/1952		3.5000	14	NOT IN WM AREA	TRAVIS
5542	03/01/1996		WELLS BRANCH MUD		RECREATION	11/20/1995		15.0000	14	NOT IN WM AREA	TRAVIS
5564	04/11/1997		NATIONAL INSTRUMENTS CORPORATION		RECREATION	12/09/1996		4.1000	14	NOT IN WM AREA	TRAVIS
5677	03/23/2000	B	LOWER COLORADO RIVER AUTHORITY	24000.00	MUNICIPAL/DOMESTIC	02/02/2000			14	NOT IN WM AREA	TRAVIS
5730	08/22/2001		BRAZOS RIVER AUTHORITY	25000.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MUNICIPAL/DOMESTIC	03/07/1938			14	NOT IN WM AREA	TRAVIS
5781	12/14/2004		BAE SYSTEMS INC		RECREATION	07/03/2002		4.3300	14	NOT IN WM AREA	TRAVIS
5790	08/26/2003		CITY OF PFLUGERVILLE	12000.00	MUNICIPAL/DOMESTIC | RECREATION	12/20/2002		1700.0000	14	NOT IN WM AREA	TRAVIS
5888	01/30/2006		NINE HIDDEN LAKE LTD		RECREATION	06/06/2005		89.7000	14	NOT IN WM AREA	TRAVIS
12215	05/21/2008		BUTLER FAMILY PARTNERSHIP LTD | CERCO DEVELOPMENT INC		RECREATION	07/26/2007		69.3000	14	NOT IN WM AREA	TRAVIS
12413	03/23/2010		NORTHTOWN MUD		RECREATION	05/21/2009		3.2400	14	NOT IN WM AREA	TRAVIS
12417	10/15/2010		LAKESIDE WCID 2-C | LAKESIDE WCID 2-D		AGRICULTURE - IRRIGATION | RECREATION	07/28/2009		69.2000	14	NOT IN WM AREA	TRAVIS
12526	11/18/2009		CITY OF AUSTIN	165.00	AGRICULTURE - IRRIGATION | RECREATION				14	NOT IN WM AREA	TRAVIS
13334			ESTATE OF LENORA REIMERS	85.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	TRAVIS
13443	04/27/2018		MARINA CLUB HOMEOWNERS ASSOCIATION INC	58.17	AGRICULTURE				14	NOT IN WM AREA	TRAVIS
4007	08/23/1983	C	CITY OF CEDAR PARK		MUNICIPAL/DOMESTIC	07/18/1983			14	BRAZOS	TRAVIS | WILLIAMSON
4007	08/23/1983	C	CITY OF CEDAR PARK	5600.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MUNICIPAL/DOMESTIC	07/18/1983			14	BRAZOS	TRAVIS | WILLIAMSON
3418	02/07/1985		ANDERSON, HARRY H | ANDERSON, NANCY B	110.00	AGRICULTURE - IRRIGATION	12/31/1910		10.0000	13	NOT IN WM AREA	WHARTON
3418	02/07/1985		ANDERSON, HARRY H | ANDERSON, NANCY B	1010.00	AGRICULTURE - IRRIGATION	05/07/1979			13	NOT IN WM AREA	WHARTON
3418	02/07/1985		LAAS, BETTY J	480.00	AGRICULTURE - IRRIGATION	05/07/1979			13	NOT IN WM AREA	WHARTON
3419	02/07/1985		ANDERSON, HARRY H | ANDERSON, NANCY B	800.00	AGRICULTURE - IRRIGATION	05/07/1979		10.0000	13	NOT IN WM AREA	WHARTON
3420	02/07/1985		PEMM PARTNERS LTD	300.00	AGRICULTURE - IRRIGATION	09/10/1979		300.0000	13	NOT IN WM AREA	WHARTON
3814	06/23/1981		FORGASON, JAMES L	912.00	AGRICULTURE - IRRIGATION	03/24/1981			13	NOT IN WM AREA	WHARTON
3816	05/30/1981		BAXTER, MARY JOCHETZ | JOCHETZ, CHARLES DAVID | JOCHETZ, JAMES E	400.00	AGRICULTURE - IRRIGATION	05/30/1981			13	NOT IN WM AREA	WHARTON
3847	02/16/1982		HLAVINKA COMPANY | S W K LAND CO	1011.00	AGRICULTURE - IRRIGATION	11/30/1981			13	NOT IN WM AREA	WHARTON
3887	07/05/1982		RABIUS, JO MARIE | RABIUS, RAYMOND A	275.00	AGRICULTURE - IRRIGATION	04/19/1982			13	NOT IN WM AREA	WHARTON
3926	12/01/1982		CORMAN, BRENDA JEAN BURROUGHS | CORMAN, CHERRY FAYE ADAMS | C	300.00	AGRICULTURE - IRRIGATION	09/07/1982			13	NOT IN WM AREA	WHARTON
4177	02/01/1985		GUESS, WAYNE ALLEN	75.05	AGRICULTURE - IRRIGATION	09/25/1984			13	NOT IN WM AREA	WHARTON
4177	02/01/1985		GUESS, THERESA ANN | GUESS, WAYNE ALLEN	88.95	AGRICULTURE - IRRIGATION	09/25/1984			13	NOT IN WM AREA	WHARTON
4229	06/26/1985		MARCIAL SORREL II TRUST	297.00	AGRICULTURE - IRRIGATION	03/19/1985		34.4100	13	NOT IN WM AREA	WHARTON
4243	09/17/1985		MILLER, GALE | MILLER, MARY BETH		DOMESTIC AND LIVESTOCK | RECREATION	05/07/1985		138.7100	15	NOT IN WM AREA	WHARTON
4243	09/17/1985		MILLER, GALE | MILLER, MARY BETH	110.51	RECREATION	05/07/1985			15	NOT IN WM AREA	WHARTON
4284	01/23/1986		ROBERTS, DONALD G | ROBERTS, GARY W	450.00	AGRICULTURE - IRRIGATION	07/30/1985			13	NOT IN WM AREA	WHARTON
4288	01/29/1986		BROWN, JUDY MACHA | MACHA, GENE | MACHA, LARRY | MACHA, LEROY	1151.10	AGRICULTURE - IRRIGATION	09/03/1985			13	NOT IN WM AREA	WHARTON
4773	01/20/1987		HOLUB, EDMUND	160.00	AGRICULTURE - IRRIGATION	12/31/1951			15	NOT IN WM AREA	WHARTON
4774	01/20/1987		GANN, JOHN T JR	63.00	AGRICULTURE - IRRIGATION	06/30/1948			15	NOT IN WM AREA	WHARTON
4775	01/20/1987		ALLEN, KATHRYN	640.00	AGRICULTURE - IRRIGATION	12/31/1941			15	NOT IN WM AREA	WHARTON
4776	01/20/1987		GANN, JOHN T JR	227.50	AGRICULTURE - IRRIGATION	12/31/1941			15	NOT IN WM AREA	WHARTON
4777	01/20/1987		PATSY RUTH COX FAMILY LIMITED PARTNERSHIP	640.00	AGRICULTURE - IRRIGATION	04/30/1944			15	NOT IN WM AREA	WHARTON
4778	01/20/1987		HLAVINKA, JAMES R	1093.00	AGRICULTURE - IRRIGATION	03/31/1953			15	NOT IN WM AREA	WHARTON
4779	01/20/1987		SOUTH TEXAS RICE INC	347.25	AGRICULTURE - IRRIGATION	04/30/1923			15	NOT IN WM AREA	WHARTON
4779	01/20/1987		CALLAHAN, ELIAS R	115.75	AGRICULTURE - IRRIGATION	04/30/1923			15	NOT IN WM AREA	WHARTON
4784	01/20/1987		SOUTH TEXAS LAND LIMITED PARTNERSHIP	324.00	AGRICULTURE - IRRIGATION	04/30/1944			15	NOT IN WM AREA	WHARTON
4785	01/20/1987		MAREK FARMS	26.00	AGRICULTURE - IRRIGATION	04/30/1944			15	NOT IN WM AREA	WHARTON
5324	05/07/1991		RABIUS CHILDRENS TRUST CARE OF TIMOTHY RABIUS TRUSTEE	87.00	AGRICULTURE - IRRIGATION	10/25/1990			13	NOT IN WM AREA	WHARTON
5338	03/19/1991	A	STONE, BERNARD O JR	420.00	AGRICULTURE - IRRIGATION	12/19/1990			13	NOT IN WM AREA	WHARTON
5435	08/26/1988	A	TRI-GEN LAND CORP	192.00	AGRICULTURE - IRRIGATION	12/31/1955			14	NOT IN WM AREA	WHARTON
5459	08/19/1993		S & S FARMS JOINT VENTURE	1000.00	AGRICULTURE - IRRIGATION	04/21/1993			13	NOT IN WM AREA	WHARTON
5477	06/28/1989	D	LOWER COLORADO RIVER AUTHORITY	55000.00	AGRICULTURE - IRRIGATION | INDUSTRIAL | MUNICIPAL/DOMESTIC |	09/01/1907			14	NOT IN WM AREA	WHARTON

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5568	06/20/1997		MORRISON TRUST	1120.00	AGRICULTURE - IRRIGATION	01/15/1997			13	NOT IN WM AREA	WHARTON
5573	06/20/1997		ANSLEY, ANNIE LEE	1289.00	AGRICULTURE - IRRIGATION	01/21/1997			13	NOT IN WM AREA	WHARTON
5623	11/05/1999		CALLAWAY, STEVEN C | MEYERS, CINDY C	185.00	AGRICULTURE - IRRIGATION	04/06/1999			13	NOT IN WM AREA	WHARTON
5674	08/31/2000		PREISLER, DOROTHY | PREISLER, F JOE | PREISLER, JAMES A | PREISLER, J	152.00	AGRICULTURE - IRRIGATION	02/04/2000			13	NOT IN WM AREA	WHARTON
5684	08/31/2000		ANSLEY, HUDGINS DUNNAM | ANSLEY, MORROW LOU | ANSLEY, WILLIAM A	184.00	AGRICULTURE - IRRIGATION	05/05/2000			13	NOT IN WM AREA	WHARTON
5685	08/31/2000		SIKORA, MARIE E	33.00	AGRICULTURE - IRRIGATION	05/05/2000			13	NOT IN WM AREA	WHARTON
5702	12/20/2001		HUDGINS, REX | HUDGINS, STEVE	217.00	AGRICULTURE - IRRIGATION	11/01/2000			13	NOT IN WM AREA	WHARTON
5721	07/17/2001		MULLANI, LINDA | MULLANI, NIZAR	72.00	AGRICULTURE - IRRIGATION	11/16/2000			13	NOT IN WM AREA	WHARTON
13112	03/23/2017		TURNER, THOMAS J	232.50	AGRICULTURE - IRRIGATION	12/30/2015		1.0300	16	SOUTH TEXAS	WHARTON
396	07/21/1977		TEXAS UTILITIES ELECTRIC COMPANY	3500.00	INDUSTRIAL | INDUSTRIAL - POWER GENERATION | WATER QUALITY		3500.0000		12	NOT IN WM AREA	
411	12/19/1977		CITY OF CLYDE	1534000.00	INDUSTRIAL | INDUSTRIAL - POWER GENERATION | WATER QUALITY		11837.0000		12	NOT IN WM AREA	
1264	11/15/1982	A	CITY OF ASPERMONT	118.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
1265	11/15/1982		CITY OF OBRIEN	10.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
1266	11/15/1982		CITY OF ROCHESTER	26.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
1267	11/15/1982		CITY OF RULE	45.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
1268	11/15/1982		CITY OF BENJAMIN	13.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
1899	01/01/1992		CITY OF GRAHAM	1000.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
2327	02/01/2000	A	CITY OF STAMFORD	1820.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
2347	09/17/2001		WEST TEXAS UTILITIES CO	2200.00	INDUSTRIAL | INDUSTRIAL - POWER GENERATION				12	NOT IN WM AREA	
2356	09/01/2001		CITY OF ROUND ROCK	6944.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
2362	09/01/2001		CITY OF GEORGETOWN	22168.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
2376	09/10/2001		BRAZOS RIVER AUTHORITY	3000.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
2430	09/01/2002		CITY OF ROUND ROCK	4500.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
5887			SEA CENTER TEXAS		MARICULTURE				12	NOT IN WM AREA	
12814	02/13/2006		CITY OF ROUND ROCK	9484.00	MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
12907	06/11/2013		THE DOW CHEMICAL COMPANY		AGRICULTURE - IRRIGATION			31.1400	12	NOT IN WM AREA	
12970	06/21/2013		BRAZOS RIVER AUTHORITY		INDUSTRIAL | MUNICIPAL/DOMESTIC				12	NOT IN WM AREA	
13414	02/16/2018		ZACHRY INDUSTRIAL INC	79.00	INDUSTRIAL				12	NOT IN WM AREA	
5067	08/18/1986		OMAR ARLT TRUST | ROBERT STRUNK TRUST | ULLMAN, ELIZABETH ANN	2290.00	AGRICULTURE - IRRIGATION	06/04/1986			13	NOT IN WM AREA	
132	07/14/1971		SOUTHWESTERN GRAPHITE COMPANY	400.00	MINING	06/14/1942			14	NOT IN WM AREA	
327	08/05/1977	A	STP NUCLEAR OPERATING COMPANY	102000.00	INDUSTRIAL | INDUSTRIAL - POWER GENERATION				14	NOT IN WM AREA	
426	03/30/1978		CITY OF ROBERT LEE	50.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1120	04/09/1981		US DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE	100.00	INDUSTRIAL				14	NOT IN WM AREA	
1164	10/22/1981		CITY OF EARLY	1228.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1166	10/30/1981	B	HURST CREEK MUNICIPAL UTILITY DISTRICT	1600.00	INDUSTRIAL | MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1196	03/24/1982		CITY OF LAWN	200.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1229	09/14/1982		DAVENPORT RANCH MUD 1	1700.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1242	09/14/1982		TRAVIS COUNTY WCID 20	1100.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1368	12/09/1983		CITY OF GRANITE SHOALS	830.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1394	03/09/1984		BRADLEY, GARY L	101.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1409	04/18/1984	A	CITY OF LAGO VISTA	6500.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1448	07/13/1984		STRAUS, JOCELYN LEVI	630.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1481	10/29/1984	B	TRAVIS COUNTY WCID 18	1400.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1490	12/10/1984		RESORT RANCH OF LAKE TRAVIS INC	50.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1490	12/10/1984		RESORT RANCH OF LAKE TRAVIS INC	100.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1505	01/31/1985	B	CITY OF BURNET	4100.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1522	06/12/1985		EANES ISD	37.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1582	02/28/1986		TRAVIS COUNTY WCID 20	35.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1626	04/20/1987		BROOKESMITH WSC	307.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1738	09/27/1989		GARWOOD IRRIGATION COMPANY LLC		AGRICULTURE - IRRIGATION	04/20/1989			14	NOT IN WM AREA	
1763	03/08/1990		CITY OF SANTA ANNA	113.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1772	06/05/1990		CITY OF AUSTIN	250000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1825	09/23/1991	C	RIVER PLACE MUNICIPAL UTILITY DISTRICT	900.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1833	12/03/1991	A	LAKESIDE UTILITIES INC	25.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1836	01/01/1992		CITY OF MARBLE FALLS	2000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1851	10/02/1990	A	JONES, KIMBERLEA GAYLE | JONES, TOMMY LEE	20.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1877	07/31/1992		CITY OF LEANDER	64.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1924	12/29/1993		TREFNY, CHARLES T	400.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1925	12/29/1993	A	MUELLER, DONNA ZAPALAC | ZAPALAC, KENNETH	300.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1926	12/03/1993		VOLENTE BEACH INC	1.00	RECREATION				14	NOT IN WM AREA	
1930	12/29/1993		HIGHLAND LAKES ATHLETIC CORPORATION	6.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1950	01/25/1994		HORSESHOE BAY PROPERTY OWNERS ASSOCIATION INC	27.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1953	01/25/1994	B	POINT VENTURE PROPERTY OWNERS ASSOCIATION INC	75.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1955	01/25/1994	A	BARTON CREEK RESORT & COUNTRY CLUB	500.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1956	01/25/1994		HORSESHOE BAY APPLEHEAD PROPERTY OWNERS ASSOCIATION INC	27.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1959	01/21/1994	C	RIVER PLACE GOLF GROUP LP	92.07	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1961	04/05/1994		HYATT CORPORATION	15.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1962	03/04/1994		BRYANT, DON M | BRYANT, KATHIE A	21.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1963	03/24/1994		CDT COLLECTING INC	850.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1964	03/24/1994	A	USAA REAL ESTATE COMPANY	18.50	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
1969	04/29/1994	A	RICHARD T SUTTLE J TRUSTEE	30.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
1975	03/24/1994	A	HERMOSA OFFICE PARK PUD OWNERS ASSOCIATION INC	15.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
2079	08/20/1996		HIDDEN VALLEY SUBDIVISION COOPERATIVE	10.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2262	05/22/2000		PECAN UTILITIES COMPANY INC	30.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2288	09/28/2000		LLANO COUNTY MUD 1	87.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2299	08/28/1998		INVERNESS UTILITY COMPANY INC	49.50	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2330	01/18/2000		AMENDED AND RESTATED 1989 TRUST | TESTAMENTARY TRUSTS ESTATES	55000.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
2342	07/31/2001		BASTROP ENERGY PARTNERS LP	3220.00	INDUSTRIAL				14	NOT IN WM AREA	
2358	08/22/2001		BRAZOS RIVER AUTHORITY	25000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2381	06/13/2001		CITY OF CEDAR PARK	18000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2399	04/22/2002		RAINBOW MATERIALS LP	46.00	INDUSTRIAL				14	NOT IN WM AREA	
2405	07/18/2002		DRIPPING SPRINGS WSC	560.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2414	09/25/2002		CITY OF PFLUGERVILLE	12000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	

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2435	06/12/2003		CITY OF MARBLE FALLS	1000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2444	05/23/2003		TRAVIS COUNTY WCID 17	8800.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2464	04/01/2004	A	CITY OF LIBERTY HILL	600.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
2519	11/02/2005	A	THE TRAILS PROPERTY OWNERS ASSOCIATION INC	45.00	RECREATION				14	NOT IN WM AREA	
12028	10/11/2005		JONESTOWN WSC	460.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12065	06/02/2006	A	HIGHLAND LAKES GOLF COURSE	5.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12125	08/23/2006		WINDERMERE OAKS WSC	55.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12129	07/21/2006		INVERNESS POINT WATER SYSTEM	150.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12130	07/11/2006		N-HAYS INVESTORS I LP	625.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12135	04/27/2006		CENTEX DESTINATION PROPERTIES	499.00	RECREATION				14	NOT IN WM AREA	
12137	04/15/2007	C	POTTS LAND COMPANY LLC	20.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12171	12/27/2006		PECOS LAND DEVELOPMENT LLC	60.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12172	08/11/2006		BARTON CREEK LAKESIDE IRRIGATION COMPANY INC	196.41	RECREATION				14	NOT IN WM AREA	
12174	12/29/2006		LAKE TRAVIS RANCH LLC	840.00	RECREATION				14	NOT IN WM AREA	
12196	01/01/2007	B	SOUTH CENTRAL WATER COMPANY	640.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12197	12/21/2006		THE WATERS CONDOMINIUM ASSOCIATION	16.00	RECREATION				14	NOT IN WM AREA	
12198	12/27/2006		PENINSULA BLUFFS LP	60.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12200	02/21/2006		EFD LTD	2500.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12216	04/03/2007		THE CLUB AT WATERFORD LP	300.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12237	05/25/2007		TRAVIS COUNTY	108.00	AGRICULTURE - IRRIGATION | RECREATION				14	NOT IN WM AREA	
12240	06/12/2007	A	SPICEWOOD BEACH PROPERTY OWNERS ASSOCIATION INC	8.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12251	07/18/2007		BRYANT, KATHIE	25.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12254	07/26/2007		TERRY JACKSON INC	1.50	MINING				14	NOT IN WM AREA	
12258	08/21/2007		WEST CYPRESS HILLS WCID 1	491.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12259	08/21/2007		CITY OF LEANDER	24000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12260	08/21/2007		CYPRESS RANCH WCID 1	436.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12274	09/06/2007		TRAVIS MEADOW L P	35.00	RECREATION				14	NOT IN WM AREA	
12275	08/08/2007		EAGLE MOUNTAIN RESERVE LLC	123.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12288	11/07/2007		KMS VENTURES INC | RGK RENTALS LTD	499.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12289	10/15/2007		CLUBCORP GOLF OF TEXAS LP	230.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12290	07/24/2007		BALCONES COUNTRY CLUB MEMBERSHIP ASSOCIATION INC	250.00	RECREATION				14	NOT IN WM AREA	
12294	11/21/2007		COLOVISTA ESTATES INC	44.23	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12311	11/30/2007	B	H2 INTERESTS LLC	345.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12312	12/07/2007	A	TXI OPERATIONS LP	75.76	INDUSTRIAL		75.7600		14	NOT IN WM AREA	
12374	03/11/2008		LAKE TRAVIS RANCH LLC	495.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12382	07/24/2008		LAKEWAY MUD	3069.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12385	08/25/2008		PK-RE DEVELOPMENT COMPANY INC	100.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12397	09/17/2008		CITY OF DRIPPING SPRINGS | HEADWATERS MUD	506.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12398	09/25/2008	B	TRAVIS COUNTY MUD 12	1680.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12400	09/26/2008		BULL CREEK MANAGEMENT LLC	65.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12401	10/02/2008		LOOP 360 WATER SUPPLY CORPORATION	1250.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12402	09/05/2008	A	FRISCH AUF VALLEY COUNTRY CLUB	75.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12421	10/15/2008	A	CITY OF AUSTIN	262.00	AGRICULTURE - IRRIGATION | RECREATION				14	NOT IN WM AREA	
12440	01/22/2009		GRASON VOLENTE INVESTMENTS LTD	235.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12441	02/16/2009		LAZY NINE MUD 1A	973.81	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12455	03/27/2009		THE ISLAND ON LAKE TRAVIS CONDOMINIUM OWNERS ASSOCIATION INC	11.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12463	05/06/2009		JAFFE INTERESTS LP	1475.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12521	10/08/2009		LAZY NINE MUD 1E	539.66	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12522	01/01/2010	A	UNDERGROUND SERVICES MARKHAM LP	11621.00	INDUSTRIAL				14	NOT IN WM AREA	
12546	06/08/2009		THE AUSTIN Y M B L SUNSHINE CAMP	2.50	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12547	06/01/2009		6D RANCH LTD	45.28	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12568	09/10/2010		CITY OF HORSESHOE BAY	2225.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12639	08/05/2010	A	APPLIED MATERIALS INC	64.00	RECREATION				14	NOT IN WM AREA	
12644	08/05/2011		CITY OF COTTONWOOD SHORES	495.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12659	04/21/2010		STARK WATERFORD LLC	300.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12660	11/05/2009		LEHMANN, GARY	104.90	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12666	10/01/2009		WEST TRAVIS COUNTY MUD 3	62.40	AGRICULTURE - IRRIGATION | RECREATION				14	NOT IN WM AREA	
12671	01/01/2011		HEART OF TEXAS BAPTIST ENCAMPMENT	40.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12691	08/05/2010		APPLIED MATERIALS INC	64.00	RECREATION			111.5000	14	NOT IN WM AREA	
12775	12/22/2011	D	LOWER COLORADO RIVER AUTHORITY		INDUSTRIAL | INDUSTRIAL - POWER GENERATION				14	NOT IN WM AREA	
12776	12/22/2011	D	LOWER COLORADO RIVER AUTHORITY		INDUSTRIAL | INDUSTRIAL - POWER GENERATION				14	NOT IN WM AREA	
12860	11/30/2011		TRAVIS COUNTY MUD 4	3501.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12862	01/10/2012		CITY OF AUSTIN	7500.00	INDUSTRIAL				14	NOT IN WM AREA	
12863	04/19/2012		ST STEPHENS EPISCOPAL SCHOOL	72.70	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12864	03/15/2012	A	REUNION RANCH WCID	262.00	AGRICULTURE - IRRIGATION | MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12865	11/30/2011		KINGSLAND WATER SUPPLY CORPORATION	1500.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12873	12/07/2011		CITY OF SUNRISE BEACH VILLAGE	200.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12874	04/05/2012		TWIN CREEKS GOLF GROUP LP	343.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12885	05/16/2012		KENT REAL ESTATE II LP	642.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12886	04/30/2012		WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	9000.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12895	04/30/2012		WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	450.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12899	06/22/2012		SENNA HILLS MUD	404.00	MUNICIPAL/DOMESTIC		402.0000		14	NOT IN WM AREA	
12900	06/28/2012		JONESTOWN WSC	562.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12901	06/04/2012		THE AUSTIN GOLF CLUB	200.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12902	06/27/2012		DRIPPING SPRINGS WSC	1126.16	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12903	06/27/2012		TRAVIS COUNTY MUD 10	96.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12912	07/27/2012		CITY OF MEADOWLAKES	75.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12913	07/26/2012		WINDERMERE OAKS WSC	59.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12914	10/20/2009		THE RESERVE AT LAKE TRAVIS RESIDENTIAL COMMUNITY INC	203.00	AGRICULTURE - IRRIGATION | RECREATION				14	NOT IN WM AREA	
12916	10/28/2009		AUSTIN COUNTRY CLUB	355.60	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12917	02/24/2010		PEDERNALES GOLF CLUB INC	82.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12918	03/28/2011		LA GRANGE ISD	27.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12919	09/06/2011		BLUEBONNET HILL GOLF COURSE LTD	199.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	

Lower Colorado Regional Water Planning Area
TCEQ Active Water Rights - December 14, 2018

WR NO	WR ISSUE DATE	AMENDMENT LETTER	OWNER NAME	DIVERSION AMOUNT (AFY)	USE	PRIORITY DATE	CONSUMPTIVE AMOUNT (AFY)	STORAGE AMOUNT (AF)	BASIN	WATER MASTER AREA	COUNTY
12920	10/30/2009		VILLAGE OF BRIARCLIFF	400.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12926	09/06/2011		CAMP LONGHORN LTD	50.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12926	09/06/2011		CAMP LONGHORN LTD	50.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12927	08/10/2009		JONES, TOMMY LEE	20.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12928	08/06/2012		BLUE LAKE GOLF CLUB INC	12.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12929	10/04/2011		VISTA MUD	476.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12930	06/01/2010		HIGHLAND LAKES GOLF CLUB INC	10.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12933	01/01/2011		STARK WATERFORD LLC	471.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12934	08/30/2010		HAYS COUNTY WCID 2	628.25	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12935	11/18/2011		FS ROBINHOOD 26 A LLC	12.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12936	10/04/2011		VISTA MUD	448.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12937	08/20/2012		LAKEWAY ROUGH HOLLOW SOUTH COMMUNITY INC	115.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12955	11/27/2012		STAR S RANCH INC	59.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
12982	01/10/2013		THE ISLAND ON LAKE TRAVIS CONDOMINIUM OWNERS ASSOCIATION INC	1728.00	AGRICULTURE - IRRIGATION | INDUSTRIAL				14	NOT IN WM AREA	
12983	02/04/2013		JEREMIAH VENTURE LP	498.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12991	12/15/2012		PK-RE DEVELOPMENT COMPANY INC	202.80	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
12997	12/19/2012		WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	336.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13022	02/20/2013		JORDAN, LEN D	8.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13027	10/14/2013		LOWER COLORADO RIVER AUTHORITY		AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
13054	04/11/2013		COLOVISTA COUNTRY CLUB PROPERTY OWNERS ASSOCIATION	44.23	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
13065	05/23/2013		TRAVIS COUNTY WCID POINT VENTURE	285.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13070	06/26/2013		TRAVIS COUNTY MUD 4	815.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
13079	08/16/2013		AQUA UTILITIES INC	467.08	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13082	08/28/2013		TRAVIS COUNTY WCID 17	499.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
13084	09/17/2013		DEER CREEK RANCH WATER CO LLC	250.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13091	07/30/2014		CORIX UTILITIES TEXAS INC	475.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13150	09/14/2014		ESCONDIDO GOLF AND LAKE CLUB	400.00	AGRICULTURE - IRRIGATION				14	NOT IN WM AREA	
13151	06/16/2014		HAYS COUNTY WCID 2	684.33	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13152	06/18/2014		HAYS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT 1	717.28	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13153	07/14/2014		GRAY WOLF GOLF LLC	300.00	AGRICULTURE - IRRIGATION | RECREATION				14	NOT IN WM AREA	
13175	12/30/2014	A	LOWER COLORADO RIVER AUTHORITY		INDUSTRIAL | MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13196	01/01/2015		BAE SYSTEMS INFORMATION AND ELECTRONIC SYSTEMS INTEGRATION IN	4.33	RECREATION				14	NOT IN WM AREA	
13197	04/30/2015		TRAVIS COUNTY WCID 18	1400.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13203	03/02/2015	A	TRAVIS COUNTY IMPROVEMENT DISTRICT 1	1603.00	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13317	03/28/2007		LOWER COLORADO RIVER AUTHORITY	117.50	MUNICIPAL/DOMESTIC				14	NOT IN WM AREA	
13366	06/30/2017		COLEMAN, LISA	29.17	AGRICULTURE | MARICULTURE				14	NOT IN WM AREA	
13439	04/27/2018		MENDELL FAMILY PARTNERSHIP LTD	7.20	AGRICULTURE				14	NOT IN WM AREA	
13440	04/27/2018		THE COSTA BELLA WATERFRONT COMMUNITY INC	9.00	AGRICULTURE					NOT IN WM AREA	
13442	04/27/2018		THE WATERS CONDOMINIUM ASSOCIATION	15.00	AGRICULTURE - IRRIGATION					NOT IN WM AREA	
13444	05/30/2018		POTTS LAND COMPANY LLC	19.61	AGRICULTURE					NOT IN WM AREA	
13445	05/30/2018		CANYON OAKS HOMEOWNERS ASSOCIATION INC	5.00	AGRICULTURE - IRRIGATION					NOT IN WM AREA	
13446	05/30/2018		HIGHLAND MANAGEMENT INC	330.00	MUNICIPAL/DOMESTIC					NOT IN WM AREA	
13447	05/30/2018		BACK OF THE MOON OWNERS ASSOCIATION INC	5.00	AGRICULTURE					NOT IN WM AREA	
13448	05/30/2018		SPICEWOOD BEACH PROPERTY OWNERS ASSOCIATION INC	8.00	AGRICULTURE					NOT IN WM AREA	
13451	05/30/2018		LBJ YACHT CLUB & MARINA LTD	9.00	AGRICULTURE					NOT IN WM AREA	
13452	05/30/2018		BRIDGEPOINT PROPERTY OWNERS ASSOCIATION INC	3.00	RECREATION					NOT IN WM AREA	
13453	05/30/2018		SUNSET POINT RV RESORT	19.00	AGRICULTURE					NOT IN WM AREA	
13517	08/29/2018		BRAMMER ENGINEERING INC	315.00	MINING					NOT IN WM AREA	

APPENDIX 3B

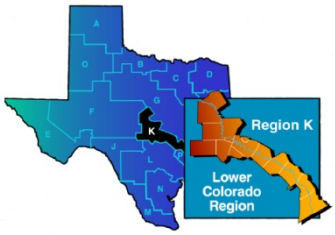
DESCRIPTION OF REGION K WAM RUN 3 CUTOFF MODEL

3B.1 HYDROLOGIC VARIANCE REQUEST TO TWDB

3B.2 HYDROLOGIC VARIANCE – FOLLW-UP QUESTIONS FROM TWDB AND REGION K RESPONSES

3B.3 TWDB HYDROLOGIC VARIANCE APPROVAL LETTER

3B.4 CURRENT AND PROJECTED ELEVATION-AREA-CAPACITY RELATIONSHIPS FOR LAKES TRAVIS AND BUCHANAN ON THE COLORADO RIVER, TEXAS



VOTING MEMBERS

John Burke, Chair
David Wheelock, Vice-Chair
Teresa Lutes, Secretary
Daniel Berglund
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Ronald G. Fieseler
Lauri Gillam
Karen Haschke
Barbara Johnson
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Jason Ludwig
Ann McElroy
Doug Powell
Mike Reagor
W.A. Roeder
Rob Ruggiero
Charles Shell
Paul Sliva
James Sultemeier
Byron Theodosis
Jim Totten
Paul Tybor
David Van Dresar
Jennifer Walker

COUNTIES

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

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

January 12, 2018

Mr. Jeff Walker, Executive Administrator
Texas Water Development Board (TWDB)
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Re: Request by the Lower Colorado Regional Water Planning Group (Region K) to use a modified TCEQ WAM Run 3 for surface water availability modeling in the 2021 Region K Water Plan development

Dear Mr. Walker:

On January 10, 2018, 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 (Cutoff Model) in determining availability of surface water resources for development of the 2021 Region K Regional Water Plan (RWP).

Previously in development of the 2011 Region K RWP, Region K determined that the standard TCEQ full-basin 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.

Region K again requested to use the Cutoff Model for the 2016 Region K RWP, after making some updates that reflected new data and changed conditions within the basin. That request was also approved by TWDB, with limitations identified for water management strategy analysis.

The Cutoff Model proposed for this 2021 RWP uses the same assumptions as approved previously by TWDB plus some limited revisions to include appropriate updates and provide clarification to the assumptions. The attached **Table A - Summary of Region K Cutoff Model Modeling Assumptions** outlines all of the major assumptions and identifies where a change to an assumption has been made since the 2016 Plan.

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 potentially 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

Region K requests to perform water supply availability analyses using 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**. The basic assumptions that differ from those included in the standard TCEQ Colorado WAM Run 3 are as follows:

1. All water rights at and above Lakes O.H. Ivie and Brownwood are senior to downstream water rights (while maintaining relative date priority in rights upstream). This assumption reflects historical and current water management operational practices between the upper and lower Colorado Basin, and allows for increased water availability upstream of Lakes O.H. Ivie and Brownwood in Region F and decreased availability downstream in Region K.
2. Expand the period of naturalized flows to include 1940-2016. Extending the hydrology period to 2016 will allow for better analysis of the recent drought and may identify a new "drought of record".
3. Calculation of the firm yield for the Buchanan-Travis Reservoir System. These two reservoirs are operated as a system, and their firm yield should be determined as such.
4. Include provisions of LCRA-STP 2006 Settlement Agreement. This is an agreement that is not included in the TCEQ WAM Run 3, but is representative of current water management operations in the basin.
5. The 2015 LCRA Water Management Plan environmental flow criteria is not used for water supply analysis. An amount of firm water (33,440 AFY) is allocated per year, and is a commitment from the firm yield of the Highland Lakes.
6. 2015 LCRA Water Management Plan Interruptible Water is turned off for water supply analysis.

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 standard 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 operational practices between the upper and lower Colorado 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.

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 TCEQ's standard 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.

We appreciate your consideration of this submittal. If you have any questions about this request, please contact me as shown below.

Respectfully submitted,

John E. Burke
Region K Chairman
512-914-3474
JohnEBurke@RegionK.org

Enclosures: Table A - Summary of Region K Cutoff Model Modeling Assumptions

Cc: Lann Bookout, TWDB (electronically)
Teresa Lutes, Region K Water Modeling Committee Chair (electronically)
Jaime Burke, AECOM (electronically)

TABLE A
SUMMARY OF REGION K CUTOFF MODEL MODELING ASSUMPTIONS
REGARDING SUPPLY AND STRATEGY ANALYSES
FOR 2021 REGIONAL PLAN DEVELOPMENT

		(1)	(2)	(3)	
NO.	**ASSUMPTION**	**SUPPLY ANALYSIS**	**STRATEGY ANALYSIS**		**Change from 2016 Planning Cycle**
		Region K Cutoff Model by Decade	**TCEQ Full-Basin WAM Run 3**	**Region K Cutoff Model by Decade**	
1	Use TCEQ Full-Basin WAM Run 3 Without Modification for New Appropriation Water Supply Strategies Analysis	No	Yes	No	No Change
2	All Rights at and Above Ivie/Brownwood Senior to Downstream Rights (maintaining relative date priority in rights upstream)	Yes	No	Yes	No Change
3	Use Expanded 1940-2016 Naturalized Flows	Yes	No	Yes	Extended hydrology period to 2016
4	Determine Firm Yield for Buchanan-Travis Reservoir System	Yes	No	No	No Change
5	Use Sediment-Adjusted Future Reservoir Storage by Decade	Yes	No	Yes	No Change
6	Use 2015 Water Management Plan Environmental Flow Criteria	No*	Yes	Yes	Changed "2010" to "2015"; Added a footnote for clarification
7	Set All Water Right Demands at Authorized Diversion Amounts	Yes	Yes	No	No Change
8	Include Provisions of LCRA-STP 2006 Settlement Agreement	Yes	No	Yes	No Change
9	Include Operating Rules for Lakes Buchanan and Travis to Reflect Combined Firm Yield Operation	Yes	Yes	Yes	Revised "Maintain Consistent Levels of Drawdown in the Lakes" to say "Reflect Combined Firm Yield Operations"
10	Include Latest Approved LCRA Permits and Amendments (as of December 2017)	Yes	Yes	Yes	Added "(as of December 2017)"
11	Include 2015 Water Management Plan Highland Lakes Interruptible Water	No	Yes	Yes	Changed "2010" to "2015"
12	Adjust 2015 Water Management Plan Environmental Flow Triggers (Decadal)	No	No	Yes	Changed "2010" to "2015"; Added "(Decadal)" for clarification
13	Set All Region K Municipal and Industrial Water Right Demands at Projected Future Demand Amounts by Decade	No	No	Yes	Expanded "M&I" to "Municipal and Industrial" for clarification
14	Modify Curtailment of Highland Lakes Interruptible Water as Necessary to Satisfy LCRA Future Firm Municipal and Industrial Demands	No	No	Yes	Expanded "M&I" to "Municipal and Industrial" for clarification
15	Set LCRA Lower Basin Irrigation Demands Equal to Projected Future Demands by Decade	No	No	Yes	Removed "Weather Variable" after the word "Future"
16	Include LCRA Irrigation Return Flows to the Colorado River	No	No	Only As A Strategy	No Change
17	Include Return Flows from Austin Wastewater Treatment Plants	No	Only As A Strategy	Only As A Strategy	No Change
18	Include Other Municipal and Industrial Return Flows	No	Only As A Strategy	Only As A Strategy	Expanded "M&I" to "Municipal and Industrial" for clarification
19	Include Reuse Provisions and Environmental Flow Requirements of LCRA-Austin 2007 Settlement Agreement	No	Only As A Strategy	Only As A Strategy	No Change

* The LCRA 2015 Water Management Plan states that the amount of firm water allocated for environmental purposes is 33,440 acre-feet per year (10-year average). This amount is a commitment from the firm yield of the Highland Lakes.

Note: TCEQ SB-3 requirements will be taken into consideration in strategies involving a new appropriation of water.

Burke, Jaime

From: Lann Bookout <Lann.Bookout@twdb.texas.gov>
Sent: Friday, January 26, 2018 2:00 PM
To: 'johnburke41@gmail.com'; Burke, Jaime
Cc: Temple McKinnon; Sarah Backhouse; Matt Nelson
Subject: Follow-up questions about Region K's Hydrologic Variance Request

John;
Our preliminary review of the Region K hydrologic variance request generated a couple of questions. It would help us more completely understand your request if you could provide some clarification or additional information to the following questions:

1. *Please explain why, per item #6 (or item No. 11, Table A) of the January 12th request, is it proposed that the 2015 LCRA Water Management Plan Interruptible Water be turned off for the existing water supply analysis if the stated intent of Region K's analysis is to "reflect the historical operation of water rights and existing contractual commitments" in the basin? Please explain a) the specific reason/purpose of turning these anticipated water releases off even though, our understanding is that LCRA's management plan requires certain interruptible releases will continue to be made to downstream users (prior to the onset of the occurrence of a drought) based on reservoir elevations and b) what net effect doing so will have on the estimates of existing basin supplies under drought of record conditions, and hence the identified water needs. For example, does excluding these diversions in the modelling result in increasing or decreasing the estimated volume of existing supply that would be actually be expected to be available under actual drought conditions vs incorporating interruptible diversions in the modelling?*

2. Similarly, please also explain why items 12 and 19 in Table A (the management plans environmental flow triggers and reuse provisions and environmental flow requirements of LCRA Austin settlement agreement) are also proposed to not be incorporated in modelling analyses of existing supplies. Provide additional information regarding why these items are proposed not to be incorporated into the existing supply analysis and what effect doing so has on estimates of existing basin supplies under DOR conditions vs incorporating these items.

I hope to hear from you soon on this so we can continue our evaluation of your request. Since this is just a clarification to your letter, an email response is sufficient.

Lann Bookout
Project Manager, Regional Water Planning
Texas Water Development Board
Lann.Bookout@twdb.texas.gov
512-936-9439

Burke, Jaime

From: Lann Bookout <Lann.Bookout@twdb.texas.gov>
Sent: Friday, February 09, 2018 11:10 AM
To: 'johnburke41@gmail.com'; Burke, Jaime
Cc: Sarah Backhouse; Temple McKinnon
Subject: Additional questions on Region K's Hydrologic Variance

John:
In the request in the basic assumptions listed 1-6 on page 2. Can you provide some additional explanation on number 4 and 5 shown below:

4. Include provisions of LCRA-STP 2006 Settlement Agreement. This is an agreement that is not included in the TCEQ WAM Run 3, but is representative of current water management operations in the basin.
5. The 2015 LCRA Water Management Plan environmental flow criteria is not used for water supply analysis. An amount of firm water (33,440 AFY) is allocated per year, and is a commitment from the firm yield of the Highland Lakes.

For number 4 - What elements of the agreement affect the modeling of other LCRA water rights and briefly how is the agreement represented in the model?
For number 5 – Please explain the rationale of not including the WMP environmental flow criteria but including 33,440 afy allocation of firm water and how is this applied in the Cutoff model.

I hope to hear from you soon on this and our previous questions so we can continue our evaluation of your request. Since this is
just a clarification to your letter, an email response is sufficient.

Lann Bookout
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Texas Water Development Board
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Burke, Jaime

From: Burke, Jaime
Sent: Friday, February 16, 2018 5:13 PM
To: 'Lann Bookout'
Cc: Sarah Backhouse; Temple McKinnon; Matt Nelson; 'johnburke41@gmail.com'; Teresa Lutes (External); 'David Wheelock'; Rebecca Batchelder
Subject: RE: Additional questions on Region K's Hydrologic Variance
Attachments: Region_K_Hydrologic_Variance_Request_JAN2018.pdf

Lann,

Thank you for the opportunity to provide clarification to the letter that was submitted related to the hydrologic variance request for Region K. Within this email, we are providing responses for the four questions you have asked, and have attached the original Region K request letter for reference. Please let us know if we can provide any additional information.

From the January 26, 2018 email from TWDB:

1. *Please explain why, per item #6 (or item No. 11, Table A) of the January 12th request, is it proposed that the 2015 LCRA Water Management Plan Interruptible Water be turned off for the existing water supply analysis if the stated intent of Region K's analysis is to "reflect the historical operation of water rights and existing contractual commitments" in the basin? Please explain a) the specific reason/purpose of turning these anticipated water releases off even though, our understanding is that LCRA's management plan requires certain interruptible releases will continue to be made to downstream users (prior to the onset of the occurrence of a drought) based on reservoir elevations and b) what net effect doing so will have on the estimates of existing basin supplies under drought of record conditions, and hence the identified water needs. For example, does excluding these diversions in the modelling result in increasing or decreasing the estimated volume of existing supply that would be actually be expected to be available under actual drought conditions vs incorporating interruptible diversions in the modelling?*

Background

The firm yield of lakes Buchanan and Travis is estimated using a Water Availability Model with all senior water rights fully utilized. The yield from the lakes is included in LCRA's system water supply which is the basis for LCRA entering into long term contracts to supply water to municipal and industrial customers and is the basis of allocations of firm supply made in the regional water planning processes.

A court order in 1988 (1988 Adjudication Order) allows the unused portion of the firm yield to be used for other beneficial purposes, i.e. interruptible water for agricultural irrigation. However, the 1988 Adjudication Order prohibits supplying interruptible water that would impair availability of firm water for municipal and industrial users. The WMP is structured such that some of the unused supply (ie. firm yield) of lakes Buchanan and Travis is made available as interruptible stored water and sold to irrigators for a single irrigation season.

The 1988 Adjudication Order and the water rights for lakes Buchanan and Travis require an operating plan (i.e. Water Management Plan (WMP)) that "LCRA shall interrupt or curtail the supply of water . . . pursuant to commitments that are specifically subject to interruption or curtailment, to the extent necessary to allow LCRA to satisfy all demand for . . . firm, uninterruptible water commitments". The 1988 Adjudication Order also calls for the calculation of the firm yield of the combined lakes Buchanan and Travis through a repeat of the drought of record.

LCRA amends the WMP as firm demands increase and this reduces the amount of supply available for interruptible uses. LCRA will continue to amend the WMP over time to ensure that firm demands continue to be met.

Under the operational rules of the WMP and over the course of a multi-year drought, the sum of water supplied to all uses from the lakes (ie. firm and interruptible demands) will not exceed the combined firm yield of lakes Buchanan and Travis. For firm yield modeling purposes, whether water is diverted from the lakes for an interruptible use or a firm use is transparent to the hydrologic calculation.

Response to Question 1.

Response 1.a. Region K specifies the WMP (i.e, interruptible water) be turned off for water supply estimates for these reasons:

- TWDB Regional Planning Rules require (and Region K agrees) that supply estimates be made for firm yield conditions with all water rights fully utilized.

- Imposing the WMP operation onto the supply estimate does not follow the directive to use firm yield. When the WMP is in operation, firm demands on the lakes are less than firm yield, interruptible demands are imposed on the lakes, and downstream water rights are not operated at their fullest authorization. The WMP is subject to revision, and has been revised several times since the first plan was approved in 1989. These revisions address, among other things, increases to firm demands that tend to reduce the amount of water available to interruptible customers. In the context of long-term water planning, the existence of the WMP should not preclude access to the full firm yield of lakes Buchanan and Travis in the future when firm demands begin to approach the firm yield.

Response 1.b: If the Water Management Plan and interruptible stored water was included in the existing water supply analysis (instead of a firm yield model with no interruptible water) the results would tend to be similar. This is because the average annual amount of water that can be supplied from a reservoir system during the critical drought period without going empty is essentially the same regardless of whether the water being diverted consists of some interruptible water and some firm water or consists of all firm water.

2. Similarly, please also explain why items 12 and 19 in Table A (the management plans environmental flow triggers and reuse provisions and environmental flow requirements of LCRA Austin settlement agreement) are also proposed to not be incorporated in modelling analyses of existing supplies. Provide additional information regarding why these items are proposed not to be incorporated into the existing supply analysis and what effect doing so has on estimates of existing basin supplies under DOR conditions vs incorporating these items.

Response to Question 2.

Response 2: Specific environmental flow criteria are required based on the Water Management Plan, and the WMP is subject to change. As the WMP changes, the environmental flow levels (such as subsistence, base-dry and base-average) as well as the manner in which LCRA attempts to attain those flow levels may change. LCRA expects to continue to make water available for environmental flow needs into the future and the LCRA Board has committed a portion of LCRA's firm supply to help meet such needs. When evaluating existing supplies to what demands can be met out into the future, it is appropriate to look at the firm yield model as discussed in the prior response. Out of that firm supply, it is then appropriate to deduct the amount that has been committed out of LCRA's firm supply to help meet environmental flow needs. Meeting environmental flow requirements with an allocation of firm yield does not change the estimated existing basin supply under DOR conditions.

Regarding the 2007 LCRA-Austin Settlement Agreement, the reuse and environmental flow provisions of that agreement address how return flows can be used to help meet environmental flow commitments and potential future supply projects. These provisions are separate and apart from the underlying water rights. The City of Austin and LCRA have a bed and banks permit application pending approval at TCEQ, which would be required to implement a potential future project utilizing that permit. Further, Region K does not include Austin's return flows in estimating water supply availability for regional planning. As discussed in the 2016 Region K water plan, the City of Austin (and Region K) consider Austin's return flows as a resource for future water management strategies and supplies.

And, from the February 9, 2018 email from TWDB:

In the request in the basic assumptions listed 1-6 on page 2. Can you provide some additional explanation on number 4 and 5 shown below:

> 4. Include provisions of LCRA-STP 2006 Settlement Agreement. This is an agreement that is not included in the TCEQ WAM Run 3, but is representative of current water management operations in the basin.
>
> 5. The 2015 LCRA Water Management Plan environmental flow criteria is not used for water supply analysis. An amount of firm water (33,440 AFY) is allocated per year, and is a commitment from the firm yield of the Highland Lakes.

3. Regarding basic assumption number 4 - What elements of the agreement affect the modeling of other LCRA water rights and briefly how is the agreement represented in the model?

Response to Question 3.

In the Region K Cutoff Model, South Texas Project (STP) attempts to divert their full authorized consumptive demand in priority order under CA 14-5437 at the priority date granted in the water right (i.e., June, 1974). There are no elements of the agreement that affect diversions to other LCRA water rights or the modeling of other LCRA water rights.

The LCRA-STP 2006 Settlement Agreement commits LCRA to providing water from storage from lakes Buchanan and Travis in the event STP cannot meet its water needs from CA 14-5437. Stored water from lakes Buchanan and Travis is a "back up" supply to STP and this agreement does not affect other LCRA water rights. This back up supply is a firm water commitment, and is appropriate to include in the model.

4. Regarding basic assumption number 5 – Please explain the rationale of not including the WMP environmental flow criteria but including 33,440 afy allocation of firm water and how is this applied in the Cutoff model.

Response to Question 4.

Refer to Response number 2, above for the rationale of not including the WMP environmental flow criteria in the Cutoff supply model. The allocation of 33,440 acft/yr from the firm yield to meet environmental flows is done as a post-process to the Cutoff model and is treated as an obligation against LCRA's firm supplies.

Thank you,
Jaime

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March 28, 2018

Mr. John Burke, P.E.
Region K Chair
Lower Colorado Regional Water Planning Group (Region K)
17310 Hill Lakes Court
Cypress, Texas 77429

RE: Region K Regional Water Planning Group (RWPG) request for approval to modify existing surface water availability hydrologic assumptions for development of the 2021 Region K Regional Water Plan (RWP)

Dear Mr. Burke:

The Texas Water Development Board (TWDB) has reviewed your requests dated January 12, 2018 to use the Region K Water Availability Model (WAM) Run 3 Cutoff Model. The cutoff model is approved for use in determining current water supply availability and for evaluation of water management strategies in the development of the 2021 Region K RWP.

Your request stated that the cutoff model began with the Texas Commission on Environmental Quality (TCEQ) WAM Run 3 and was modified to more accurately reflect simulation of historic operations and operation of water rights and existing contractual commitments in the Colorado River Basin. The request further indicated that since approved and used in the 2016 Region K plan this version will contain updates and some clarifications. The Region K hydrologic variance request states that TCEQ full-basin WAM Run 3 will be used without modification for any analysis that includes a new appropriation water supply. This letter confirms that the TWDB approves the assumptions that makeup the Region K Cutoff Model for supply and water management strategy analysis for the development of the 2021Region K RWP, as specified in Table A of the request. This table is included as Attachment 1 to this letter.

While the TWDB authorizes these modifications to evaluate existing water supplies and water management strategies for development of the 2021 Region K RWP, 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 Fifth Cycle of Regional Water Plan Development.*

If you have any questions, please do not hesitate to contact Lann Bookout, project manager for Region K, at 512-936-9439 or via email at lann.bookout@twdb.texas.gov.

Sincerely,

Jeff Walker
Executive Administrator

Attachment: Table A

c w/att: David Wheelock, Administrator
Jaime Burke, Consultant
Lann Bookout, Project Manager

TABLE A
SUMMARY OF REGION K CUTOFF MODEL MODELING ASSUMPTIONS
REGARDING SUPPLY AND STRATEGY ANALYSES
FOR 2021 REGIONAL PLAN DEVELOPMENT

		(1)	(2)	(3)	
NO.	ASSUMPTION	SUPPLY ANALYSIS	STRATEGY ANALYSIS		Change from 2016 Planning Cycle
		Region K Cutoff Model by Decade	TCEQ Full-Basin WAM Run 3	Region K Cutoff Model by Decade	
1	Use TCEQ Full-Basin WAM Run 3 Without Modification for New Appropriation Water Supply Strategies Analysis	No	Yes	No	No Change
2	All Rights at and Above Ivie/Brownwood Senior to Downstream Rights (maintaining relative date priority in rights upstream)	Yes	No	Yes	No Change
3	Use Expanded 1940-2016 Naturalized Flows	Yes	No	Yes	Extended hydrology period to 2016
4	Determine Firm Yield for Buchanan-Travis Reservoir System	Yes	No	No	No Change
5	Use Sediment-Adjusted Future Reservoir Storage by Decade	Yes	No	Yes	No Change
6	Use 2015 Water Management Plan Environmental Flow Criteria	No*	Yes	Yes	Changed "2010" to "2015"; Added a footnote for clarification
7	Set All Water Right Demands at Authorized Diversion Amounts	Yes	Yes	No	No Change
8	Include Provisions of LCRA-STP 2006 Settlement Agreement	Yes	No	Yes	No Change
9	Include Operating Rules for Lakes Buchanan and Travis to Reflect Combined Firm Yield Operation	Yes	Yes	Yes	Revised "Maintain Consistent Levels of Drawdown in the Lakes" to say "Reflect Combined Firm Yield Operations"
10	Include Latest Approved LCRA Permits and Amendments (as of December 2017)	Yes	Yes	Yes	Added "(as of December 2017)"
11	Include 2015 Water Management Plan Highland Lakes Interruptible Water	No	Yes	Yes	Changed "2010" to "2015"
12	Adjust 2015 Water Management Plan Environmental Flow Triggers (Decadal)	No	No	Yes	Changed "2010" to "2015"; Added "(Decadal)" for clarification
13	Set All Region K Municipal and Industrial Water Right Demands at Projected Future Demand Amounts by Decade	No	No	Yes	Expanded "M&I" to "Municipal and Industrial" for clarification
14	Modify Curtailment of Highland Lakes Interruptible Water as Necessary to Satisfy LCRA Future Firm Municipal and Industrial Demands	No	No	Yes	Expanded "M&I" to "Municipal and Industrial" for clarification
15	Set LCRA Lower Basin Irrigation Demands Equal to Projected Future Demands by Decade	No	No	Yes	Removed "Weather Variable" after the word "Future"
16	Include LCRA Irrigation Return Flows to the Colorado River	No	No	Only As A Strategy	No Change

17	Include Return Flows from Austin Wastewater Treatment Plants	No	Only As A Strategy	Only As A Strategy	No Change
18	Include Other Municipal and Industrial Return Flows	No	Only As A Strategy	Only As A Strategy	Expanded "M&I" to "Municipal and Industrial" for clarification
19	Include Reuse Provisions and Environmental Flow Requirements of LCRAAustin 2007 Settlement Agreement	No	Only As A Strategy	Only As A Strategy	No Change

* The LCRA 2015 Water Management Plan states that the amount of firm water allocated for environmental purposes is 33,440 acre-feet per year (10-year average). This amount is a commitment from the firm yield of the Highland Lakes.

Note: TCEQ SB-3 requirements will be taken into consideration in strategies involving a new appropriation of water.

January 5, 2018

TECHNICAL MEMORANDUM

To: LCRA Water Supply Planning Team

From: Robert J. Brandes, P.E.

Subject: Current and Projected Elevation-Area-Capacity Relationships for Lakes Travis and Buchanan on the Colorado River, Texas

Date: November 11, 2010

The purpose of this Technical Memorandum is to document the data and procedures used for developing projections of expected future storage capacities and surface areas of Lakes Travis and Buchanan as these reservoirs are subject to ongoing and continual sedimentation. Projections of elevation-area-capacity relationships have been made by decade beginning in the year 2010 and extending through the year 2100. It is anticipated that these relationships will be used for all of LCRA's water supply planning activities until additional data become available in the future to make appropriate revisions.

Sedimentation in reservoirs is a natural process that results when inflows carry sediment loads generated by runoff from contributing watersheds. Every reservoir experiences some degree of sedimentation, with a variety of factors causing sedimentation rates to vary. These factors relate primarily to differences in the characteristics of the drainage areas that contribute inflows and sediment loadings to the reservoirs, including their size and shape, rainfall and evaporation patterns, soil properties and distributions, topography and land use practices, and type and extent of vegetative cover. Certainly these factors are different for Lakes Travis and Buchanan.

Another major factor that influences sediment loadings to Lakes Travis and Buchanan is the existence of upstream reservoirs. For example, Lake Travis is located immediately downstream of the upper chain of Highland Lakes, including Lake Buchanan, which serve as receptors for sediment loadings from upstream watersheds before they can be discharged into Lake Travis. The contributing watershed of Lake Travis below the Highland Lakes, i.e. below Lake Marble Falls, is approximately 1,700 square miles[1]. All of the Highland Lakes reservoirs above Lake Travis have been in existence for at least 60 of the approximately 70 years that Lake Travis has been in operation, and Lake Buchanan has been in existence for the entire time. O. H. Ivie Reservoir and Lake Brownwood are major reservoirs currently located upstream of Lake Buchanan that limit its contributing drainage area. The watershed below these reservoirs that contributes inflows to Lake Buchanan covers approximately 6,600 square miles. From the time of initial impoundment of Lake Buchanan around 1938 until O. H. Ivie Reservoir was constructed in 1989, the contributing watershed of Lake Buchanan varied depending on when

[1] All drainage areas cited herein were derived from the input data files for the TCEQ's Water Availability Model of the Colorado River Basin.

different upstream reservoirs were constructed, ranging from an initial maximum of 16,300 square miles from 1938 to 1951, down to about 14,900 square miles from 1951 to 1969, and then down to about 9,800 square miles from 1969 to 1989. These different contributing watersheds reflect different combinations of the Lake Buchanan drainage area that existed below Lake Nasworthy on the South Concho River (constructed in 1930), O. C. Fisher Reservoir on the North Concho River (constructed in 1951), E. V. Spence Reservoir on the Colorado River (constructed in 1969), and Lake Brownwood on Pecan Bayou (constructed in 1933). The relative differences in the size of the contributing watersheds for Lakes Travis and Buchanan (i.e., 1,700 square miles versus 6,800 square miles since 1989 and from 9,800 up to 16,300 square miles prior to that time) and the sediment retention in the upper chain of Highland Lakes immediately upstream of Lake Travis produce different quantities of inflow and sediment loadings to these reservoirs, which in turn affect their rates of sedimentation and available storage capacities. Based on these factors alone, more sediment loadings should be discharged into and accumulated in Lake Buchanan than in Lake Travis.

LAKE TRAVIS

The most recent study of the elevation-area-capacity characteristics of Lake Travis was conducted by the Texas Water Development Board (TWDB, 2009) using field survey data collected with a multi-frequency (200 kHz, 50 kHz, and 24 kHz) sub-bottom profiling depth sounder during April-July of 2008, supplemented with high-resolution LIDAR ground elevation data provided by LCRA based on measurements made during January 2007. Results from this study indicate that the conservation storage capacity of Lake Travis at elevation 681.0 feet above mean sea level (msl)[2] as of the time of the surveys was 1,134,956 acre-feet, with a corresponding surface area of 19,297 acres. Based on analyses of the multi-frequency sub-bottom depth data, the distribution and accumulation of sediment within Lake Travis also was analyzed and determined by the TWDB, and these results indicate that 16,974 acre-feet of sediment have been deposited within the reservoir since it first began to impound water around 1940. This is equivalent to an average annual sedimentation rate of approximately 250 acre-feet/year.

Based on LCRA records (LCRA, 1999), the most recent hydrographic survey of Lake Travis prior to the 2008 TWDB survey was conducted in 1993, and the conservation storage capacity of the reservoir was reported at that time to be 1,128,974 acre-feet. Data from the 1993 survey were combined with elevation data from a 1997 aerial mapping project to generate revised and updated elevation-area-capacity tables for Lake Travis. These results indicated that the conservation storage capacity of the reservoir as of 1997 was 1,132,172 acre-feet.

It is significant to note that the conservation storage capacity of Lake Travis as determined by the TWDB based on the 2008 survey and 2007 LIDAR data is greater than both of the conservation storage capacities that were reported in 1993 and 1997. This would suggest that the reservoir has not accumulated any sediment since the mid 1990s and, in fact, has gained storage capacity.

[2] Elevations cited in this Technical Memorandum are based on the National Geodetic Vertical Datum 1929 (NGVD 29), which is the datum normally used by LCRA when reporting lake elevations. This datum is 0.6 feet lower than the datum referenced in the TWDB report, the North American Vertical Datum 1988 (NAVD 88), and appropriate adjustments have been made for extracting the storage capacity and surface area data used in this Technical Memorandum.

This, of course, is highly unlikely and inconsistent with the sediment depth measurements reported by the TWDB based on the multi-frequency sub-bottom depth data collected during the 2008 survey. As noted by the TWDB in its 2009 report, "*Due to differences in the methodologies used during this 2008 survey and previous Lake Travis surveys, comparison of these values is not recommended.*"

Because storage capacity data from the most recent hydrographic surveys and studies of Lake Travis appear to be inconsistent with regard to sedimentation effects, they cannot be used to develop meaningful estimates of sedimentation rates or projections of future reservoir storage capacity. However, since the size of the contributing watershed for Lake Travis and the existence of the upper chain of Highland Lakes immediately upstream of Lake Travis essentially have not changed for the past 60 years, the TWDB's 2008 estimate of the historical sedimentation rate within the reservoir based on accumulated sediment since its initial impoundment does provide a useful basis for estimating the reservoir's future sediment accumulations and storage capacity. Using the TWDB's estimate of 250 acre-feet/year for the annual sedimentation rate, projections of future sedimentation volumes and corresponding maximum conservation storage capacities have been made for each decade beginning with 2010 and extending through the year 2100. These results are presented in Table 1 in Rows 25 and 17, respectively. As shown, based on these calculations, the maximum conservation storage capacity of Lake Travis is projected to decrease from 1,134,456 acre-feet in 2010 down to 1,111,956 acre-feet in the year 2100, a reduction of 22,500 acre-feet, or about two percent. The graph in Figure 1 illustrates the projected reduction in the future conservation storage capacity of Lake Travis out to the year 2100 and also compares these projections to previous estimates of the conservation storage capacity based on the original as-built calculations and previous hydrographic survey and topographic data. Considering the more sophisticated approach and state-of-the-art procedures utilized in the most recent study conducted by the TWDB, the projected values of conservation storage capacity for Lake Travis are considered to be reasonable and sufficiently accurate for purposes of LCRA's water supply planning until these data are revised and updated by future studies.

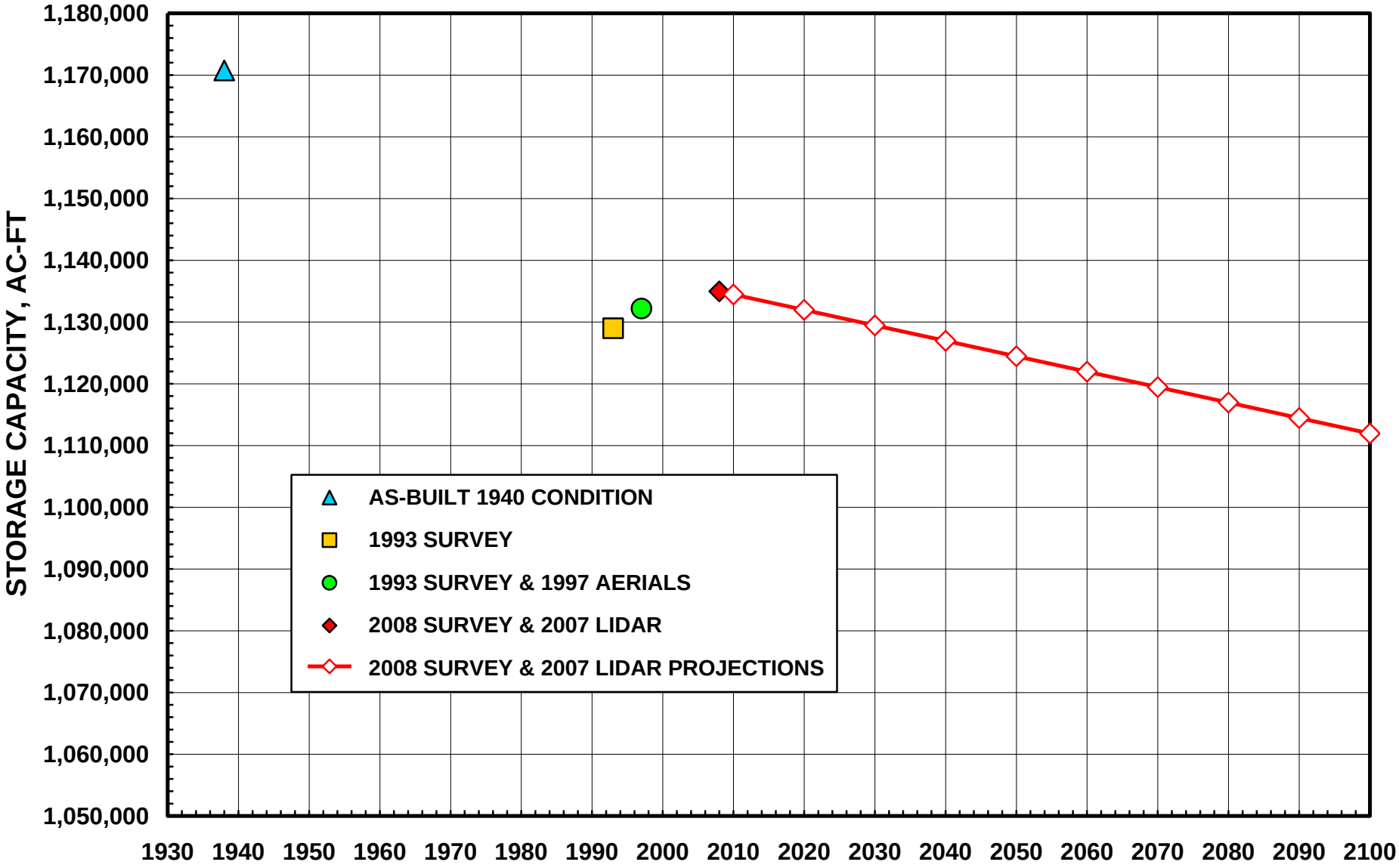
The distribution of the projected conservation storage capacities in Table 1 over the depth of Lake Travis has been accomplished by assuming that the current vertical distribution of storage relative to the maximum conservation storage capacity will be maintained as future sedimentation occurs within the reservoir. This distribution for elevations below the top of the conservation pool is shown in Column 4 of Table 1, and these factors have been applied to the maximum conservation storage capacity at elevation 681.0 feet msl for each decade to establish the storage quantities at the elevations below the top of the conservation pool. For elevations above the top of the conservation pool (> 681.0 feet msl), the same incremental increases in storage capacity as those determined and reported in the TWDB's 2008 study have been maintained for each future decadal condition, assuming that sedimentation effects will be minimal at these higher elevations.

TABLE 1
LAKE TRAVIS PROJECTED STORAGE CONDITIONS BASED ON 250 AC-FT/YEAR CONSTANT ANNUAL SEDIMENTATION RATE AS DETERMINED BY TWDB MAY 2009 STUDY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	WATER SURFACE ELEVATION Feet	TWDB 2008 SURVEY RESULTS		STORAGE DEPTH PROPOR-TIONAL FACTOR	LAKE TRAVIS PROJECTED STORAGE CAPACITY BY DECADE									
		SURFACE AREA* acres	STORAGE CAPACITY* ac-ft		2010	2020	2030	2040	2050	2060	2070	2080	2090	2100
(1)	500.0	0	0	0.0000	0	0	0	0	0	0	0	0	0	0
(2)	502.0	24	8	0.0000	8	8	8	8	8	8	8	8	8	8
(3)	515.0	486	3,552	0.0031	3,550	3,543	3,535	3,527	3,519	3,511	3,503	3,496	3,488	3,480
(4)	530.0	1,030	15,009	0.0132	15,002	14,969	14,936	14,903	14,870	14,837	14,804	14,771	14,738	14,705
(5)	545.0	1,584	34,370	0.0303	34,355	34,279	34,203	34,128	34,052	33,976	33,901	33,825	33,749	33,673
(6)	560.0	2,321	63,665	0.0561	63,637	63,497	63,356	63,216	63,076	62,936	62,796	62,655	62,515	62,375
(7)	575.0	3,400	105,997	0.0934	105,950	105,717	105,483	105,250	105,016	104,783	104,549	104,316	104,082	103,849
(8)	590.0	4,753	167,110	0.1472	167,036	166,668	166,300	165,932	165,564	165,196	164,828	164,460	164,092	163,723
(9)	605.0	6,178	248,300	0.2188	248,191	247,644	247,097	246,550	246,003	245,456	244,909	244,362	243,815	243,268
(10)	620.0	7,935	354,000	0.3119	353,844	353,064	352,285	351,505	350,725	349,945	349,165	348,386	347,606	346,826
(11)	635.0	9,885	487,427	0.4295	487,212	486,139	485,065	483,991	482,918	481,844	480,770	479,697	478,623	477,549
(12)	650.0	12,327	652,275	0.5747	651,988	650,551	649,114	647,677	646,241	644,804	643,367	641,930	640,493	639,057
(13)	660.0	14,229	784,863	0.6915	784,517	782,788	781,060	779,331	777,602	775,873	774,144	772,415	770,687	768,958
(14)	665.0	15,301	858,656	0.7566	858,278	856,386	854,495	852,604	850,712	848,821	846,929	845,038	843,147	841,255
(15)	670.0	16,535	938,224	0.8267	937,811	935,744	933,677	931,611	929,544	927,477	925,411	923,344	921,277	919,211
(16)	675.0	17,770	1,023,950	0.9022	1,023,499	1,021,243	1,018,988	1,016,732	1,014,477	1,012,221	1,009,966	1,007,711	1,005,455	1,003,200
(17)	681.0	19,297	1,134,956	1.0000	1,134,456	1,131,956	1,129,456	1,126,956	1,124,456	1,121,956	1,119,456	1,116,956	1,114,456	1,111,956
(18)	685.0	20,400	1,214,515	n/a	1,214,015	1,211,515	1,209,015	1,206,515	1,204,015	1,201,515	1,199,015	1,196,515	1,194,015	1,191,515
(19)	690.0	21,598	1,319,504	n/a	1,319,004	1,316,504	1,314,004	1,311,504	1,309,004	1,306,504	1,304,004	1,301,504	1,299,004	1,296,504
(20)	695.0	22,892	1,430,666	n/a	1,430,166	1,427,666	1,425,166	1,422,666	1,420,166	1,417,666	1,415,166	1,412,666	1,410,166	1,407,666
(21)	700.0	24,327	1,548,645	n/a	1,548,145	1,545,645	1,543,145	1,540,645	1,538,145	1,535,645	1,533,145	1,530,645	1,528,145	1,525,645
(22)	705.0	25,904	1,674,150	n/a	1,673,650	1,671,150	1,668,650	1,666,150	1,663,650	1,661,150	1,658,650	1,656,150	1,653,650	1,651,150
(23)	710.0	27,679	1,808,053	n/a	1,807,553	1,805,053	1,802,553	1,800,053	1,797,553	1,795,053	1,792,553	1,790,053	1,787,553	1,785,053
(24)	715.0	29,527	1,951,075	n/a	1,950,575	1,948,075	1,945,575	1,943,075	1,940,575	1,938,075	1,935,575	1,933,075	1,930,575	1,928,075
(25)	Sediment Accumulation Since 2008 at 250 ac-ft/yr:				500	3,000	5,500	8,000	10,500	13,000	15,500	18,000	20,500	23,000

* Values reflect LCRA re-adjustment of datum used in May 2009 TWDB report to match normal datum used by LCRA - 0.6 feet subtracted from TWDB reported elevations.

FIGURE 1
HISTORICAL AND PROJECTED CONSERVATION STORAGE CAPACITY FOR LAKE TRAVIS



Water surface areas over the depth of the reservoir below the top of the conservation pool have been calculated assuming that the calculated incremental depths (Dinc) between specified elevations remain unchanged from the 2008 surveyed condition into the future. This then allows the projected future water surface areas at different elevations to be calculated as follows:

$$A2 = (S2 - S1) / (0.5 \times Dinc) - A1$$

where: A2 = Area of Top Surface of Elevation Increment
A1 = Area of Bottom Surface of Elevation Increment
S2 = Storage at Top Elevation of Elevation Increment
S1 = Storage at Bottom Elevation of Elevation Increment
Dinc = 2008 Incremental Volume ÷ 2008 Average Incremental Area

For elevations above the top of the conservation pool, it has been assumed that surface areas will remain unchanged from the 2008 surveyed condition into the future. The resulting projected water surface areas for Lake Travis are listed by decade in Table 2.

LAKE BUCHANAN

Procedures and calculations similar to those used for Lake Travis also have been applied for estimating future elevation-area-capacity data by decade for Lake Buchanan. The most recent study of the elevation-area-capacity characteristics of Lake Buchanan was conducted by the Texas Water Development Board (TWDB, 2007) using field survey data collected with a multi-frequency (200 kHz, 50 kHz, and 24 kHz) sub-bottom profiling depth sounder during March-April of 2006, supplemented with high-resolution LIDAR ground elevation data provided by LCRA based on measurements made December 31, 2006 and January 1, 2007.

Results from the most recent TWDB study indicate that the conservation storage capacity of Lake Buchanan at elevation 1020.0 feet msl as of the time of the surveys was 875,588 acre-feet, with a corresponding surface area of 22,017 acres. Based on analyses of the multi-frequency sub-bottom depth data, the distribution and accumulation of sediment within Lake Buchanan also was analyzed and determined by the TWDB, and these results indicate that at least 34,275 acre-feet of sediment have been deposited within the reservoir since it first began to impound water around 1938. This is equivalent to an average annual sedimentation rate of 504 acre-feet/year. This annual rate of sedimentation is about twice the rate reported by the TWDB for Lake Travis based on its 2008 survey, which is consistent with what would be expected, considering, as noted above, (1) the relative differences in the size of the contributing watersheds for Lakes Travis and Buchanan (i.e., 1,700 square miles versus 6,600 square miles since 1989 and between 9,800 and 16,300 square miles prior to that time) and (2) the sediment retention in the upper chain of Highland Lakes immediately upstream of Lake Travis. Furthermore, according to the TWDB, it's estimate of the total volume of sediment within the reservoir upon which the sedimentation rate is based may somewhat underestimated since portions of the reservoir were too shallow during the 2006 survey for operation of the multi-frequency depth sounder.

Based on LCRA records (LCRA, 1999), the most recent hydrographic survey of Lake Buchanan prior to the 2006 TWDB survey was conducted in 1991, and the conservation storage capacity of the reservoir was reported at that time to be 881,474 acre-feet. Later, data from the 1991 survey

TABLE 2
LAKE TRAVIS PROJECTED WATER SURFACE AREA BASED ON 250 AC-FT/YEAR CONSTANT ANNUAL SEDIMENTATION RATE AS DETERMINED BY TWDB MAY 2009 STUDY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	WATER SURFACE ELEVATION Feet	**TWDB 2008 SURVEY RESULTS VALUES FOR DEPTH INCREMENTS**			**LAKE TRAVIS PROJECTED SURFACE AREA BY DECADE**									
		AREA* acres	**STORAGE* ac-ft**	**DEPTH* feet**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**	**2090**	**2100**
(1)	500.0	n/a	n/a	n/a	0	0	0	0	0	0	0	0	0	0
(2)	502.0	12	8	0.7	24	24	24	24	24	24	24	24	24	24
(3)	515.0	255	3,544	13.9	486	485	484	483	482	480	479	478	477	476
(4)	530.0	758	11,457	15.1	1,030	1,027	1,025	1,023	1,020	1,018	1,016	1,014	1,011	1,009
(5)	545.0	1,307	19,361	14.8	1,583	1,580	1,576	1,573	1,569	1,566	1,562	1,559	1,555	1,552
(6)	560.0	1,953	29,295	15.0	2,320	2,315	2,310	2,305	2,300	2,294	2,289	2,284	2,279	2,274
(7)	575.0	2,861	42,332	14.8	3,399	3,391	3,384	3,376	3,369	3,361	3,354	3,346	3,339	3,331
(8)	590.0	4,077	61,113	15.0	4,751	4,740	4,730	4,719	4,709	4,699	4,688	4,678	4,667	4,657
(9)	605.0	5,466	81,190	14.9	6,175	6,162	6,148	6,134	6,121	6,107	6,094	6,080	6,066	6,053
(10)	620.0	7,057	105,700	15.0	7,932	7,914	7,897	7,879	7,862	7,844	7,827	7,809	7,792	7,774
(11)	635.0	8,910	133,427	15.0	9,881	9,859	9,837	9,815	9,794	9,772	9,750	9,728	9,706	9,685
(12)	650.0	11,106	164,848	14.8	12,322	12,294	12,267	12,240	12,213	12,186	12,159	12,131	12,104	12,077
(13)	660.0	13,278	132,588	10.0	14,223	14,191	14,160	14,129	14,097	14,066	14,035	14,003	13,972	13,941
(14)	665.0	14,765	73,793	5.0	15,294	15,261	15,227	15,193	15,159	15,126	15,092	15,058	15,025	14,991
(15)	670.0	15,918	79,568	5.0	16,528	16,491	16,455	16,418	16,382	16,346	16,309	16,273	16,236	16,200
(16)	675.0	17,153	85,726	5.0	17,762	17,723	17,684	17,645	17,606	17,566	17,527	17,488	17,449	17,410
(17)	681.0	18,534	111,006	6.0	19,288	19,246	19,203	19,161	19,118	19,076	19,033	18,991	18,948	18,906
(18)	685.0	n/a	n/a	n/a	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400
(19)	690.0	n/a	n/a	n/a	21,598	21,598	21,598	21,598	21,598	21,598	21,598	21,598	21,598	21,598
(20)	695.0	n/a	n/a	n/a	22,892	22,892	22,892	22,892	22,892	22,892	22,892	22,892	22,892	22,892
(21)	700.0	n/a	n/a	n/a	24,327	24,327	24,327	24,327	24,327	24,327	24,327	24,327	24,327	24,327
(22)	705.0	n/a	n/a	n/a	25,904	25,904	25,904	25,904	25,904	25,904	25,904	25,904	25,904	25,904
(23)	710.0	n/a	n/a	n/a	27,679	27,679	27,679	27,679	27,679	27,679	27,679	27,679	27,679	27,679
(24)	715.0	n/a	n/a	n/a	29,527	29,527	29,527	29,527	29,527	29,527	29,527	29,527	29,527	29,527

* Values reflect LCRA re-adjustment of datum used in May 2009 TWDB report to match normal datum used by LCRA - 0.6 feet subtracted from TWDB reported elevations.

were combined with elevation data from a 1997 aerial mapping project to generate revised and updated elevation-area-capacity tables for Lake Buchanan. These results indicated that the conservation storage capacity of the reservoir as of 1997 was 877,674 acre-feet.

Based on data from the 1997 and the 2006 hydrographic surveys of Lake Buchanan, the change in the conservation storage capacity of the reservoir represents a reduction of 2,086 acre-feet. This change in storage volume over approximately nine years equates to a sedimentation rate of only 232 acre-feet/year. This sedimentation rate is less than that determined by the TWDB for Lake Travis (250 acre-feet/year) based on actual field measurements of sediment volume. A sedimentation rate for Lake Buchanan less than that for Lake Travis is counter to what would be expected given the relative differences in the size of the contributing watersheds for Lakes Travis and Buchanan and the fact that sediment discharges into Lake Travis are substantially retained in the upper chain of Highland Lakes, including Lake Buchanan. While it is possible that current sediment discharges into Lake Buchanan may be somewhat reduced from historical levels because of the construction of Lake O. H. Ivie in 1989 upstream of Lake Buchanan, the contributing drainage area for Lake Buchanan below Lake O. H. Ivie still covers 6,600 square miles, which is substantially more than the Lake Travis contributing watershed below its upstream reservoirs (1,700 square miles). Furthermore, given that the conservation storage capacities for Lake Buchanan based on the 1997 and the 2006 surveys may not be comparable, as noted by the TWDB, because of differences in the methodologies used during the surveys, the sedimentation rate derived from the hydrographic survey data may not effectively represent actual sedimentation conditions in the reservoir.

For the above reasons, the lower sedimentation rate derived from the 1997 and the 2006 hydrographic survey data is not considered appropriate for projecting future reservoir storage capacities in Lake Buchanan. Instead, the higher sedimentation rate of 504 acre-feet/year as determined by the TWDB based on the 2006 sediment depth measurements is believed to be a more reasonable estimate. While this estimated sedimentation rate may be considered somewhat high for projecting future storage capacity because it reflects historical sedimentation conditions before Lake O. H. Ivie was constructed, it has also been noted by the TWDB that this rate may be somewhat low because of the TWDB's inability to make complete sediment measurements in portions of the reservoir that were too shallow during the 2006 survey for operation of the multi-frequency depth sounder equipment. Considering these offsetting factors, the sedimentation rate based on theTWDB's 2006 estimate of sediment volume within Lake Buchanan is believed to provide a meaningful and useful basis for estimating the reservoir's future sediment accumulations and conservation storage capacity.

Using the TWDB-based estimate of 504 acre-feet/year for the annual sedimentation rate, projections of future sedimentation volumes and corresponding maximum conservation storage capacities for Lake Buchanan have been made for each decade beginning with 2010 and extending through the year 2100. These results are presented in Table 3 in Rows 26 and 17, respectively. As shown, based on these calculations, the maximum conservation storage capacity of Lake Buchanan is projected to decrease from 873,572 acre-feet in 2010 down to 828,208 acre-feet in the year 2100, a reduction of 45,364 acre-feet, or about five percent.

The graph in Figure 2 illustrates the projected reduction in the future conservation storage capacity of Lake Buchanan out to the year 2100 and also compares these projections to previous

estimates of the conservation storage capacity based on the original as-built calculations and previous hydrographic survey and topographic data. As shown, the projected future rate of storage reduction is considerably lower than that indicated by the apparent rate that occurred from 1938 when the reservoir was initially impounded to the early 1990s when the hydrographic surveys were first undertaken. The earlier higher rate of sedimentation may be influenced by the validity of the initial reservoir storage volume itself and the fact that O. H. Ivie Reservoir did not exist during most of this time. Furthermore, as explained above, the adopted future sedimentation rate may be somewhat low because of the TWDB's inability to make complete sediment measurements in portions of Lake Buchanan that were too shallow during the 2006 survey for operation of the multi-frequency depth sounder equipment. Considering these factors and the more sophisticated approach and state-of-the-art procedures utilized in the most recent study conducted by the TWDB, the projected values of conservation storage capacity for Lake Buchanan are considered to be reasonable and sufficiently accurate for purposes of LCRA's water supply planning until these data are revised and updated by future studies.

The distribution of the projected conservation storage capacities in Table 3 over the depth of Lake Buchanan below the top of its conservation pool (< 1020 feet msl) has been accomplished using the same procedures described above for Lake Travis. This distribution is shown in Column 4 of Table 3, and these factors have been applied to the maximum conservation storage capacity at elevation 1020.0 feet msl for each decade to establish the storage quantities at the lower elevations. For elevations above the top of the conservation pool, the same incremental increases in storage capacity as those determined and reported in the TWDB's 2007 study have been maintained for each future decadal condition, assuming that sedimentation effects will be minimal at these higher elevations. Corresponding water surface areas over the depth of the reservoir also have been calculated using the same approach as that applied for Lake Travis. These calculations and the resulting projected water surface areas by decade for Lake Buchanan are presented in Table 4.

REFERENCES

Lower Colorado River Authority (1999); "Report on the History of the Highland Lakes Capacity Tables"; Surveying & Mapping Department; Austin, Texas.

Texas Water Development Board (2007); "Volumetric and Sedimentation Survey of Lake Buchanan, March-April 2006 Survey"; Austin, Texas.

Texas Water Development Board (2008); "Volumetric and Sedimentation Survey of Lake Travis, April-July 2008 Survey"; Austin, Texas.

TABLE 3
LAKE BUCHANAN PROJECTED STORAGE CONDITIONS BASED ON 504 AC-FT/YEAR CONSTANT ANNUAL SEDIMENTATION RATE AS DETERMINED BY TWDB AUGUST 2007 STUDY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	WATER SURFACE ELEVATION Feet	TWDB 2006 SURVEY DATA		STORAGE DEPTH PROPOR-TIONAL FACTOR	LAKE BUCHANAN PROJECTED STORAGE CAPACITY BY DECADE									
		SURFACE AREA acres	STORAGE CAPACITY ac-ft		2010	2020	2030	2040	2050	2060	2070	2080	2090	2100
(1)	910.0	0	0	0.0000	0	0	0	0	0	0	0	0	0	0
(2)	915.0	25	16	0.0000	16	16	16	16	16	16	15	15	15	15
(3)	920.0	285	779	0.0009	777	773	768	764	759	755	750	746	741	737
(4)	930.0	875	6,200	0.0071	6,186	6,150	6,114	6,079	6,043	6,007	5,972	5,936	5,900	5,865
(5)	940.0	1,823	19,394	0.0221	19,349	19,238	19,126	19,014	18,903	18,791	18,679	18,568	18,456	18,345
(6)	950.0	3,250	44,352	0.0507	44,250	43,995	43,739	43,484	43,229	42,973	42,718	42,463	42,207	41,952
(7)	960.0	5,140	85,710	0.0979	85,513	85,019	84,526	84,032	83,539	83,046	82,552	82,059	81,565	81,072
(8)	970.0	7,453	148,370	0.1695	148,028	147,174	146,320	145,466	144,612	143,758	142,904	142,050	141,195	140,341
(9)	980.0	10,152	236,306	0.2699	235,762	234,402	233,041	231,681	230,321	228,960	227,600	226,240	224,879	223,519
(10)	990.0	12,750	351,054	0.4009	350,246	348,225	346,204	344,183	342,162	340,141	338,120	336,099	334,079	332,058
(11)	995.0	14,097	418,122	0.4775	417,159	414,752	412,345	409,938	407,531	405,124	402,717	400,310	397,903	395,496
(12)	1000.0	15,602	491,941	0.5618	490,808	487,976	485,144	482,312	479,481	476,649	473,817	470,985	468,153	465,321
(13)	1005.0	17,383	574,537	0.6562	573,214	569,907	566,599	563,292	559,984	556,677	553,370	550,062	546,755	543,447
(14)	1010.0	19,340	666,347	0.7610	664,813	660,977	657,141	653,305	649,469	645,633	641,797	637,961	634,125	630,289
(15)	1015.0	21,066	767,654	0.8767	765,886	761,467	757,048	752,629	748,210	743,791	739,372	734,953	730,534	726,114
(16)	1018.0	21,701	831,889	0.9501	829,973	825,185	820,396	815,607	810,818	806,029	801,240	796,451	791,662	786,874
(17)	1020.0	22,017	875,588	1.0000	873,572	868,531	863,491	858,451	853,410	848,370	843,329	838,289	833,248	828,208
(18)	1022.0	22,611	920,173	n/a	918,157	913,116	908,076	903,036	897,995	892,955	887,914	882,874	877,833	872,793
(19)	1024.0	23,225	965,946	n/a	963,930	958,889	953,849	948,809	943,768	938,728	933,687	928,647	923,606	918,566
(20)	1026.0	23,770	1,012,867	n/a	1,010,851	1,005,810	1,000,770	995,730	990,689	985,649	980,608	975,568	970,527	965,487
(21)	1028.0	24,294	1,060,851	n/a	1,058,835	1,053,794	1,048,754	1,043,714	1,038,673	1,033,633	1,028,592	1,023,552	1,018,511	1,013,471
(22)	1030.0	24,810	1,109,877	n/a	1,107,861	1,102,820	1,097,780	1,092,740	1,087,699	1,082,659	1,077,618	1,072,578	1,067,537	1,062,497
(23)	1032.0	25,319	1,159,927	n/a	1,157,911	1,152,870	1,147,830	1,142,790	1,137,749	1,132,709	1,127,668	1,122,628	1,117,587	1,112,547
(24)	1034.0	25,838	1,211,002	n/a	1,208,986	1,203,945	1,198,905	1,193,865	1,188,824	1,183,784	1,178,743	1,173,703	1,168,662	1,163,622
(25)	1035.0	26,097	1,236,930	n/a	1,234,914	1,229,873	1,224,833	1,219,793	1,214,752	1,209,712	1,204,671	1,199,631	1,194,590	1,189,550
(26)	Sediment Accumulation Since 2006 at 504 ac-ft/yr:				2,016	7,057	12,097	17,138	22,178	27,218	32,259	37,299	42,340	47,380

FIGURE 2
HISTORICAL AND PROJECTED CONSERVATION STORAGE CAPACITY FOR LAKE BUCHANAN

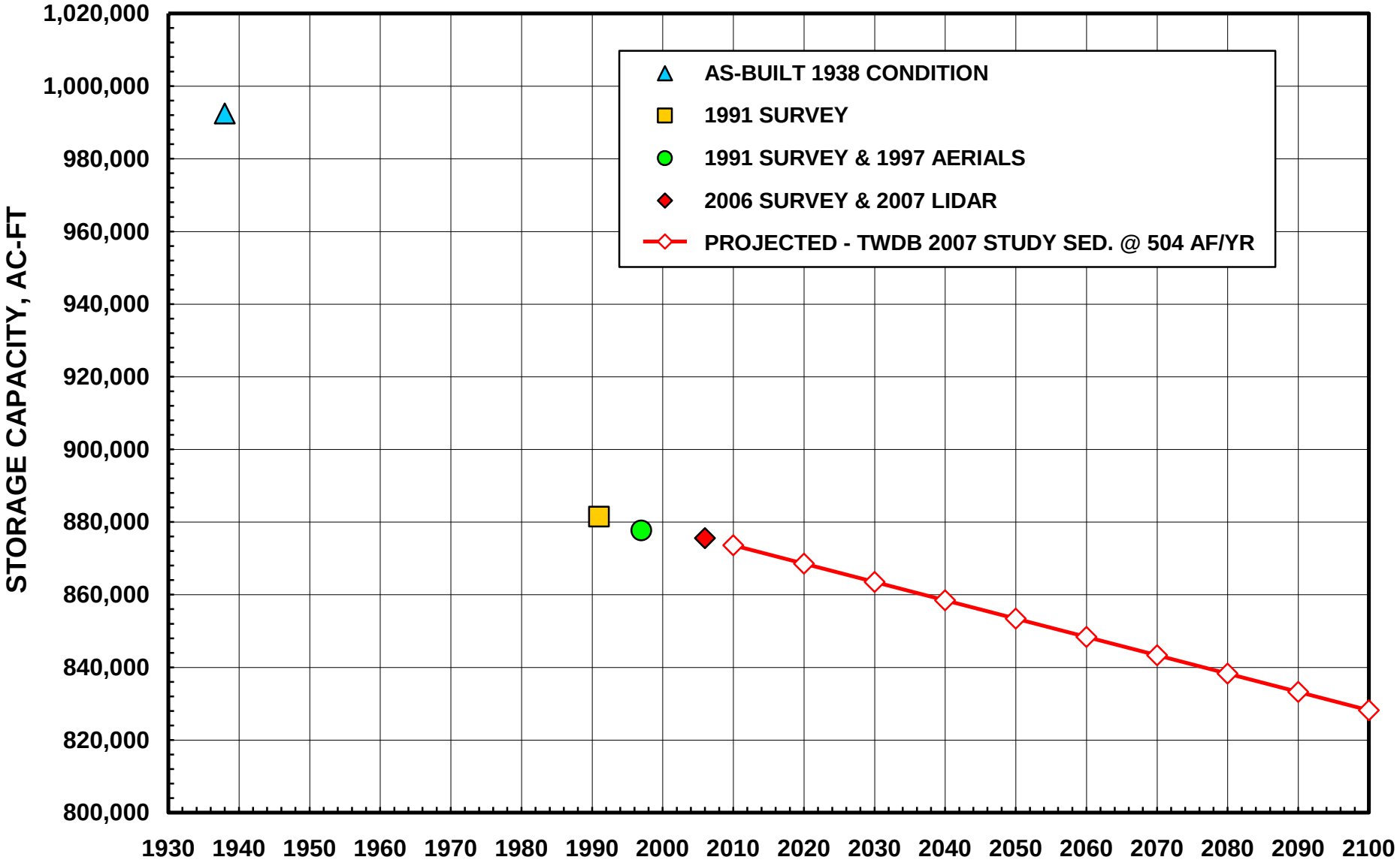


TABLE 4
LAKE BUCHANAN PROJECTED WATER SURFACE AREA BASED ON 504 AC-FT/YEAR CONSTANT ANNUAL SEDIMENTATION RATE AS DETERMINED BY TWDB AUGUST 2007 STUDY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	WATER SURFACE ELEVATION	**TWDB 2006 SURVEY DATA AVERAGE VALUES FOR DEPTH INCREMENTS**			**LAKE BUCHANAN PROJECTED SURFACE AREA BY DECADE**									
	Feet	**AREA acres**	**CAPACITY ac-ft**	**DEPTH feet**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**	**2090**	**2100**
(1)	910.0	n/a	n/a	n/a	0	0	0	0	0	0	0	0	0	0
(2)	915.0	13	16	1.3	25	25	25	25	24	24	24	24	24	24
(3)	920.0	155	763	4.9	284	283	281	279	278	276	274	273	271	270
(4)	930.0	580	5,421	9.3	873	868	863	858	853	848	843	838	833	828
(5)	940.0	1,349	13,194	9.8	1,819	1,808	1,798	1,787	1,777	1,766	1,756	1,745	1,735	1,724
(6)	950.0	2,537	24,958	9.8	3,243	3,224	3,205	3,186	3,168	3,149	3,130	3,112	3,093	3,074
(7)	960.0	4,195	41,358	9.9	5,128	5,099	5,069	5,039	5,010	4,980	4,951	4,921	4,891	4,862
(8)	970.0	6,297	62,660	10.0	7,436	7,393	7,350	7,307	7,264	7,221	7,178	7,136	7,093	7,050
(9)	980.0	8,803	87,936	10.0	10,129	10,070	10,012	9,953	9,895	9,836	9,778	9,720	9,661	9,603
(10)	990.0	11,451	114,748	10.0	12,721	12,647	12,574	12,500	12,427	12,354	12,280	12,207	12,133	12,060
(11)	995.0	13,424	67,068	5.0	14,065	13,983	13,902	13,821	13,740	13,659	13,578	13,496	13,415	13,334
(12)	1000.0	14,850	73,819	5.0	15,566	15,476	15,386	15,297	15,207	15,117	15,027	14,937	14,848	14,758
(13)	1005.0	16,493	82,596	5.0	17,343	17,243	17,143	17,043	16,943	16,843	16,743	16,642	16,542	16,442
(14)	1010.0	18,362	91,810	5.0	19,295	19,184	19,073	18,961	18,850	18,739	18,627	18,516	18,405	18,293
(15)	1015.0	20,203	101,307	5.0	21,017	20,896	20,775	20,654	20,532	20,411	20,290	20,169	20,047	19,926
(16)	1018.0	21,384	64,235	3.0	21,651	21,526	21,401	21,276	21,151	21,026	20,901	20,777	20,652	20,527
(17)	1020.0	21,859	43,699	2.0	21,966	21,840	21,713	21,586	21,459	21,333	21,206	21,079	20,952	20,826
(18)	1022.0	n/a	n/a	n/a	22,611	22,611	22,611	22,611	22,611	22,611	22,611	22,611	22,611	22,611
(19)	1024.0	n/a	n/a	n/a	23,225	23,225	23,225	23,225	23,225	23,225	23,225	23,225	23,225	23,225
(20)	1026.0	n/a	n/a	n/a	23,770	23,770	23,770	23,770	23,770	23,770	23,770	23,770	23,770	23,770
(21)	1028.0	n/a	n/a	n/a	24,294	24,294	24,294	24,294	24,294	24,294	24,294	24,294	24,294	24,294
(22)	1030.0	n/a	n/a	n/a	24,810	24,810	24,810	24,810	24,810	24,810	24,810	24,810	24,810	24,810
(23)	1032.0	n/a	n/a	n/a	25,319	25,319	25,319	25,319	25,319	25,319	25,319	25,319	25,319	25,319
(24)	1034.0	n/a	n/a	n/a	25,838	25,838	25,838	25,838	25,838	25,838	25,838	25,838	25,838	25,838
(25)	1035.0	n/a	n/a	n/a	26,097	26,097	26,097	26,097	26,097	26,097	26,097	26,097	26,097	26,097

APPENDIX 3C

TWDB DB22 REPORTS FOR WATER AVAILABILITY AND WATER SUPPLIES

Region K Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
CARRIZO-WILCOX AQUIFER	BASTROP	BRAZOS	FRESH	752	847	960	1,233	1,113	1,113
CARRIZO-WILCOX AQUIFER	BASTROP	COLORADO	FRESH	20,696	23,206	25,169	28,570	27,823	27,823
CARRIZO-WILCOX AQUIFER	BASTROP	GUADALUPE	FRESH	212	172	147	248	167	167
CARRIZO-WILCOX AQUIFER	FAYETTE	COLORADO	FRESH	4,565	4,565	4,565	4,565	4,565	4,565
CARRIZO-WILCOX AQUIFER	FAYETTE	GUADALUPE	FRESH	909	909	909	909	909	909
CARRIZO-WILCOX AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	FRESH	2,292	2,292	2,292	2,292	2,292	2,292
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	SALINE	66	66	66	66	66	66
EDWARDS-BFZ AQUIFER	TRAVIS	BRAZOS	FRESH	275	275	275	275	275	275
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH	1,166	1,166	1,166	1,166	1,166	1,166
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH/ BRACKISH	4,962	4,962	4,962	4,962	4,962	4,962
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	SALINE	5,073	5,073	5,073	5,073	5,073	5,073
EDWARDS-BFZ AQUIFER	TRAVIS	GUADALUPE	SALINE	280	280	280	280	280	280
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	BLANCO	COLORADO	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU AQUIFER	BLANCO	GUADALUPE	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS	GILLESPIE	COLORADO	FRESH	4,843	4,843	4,843	4,843	4,843	4,843
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS	GILLESPIE	GUADALUPE	FRESH	136	136	136	136	136	136
ELLENBURGER-SAN SABA AQUIFER	BLANCO	COLORADO	FRESH	1,952	1,946	1,952	1,946	1,952	1,946
ELLENBURGER-SAN SABA AQUIFER	BURNET	BRAZOS	FRESH	3,833	3,822	3,833	3,822	3,833	3,822
ELLENBURGER-SAN SABA AQUIFER	BURNET	COLORADO	FRESH	7,024	7,005	7,024	7,005	7,024	7,005
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	COLORADO	FRESH	6,294	6,294	6,294	6,294	6,294	6,294
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
ELLENBURGER-SAN SABA AQUIFER	LLANO	COLORADO	FRESH	409	408	409	408	409	408
ELLENBURGER-SAN SABA AQUIFER	MILLS	BRAZOS	FRESH	93	93	93	93	93	93
ELLENBURGER-SAN SABA AQUIFER	MILLS	COLORADO	FRESH	407	406	407	406	407	406
ELLENBURGER-SAN SABA AQUIFER	SAN SABA	COLORADO	FRESH	7,890	7,890	7,890	7,890	7,890	7,890
GULF COAST AQUIFER SYSTEM	COLORADO	BRAZOS-COLORADO	FRESH	15,391	15,391	15,391	15,391	15,391	15,391
GULF COAST AQUIFER SYSTEM	COLORADO	COLORADO	FRESH	20,779	20,779	20,339	20,339	20,339	20,339
GULF COAST AQUIFER SYSTEM	COLORADO	LAVACA	FRESH	39,712	39,712	37,953	37,953	36,806	36,806
GULF COAST AQUIFER SYSTEM	FAYETTE	BRAZOS	FRESH	2	2	2	2	2	2
GULF COAST AQUIFER SYSTEM	FAYETTE	COLORADO	FRESH	989	989	989	989	989	989
GULF COAST AQUIFER SYSTEM	FAYETTE	LAVACA	FRESH	862	862	862	862	862	862
GULF COAST AQUIFER SYSTEM	MATAGORDA	BRAZOS-COLORADO	FRESH	15,282	15,282	15,282	15,282	15,282	15,282
GULF COAST AQUIFER SYSTEM	MATAGORDA	COLORADO	FRESH/ BRACKISH	3,217	3,217	3,217	3,217	3,217	3,217
GULF COAST AQUIFER SYSTEM	MATAGORDA	COLORADO-LAVACA	FRESH	20,329	20,329	20,329	20,329	20,329	20,329
GULF COAST AQUIFER SYSTEM	WHARTON	BRAZOS-COLORADO	FRESH	50,527	50,527	50,527	50,527	50,527	50,527
GULF COAST AQUIFER SYSTEM	WHARTON	COLORADO	FRESH	35,910	35,910	35,910	35,910	35,910	35,910

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Region K Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
GULF COAST AQUIFER SYSTEM	WHARTON	COLORADO-LAVACA	FRESH	16,196	16,196	16,196	16,196	16,196	16,196
GULF COAST AQUIFER SYSTEM	WHARTON	LAVACA	FRESH	579	579	579	579	579	579
HICKORY AQUIFER	BLANCO	COLORADO	FRESH	383	382	383	382	383	382
HICKORY AQUIFER	BURNET	BRAZOS	FRESH	1,240	1,236	1,240	1,236	1,240	1,236
HICKORY AQUIFER	BURNET	COLORADO	FRESH	2,183	2,177	2,183	2,177	2,183	2,177
HICKORY AQUIFER	GILLESPIE	COLORADO	FRESH	1,751	1,751	1,751	1,751	1,751	1,751
HICKORY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	HAYS	COLORADO	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	LLANO	COLORADO	FRESH	2,027	2,021	2,027	2,021	2,027	2,021
HICKORY AQUIFER	MILLS	BRAZOS	FRESH	7	7	7	7	7	7
HICKORY AQUIFER	MILLS	COLORADO	FRESH	29	29	29	29	29	29
HICKORY AQUIFER	SAN SABA	COLORADO	FRESH	7,680	7,680	7,680	7,680	7,680	7,680
MARBLE FALLS AQUIFER	BLANCO	COLORADO	FRESH	199	199	199	199	199	199
MARBLE FALLS AQUIFER	BURNET	BRAZOS	FRESH	1,387	1,383	1,387	1,383	1,387	1,383
MARBLE FALLS AQUIFER	BURNET	COLORADO	FRESH	1,357	1,353	1,357	1,353	1,357	1,353
MARBLE FALLS AQUIFER	MILLS	BRAZOS	FRESH	1	1	1	1	1	1
MARBLE FALLS AQUIFER	MILLS	COLORADO	FRESH	24	24	24	24	24	24
MARBLE FALLS AQUIFER	SAN SABA	COLORADO	FRESH	4,355	4,343	4,355	4,343	4,355	4,343
OTHER AQUIFER	BASTROP	COLORADO	FRESH	5,340	5,340	5,340	5,340	5,340	5,340
OTHER AQUIFER	BURNET	BRAZOS	FRESH	433	433	433	433	433	433
OTHER AQUIFER	BURNET	COLORADO	FRESH	3,672	3,672	3,672	3,672	3,672	3,672
OTHER AQUIFER	FAYETTE	COLORADO	FRESH	834	834	834	834	834	834
OTHER AQUIFER	LLANO	COLORADO	FRESH	629	629	629	629	629	629
OTHER AQUIFER	TRAVIS	COLORADO	FRESH	3,770	3,770	3,770	3,770	3,770	3,770
OTHER AQUIFER	TRAVIS	GUADALUPE	FRESH	112	112	112	112	112	112
QUEEN CITY AQUIFER	BASTROP	BRAZOS	FRESH	49	47	46	44	42	42
QUEEN CITY AQUIFER	BASTROP	COLORADO	FRESH	353	333	311	288	264	264
QUEEN CITY AQUIFER	BASTROP	GUADALUPE	FRESH	156	161	166	173	180	180
QUEEN CITY AQUIFER	FAYETTE	COLORADO	FRESH	2,278	2,278	2,278	2,278	2,278	2,278
QUEEN CITY AQUIFER	FAYETTE	GUADALUPE	FRESH	430	430	430	430	430	430
QUEEN CITY AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	BASTROP	BRAZOS	FRESH	89	87	85	84	82	82
SPARTA AQUIFER	BASTROP	COLORADO	FRESH	785	784	783	782	781	781
SPARTA AQUIFER	BASTROP	GUADALUPE	FRESH	33	33	33	33	33	33
SPARTA AQUIFER	FAYETTE	COLORADO	FRESH	1,659	1,649	1,626	1,612	1,619	1,619
SPARTA AQUIFER	FAYETTE	GUADALUPE	FRESH	1,172	1,176	1,177	1,182	1,183	1,183
SPARTA AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
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	3,138	3,131	3,138	3,131	3,138	3,131
TRINITY AQUIFER	BURNET	COLORADO	FRESH	759	756	759	756	759	756
TRINITY AQUIFER	HAYS	COLORADO	FRESH	5,690	5,687	5,686	5,686	5,686	5,686
TRINITY AQUIFER	HAYS	GUADALUPE	FRESH	9	9	9	9	9	9
TRINITY AQUIFER	MILLS	BRAZOS	FRESH	808	805	808	805	808	805

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Region K Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
TRINITY AQUIFER	MILLS	COLORADO	FRESH	1,669	1,665	1,669	1,665	1,669	1,665
TRINITY AQUIFER	TRAVIS	BRAZOS	FRESH	1	1	1	1	1	1
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH	5,767	5,752	5,767	5,752	5,767	5,752
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH/ BRACKISH	8,672	8,655	8,643	8,627	8,598	8,598
TRINITY AQUIFER	TRAVIS	GUADALUPE	FRESH	2	2	2	2	2	2
TRINITY AQUIFER	WILLIAMSON	BRAZOS	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	WILLIAMSON	COLORADO	FRESH	67	67	67	67	67	67
YEGUA-JACKSON AQUIFER	FAYETTE	COLORADO	FRESH	7,075	7,075	7,075	7,075	7,074	7,074
YEGUA-JACKSON AQUIFER	FAYETTE	GUADALUPE	FRESH	694	694	694	694	694	694
YEGUA-JACKSON AQUIFER	FAYETTE	LAVACA	FRESH	1,493	1,493	1,493	1,493	1,493	1,493
GROUNDWATER SOURCE AVAILABILITY TOTAL				**376,748**	**379,160**	**379,063**	**382,686**	**380,654**	**380,547**

REUSE SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
DIRECT REUSE	BURNET	COLORADO	FRESH	2,200	2,200	2,200	2,200	2,200	2,200
DIRECT REUSE	HAYS	COLORADO	FRESH	100	1,120	1,120	1,120	1,680	1,680
DIRECT REUSE	LLANO	COLORADO	FRESH	589	589	589	589	589	589
DIRECT REUSE	TRAVIS	COLORADO	FRESH	9,778	9,778	9,778	9,778	9,778	9,778
REUSE SOURCE AVAILABILITY TOTAL				**12,667**	**13,687**	**13,687**	**13,687**	**14,247**	**14,247**

SURFACE WATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
BLANCO LAKE/RESERVOIR	RESERVOIR**	GUADALUPE	FRESH	463	463	463	463	463	463
BRAZOS LIVESTOCK LOCAL SUPPLY	BASTROP	BRAZOS	FRESH	94	94	94	94	94	94
BRAZOS LIVESTOCK LOCAL SUPPLY	BURNET	BRAZOS	FRESH	630	630	630	630	630	630
BRAZOS LIVESTOCK LOCAL SUPPLY	MILLS	BRAZOS	FRESH	321	321	321	321	321	321
BRAZOS LIVESTOCK LOCAL SUPPLY	WILLIAMSON	BRAZOS	FRESH	1	1	1	1	1	1
BRAZOS OTHER LOCAL SUPPLY	BURNET	BRAZOS	FRESH/ BRACKISH	966	966	966	966	966	966
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 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	4,332	4,332	4,332	4,332	4,332	4,332
COLORADO LIVESTOCK LOCAL SUPPLY	BASTROP	COLORADO	FRESH	696	696	696	696	696	696
COLORADO LIVESTOCK LOCAL SUPPLY	BLANCO	COLORADO	FRESH	101	101	101	101	101	101
COLORADO LIVESTOCK LOCAL SUPPLY	BURNET	COLORADO	FRESH	582	582	582	582	582	582
COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	COLORADO	FRESH	860	860	860	860	860	860
COLORADO LIVESTOCK LOCAL SUPPLY	FAYETTE	COLORADO	FRESH	1,370	1,370	1,370	1,370	1,370	1,370
COLORADO LIVESTOCK LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	515	515	515	515	515	515
COLORADO LIVESTOCK LOCAL SUPPLY	HAYS	COLORADO	FRESH	220	220	220	220	220	220

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** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Region K Source Availability

SURFACE WATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
COLORADO LIVESTOCK LOCAL SUPPLY	LLANO	COLORADO	FRESH	414	414	414	414	414	414
COLORADO LIVESTOCK LOCAL SUPPLY	MILLS	COLORADO	FRESH	360	360	360	360	360	360
COLORADO LIVESTOCK LOCAL SUPPLY	SAN SABA	COLORADO	FRESH	900	900	900	900	900	900
COLORADO LIVESTOCK LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	463	463	463	463	463	463
COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO	FRESH	115	115	115	115	115	115
COLORADO OTHER LOCAL SUPPLY	BASTROP	COLORADO	FRESH	58	58	58	58	58	58
COLORADO OTHER LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	158	158	158	158	158	158
COLORADO OTHER LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	6,336	6,336	6,336	6,336	6,336	6,336
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	843	843	843	843	843	843
COLORADO RUN-OF-RIVER	COLORADO	COLORADO	FRESH	130,537	130,537	130,537	130,537	130,537	130,537
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	89,715	89,715	89,715	89,715	89,715	89,715
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	211,785	211,785	211,785	211,785	211,785	211,785
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	142	142	142	142	142	142
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	352,026	351,323	350,569	349,917	349,174	348,401
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
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	0	0	0	0	0	0
LLANO RUN-OF-RIVER	LLANO	COLORADO	FRESH	271	271	271	271	271	271
STPNOC LAKE/RESERVOIR	RESERVOIR**	COLORADO	FRESH/ BRACKISH	66,260	66,260	66,260	66,260	66,260	66,260
SURFACE WATER SOURCE AVAILABILITY TOTAL				**911,187**	**910,484**	**909,730**	**909,078**	**908,335**	**907,562**

REGION K SOURCE AVAILABILITY TOTAL	**1,300,602**	**1,303,331**	**1,302,480**	**1,305,451**	**1,303,236**	**1,302,356**

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Region K Source Availability

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** Since reservoir sources can exist across multiple counties, the county field value, ‘reservoir’ is applied to all reservoir sources.

Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
AQUA WSC*	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	90	116	150	197	262	347
LEE COUNTY WSC*	G	CARRIZO-WILCOX AQUIFER | LEE COUNTY	168	190	228	282	351	432
LEE COUNTY WSC*	G	QUEEN CITY AQUIFER | LEE COUNTY	6	6	8	10	12	15
LEE COUNTY WSC*	G	SPARTA AQUIFER | LEE COUNTY	12	13	16	20	24	30
COUNTY-OTHER	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	21	21	21	21	21	21
MINING	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	450	450	450	450	29	29
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	94	94	94	94	94	94
IRRIGATION	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	215	215	215	215	215	215
IRRIGATION	K	QUEEN CITY AQUIFER | BASTROP COUNTY	49	47	46	44	42	42
		BRAZOS BASIN TOTAL	**1,105**	**1,152**	**1,228**	**1,333**	**1,050**	**1,225**
AQUA WSC*	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	8,848	8,848	9,356	10,547	9,528	8,745
BASTROP	K	OTHER AQUIFER | BASTROP COUNTY	2,758	2,758	2,758	2,758	2,758	2,758
BASTROP COUNTY WCID 2	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	766	854	915	1,026	968	930
BASTROP COUNTY WCID 2	K	OTHER AQUIFER | BASTROP COUNTY	472	472	472	472	472	472
CREEDMOOR-MAHA WSC*	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	145	145	145	145	145	145
ELGIN	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	1,317	1,674	2,155	2,288	2,189	2,097
LEE COUNTY WSC*	G	CARRIZO-WILCOX AQUIFER | LEE COUNTY	226	260	311	385	477	587
LEE COUNTY WSC*	G	QUEEN CITY AQUIFER | LEE COUNTY	8	9	11	13	16	20
LEE COUNTY WSC*	G	SPARTA AQUIFER | LEE COUNTY	16	18	22	27	33	41
POLONIA WSC*	L	CARRIZO-WILCOX AQUIFER | CALDWELL COUNTY	81	84	91	102	118	138
SMITHVILLE	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	1,464	1,632	1,749	1,961	1,850	1,777
COUNTY-OTHER	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	631	823	1,084	1,443	1,933	2,589
COUNTY-OTHER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	744	744	744	744	744	744
MANUFACTURING	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	215	215	215	215	215	215
MINING	K	LOCAL SURFACE WATER 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	2,609	3,522	4,022	5,156	4,836	4,727
STEAM ELECTRIC POWER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	7,679	6,766	6,266	5,132	5,452	5,561
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	696	696	696	696	696	696
LIVESTOCK	K	QUEEN CITY AQUIFER | BASTROP COUNTY	17	17	17	17	17	17
LIVESTOCK	K	SPARTA AQUIFER | BASTROP COUNTY	298	298	298	298	298	298
IRRIGATION	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	2,471	2,471	2,471	2,471	2,471	2,471
IRRIGATION	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	850	850	850	850	850	850
IRRIGATION	K	QUEEN CITY AQUIFER | BASTROP COUNTY	321	316	294	271	247	247
IRRIGATION	K	SPARTA AQUIFER | BASTROP COUNTY	240	240	240	240	240	240
		COLORADO BASIN TOTAL	**34,990**	**35,829**	**37,299**	**39,376**	**38,672**	**38,484**
AQUA WSC*	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	64	82	106	140	185	246
COUNTY-OTHER	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	34	39	45	54	67	83
MINING	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	142	97	66	66	64	48
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	72	72	72	72	72	72
IRRIGATION	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	36	36	36	36	36	36
IRRIGATION	K	QUEEN CITY AQUIFER | BASTROP COUNTY	156	161	166	173	180	180
IRRIGATION	K	SPARTA AQUIFER | BASTROP COUNTY	23	23	23	23	23	23
		GUADALUPE BASIN TOTAL	**527**	**510**	**514**	**564**	**627**	**688**
		BASTROP COUNTY TOTAL	**36,622**	**37,491**	**39,041**	**41,273**	**40,349**	**40,397**
JOHNSON CITY	K	ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	118	118	118	118	118	118
JOHNSON CITY	K	TRINITY AQUIFER | BLANCO COUNTY	282	282	282	282	282	282
COUNTY-OTHER	K	ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	249	249	249	249	249	249

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER	K	HICKORY AQUIFER | BLANCO COUNTY	76	76	76	76	76	76
COUNTY-OTHER	K	TRINITY AQUIFER | BLANCO COUNTY	514	514	514	514	514	514
MINING	K	ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	5	5	5	5	5	5
LIVESTOCK	K	ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	255	255	255	255	255	255
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	101	101	101	101	101	101
LIVESTOCK	K	TRINITY AQUIFER | BLANCO COUNTY	161	161	161	161	161	161
IRRIGATION	K	ELLENBURGER-SAN SABA AQUIFER | BLANCO COUNTY	816	816	816	816	816	816
IRRIGATION	K	HICKORY AQUIFER | BLANCO COUNTY	163	163	163	163	163	163
		COLORADO BASIN TOTAL	**2,740**	**2,740**	**2,740**	**2,740**	**2,740**	**2,740**
BLANCO	K	BLANCO LAKE/RESERVOIR	463	463	463	463	463	463
BLANCO	L	CANYON LAKE/RESERVOIR	600	600	600	600	600	600
CANYON LAKE WATER SERVICE*	L	CANYON LAKE/RESERVOIR	118	119	118	118	118	119
CANYON LAKE WATER SERVICE*	K	TRINITY AQUIFER | BLANCO COUNTY	2	2	2	2	3	3
CANYON LAKE WATER SERVICE*	L	TRINITY AQUIFER | COMAL COUNTY	105	113	116	118	120	121
COUNTY-OTHER	K	TRINITY AQUIFER | BLANCO COUNTY	674	674	674	674	674	674
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	101	101	101	101	101	101
LIVESTOCK	K	TRINITY AQUIFER | BLANCO COUNTY	48	48	48	48	48	48
IRRIGATION	K	TRINITY AQUIFER | BLANCO COUNTY	419	419	419	419	419	419
		GUADALUPE BASIN TOTAL	**2,530**	**2,539**	**2,541**	**2,543**	**2,546**	**2,548**
		BLANCO COUNTY TOTAL	**5,270**	**5,279**	**5,281**	**5,283**	**5,286**	**5,288**
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
GEORGETOWN*	G	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	84	100	114	128	140	150
KEMPNER WSC*	G	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	132	146	158	171	184	196
COUNTY-OTHER	K	TRINITY AQUIFER | BURNET COUNTY	1,578	1,578	1,578	1,578	1,578	1,578
MINING	K	LOCAL SURFACE WATER SUPPLY	966	966	966	966	966	966
MINING	K	OTHER AQUIFER | BURNET COUNTY	433	433	433	433	433	433
MINING	K	TRINITY AQUIFER | BURNET COUNTY	300	300	300	300	300	300
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	444	444	444	444	444	444
LIVESTOCK	K	TRINITY AQUIFER | BURNET COUNTY	186	186	186	186	186	186
IRRIGATION	K	TRINITY AQUIFER | BURNET COUNTY	430	430	430	430	430	430
		BRAZOS BASIN TOTAL	**4,937**	**4,967**	**4,993**	**5,020**	**5,045**	**5,067**
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
CORIX UTILITIES TEXAS INC*	K	ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	9	9	9	9	9	9
CORIX UTILITIES TEXAS INC*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	185	185	185	185	185	185
CORIX UTILITIES TEXAS INC*	K	OTHER AQUIFER | BURNET COUNTY	104	104	104	104	104	104
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
HORSESHOE BAY	K	DIRECT REUSE	83	83	83	83	83	83
HORSESHOE BAY	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	398	398	398	398	398	398
KINGSLAND WSC	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	64	64	64	64	64	64
KINGSLAND WSC	K	OTHER AQUIFER | LLANO COUNTY	17	17	17	17	17	17

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
MARBLE FALLS	K	DIRECT REUSE	1,680	1,680	1,680	1,680	1,680	1,680
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
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	2,249	2,249	2,249	2,249	2,249	2,249
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	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	500	500	500	500	500	500
MANUFACTURING	K	TRINITY AQUIFER | BURNET COUNTY	12	12	12	12	12	12
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	80	80	80	80	80	80
LIVESTOCK	K	ELLENBURGER-SAN SABA AQUIFER | BURNET COUNTY	327	327	327	327	327	327
LIVESTOCK	K	HICKORY AQUIFER | BURNET COUNTY	10	10	10	10	10	10
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	582	582	582	582	582	582
LIVESTOCK	K	MARBLE FALLS AQUIFER | BURNET COUNTY	20	20	20	20	20	20
LIVESTOCK	K	TRINITY AQUIFER | BURNET COUNTY	122	122	122	122	122	122
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	52	52	52	52	52	52
IRRIGATION	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	333	333	333	333	333	333
IRRIGATION	K	TRINITY AQUIFER | BURNET COUNTY	65	65	65	65	65	65
		COLORADO BASIN TOTAL	**22,836**	**22,836**	**22,836**	**22,836**	**22,836**	**22,836**
		BURNET COUNTY TOTAL	**27,773**	**27,803**	**27,829**	**27,856**	**27,881**	**27,903**
EAGLE LAKE	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	176	176	176	176	176	176
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	210	210	210	210	210	210
MANUFACTURING	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	15	15	15	15	15	15
MINING	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	170	170	170	170	170	170
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	164	164	164	164	164	164
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	39	39	39	39	39	39
IRRIGATION	K	COLORADO RUN-OF-RIVER	17,818	17,818	17,818	17,818	17,818	17,818
IRRIGATION	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	11,722	11,722	11,722	11,722	11,722	11,722
		BRAZOS-COLORADO BASIN TOTAL	**30,314**	**30,314**	**30,314**	**30,314**	**30,314**	**30,314**
COLUMBUS	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	1,720	1,720	1,720	1,720	1,720	1,720
CORIX UTILITIES TEXAS INC*	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	36	36	36	36	36	36
EAGLE LAKE	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	400	400	400	400	400	400
WEIMAR	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	187	187	187	187	187	187
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	877	877	877	877	877	877
MANUFACTURING	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	59	59	59	59	59	59
MINING	K	COLORADO RUN-OF-RIVER	1,808	1,808	1,808	1,808	1,808	1,808
MINING	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	3,398	3,398	3,398	3,398	3,398	3,398
STEAM ELECTRIC POWER		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	265	265	265	265	265	265
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	860	860	860	860	860	860
IRRIGATION	K	COLORADO RUN-OF-RIVER	15,068	15,068	15,068	15,068	15,068	15,068
IRRIGATION	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	12,700	12,700	12,700	12,700	12,700	12,700

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
		COLORADO BASIN TOTAL	**37,378**	**37,378**	**37,378**	**37,378**	**37,378**	**37,378**
WEIMAR	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	382	382	382	382	382	382
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	502	502	502	502	502	502
MANUFACTURING	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	1,058	1,058	1,058	1,058	1,058	1,058
MINING	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	280	280	280	280	280	280
STEAM ELECTRIC POWER		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	174	174	174	174	174	174
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	199	199	199	199	199	199
IRRIGATION	K	COLORADO RUN-OF-RIVER	30,941	30,941	30,941	30,941	30,941	30,941
IRRIGATION	K	GULF COAST AQUIFER SYSTEM | COLORADO COUNTY	26,543	26,543	26,543	26,543	26,543	26,543
IRRIGATION	K	LAVACA RUN-OF-RIVER	4,002	4,002	4,002	4,002	4,002	4,002
		LAVACA BASIN TOTAL	**64,081**	**64,081**	**64,081**	**64,081**	**64,081**	**64,081**
		COLORADO COUNTY TOTAL	**131,773**	**131,773**	**131,773**	**131,773**	**131,773**	**131,773**
AQUA WSC*	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	4	4	5	5	5	5
FAYETTE COUNTY WCID MONUMENT HILL	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	235	235	235	235	235	235
FAYETTE WSC	K	OTHER AQUIFER | FAYETTE COUNTY	675	675	675	675	675	675
FAYETTE WSC	K	SPARTA AQUIFER | FAYETTE COUNTY	225	225	225	225	225	225
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	565	564	558	554	541	519
LEE COUNTY WSC*	G	QUEEN CITY AQUIFER | LEE COUNTY	19	19	19	19	19	18
LEE COUNTY WSC*	G	SPARTA AQUIFER | LEE COUNTY	39	39	39	38	37	36
WEST END WSC*	H	GULF COAST AQUIFER SYSTEM | AUSTIN COUNTY	130	142	153	167	183	201
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	526	526	526	526	526	526
COUNTY-OTHER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	27	27	27	27	27	27
COUNTY-OTHER	K	OTHER AQUIFER | FAYETTE COUNTY	159	159	159	159	159	159
COUNTY-OTHER	K	SPARTA AQUIFER | FAYETTE COUNTY	29	29	29	29	29	29
MANUFACTURING	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	3	3	3	3	3	3
MINING	K	SPARTA AQUIFER | FAYETTE COUNTY	367	367	367	367	367	367
MINING	K	YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	919	919	919	919	919	919
STEAM ELECTRIC POWER	K	COLORADO RUN-OF-RIVER	396	396	396	396	396	396
STEAM ELECTRIC POWER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	44,516	44,516	44,516	44,516	44,516	44,516
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	185	185	185	185	185	185
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	1,370	1,370	1,370	1,370	1,370	1,370
IRRIGATION	K	COLORADO RUN-OF-RIVER	534	534	534	534	534	534
IRRIGATION	K	SPARTA AQUIFER | FAYETTE COUNTY	77	77	77	77	77	77
		COLORADO BASIN TOTAL	**52,294**	**52,305**	**52,311**	**52,320**	**52,322**	**52,316**
FAYETTE WSC	K	SPARTA AQUIFER | FAYETTE COUNTY	150	150	150	150	150	150
FLATONIA	K	YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	89	89	89	89	89	89
COUNTY-OTHER	K	YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	124	124	124	124	124	124
MINING	K	SPARTA AQUIFER | FAYETTE COUNTY	159	159	159	159	159	159
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	142	142	142	142	142	142
IRRIGATION	K	SPARTA AQUIFER | FAYETTE COUNTY	109	109	109	109	109	109
		GUADALUPE BASIN TOTAL	**773**	**773**	**773**	**773**	**773**	**773**
FAYETTE WSC	K	SPARTA AQUIFER | FAYETTE COUNTY	101	101	101	101	101	101
FLATONIA	K	YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	386	386	386	386	386	386
SCHULENBURG	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	218	218	218	218	218	218
SCHULENBURG	K	YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	622	622	622	622	622	622

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	13	13	13	13	13	13
MANUFACTURING	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	399	399	399	399	399	399
MINING	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	224	224	205	184	184	184
MINING	K	YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	130	61	0	0	0	0
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | FAYETTE COUNTY	7	7	7	7	7	7
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	278	278	278	278	278	278
IRRIGATION	K	YEGUA-JACKSON AQUIFER | FAYETTE COUNTY	302	302	302	302	302	302
		LAVACA BASIN TOTAL	**2,680**	**2,611**	**2,531**	**2,510**	**2,510**	**2,510**
		FAYETTE COUNTY TOTAL	**55,747**	**55,689**	**55,615**	**55,603**	**55,605**	**55,599**
FREDERICKSBURG	K	ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	3,831	3,831	3,831	3,831	3,831	3,831
FREDERICKSBURG	K	HICKORY AQUIFER | GILLESPIE COUNTY	612	612	612	612	612	612
COUNTY-OTHER	K	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS | GILLESPIE COUNTY	1,534	1,534	1,534	1,534	1,534	1,534
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
MANUFACTURING	K	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS | 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
MANUFACTURING	K	LOCAL SURFACE WATER SUPPLY	158	158	158	158	158	158
MINING	K	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS | GILLESPIE COUNTY	50	50	50	50	50	50
MINING	K	HICKORY AQUIFER | GILLESPIE COUNTY	5	5	5	5	5	5
LIVESTOCK	K	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS | GILLESPIE COUNTY	511	511	511	511	511	511
LIVESTOCK	K	ELLENBURGER-SAN SABA AQUIFER | GILLESPIE COUNTY	266	266	266	266	266	266
LIVESTOCK	K	HICKORY AQUIFER | GILLESPIE COUNTY	266	266	266	266	266	266
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	515	515	515	515	515	515
IRRIGATION	K	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS | GILLESPIE COUNTY	1,640	1,640	1,640	1,640	1,640	1,640
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
		COLORADO BASIN TOTAL	**11,613**	**11,613**	**11,613**	**11,613**	**11,613**	**11,613**
COUNTY-OTHER	K	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS | GILLESPIE COUNTY	90	90	90	90	90	90
LIVESTOCK	K	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS | GILLESPIE COUNTY	41	41	41	41	41	41
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	13	13	13	13	13	13
		GUADALUPE BASIN TOTAL	**144**	**144**	**144**	**144**	**144**	**144**
		GILLESPIE COUNTY TOTAL	**11,757**	**11,757**	**11,757**	**11,757**	**11,757**	**11,757**
AUSTIN	K	COLORADO RUN-OF-RIVER	188	827	1,304	2,063	3,025	4,357
BUDA*	L	CANYON LAKE/RESERVOIR	1,381	1,292	1,181	1,041	882	701
BUDA*	L	CARRIZO-WILCOX AQUIFER | GONZALES COUNTY	1,120	1,120	1,120	1,120	1,120	1,120
BUDA*	K	EDWARDS-BFZ AQUIFER | HAYS COUNTY	678	678	678	678	678	678
CIMARRON PARK WATER	K	EDWARDS-BFZ AQUIFER | HAYS COUNTY	291	291	291	291	291	291
DEER CREEK RANCH WATER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	125	125	125	125	125	125
DRIPPING SPRINGS WSC	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,632	1,632	1,632	1,632	1,632	1,632
DRIPPING SPRINGS WSC	K	TRINITY AQUIFER | HAYS COUNTY	1,025	1,025	1,025	1,025	1,025	1,025
GOFORTH SUD*	L	EDWARDS-BFZ AQUIFER | HAYS COUNTY	6	7	8	10	10	10

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
GOFORTH SUD*	L	TRINITY AQUIFER | HAYS COUNTY	87	76	73	75	77	81
HAYS	K	EDWARDS-BFZ AQUIFER | HAYS COUNTY	183	180	180	180	180	180
HAYS COUNTY WCID 1	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	821	808	801	798	717	717
HAYS COUNTY WCID 2	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	580	593	600	603	684	684
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	DIRECT REUSE	278	278	278	278	278	278
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	4,349	4,349	4,349	4,349	4,349	4,349
COUNTY-OTHER*	K	EDWARDS-BFZ AQUIFER | HAYS COUNTY	663	663	663	663	663	663
COUNTY-OTHER*	K	TRINITY AQUIFER | HAYS COUNTY	1,654	1,654	1,654	1,654	1,654	1,654
MANUFACTURING*	K	EDWARDS-BFZ AQUIFER | HAYS COUNTY	468	468	468	468	468	468
MINING	K	TRINITY AQUIFER | HAYS COUNTY	314	314	314	314	314	314
STEAM ELECTRIC POWER	L	CANYON LAKE/RESERVOIR	1,389	1,389	1,389	1,389	1,389	1,389
STEAM ELECTRIC POWER	L	DIRECT REUSE	309	309	309	309	309	309
LIVESTOCK*	K	LOCAL SURFACE WATER SUPPLY	220	220	220	220	220	220
LIVESTOCK*	K	TRINITY AQUIFER | HAYS COUNTY	700	700	700	700	700	700
IRRIGATION*	K	EDWARDS-BFZ AQUIFER | HAYS COUNTY	8	8	8	8	8	8
IRRIGATION*	K	TRINITY AQUIFER | HAYS COUNTY	774	774	774	774	774	774
		COLORADO BASIN TOTAL	**19,243**	**19,780**	**20,144**	**20,767**	**21,572**	**22,727**
		HAYS COUNTY TOTAL	**19,243**	**19,780**	**20,144**	**20,767**	**21,572**	**22,727**
CORIX UTILITIES TEXAS INC*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	262	262	262	262	262	262
HORSESHOE BAY	K	DIRECT REUSE	506	506	506	506	506	506
HORSESHOE BAY	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,827	1,827	1,827	1,827	1,827	1,827
KINGSLAND WSC	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,086	1,086	1,086	1,086	1,086	1,086
KINGSLAND WSC	K	OTHER AQUIFER | LLANO COUNTY	53	53	53	53	53	53
LLANO	K	LLANO LAKE/RESERVOIR	0	0	0	0	0	0
LLANO	K	LLANO RUN-OF-RIVER	271	271	271	271	271	271
SUNRISE BEACH VILLAGE	K	ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	60	60	60	60	60	60
SUNRISE BEACH VILLAGE	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	200	200	200	200	200	200
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	2,272	2,272	2,272	2,272	2,272	2,272
COUNTY-OTHER	K	OTHER AQUIFER | LLANO COUNTY	412	412	412	412	412	412
MANUFACTURING	K	HICKORY AQUIFER | LLANO COUNTY	4	4	4	4	4	4
MINING	K	ELLENBURGER-SAN SABA AQUIFER | LLANO COUNTY	3	3	3	3	3	3
STEAM ELECTRIC POWER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,748	1,748	1,748	1,748	1,748	1,748
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	LOCAL SURFACE WATER SUPPLY	414	414	414	414	414	414
LIVESTOCK	K	OTHER AQUIFER | LLANO COUNTY	138	138	138	138	138	138
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	**11,627**	**11,627**	**11,627**	**11,627**	**11,627**	**11,627**
		LLANO COUNTY TOTAL	**11,627**	**11,627**	**11,627**	**11,627**	**11,627**	**11,627**
BAY CITY	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	2,906	2,906	2,906	2,906	2,906	2,906
CANEY CREEK MUD OF MATAGORDA COUNTY	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	1,226	1,226	1,226	1,226	1,226	1,226
CORIX UTILITIES TEXAS INC*	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	70	70	70	70	70	70
MATAGORDA COUNTY WCID 6	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	116	116	116	116	116	116

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
MATAGORDA WASTE DISPOSAL & WSC	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	55	55	55	55	55	55
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	544	544	544	544	544	544
MINING	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	56	56	56	56	56	56
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	280	280	280	280	280	280
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	329	329	329	329	329	329
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	16,657	16,657	16,657	16,657	16,657	16,657
IRRIGATION	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	10,000	10,000	10,000	10,000	10,000	10,000
		BRAZOS-COLORADO BASIN TOTAL	**36,239**	**36,239**	**36,239**	**36,239**	**36,239**	**36,239**
BAY CITY	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	6	6	6	6	6	6
CORIX UTILITIES TEXAS INC*	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	14	14	14	14	14	14
MATAGORDA WASTE DISPOSAL & WSC	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	330	330	330	330	330	330
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	174	174	174	174	174	174
MANUFACTURING	K	COLORADO RUN-OF-RIVER	13,803	13,803	13,803	13,803	13,803	13,803
MANUFACTURING	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	1,576	1,576	1,576	1,576	1,576	1,576
MANUFACTURING	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,152	3,152	3,152	3,152	3,152	3,152
MINING	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	8	8	8	8	8	8
STEAM ELECTRIC POWER	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	3,000	3,000	3,000	3,000	3,000	3,000
STEAM ELECTRIC POWER	K	STPNOC LAKE/RESERVOIR	66,260	66,260	66,260	66,260	66,260	66,260
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	94	94	94	94	94	94
IRRIGATION	K	COLORADO RUN-OF-RIVER	1,209	1,209	1,209	1,209	1,209	1,209
		COLORADO BASIN TOTAL	**89,626**	**89,626**	**89,626**	**89,626**	**89,626**	**89,626**
MARKHAM MUD	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	116	116	116	116	116	116
PALACIOS	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	1,064	1,064	1,064	1,064	1,064	1,064
COUNTY-OTHER	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	574	574	574	574	574	574
MINING	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	36	36	36	36	36	36
LIVESTOCK	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	299	299	299	299	299	299
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	215	215	215	215	215	215
IRRIGATION	K	COLORADO RUN-OF-RIVER	17,500	17,500	17,500	17,500	17,500	17,500
IRRIGATION	K	COLORADO-LAVACA RUN-OF-RIVER	4,000	4,000	4,000	4,000	4,000	4,000
IRRIGATION	K	GULF COAST AQUIFER SYSTEM | MATAGORDA COUNTY	15,000	15,000	15,000	15,000	15,000	15,000
		COLORADO-LAVACA BASIN TOTAL	**38,804**	**38,804**	**38,804**	**38,804**	**38,804**	**38,804**
		MATAGORDA COUNTY TOTAL	**164,669**	**164,669**	**164,669**	**164,669**	**164,669**	**164,669**
GOLDTHWAITE	K	TRINITY AQUIFER | MILLS COUNTY	12	12	12	12	12	12
COUNTY-OTHER	K	ELLENBURGER-SAN SABA AQUIFER | MILLS COUNTY	71	71	71	71	71	71
COUNTY-OTHER	K	TRINITY AQUIFER | MILLS COUNTY	84	84	84	84	84	84
MINING	K	TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	321	321	321	321	321	321
IRRIGATION	K	TRINITY AQUIFER | MILLS COUNTY	1,251	1,251	1,251	1,251	1,251	1,251
		BRAZOS BASIN TOTAL	**1,741**	**1,741**	**1,741**	**1,741**	**1,741**	**1,741**
BROOKESMITH SUD*	F	BROWNWOOD LAKE/RESERVOIR	7	7	7	7	7	7
CORIX UTILITIES TEXAS INC*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	13	13	13	13	13	13
GOLDTHWAITE	K	ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	245	245	245	245	245	245
GOLDTHWAITE	K	TRINITY AQUIFER | MILLS COUNTY	176	176	176	176	176	176
ZEPHYR WSC*	F	BROWNWOOD LAKE/RESERVOIR	3	3	3	3	3	4
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

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
MINING	K	TRINITY AQUIFER | MILLS COUNTY	2	2	2	2	2	2
LIVESTOCK	K	ELLENBURGER-SAN SABA AQUIFER | MILLS COUNTY	89	89	89	89	89	89
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	360	360	360	360	360	360
LIVESTOCK	K	TRINITY AQUIFER | MILLS COUNTY	161	161	161	161	161	161
IRRIGATION	K	COLORADO RUN-OF-RIVER	2,378	2,378	2,378	2,378	2,378	2,378
		COLORADO BASIN TOTAL	**3,767**	**3,767**	**3,767**	**3,767**	**3,767**	**3,768**
		MILLS COUNTY TOTAL	**5,508**	**5,508**	**5,508**	**5,508**	**5,508**	**5,509**
CORIX UTILITIES TEXAS INC*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	15	15	15	15	15	15
NORTH SAN SABA WSC	K	ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	195	195	195	195	195	195
RICHLAND SUD*	K	ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	150	150	150	148	150	151
RICHLAND SUD*	K	MARBLE FALLS AQUIFER | SAN SABA COUNTY	150	150	150	148	150	151
SAN SABA	K	COLORADO RUN-OF-RIVER	0	0	0	0	0	0
SAN SABA	K	ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	1,246	1,246	1,246	1,246	1,246	1,246
COUNTY-OTHER	K	ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	120	120	120	120	120	120
COUNTY-OTHER	K	HICKORY AQUIFER | SAN SABA COUNTY	80	80	80	80	80	80
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	12	12	12	12	12	12
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	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	LOCAL SURFACE WATER SUPPLY	900	900	900	900	900	900
LIVESTOCK	K	MARBLE FALLS AQUIFER | SAN SABA COUNTY	9	9	9	9	9	9
IRRIGATION	K	COLORADO RUN-OF-RIVER	3,300	3,300	3,300	3,300	3,300	3,300
IRRIGATION	K	ELLENBURGER-SAN SABA AQUIFER | SAN SABA COUNTY	3,045	3,045	3,045	3,045	3,045	3,045
IRRIGATION	K	HICKORY AQUIFER | SAN SABA COUNTY	877	877	877	877	877	877
		COLORADO BASIN TOTAL	**11,991**	**11,991**	**11,991**	**11,987**	**11,991**	**11,993**
		SAN SABA COUNTY TOTAL	**11,991**	**11,991**	**11,991**	**11,987**	**11,991**	**11,993**
AQUA WSC*	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	1,088	1,226	1,362	1,524	1,671	1,809
AUSTIN	K	COLORADO RUN-OF-RIVER	165,981	160,981	170,904	167,135	163,267	158,745
AUSTIN	K	DIRECT REUSE	2,691	2,391	2,391	2,391	2,391	2,391
AUSTIN	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	123,607	123,607	123,607	123,607	123,607	123,607
BARTON CREEK WEST WSC	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	440	440	440	440	440	440
BARTON CREEK WSC	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	307	307	307	307	307	307
BRIARCLIFF	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	400	400	400	400	400	400
CEDAR PARK*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,638	1,574	1,822	1,888	1,887	1,887
COTTONWOOD CREEK MUD 1	G	CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	95	107	120	129	138	148
CREEDMOOR-MAHA WSC*	K	COLORADO RUN-OF-RIVER	839	839	0	0	0	0
CREEDMOOR-MAHA WSC*	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	318	296	273	245	216	187
CYPRESS RANCH WCID 1	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1	1	1	1	1	1
CYPRESS RANCH WCID 1	K	TRINITY AQUIFER | TRAVIS COUNTY	222	222	222	222	222	222
DEER CREEK RANCH WATER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	125	125	125	125	125	125
ELGIN	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	255	357	453	563	662	754
GARFIELD WSC	K	TRINITY AQUIFER | TRAVIS COUNTY	260	260	260	260	260	260
HORNSBY BEND UTILITY	G	CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	944	944	944	944	944	944
HURST CREEK MUD	K	DIRECT REUSE	106	106	106	106	106	106
HURST CREEK MUD	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,600	1,600	1,600	1,600	1,600	1,600

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
JONESTOWN WSC	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	750	750	750	750	750	750
KELLY LANE WCID 1	K	TRINITY AQUIFER | TRAVIS COUNTY	388	388	388	388	388	388
LAGO VISTA	K	DIRECT REUSE	415	415	415	415	415	415
LAGO VISTA	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,451	3,451	3,451	3,451	3,451	3,451
LAKEWAY MUD	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,069	3,069	3,069	3,069	3,069	3,069
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
MANOR	G	CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	404	504	996	1,329	1,810	1,873
MANOR	K	COLORADO RUN-OF-RIVER	1,680	1,680	0	0	0	0
MANOR	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	10	10	10	10	10	10
MANOR	K	OTHER AQUIFER | TRAVIS COUNTY	679	679	679	679	679	679
MANOR	K	TRINITY AQUIFER | TRAVIS COUNTY	547	547	547	547	547	547
MANVILLE WSC*	G	CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	213	268	315	355	368	354
MANVILLE WSC*	G	CARRIZO-WILCOX AQUIFER | LEE COUNTY	1,478	1,504	1,486	1,460	918	208
MANVILLE WSC*	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	325	324	320	317	313	308
MANVILLE WSC*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,929	1,932	1,930	1,927	1,920	1,910
MANVILLE WSC*	G	OTHER AQUIFER | WILLIAMSON COUNTY	152	153	152	150	146	141
MANVILLE WSC*	K	TRINITY AQUIFER | TRAVIS COUNTY	375	373	367	362	355	349
NORTH AUSTIN MUD 1	K	COLORADO RUN-OF-RIVER	81	78	0	0	0	0
NORTHTOWN MUD	K	COLORADO RUN-OF-RIVER	728	841	0	0	0	0
OAK SHORES WATER SYSTEM	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	203	203	203	203	203	203
OAK SHORES WATER SYSTEM	K	TRINITY AQUIFER | TRAVIS COUNTY	82	82	82	82	82	82
PFLUGERVILLE*	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	2,531	2,531	2,530	2,530	2,529	2,526
PFLUGERVILLE*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	9,513	9,498	9,479	9,458	9,435	9,410
ROLLINGWOOD	K	COLORADO RUN-OF-RIVER	1,120	1,120	0	0	0	0
ROUGH HOLLOW IN TRAVIS COUNTY	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,795	1,795	1,795	1,795	1,795	1,795
ROUND ROCK*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	278	315	352	395	434	470
SENNA HILLS MUD	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	404	404	404	404	404	404
SHADY HOLLOW MUD	K	COLORADO RUN-OF-RIVER	793	775	759	750	749	749
SUNSET VALLEY	K	COLORADO RUN-OF-RIVER	716	716	0	0	0	0
SUNSET VALLEY	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	40	40	40	40	40	40
SWEETWATER COMMUNITY	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,514	1,514	1,514	1,514	1,514	1,514
TRAVIS COUNTY MUD 10	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	96	96	96	96	96	96
TRAVIS COUNTY MUD 14	K	CARRIZO-WILCOX AQUIFER | BASTROP COUNTY	224	224	224	224	224	224
TRAVIS COUNTY MUD 2	G	CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	322	322	322	322	322	322
TRAVIS COUNTY MUD 2	K	TRINITY AQUIFER | TRAVIS COUNTY	218	218	218	218	218	218
TRAVIS COUNTY MUD 4	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	3,560	3,562	3,564	3,565	3,565	3,565
TRAVIS COUNTY WCID 10	K	COLORADO RUN-OF-RIVER	3,360	3,360	0	0	0	0
TRAVIS COUNTY WCID 17	K	DIRECT REUSE	1,205	1,205	1,205	1,205	1,205	1,205
TRAVIS COUNTY WCID 17	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	8,800	8,800	8,800	8,800	8,800	8,800
TRAVIS COUNTY WCID 18	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,400	1,400	1,400	1,400	1,400	1,400
TRAVIS COUNTY WCID 19	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	449	447	445	444	444	444
TRAVIS COUNTY WCID 20	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	1,135	1,135	1,135	1,135	1,135	1,135
TRAVIS COUNTY WCID POINT VENTURE	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	285	285	285	285	285	285
WELLS BRANCH MUD	K	COLORADO RUN-OF-RIVER	1,397	1,352	0	0	0	0
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	DIRECT REUSE	414	414	414	414	414	414

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	4,500	4,500	4,500	4,500	4,500	4,500
WILLIAMSON COUNTY WSID 3*	G	CARRIZO-WILCOX AQUIFER | LEE COUNTY	111	130	125	121	117	114
WILLIAMSON COUNTY WSID 3*	K	TRINITY AQUIFER | TRAVIS COUNTY	29	35	33	32	31	30
WILLIAMSON TRAVIS COUNTIES MUD 1*	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	201	201	201	202	201	202
WINDERMERE UTILITY	K	COLORADO RUN-OF-RIVER	2,240	2,240	0	0	0	0
WINDERMERE UTILITY	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	1,062	1,062	1,062	1,062	1,062	1,062
WINDERMERE UTILITY	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	307	307	307	307	307	307
COUNTY-OTHER | AQUA TEXAS - RIVERCREST	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	467	467	467	467	467	467
COUNTY-OTHER	G	CARRIZO-WILCOX AQUIFER | BURLESON COUNTY	299	287	274	265	256	246
COUNTY-OTHER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	6,681	6,681	6,681	6,681	6,681	6,681
COUNTY-OTHER	K	TRINITY AQUIFER | TRAVIS COUNTY	4,451	4,451	4,451	4,451	4,451	4,451
MANUFACTURING	K	COLORADO RUN-OF-RIVER	10,542	11,931	12,217	12,673	12,673	12,673
MANUFACTURING	K	DIRECT REUSE	1,880	2,180	2,180	2,180	2,180	2,180
MANUFACTURING	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	666	666	666	666	666	666
MANUFACTURING	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	76	76	76	76	76	76
MINING	K	LOCAL SURFACE WATER SUPPLY	2,230	2,830	3,477	4,083	4,749	5,512
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	9,240	9,240	9,240	9,240	9,240	9,240
STEAM ELECTRIC POWER	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	5,153	5,153	5,153	5,153	5,153	5,153
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	463	463	463	463	463	463
LIVESTOCK	K	TRINITY AQUIFER | TRAVIS COUNTY	46	46	46	46	46	46
IRRIGATION	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	150	150	150	150	150	150
IRRIGATION	K	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	4,018	4,018	4,018	4,018	4,018	4,018
IRRIGATION	K	LOCAL SURFACE WATER SUPPLY	756	756	756	756	756	756
IRRIGATION	K	TRINITY AQUIFER | TRAVIS COUNTY	800	800	800	800	800	800
COLORADO BASIN TOTAL			**419,502**	**417,403**	**417,046**	**414,523**	**411,285**	**406,907**
CREEDMOOR-MAHA WSC*	K	EDWARDS-BFZ AQUIFER | TRAVIS COUNTY	60	60	60	60	60	60
GOFORTH SUD*	L	EDWARDS-BFZ AQUIFER | HAYS COUNTY	1	1	1	0	0	0
GOFORTH SUD*	L	TRINITY AQUIFER | HAYS COUNTY	5	5	5	5	5	5
COUNTY-OTHER	K	OTHER AQUIFER | TRAVIS COUNTY	112	112	112	112	112	112
MINING	K	LOCAL SURFACE WATER SUPPLY	35	41	48	54	60	68
LIVESTOCK	K	LOCAL SURFACE WATER SUPPLY	18	18	18	18	18	18
GUADALUPE BASIN TOTAL			**231**	**237**	**244**	**249**	**255**	**263**
TRAVIS COUNTY TOTAL			**419,733**	**417,640**	**417,290**	**414,772**	**411,540**	**407,170**
BOLING MWD	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	156	156	156	156	156	156
WHARTON	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	1,112	1,086	1,066	1,041	1,014	988
WHARTON COUNTY WCID 2	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	1,218	1,218	1,218	1,218	1,218	1,218
COUNTY-OTHER*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	1,164	1,164	1,164	1,164	1,164	1,164
MANUFACTURING*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	69	69	69	69	69	69
MINING*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	41	41	41	41	41	41
STEAM ELECTRIC POWER*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	1	1	1	1	1	1
LIVESTOCK*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	302	302	302	302	302	302
LIVESTOCK*	K	LOCAL SURFACE WATER SUPPLY	149	149	149	149	149	149
IRRIGATION*	K	BRAZOS-COLORADO RUN-OF-RIVER	1,900	1,900	1,900	1,900	1,900	1,900
IRRIGATION*	K	COLORADO RUN-OF-RIVER	14,751	14,751	14,751	14,751	14,751	14,751
IRRIGATION*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	38,091	38,091	38,091	38,091	38,091	38,091

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Region K Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
		BRAZOS-COLORADO BASIN TOTAL	**58,954**	**58,928**	**58,908**	**58,883**	**58,856**	**58,830**
EL CAMPO*	P	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	6	6	6	6	6	6
WHARTON	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	756	782	802	827	854	880
COUNTY-OTHER*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	600	600	600	600	600	600
COUNTY-OTHER*	P	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	57	57	57	57	57	57
MANUFACTURING*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	102	102	102	102	102	102
MINING*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	27	27	27	27	27	27
STEAM ELECTRIC POWER*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	7,900	7,900	7,900	7,900	7,900	7,900
LIVESTOCK*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	206	206	206	206	206	206
LIVESTOCK*	K	LOCAL SURFACE WATER SUPPLY	115	115	115	115	115	115
IRRIGATION*	K	COLORADO RUN-OF-RIVER	16,786	16,786	16,786	16,786	16,786	16,786
IRRIGATION*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	25,558	25,558	25,558	25,558	25,558	25,558
		COLORADO BASIN TOTAL	**52,113**	**52,139**	**52,159**	**52,184**	**52,211**	**52,237**
COUNTY-OTHER*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	231	231	231	231	231	231
MINING*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	6	6	6	6	6	6
LIVESTOCK*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	107	107	107	107	107	107
LIVESTOCK*	K	LOCAL SURFACE WATER SUPPLY	74	74	74	74	74	74
IRRIGATION*	K	COLORADO RUN-OF-RIVER	2,350	2,350	2,350	2,350	2,350	2,350
IRRIGATION*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	14,587	14,587	14,587	14,587	14,587	14,587
		COLORADO-LAVACA BASIN TOTAL	**17,355**	**17,355**	**17,355**	**17,355**	**17,355**	**17,355**
COUNTY-OTHER*	K	GULF COAST AQUIFER SYSTEM | WHARTON COUNTY	231	231	231	231	231	231
		LAVACA BASIN TOTAL	**231**	**231**	**231**	**231**	**231**	**231**
		WHARTON COUNTY TOTAL	**128,653**	**128,653**	**128,653**	**128,653**	**128,653**	**128,653**
AUSTIN	K	COLORADO RUN-OF-RIVER	10,787	13,742	16,122	18,685	21,592	24,782
NORTH AUSTIN MUD 1	K	COLORADO RUN-OF-RIVER	774	747	0	0	0	0
WELLS BRANCH MUD	K	COLORADO RUN-OF-RIVER	80	77	0	0	0	0
COUNTY-OTHER*	K	COLORADO RUN-OF-RIVER	87	87	87	87	87	87
COUNTY-OTHER*	K	EDWARDS-BFZ AQUIFER | WILLIAMSON COUNTY	6	6	6	6	6	6
MANUFACTURING*	K	TRINITY AQUIFER | WILLIAMSON COUNTY	30	30	30	30	30	30
MINING*	K	TRINITY AQUIFER | WILLIAMSON COUNTY	5	5	5	5	5	5
		BRAZOS BASIN TOTAL	**11,769**	**14,694**	**16,250**	**18,813**	**21,720**	**24,910**
		WILLIAMSON COUNTY TOTAL	**11,769**	**14,694**	**16,250**	**18,813**	**21,720**	**24,910**
		REGION K EXISTING WATER SUPPLY TOTAL	**1,042,135**	**1,044,354**	**1,047,428**	**1,050,341**	**1,049,931**	**1,049,975**

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Region K Source Water Balance (Availability - WUG Supply)

GROUNDWATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
CARRIZO-WILCOX AQUIFER	BASTROP	BRAZOS	FRESH	66	161	274	547	848	848
CARRIZO-WILCOX AQUIFER	BASTROP	COLORADO	FRESH	0	463	182	82	89	148
CARRIZO-WILCOX AQUIFER	BASTROP	GUADALUPE	FRESH	0	0	0	92	0	0
CARRIZO-WILCOX AQUIFER	FAYETTE	COLORADO	FRESH	4,565	4,565	4,565	4,565	4,565	4,565
CARRIZO-WILCOX AQUIFER	FAYETTE	GUADALUPE	FRESH	909	909	909	909	909	909
CARRIZO-WILCOX AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	FRESH	1	4	4	4	4	4
EDWARDS-BFZ AQUIFER	HAYS	COLORADO	SALINE	66	66	66	66	66	66
EDWARDS-BFZ AQUIFER	TRAVIS	BRAZOS	FRESH	275	275	275	275	275	275
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH	116	116	116	116	116	116
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	FRESH/ BRACKISH	20	20	20	20	20	20
EDWARDS-BFZ AQUIFER	TRAVIS	COLORADO	SALINE	5,073	5,073	5,073	5,073	5,073	5,073
EDWARDS-BFZ AQUIFER	TRAVIS	GUADALUPE	SALINE	280	280	280	280	280	280
EDWARDS-BFZ AQUIFER	WILLIAMSON	BRAZOS	FRESH	0	0	0	0	0	0
EDWARDS-BFZ AQUIFER	WILLIAMSON	COLORADO	FRESH	4	4	4	4	4	4
EDWARDS-TRINITY-PLATEAU AQUIFER	BLANCO	COLORADO	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU AQUIFER	BLANCO	GUADALUPE	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS	GILLESPIE	COLORADO	FRESH	1,074	1,074	1,074	1,074	1,074	1,074
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFERS	GILLESPIE	GUADALUPE	FRESH	5	5	5	5	5	5
ELLENBURGER-SAN SABA AQUIFER	BLANCO	COLORADO	FRESH	509	503	509	503	509	503
ELLENBURGER-SAN SABA AQUIFER	BURNET	BRAZOS	FRESH	3,833	3,822	3,833	3,822	3,833	3,822
ELLENBURGER-SAN SABA AQUIFER	BURNET	COLORADO	FRESH	3,381	3,362	3,381	3,362	3,381	3,362
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	COLORADO	FRESH	605	605	605	605	605	605
ELLENBURGER-SAN SABA AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
ELLENBURGER-SAN SABA AQUIFER	LLANO	COLORADO	FRESH	211	210	211	210	211	210
ELLENBURGER-SAN SABA AQUIFER	MILLS	BRAZOS	FRESH	22	22	22	22	22	22
ELLENBURGER-SAN SABA AQUIFER	MILLS	COLORADO	FRESH	318	317	318	317	318	317
ELLENBURGER-SAN SABA AQUIFER	SAN SABA	COLORADO	FRESH	2,535	2,535	2,535	2,535	2,535	2,535
GULF COAST AQUIFER SYSTEM	COLORADO	BRAZOS-COLORADO	FRESH	2,934	2,934	2,934	2,934	2,934	2,934
GULF COAST AQUIFER SYSTEM	COLORADO	COLORADO	FRESH	1,137	1,137	697	697	697	697
GULF COAST AQUIFER SYSTEM	COLORADO	LAVACA	FRESH	10,773	10,773	9,014	9,014	7,867	7,867
GULF COAST AQUIFER SYSTEM	FAYETTE	BRAZOS	FRESH	2	2	2	2	2	2
GULF COAST AQUIFER SYSTEM	FAYETTE	COLORADO	FRESH	40	40	40	40	40	40
GULF COAST AQUIFER SYSTEM	FAYETTE	LAVACA	FRESH	1	1	20	41	41	41
GULF COAST AQUIFER SYSTEM	MATAGORDA	BRAZOS-COLORADO	FRESH	78	78	78	78	78	78
GULF COAST AQUIFER SYSTEM	MATAGORDA	COLORADO	FRESH/ BRACKISH	850	850	850	850	850	850
GULF COAST AQUIFER SYSTEM	MATAGORDA	COLORADO-LAVACA	FRESH	356	356	356	356	356	356
GULF COAST AQUIFER SYSTEM	WHARTON	BRAZOS-COLORADO	FRESH	8,374	8,400	8,420	8,445	8,472	8,498
GULF COAST AQUIFER SYSTEM	WHARTON	COLORADO	FRESH	760	734	714	689	662	636

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Region K Source Water Balance (Availability - WUG Supply)

GROUNDWATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
GULF COAST AQUIFER SYSTEM	WHARTON	COLORADO-LAVACA	FRESH	1,265	1,265	1,265	1,265	1,265	1,265
GULF COAST AQUIFER SYSTEM	WHARTON	LAVACA	FRESH	348	348	348	348	348	348
HICKORY AQUIFER	BLANCO	COLORADO	FRESH	144	143	144	143	144	143
HICKORY AQUIFER	BURNET	BRAZOS	FRESH	1,240	1,236	1,240	1,236	1,240	1,236
HICKORY AQUIFER	BURNET	COLORADO	FRESH	1,937	1,931	1,937	1,931	1,937	1,931
HICKORY AQUIFER	GILLESPIE	COLORADO	FRESH	325	325	325	325	325	325
HICKORY AQUIFER	GILLESPIE	GUADALUPE	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	HAYS	COLORADO	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	LLANO	COLORADO	FRESH	1,301	1,295	1,301	1,295	1,301	1,295
HICKORY AQUIFER	MILLS	BRAZOS	FRESH	7	7	7	7	7	7
HICKORY AQUIFER	MILLS	COLORADO	FRESH	29	29	29	29	29	29
HICKORY AQUIFER	SAN SABA	COLORADO	FRESH	6,311	6,311	6,311	6,311	6,311	6,311
MARBLE FALLS AQUIFER	BLANCO	COLORADO	FRESH	199	199	199	199	199	199
MARBLE FALLS AQUIFER	BURNET	BRAZOS	FRESH	1,387	1,383	1,387	1,383	1,387	1,383
MARBLE FALLS AQUIFER	BURNET	COLORADO	FRESH	1,203	1,199	1,203	1,199	1,203	1,199
MARBLE FALLS AQUIFER	MILLS	BRAZOS	FRESH	1	1	1	1	1	1
MARBLE FALLS AQUIFER	MILLS	COLORADO	FRESH	24	24	24	24	24	24
MARBLE FALLS AQUIFER	SAN SABA	COLORADO	FRESH	2,766	2,754	2,766	2,754	2,766	2,754
OTHER AQUIFER	BASTROP	COLORADO	FRESH	0	0	0	0	0	0
OTHER AQUIFER	BURNET	BRAZOS	FRESH	0	0	0	0	0	0
OTHER AQUIFER	BURNET	COLORADO	FRESH	259	259	259	259	259	259
OTHER AQUIFER	FAYETTE	COLORADO	FRESH	0	0	0	0	0	0
OTHER AQUIFER	LLANO	COLORADO	FRESH	9	9	9	9	9	9
OTHER AQUIFER	TRAVIS	COLORADO	FRESH	3,091	3,091	3,091	3,091	3,091	3,091
OTHER AQUIFER	TRAVIS	GUADALUPE	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	BASTROP	BRAZOS	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	BASTROP	COLORADO	FRESH	15	0	0	0	0	0
QUEEN CITY AQUIFER	BASTROP	GUADALUPE	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	FAYETTE	COLORADO	FRESH	2,278	2,278	2,278	2,278	2,278	2,278
QUEEN CITY AQUIFER	FAYETTE	GUADALUPE	FRESH	430	430	430	430	430	430
QUEEN CITY AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	BASTROP	BRAZOS	FRESH	89	87	85	84	82	82
SPARTA AQUIFER	BASTROP	COLORADO	FRESH	247	246	245	244	243	243
SPARTA AQUIFER	BASTROP	GUADALUPE	FRESH	10	10	10	10	10	10
SPARTA AQUIFER	FAYETTE	COLORADO	FRESH	961	951	928	914	921	921
SPARTA AQUIFER	FAYETTE	GUADALUPE	FRESH	653	657	658	663	664	664
SPARTA AQUIFER	FAYETTE	LAVACA	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	BLANCO	COLORADO	FRESH	332	332	332	332	332	332
TRINITY AQUIFER	BLANCO	GUADALUPE	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	BURNET	BRAZOS	FRESH	641	634	641	634	641	634
TRINITY AQUIFER	BURNET	COLORADO	FRESH	3	0	3	0	3	0
TRINITY AQUIFER	HAYS	COLORADO	FRESH	1,223	1,220	1,219	1,219	1,219	1,219
TRINITY AQUIFER	HAYS	GUADALUPE	FRESH	9	9	9	9	9	9
TRINITY AQUIFER	MILLS	BRAZOS	FRESH	324	321	324	321	324	321

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Region K Source Water Balance (Availability - WUG Supply)

GROUNDWATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
TRINITY AQUIFER	MILLS	COLORADO	FRESH	132	128	132	128	132	128
TRINITY AQUIFER	TRAVIS	BRAZOS	FRESH	1	1	1	1	1	1
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH	1,864	1,849	1,864	1,849	1,864	1,849
TRINITY AQUIFER	TRAVIS	COLORADO	FRESH/ BRACKISH	3,549	3,532	3,520	3,504	3,475	3,475
TRINITY AQUIFER	TRAVIS	GUADALUPE	FRESH	2	2	2	2	2	2
TRINITY AQUIFER	WILLIAMSON	BRAZOS	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	WILLIAMSON	COLORADO	FRESH	32	32	32	32	32	32
YEGUA-JACKSON AQUIFER	FAYETTE	COLORADO	FRESH	4,862	4,862	4,862	4,862	4,861	4,861
YEGUA-JACKSON AQUIFER	FAYETTE	GUADALUPE	FRESH	481	481	481	481	481	481
YEGUA-JACKSON AQUIFER	FAYETTE	LAVACA	FRESH	53	122	183	183	183	183
GROUNDWATER SOURCE WATER BALANCE TOTAL				**89,210**	**89,689**	**87,471**	**87,623**	**86,774**	**86,726**

REUSE SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
DIRECT REUSE	BURNET	COLORADO	FRESH	0	0	0	0	0	0
DIRECT REUSE	HAYS	COLORADO	FRESH	100	1,120	1,120	1,120	1,680	1,680
DIRECT REUSE	LLANO	COLORADO	FRESH	0	0	0	0	0	0
DIRECT REUSE	TRAVIS	COLORADO	FRESH	2,789	2,789	2,789	2,789	2,789	2,789
REUSE SOURCE WATER BALANCE TOTAL				**2,889**	**3,909**	**3,909**	**3,909**	**4,469**	**4,469**

SURFACE WATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	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	186	186	186	186	186	186
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
BRAZOS OTHER LOCAL SUPPLY	BURNET	BRAZOS	FRESH/ BRACKISH	0	0	0	0	0	0
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 RUN-OF-RIVER	MATAGORDA	BRAZOS-COLORADO	FRESH	0	0	0	0	0	0
BRAZOS-COLORADO RUN-OF-RIVER	WHARTON	BRAZOS-COLORADO	FRESH	2,432	2,432	2,432	2,432	2,432	2,432
COLORADO LIVESTOCK LOCAL SUPPLY	BASTROP	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	BLANCO	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	BURNET	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	COLORADO	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	FAYETTE	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	HAYS	COLORADO	FRESH	0	0	0	0	0	0

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Region K Source Water Balance (Availability - WUG Supply)

SURFACE WATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
COLORADO LIVESTOCK LOCAL SUPPLY	LLANO	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	MILLS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	SAN SABA	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO LIVESTOCK LOCAL SUPPLY	WHARTON	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	BASTROP	COLORADO	FRESH	50	51	51	49	49	49
COLORADO OTHER LOCAL SUPPLY	GILLESPIE	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	TRAVIS	COLORADO	FRESH	3,315	2,709	2,055	1,443	771	0
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	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	COLORADO	COLORADO	FRESH	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	FAYETTE	COLORADO	FRESH	0	0	0	0	0	0
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	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	MILLS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	SAN SABA	COLORADO	FRESH	5,500	5,500	5,500	5,500	5,500	5,500
COLORADO RUN-OF-RIVER	TRAVIS	COLORADO	FRESH	756	756	756	756	756	756
COLORADO RUN-OF-RIVER	WHARTON	COLORADO	FRESH	0	0	0	0	0	0
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	6	6	6	6	6	6
GUADALUPE RUN-OF-RIVER	BLANCO	GUADALUPE	FRESH	9	9	9	9	9	9
HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	RESERVOIR**	COLORADO	FRESH	0	0	0	0	0	0
LAVACA LIVESTOCK LOCAL SUPPLY	COLORADO	LAVACA	FRESH	266	266	266	266	266	266
LAVACA LIVESTOCK LOCAL SUPPLY	FAYETTE	LAVACA	FRESH	108	108	108	108	108	108
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
LLANO LAKE/RESERVOIR	RESERVOIR**	COLORADO	FRESH	0	0	0	0	0	0
LLANO RUN-OF-RIVER	LLANO	COLORADO	FRESH	0	0	0	0	0	0

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Region K Source Water Balance (Availability - WUG Supply)

SURFACE WATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
STPNOC LAKE/RESERVOIR	RESERVOIR**	COLORADO	FRESH/ BRACKISH	0	0	0	0	0	0
SURFACE WATER SOURCE WATER BALANCE TOTAL				**16,130**	**15,525**	**14,871**	**14,257**	**13,585**	**12,814**

REGION K SOURCE WATER BALANCE TOTAL				**108,229**	**109,123**	**106,251**	**105,789**	**104,828**	**104,009**

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

APPENDIX 3D

REGION K WATER MODELING COMMITTEE MEETING MINUTES

Lower Colorado Regional Water Planning Group
Water Modeling Committee Meeting
LCRA Dalchau Service Center, Conference Room A504
December 13, 2017

1. Teresa Lutes called meeting to order at 10:02 a.m.

2. Attendees (21)
   Teresa Lutes – Region K Water Modeling Committee Chair, Municipalities Rep
   Jason Ludwig – Region K, Electric Generating Utilities Rep
   David Wheelock –Region K, River Authority Rep
   Barbara Johnson – Region K, Industries Rep
   Jennifer Walker – Region K, Environmental Rep
   Mike Reagor – Region K, Small Municipalities Rep
   Jim Brasher – Region K, GMA-15 Rep
   David Lindsay – Region K, Recreation Rep (Alternate)
   Jeff Fox – Region K, Municipalities Rep (Alternate)
   David Bradsby –TPWD (Region K non-voting member)
   Lann Bookout – TWDB (Region K non-voting member)
   Jaime Burke – AECOM
   Alicia Smiley – AECOM
   James Kowis – James Kowis Consulting, LLC
   Joe Trungale – Trungale Engineering
   Rebecca Batchelder – LCRA
   Leonard Oliver – LCRA
   Helen Gerlach – Austin Water
   Richard Hoffpauir – Hoffpauir Consulting
   Jordan Furnans – LRE Water, LLC
   Cindy Smiley – Smiley Law Firm

3. Public Comments
   a. Jordan Furnans – LRE Water, LLC
      i. Heard that LCRA might be working on extending the naturalized hydrology data set for the Colorado Basin through 2016, and asked if anyone could confirm.

4. Purpose of Water Modeling Committee
   a. Water Availability
      i. Surface water and groundwater availability modeling issues
         1. In previous cycle, committee covered both surface and groundwater, but previous cycle had limited groundwater modeling due to Modeled Available Groundwater numbers (MAGs) being provided by TWDB, based on submitted Desired Future Conditions (DFCs) from groundwater conservation districts (GCDs) and groundwater management areas (GMAs). Groundwater coordination mainly occurred by reaching

out to Groundwater Conservation Districts for input. Discussion of specifics on methodologies to be used this planning round was tabled for future discussion.

a. MAGs are being updated and may be available for this round of planning.

2. MAG (Modeled Available Groundwater) Peak Factor is a new TWDB concept that this Committee may want to address or may want to pass to another Committee for 2021 RWP. Using it allows for a range of MAG fluctuation during particularly wet/dry years. This may be similar to a temporary over drafting concept included in some limited situations in past Region K plans.
3. Role of Committee:
    a. Evaluate previous modeling assumptions and recommend changes needed for 2021 Regional Water Plan (RWP).
    b. Review request to TWDB for approval to use alternative modeling assumptions and make recommendations to the Region K Regional Water Planning Group (RWPG).
    c. Review results of modeling and recommend actions to RWPG.
    d. Committee consensus was to have role include review of modeling and availability information for both groundwater and surface water.

b. Water Management Strategies
    i. Role of Committee:
        1. Evaluate previous modeling assumptions and recommend changes needed for 2021 RWP.
        2. Review request to TWDB requesting approval to use alternative modeling assumptions and make recommendations to the RWPG.
        3. Work with Water Management Strategies Committee to evaluate results of strategy modeling.
        4. Committee consensus was to have role include review of modeling related to water management strategies for both groundwater and surface water, where applicable.

5. TWDB Guidelines for Surface Availability Modeling
    a. On December 7, TWDB published proposed revisions to regional water planning rules and proposed revisions to the contractual guidance document *First Amended General Guidelines for Fifth Cycle of Regional Water Plan Development (Exhibit C)* for public comment, due by January 31, 2018. Rules will be in flux during analysis work so we will plan to monitor the process to see if and how any rule changes may affect any technical aspects of modeling.
    b. Reviewed guidelines (Chapter 3: Water Availability and Existing Water Supplies)
        i. Standard model and anticipated sedimentation
        ii. "Firm" availability for reservoirs and run-of-river

iii. Estimation for domestic and livestock use
iv. Standard criteria and assumptions
v. Hydrologic variances

6. Region K Cutoff Model and assumptions from previous cycle
    a. Region K Cutoff Model
        i. James Kowis explained the history of the WAM (Water Availability Model) Cutoff Model. TCEQ WAM Run 3 – the water availability model used by TCEQ and TWDB – is a full basin model that does not include effects of real world operational practices between the upper and lower Colorado River basin. The WAM Cutoff Model, in which all of the water rights located at Lake O.H. Ivie and upstream and at Lake Brownwood and upstream maintain their relative priority order but are all given seniority in the model over water rights downstream, has been used in previous Plan Cycles to better simulate real-world operational practices. During the 2016 Plan Cycle, the Cutoff Model developed during the 2011 Plan cycle was updated and the hydrology of the model was extended from 1940-1998 to 1940-2013.
    b. Combined agenda items 6 and 7 to review 2016 Plan assumptions and determine updates needed simultaneously.
        i. Update Table A – Summary of Region K WAM Modeling Assumptions. Bolded text indicates recommended changes from previous cycle.
            1. Item 1 – Use TCEQ Full-Basin WAM Run 3 without modification for new appropriation water supply strategies analysis
                a. No change.
                b. Joe Trungale asked if LCRA will provide the Cutoff Model for this cycle. David Wheelock confirmed and stated that updated models will be sent to Jaime Burke.
            2. Item 2 – All rights at and above Ivie/Brownwood senior to downstream rights (maintaining relative date priority in rights upstream)
                a. No change.
            3. Item 3 – Use Expanded 1940-2009 naturalized flows [Note that during the course of the last planning cycle the naturalized flows were further extended through 2013]
                a. Revise to "Use Expanded 1940-**2016** Naturalized Flows"
            4. Item 4 – Determine firm yield for Buchanan-Travis Reservoir System
                a. No change.
                b. Discussion of Arbuckle Reservoir (formerly Lane City Reservoir). It will not be included as part of the calculation of the combined firm yield for Lakes Buchanan-Travis, but will be included in the WAM as part of the analysis.
            5. Item 5 – Use sediment-adjusted future reservoir storage by decade
                a. No change.
            6. Item 6 – Use 2010 Water Management Plan environmental flow criteria
                a. Revise to "Use **2015** Water Management Plan Environmental Flow Criteria"

   b. Add an asterisk in Column 1 with a footnote explaining that firm water allocated for environmental purposes is 33,440 AFY (10-year average).
7. Item 7 – Set all water right demands at authorized diversion amounts
   a. No change.
8. Item 8 – Include provisions of LCRA-STP 2006 Settlement Agreement
   a. No change.
9. Item 9 – Include Operating Rules for Lakes Buchanan and Travis to maintain consistent levels of drawdown in the lakes
   a. Revise to "Include Operating Rules for Lakes Buchanan and Travis to **reflect combined firm yield operation**."
   b. David Wheelock offered to answer questions on this recommended change, as needed.
10. Item 10 – Include latest approved LCRA Permits and Amendments
   a. Revise to "Include latest approved LCRA Permits and Amendments **as of December 2017**"
11. Item 11 – Include 2010 Water Management Plan Highland Lakes interruptible water
   a. Revise to "Include **2015** Water Management Plan Highland Lakes Interruptible Water"
12. Item 12 – Adjust 2010 Water Management Plan environmental flow triggers
   a. Revise to "Adjust **2015** Water Management Plan Environmental Flow Triggers (decadal)"
13. Item 13 – Set all Region M&I water right demands at projected future demand amounts by decade
   a. Revise to "Set all Region K **Municipal and Industrial** water right demands at projected future demand amounts by decade"
14. Item 14 – Modify curtailment of Highland Lakes' interruptible water as necessary to satisfy LCRA future firm M&I demands
   a. Revise to "Modify curtailment of Highland Lakes' interruptible water as necessary to satisfy LCRA future firm **Municipal and Industrial** demands."
15. Item 15 – Set LCRA Lower Basin irrigation demands equal to projected future weather-variable demands by decade
   a. Revise to "Set LCRA Lower Basin irrigation demands equal to projected future demands by decade"
   b. "weather-variable" demand was deleted.
16. Item 16 – Include LCRA irrigation return flows to the Colorado River
   a. No change.
   b. Only incorporated into model as a water management strategy.
17. Item 17 – Include return flows from Austin wastewater treatment plants
   a. No change.
   b. Only incorporated into model as a water management strategy.

18. Item 18 – Include other M&I return flows
    a. Revise to "Include other **Municipal and Industrial** return flows."
    b. Only incorporated into model as a water management strategy.
19. Item 19 – Include reuse provisions and environmental flow requirements of LCRA-Austin 2007 Settlement Agreement
    a. No change.
    b. Only incorporated into model as a water management strategy.

ii. Teresa Lutes mentioned that consideration of potential impacts from future climate uncertainty is an area of planning that this committee and the full group will likely want to have some discussion about in this planning cycle. At various times in the past the planning group has had some discussion about ways to approach addressing consideration of this issue. It was briefly discussed that there may be ways through drought planning and water management strategies evaluation part of the process to look at climate uncertainty.

iii. Committee consensus is to review and comment on revisions to assumptions and the hydrologic variance request electronically. Committee will plan to hold another meeting prior to the January 10, 2018 Region K meeting, at 9:00 am, to further review and consider a vote to recommend the revised assumptions and the hydrologic variance request to the full RWPG. The Committee meeting will also include an educational session to help interested RWPG members and the public better understand surface water modeling and the WAM Cutoff Model.

7. Timeline
    a. RWPG to consider a vote on approval of submitting a hydrologic variance request to TWDB at the January 10th full Region K Regional Water Planning Group (RWPG) meeting.
    b. If approved by RWPG, after submittal of hydrologic variance request, TWDB may take up to 60 days to review and approve the request. After receiving TWDB approval, modeling efforts can begin.
    c. LCRA anticipates having extended naturalized hydrology data (through 2016) available for use with the Region K Cutoff Model in the April-May timeframe.
    d. Technical Memorandum that incorporates water availability data into the needs analysis is due September 10, 2018. RWPG will need to review and approve the technical memorandum at a meeting prior to that date.

8. Next meeting
    a. The next Region K Water Modeling Committee will be held on January 10, 2018 at 9:00 AM, prior to the full Region K meeting (to be held at LCRA Dalchau Service Center). The meeting will include an information session about modeling. During the meeting, Water Modeling Committee will consider action to recommend the revised Region K Cutoff Model Modeling Assumptions and the hydrologic variance request to the RWPG for approval and submittal to TWDB.

9. New / Other Business

a. None.

10. Public Comments
    a. No public comments.

11. Teresa Lutes adjourned the meeting at 12:51 p.m.

Lower Colorado Regional Water Planning Group
Water Modeling Committee Meeting
AECOM, Oasis Conference Room
April 5, 2018

1. Teresa Lutes called meeting to order at 10:10 a.m.

2. Attendees (23)
   Committee Members:
   Teresa Lutes – Region K Water Modeling Committee Chair, Municipalities Rep
   David Wheelock –Region K, River Authority Rep
   David Lindsay – Region K, Recreation Rep (Alternate)
   Mike Reagor – Region K, Small Municipalities Rep
   John Burke –Region K Chair, Water Utilities Rep
   Doug Powell – Region K, Recreation Rep
   Jason Ludwig – Region K, Electric Utilities Rep
   Jim Brasher – Region K, GMA-12 Rep
   David Bradsby – Region K, TPWD Rep
   Lann Bookout – TWDB

   Additional Attendees:
   Ann McElroy – Region K, Environmental Rep
   Lauri Gillam – Region K, Small Municipalities Rep
   Jaime Burke – AECOM
   Alicia Smiley – AECOM
   Joe Trungale – Trungale Engineering
   Rebecca Batchelder – LCRA
   Leonard Oliver – LCRA
   Stacey Pandey – LCRA
   Helen Gerlach – Austin Water
   Richard Hoffpauir – Hoffpauir Consulting
   Christianne Castleberry – Castleberry Engineering, Region K Water Utilities Alternate
   Mike Keester – LRE Water, LLC
   Cindy Smiley – Smiley Law Firm

3. Public Comments
   a. None.

4. Minutes Approval
   a. Draft of January 10, 2018.
      i. David Lindsay commented on 6.b.; related to RWPG's hydrologic variance request Assumption Item #11 (no interruptible water included in supply analysis, only as a strategy); group decided to discuss later in meeting
      ii. David Wheelock motioned to approve minutes. John Burke seconded. Committee approved minutes.

5. Hydrologic Variance Request Status

a. TWDB approved request on March 28, 2018 to use the Region K Water Availability Model (WAM) Run 3 Cutoff Model.
    i. See attached approval letter.
    ii. Approval means Region K can move forward to supply analysis.
b. Considering interruptible water for supply analysis
    i. Approved variance request only considers interruptible water as a strategy.
        1. David Lindsay requested a discussion on this assumption because water modeling assumes lakes are full at the beginning of a run and the water management plan allows large releases for interruptible use when levels are high.
        2. Discussion of differences between modeling firm yield for supply analysis for regional water planning and LCRA Water Management Plan system operations modeling.

6. Domestic and Livestock Use for Water Supplies and Modeling
    a. Ann McElroy requested a discussion, as she lives on the San Saba River and is concerned about flows in upper basin. Riparian water rights are superior water rights, and permitters/planners do not know who those water rights users are and how much they use for Domestic and Livestock purposes. Riparian water rights pertain to a landowner whose property borders a river has a right to use water from that river on his land.
        i. McElroy requests to reasonably quantify use and availability of riparian rights into the model.
    b. Discussion: Domestic and Livestock use are already included in County-Other projections, although water use from local supplies is difficult to quantify.
        i. Naturalized flows in the modeling account for historic removal and capture of river water by landowners for use, such as domestic and livestock use, on land bordering the river; it's not shown as available to anyone.
        ii. Demand may have grown since naturalized flows have been created, but riparian demand tends to be self-limiting. The broad process of regional water planning may not be suited for capturing those exact numbers. A more local study may be appropriate.
        iii. Naturalized flows through 2013 were included in the 2016 Plan modeling. For the 2021 RWP, naturalized flows will be updated through 2016.
    c. Teresa Lutes suggested considering water management strategies that could help keep the rivers flowing for longer. This is related to uncertainties in the future with new drought-of-record and climate change in the future.

7. Region K Cutoff Model
    a. Sedimentation
        i. David Wheelock – Region K has always used projected sedimentation conditions. The numbers Region K used in the 2016 RWP are based on the 2000-2005 bathymetric survey data. The TWDB survey from 2006-2008 hasn't been incorporated into the model. Wheelock proposes updating the sedimentation dataset with the 2006-2008 survey. The rate of sedimentation would be reduced, resulting in a greater amount of available storage. The next survey

should be performed in the next 1-2 years, and will not be available in time to incorporate into the 2021 RWP.

ii. David Wheelock motioned to update the sedimentation values with 2006-2008 information. Jason Ludwig seconded. Committee passed motion.

b. Arbuckle Reservoir

i. Previously known as Lane City Reservoir, the Arbuckle Reservoir was recommended as a strategy in the 2016 SWP. It is currently under construction, and will be completed in late 2018. The committee had to choose whether to incorporate it as a strategy or as an available supply in the 2021 plan.

ii. David Wheelock motioned to advise the Region K Planning Group to consider the Arbuckle Reservoir as an available supply in the 2021 Plan. Jim Brasher seconded. Committee passed motion.

c. Other Items

i. Joe Trungale would like to get a small group together to discuss the differences between the LCRA WMP model and TCEQ Run 3 modeling for strategies.

ii. Teresa Lutes proposes to discuss planning for droughts worse than the drought-of-record, including sensitivity analyses, as an agenda item at a follow-up meeting.

1. To address future worse drought-of-records, the scope of the committee may need reevaluation.
2. Recommended strategies need to be based off modeling because strategies are a reflection of need/shortage.
3. Ways to address uncertainty include considering additional strategies beyond just meeting the need, and/or moving strategies up a decade from when they are planned to be needed.

d. Timeline

i. The Technical Memorandum with needs analysis is due September 10, 2018.

1. In order to approve the memorandum before the due date, the RWPG may need to adjust Region K meeting date.

ii. Expect updated model from LCRA in late May or early June. AECOM team will began the availability modeling after that.

8. Groundwater Availability

a. Modeled Available Groundwater (MAG) volumes have been updated for several GMAs.

i. See attached handout.

9. New / Other Business

a. None.

10. Next meeting

a. The next meeting will occur in early June. A Doodle poll will be sent out.

11. Public Comments

a. No public comments.

12. Teresa Lutes adjourned at 12:10 p.m.

Lower Colorado Regional Water Planning Group
Water Modeling Committee Meeting
LCRA, Redbud Center
June 27, 2018

1. Teresa Lutes called meeting to order at 10:02 a.m.

2. Attendees (31)
   Committee Members:
   Teresa Lutes – Region K Water Modeling Committee Chair, Municipalities Rep
   David Wheelock –Region K, River Authority Rep
   Mike Reagor – Region K, Small Municipalities Rep
   Doug Powell – Region K, Recreation Rep
   Jason Ludwig – Region K, Electric Utilities Rep
   Jim Brasher – Region K, GMA-12 Rep
   Ron Fieseler – Region K, GMA-9 Rep
   Ann McElroy – Region K, Environmental Rep
   David Bradsby – Region K, TPWD Rep
   Lann Bookout – TWDB

   Additional Attendees:
   Jaime Burke – AECOM
   Alicia Smiley – AECOM
   Joe Trungale – Trungale Engineering
   Richard Hoffpauir – Hoffpauir Consulting
   James Kowis – J Kowis Consulting, LLC
   Andrew Austin-Petersen – LCRA
   Lauren Graber – LCRA
   Ron Anderson – LCRA
   Helen Gerlach – Austin Water
   Ross Crow – City of Austin
   Christianne Castleberry – Castleberry Engineering, Region K Water Utilities Alternate
   Cindy Smiley – Smiley Law Firm
   Jo Karr Tedder – CTWC
   Tom Harrison
   Richard Golladay
   Paul King – Rancher, Burnet County
   Norman Johns – National Wildlife Federation
   Dan Roark – PLTA
   Andy McConnell – Sunset Commission
   Danielle Nasr – Sunset Commission
   Mikayla Garrison – Sunset Commission
   Erick Fajardo – Sunset Commission

3. Public Comments

a. None.

4. Minutes Approval
    a. Draft of April 5, 2018.
        i. David Wheelock requested changes to 6.a. and 6.b.i.
            1. 6.a. Change “Riparian water rights are the most senior water right…” to “Riparian water rights are superior water rights…”
            2. 6.b.i. Add the word ‘historic’ to read, “Naturalized flows in the modeling account for the *historic* removal and capture of river water…”
        ii. David Wheelock motioned to approve minutes. Jim Brasher seconded. Committee approved minutes.

5. Region K Cutoff Model
    a. Background and effort-to-date
        i. Hydrologic variance is approved by TWDB
        ii. LCRA’s consultant developed Cutoff Model with assumptions. Initial numbers need to be entered in Database before technical memorandum is due in September.
    b. Presentation and discussion of initial results
        i. Assumptions incorporated in Cutoff Model
        ii. The new drought of record begins with 10/07. The lowest combined storage in Lakes Buchanan and Travis is reached in 4/15. The hydrologic record ends with 12/16. However, reservoir combined storage does not completely return to full in the last month of the hydrologic record. Use the available data for estimating reservoir firm yield over the new drought of record, 10/07 through 12/16. Additional hydrologic data may be available in the next regional planning period. Full storage is based on reservoir elevation-volume studies for the Highland Lakes.
        iii. Firm yield for Highland Lakes is averaged over drought-of-record.
        iv. Lower sedimentation rate in the Highland Lakes than last cycle based on most recent surveys, completed in 2006 and 2008.
        v. Presentation of preliminary results based on 1950s drought
        vi. Presentation of preliminary results based on recent drought
        vii. Preliminary HL firm yield for new plan compared with 2016 plan: Decrease in firm yield in 2020 (-26,548) due to new drought of record but reduced decrease in storage over time offsets firm yield in 2070 (-343)
        viii. Major Run-of-River Rights
            1. Arbuckle Reservoir is providing an increase in availability for Gulf Coast Sr. water rights.
            2. STP shows more run-of-river water in recent drought than 50s drought.
            3. Overall increase of about 50,000 acre-feet for major run of river water rights as compared to last cycle.
    c. Path forward
        i. Pending update to evaporation file by TCEQ.
        ii. David Wheelock suggests running from full-to-empty reservoir drought period rather than full-to-full. Joe Trungale showed the committee the full-to-empty analysis. The firm yield increased as compared to full-to-full. Committee preferred the more conservative full-to-

full. Can include explanation of both methods and reasons for choosing one over the other in Drought Chapter of 2021 Plan (Ch. 7).

iii. Teresa Lutes suggests it would be helpful (over time) to consider a more conservative model where reservoirs do not empty all the way (safe yield approach). This would be in future cycles.

iv. Teresa Lutes asked about the use pattern assumption used for LCRA's lower basin water rights in the preliminary numbers shown at the meeting. The monthly demand pattern was changed from a multi-use pattern, as was used in the last Region K planning round, to an industrial pattern. The group discussed this and it was decided to have the consultant run the WAM with the multi-use pattern for consistency with the last planning round. Making a change to the pattern had not been previously discussed or sought in the hydrologic variance. The group decided to hold a Water Modeling Committee meeting briefly before the July 11th meeting to review the water availability estimates with the multi-use pattern, which are anticipated to be more conservative. The committee will plan to review the new numbers at the meeting and consider making a recommendation to the full Region K group.

d. Ann McElroy asked how much water is lost to Region F from subordination. David Wheelock responded that 90,000 acre-feet is the estimated effect of the subordination on the Highland Lakes firm yield, based on a legal agreement between CRMWD and LCRA. TCEQ uses the full-basin model for permitting purposes. Teresa replied Cutoff Model is more reflective of conservative planning due to contractual commitments.

6. City of Austin hydrologic conditions presentation – Richard Hoffpauir
    a. COA has been working on a 100-year integrated water resources plan in a process called Water Forward. The plan will be updated every five years. The presentation's purpose is to provide an overview of the hydrologic modeling for COA's plan and food-for-thought for Region K.
    b. Teresa Lutes: In future meetings, Water Modeling Committee can discuss how ideas from COA's studies could be integrated into Region K process.

7. Modeled Available Groundwater (MAG) Peak Factor
    a. MAG peak factor can be used this cycle to expand groundwater availability during times of drought, if able to show that less is used during wetter periods and Desired Future Condition is not exceeded.
    b. Discussion is postponed to next meeting.

8. New / Other Business
    a. None.

9. Next meeting
    a. July 11, 2018 – Proposed times
        i. Prior to Region K meeting ~ 9:30 am – Water Modeling Committee Meeting
            1. Committee Chair Teresa Lutes will not be at meeting – Helen Gerlach will act as alternate.
            2. Review new numbers and approve to recommend to Region for inclusion in Tech Memo.

10. Public Comments

a. Jo Karr Tedder asked that if there are low inflows, does the RWPG adjust the WAM to adjust for changes in the watershed? Looking at the historical averages, how do we end up with more stored water in 2070?
    i. Lann Bookout responded, saying that modeling incorporates additional years of data as able.
    ii. Combined storage still decreases over time, but is greater than last cycle due to the updated sedimentation rates.
b. Tom Harrison commented that small impoundments keep water from flowing downstream. The RWPG should make the effort to ensure those and alluvial wells are accurately tracked.
c. Cindy Smiley asked when the draft of Technical Memorandum comes out for review.
    i. The draft Technical Memorandum is scheduled to come out on August 22. There is a 14-day comment period.
    ii. The RWPG meeting is scheduled for August 29.

11. Teresa Lutes adjourned at 12:12 p.m.

Lower Colorado Regional Water Planning Group
Water Modeling Committee Meeting
LCRA, Dalchau Service Center, A503
July 11, 2018

1. Mike Reagor called meeting to order at 9:45 a.m.

2. Attendees (25)
   Committee Members:
   Mike Reagor – Region K Water Modeling Committee Chair Alternate, Small Municipalities Rep
   Helen Gerlach – Region K, Municipalities Rep (Alternate)
   David Wheelock –Region K, River Authority Rep
   Doug Powell – Region K, Recreation Rep
   Jason Ludwig – Region K, Electric Utilities Rep
   Jim Brasher – Region K, GMA-12 Rep
   David Bradsby – Region K, TPWD Rep
   David Lindsay – Region K, Recreation Rep (Alternate)
   Ron Fieseler – Region K, GMA-9 Rep
   Ann McElroy – Region K, Environmental Rep
   Lann Bookout – TWDB

   Additional Attendees:
   Jaime Burke – AECOM
   Alicia Smiley – AECOM
   Donna Klaeger – Region K, Counties Rep
   Joe Trungale – Trungale Engineering
   Rebecca Batchelder – LCRA
   Ross Crow – City of Austin
   Richard Hoffpauir – Hoffpauir Consulting
   Christianne Castleberry – Castleberry Engineering, Region K Water Utilities Alternate
   James Kowis – James Kowis Consulting, LLC
   Cindy Smiley – Smiley Law Firm
   Jordan Furnans – LRE Water, LLC
   Emily Brannen – LRE Water, LLC
   Paul King – Rancher, Burnet County
   John Q. Barnard – TWDB

3. Public Comments
   a. None.

4. Minutes Approval
   a. Draft of June 27, 2018.
      i. Ann McElroy requested addition to 5.d.
         1. Add, "*90,000 AF is the estimated effect of the subordination on the Highland Lakes firm yield, based on a legal agreement between CRMWD and LCRA. TCEQ uses full-basin model for permitting purposes*."
      ii. Donna Klaeger requested changes to 5.b.iv.

1. Rephrase to read, "*Lower sedimentation rate* in the Highland Lakes than last cycle *based on most recent surveys, completed in 2006 and 2008.*"

iii. Teresa Lutes provided changes to 5.b.ii, 5.c.iv., and 6.a.

1. Rephrase 5.b.ii to read, "*The new drought of record begins with 10/07. The lowest combined storage in Lakes Buchanan and Travis is reached in 4/15. The hydrologic record ends with 12/16. However, reservoir combined storage does not completely return to full in the last month of the hydrologic record. Use the available data for estimating reservoir firm yield over the new drought of record, 10/07 through 12/16. Additional hydrologic data may be available in the next regional planning period. Full storage is based on reservoir elevation-volume studies for the Highland Lakes.*"
2. Add 5.c.iv, "*Teresa Lutes asked about the use pattern assumption used for LCRA's lower basin water rights in the preliminary numbers shown at the meeting. The monthly demand pattern was changed from a multi-use pattern, as was used in the last Region K planning round, to an industrial pattern. The group discussed this and it was decided to have the consultant run the WAM with the multi-use pattern for consistency with the last planning round. Making a change to the pattern had not been previously discussed or sought in the hydrologic variance. The group decided to hold a Water Modeling Committee meeting briefly before the July 11th meeting to review the water availability estimates with the multi-use pattern, which are anticipated to be more conservative. The committee will plan to review the new numbers at the meeting and consider making a recommendation to the full Region K group.*"
3. Rephrase 6.a to read, "*COA has been working on a 100-year integrated water resources plan in a process called Water Forward. The plan will be updated every five years. The presentation's purpose is to provide an overview of the hydrologic modeling for COA's plan and food-for-thought for Region K.*"

iv. Mike Reagor motioned to approve minutes. Committee approved minutes.

5. Region K Cutoff Model
   a. Joe Trungale incorporated two (2) changes to the Region K Cutoff Model since June 27, 2018 meeting:
      i. Incorporated most recent evaporation file available from TCEQ
         1. Change had no effect on Cutoff Model results for Region K
      ii. Changed lower basin water rights from industrial pattern use to multi-use pattern
         1. The resulting numbers were more conservative for Highland Lakes, but made more water available for run-of-river
   b. Sedimentation discussion.
      i. The numbers Region K used in the 2016 RWP are based on the 2000-2005 bathymetric survey data. The most recent TWDB survey from 2006-2008 was

incorporated into the model for the 2021 RWP. The rate of sedimentation is reduced, resulting in a greater amount of available storage.

ii. Donna Klaeger mentioned concern that the surveys did not include sedimentation that may have occurred after the 2007 flood, but the 2006-2008 survey is the best information to-date.

c. Ann McElroy asked for definition of the environmental commitments as a component of the Highland Lakes firm yield.

i. Region K Cutoff Model results identified the water available for contract holder use and environmental releases. Environmental releases include commitments to release water from the lakes for environmental purposes such as instream flows and bay and estuary inflows. More information can be found in LCRA's Water Management Plan.

d. David Lindsay presented information related to recent inflows and their comparison to historical inflows.

i. Chart prepared by Dr. Bill McNeese shows last 10 years of inflows to the Highland Lakes are much lower than the average historical inflows.

ii. TWDB report prepared by Kennedy Resource Company discusses four potential activities that may have had impacts on the recent inflows: noxious brush, small reservoirs, groundwater declines, and historical temperature changes and drought conditions.

iii. Discussion regarding low inflows and the potential impacts to the water availability modeling.

e. David Wheelock motioned to recommend initial surface water availability numbers using multi-use pattern to RWPG for inclusion in the September 2018 Technical Memorandum. Ron Fieseler seconded. Committee passed motion.

6. Public Comments
   a. None.

7. Mike Reagor adjourned at 10:21 a.m.

Lower Colorado Regional Water Planning Group
Water Modeling Committee Meeting
AECOM, Barton Springs Conference Room
October 23, 2019

1. Teresa Lutes called meeting to order at 1:06 p.m.

2. Attendees (13)
   Committee Members:
   Teresa Lutes – Region K Water Modeling Committee Chair, Municipalities Rep
   David Wheelock – Region K, River Authority Rep
   Doug Powell – Region K, Recreation Rep
   Jason Ludwig – Region K, Electric Utilities Rep
   David Bradsby – Region K, TPWD Rep
   Jim Luther – Region K, Burnet County Rep
   Ann McElroy – Region K, Environmental Rep

   Additional Attendees:
   Jaime Burke – AECOM
   Alicia Smiley – AECOM
   Joe Trungale – Trungale Engineering
   Richard Hoffpauir – Hoffpauir Consulting
   Rebecca Batchelder – LCRA
   Leonard Oliver – LCRA

3. Public Comments
   a. None.

4. Minutes Approval
   a. Draft of July 11, 2018.
      i. Doug Powell motioned to approve minutes. David Wheelock seconded. Committee approved minutes.

5. Region K Draft Chapter 3 Comments
   a. Committee reviewed comments submitted by LCRA.
      i. 3.2.1.1.2.2 – Table 3.2 – The original availability for STPNOC (71,030 ac-ft/yr) was shown as the run-of-river volume averaged over Region K's drought of record (2008-2016) plus the LCRA backup for that time period (~19,000 ac-ft/yr). LCRA expressed concern that the firm yield for STPNOC's reservoir is defined by the 1950s drought, not the new drought, and that by using the new drought, the RWPG is overestimating the amount of water available. Consultant performed a new firm yield analysis on STPNOC's reservoir; firm yield was run with hydrology through 2016 while the defining drought was in the 1950s. Jason Ludwig confirmed that the new availability of 66,260 ac-ft/yr is representative.

Although the new firm yield analysis resulted in a supply resulting in a water shortage, the committee agreed to proceed with new methodology.

ii. Section 3.2.1.1.2.2 – Ann McElroy expressed concern that Goldthwaite was discussed in Chapter 3. Jaime Burke explained the reservoirs listed are existing, not proposed, reservoirs; proposed reservoirs are included in Chapter 5.

iii. Section 3.2.1.1.2.2 – David Wheelock wanted to know why the Llano Reservoir availability of 271 ac-ft isn't included in Table 3.2. Jaime Burke responded that it is considered run-of-river right rather than a reservoir; consultant will add an asterisk noting Llano's availability as a run-of-river right.

iv. Section 3.2.1.1.2.3 – Table 3.3

1. Teresa Lutes and Richard Hoffpauir requested hiding water rights where there are blanks in the diversion column, as it simplifies presentation and does not affect other tables.
2. Teresa Lutes commented that in future cycles, the authorization for 21,403 ac-ft/yr should be 22,403 ac-ft/yr. A temporary 1,000 ac-ft authorization to be used for irrigation has since become a permanent authorization for multiple uses. Consultant will add a footnote clarifying this information.

v. David Wheelock requested that all aquifer availability tables indicate whether or not the availability is based on the Modeled Available Groundwater (MAG).

b. Committee reviewed comments submitted by David Lindsay in an August 15, 2019 email.

i. Section 3.2.1 – Added text to bullet point noting that firm yield calculation does not provide for any reserve during a Drought of Record determination.

ii. Section 3.2.1.1.2.1 – LCRA provided real-time language edits to better describe the status and operations of the water in the Highland Lakes System.

iii. Section 3.2.1.1.2.2 – Suggested edit to change text to reflect that the new Arbuckle Reservoir is not yet operational due to a leaking problem will not be changed as the Arbuckle expected to be in operations by the end of 2020.

iv. Section 3.2.3 – Given that the region recently experienced a new Drought of Record, and run-of-river is linked to the lowest historical flows, Lindsay expressed concern to see that Table 3.24 showed an increase of 40,000 for Gulf Coast in the run-of-river category and 25,000 for STP Nuclear. Committee discussed methodology of sources and noted that STP may change.

6. Region K Cutoff Model

a. Joe Trungale presented the hydrologic variance modeling assumptions used to create the Region K Cutoff Model.

b. After the hydrologic variance is applied, the Highland Lakes go dry during the most recent Drought of Record (DOR). Triggers within this model needed adjustment to ensure interruptible water isn't provided before the Highland Lakes go dry.

i. Trungale changed triggers for automatic transitions to extraordinary drought using look-ahead logic, which cuts off interruptible water. In this situation, 2060

is highest demand decade, and the Highland Lakes go dry for a month with no interruptible water.

1. Committee discussed how model should be reported in the RWP. Last cycle, it was presented as an average over the DOR.
2. David Wheelock asked if model included run-of-river. Trungale responded that this is just the backup water from Highland Lakes – this is for Lakes Buchanan and Travis interruptible stored water.
3. Trungale highlighted implications of model regarding environmental flows and water available for irrigation. Committee discussed impacts of strategies other than return flows. The model baseline is needed to quantify strategy benefit/yield.
    a. David Wheelock said the environmental benefit baseline should include return flows. Teresa Lutes disagreed, as it could create an invalid environmental analysis. Richard Hoffpauir suggested two runs.
    b. Environmental impacts will be reported cumulatively not by individual strategy. Committee may need to meet again to discuss environmental impacts or pass responsibility over to strategy committee once strategies are adopted.

7. Public Comments
    a. None.

8. Teresa Lutes adjourned at 3:05 p.m.