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CHAPTER 2.0: POPULATION PROJECTIONS AND WATER DEMAND PROJECTIONS

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

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

The Lower Colorado Region has experienced rapid population expansion in recent decades and this trend is expected to continue over the planning horizon. Total regional population projections estimate a near-doubling of population to more than 3.2 million people by 2070, as shown in *Table 2.1* below. As population increases, the planning area will likely see an associated increase in water demands for municipal use. Thus, population is the principal driver of the projected total water demand increase in the planning area, from approximately 1.12 million acre-feet in the year 2020 to 1.31 million acre-feet in the year 2070.

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

Regional Projections	2020	2030	2040	2050	2060	2070
POPULATION	1,762,591	2,094,664	2,416,725	2,697,306	2,971,155	3,290,477
Municipal Water Demand (ac-ft/yr)	315,777	368,598	422,628	470,073	516,278	569,788
Manufacturing Water Demand (ac-ft/yr)	19,708	22,493	22,493	22,493	22,493	22,493
Irrigation Water Demand (ac-ft/yr)	582,407	567,509	553,013	538,906	525,179	511,822
Steam-Electric Water Demand (ac-ft/yr)	166,095	166,095	166,095	166,095	166,095	166,095
Mining Water Demand (ac-ft/yr)	20,848	26,104	27,991	27,492	23,207	25,441
Livestock Water Demand (ac-ft/yr)	12,004	12,004	12,004	12,004	12,004	12,004
TOTAL WATER DEMAND	1,116,839	1,162,803	1,204,224	1,237,063	1,265,256	1,307,643

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

The Texas Water Development Board (TWDB) distributed draft population, municipal water demand, and mining water demand projections via a December 2016 communication for review by the Lower Colorado Regional Water Planning Group (LCRWPG). A second TWDB communication in June 2017 accompanied the TWDB's draft irrigation, steam-electric power, manufacturing, and livestock water demand. These communications also included a summary of the projection methodologies and specific steps a regional planning group must follow in requesting revisions to the projections, if necessary. Once submitted to TWDB by the regional planning groups, the projection revision requests were also reviewed by the Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, and the Texas Department of Agriculture prior to being approved by TWDB in spring 2018.

TWDB rules require that projection analyses be performed for each identified municipal and non-municipal water user group (WUG). Municipal Water User Groups are defined as:

- a. Privately-owned utilities that provide an average of more than 100 acre-feet per year for municipal use for all owned water systems;
- b. Water systems serving institutions or facilities owned by the state or federal government that provide more than 100 acre-feet per year for municipal use;
- c. All other Retail Public Utilities not covered in (a) and (b) that provide more than 100 acre-feet per year for municipal use;
- d. Collective Reporting Units, or groups of Retail Public Utilities that have a common association and are requested for inclusion by the RWPG; and
- e. Municipal and domestic water use, referred to as County-Other, not included in (a)-(d)

Non-municipal water user groups include manufacturing, irrigation, steam-electric power generation, mining, and livestock water use, and are also referred to within each county (i.e., Burnet County Mining, Travis County Manufacturing, etc.) The planning process also designates Wholesale Water Providers (WWP), which are persons or entities having contracts to sell any volume of water wholesale. In addition to Wholesale Water Providers, a new requirement is for the regions to determine the Major Water Providers (MWP) in the region. Major Water Providers are defined as a Water User Group or Wholesale Water Provider of particular significance to the region's water supply, as determined by the regional planning group. The LCRWPG has designated three Major Water Providers within the region: the Lower Colorado River Authority (LCRA), the City of Austin (COA), and the West Travis County Public Utility Agency (WTCPUA.) Associated water demands for these water providers are identified within the plan and discussed in detail in Section 2.5 of this chapter.

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

2.2 POPULATION PROJECTIONS

Population increases typically directly drive municipal water demand increases. Establishing accurate population estimates and projections is a fundamental step in the regional water planning process. Estimated

population growth is of particular importance in the Lower Colorado Region, where strong population growth is occurring and anticipated to continue, most notably in the City of Austin and surrounding metropolitan areas. The population projections in this plan were developed in accordance with TWDB guidelines, utilizing the 2010 U.S. Census data and growth projections established by the Office of the State Demographer, and supported with supplemental local data where available. This section details the methodology applied by the LCRWPG and TWDB to develop the final TWDB-approved population projections for the Lower Colorado Region.

2.2.1 Methodology

Previous regional and state water plans have been aligned with political boundaries, such as city limits, rather than water utility service areas for municipal demands. As part of the current planning process, TWDB rule changes now defines municipal water user group (WUG) planning as being utility-based, and the emphasis of the development of draft projections for the 2021 Regional Water Plans (RWPs) was on the transition of the 2017 State Water Plan (SWP) population projections and the associated water demand projections from political boundaries to utility service area boundaries. As with other projections during this planning effort, TWDB staff distributed draft population data and projections for planning group review. County-Other population is a sum of populations not designated within a specific municipal water user group for each county.

The Population and Water Demand Committee for the LCRWPG relied on regional knowledge and solicited input from county and water user group representatives to determine the need for revisions to the TWDB draft population projections. TWDB required that revision requests be supported by specific data criteria, such as evidence of a Census undercount or expansion of a service area due to annexation activities. Additionally, TWDB took into consideration how a region's estimated 2015 population based on 2017 State Water Plan projections compared to the Census 2015 estimated population to determine whether they would consider a net increase of population projections within a county or region.

The LCRWPG requested revisions to certain population projections, based on the information received. All of the LCRWPG-requested revisions were approved. In addition, the LCRWPG supported the City of Austin submitting a separate request regarding their population. The TWDB reviewed the request but did not approve the additional request for increased population. Further details are provided in *Appendix 2C* which contains the Lower Colorado Region population and demand revision requests as submitted to TWDB. The final TWDB-approved population projections are summarized in the following section.

2.2.2 Regional Population Projections

Projections of population growth in the Lower Colorado Region indicate a nearly 87% increase in total population from approximately 1.7 million in 2020 to 3.3 million in the year 2070 as shown in *Figure 2.1*. Projections by county are delineated in *Table 2.2* for each decade from 2020 through 2070. Each of the 14 counties in the region are projected to grow over the planning period, with Travis County accounting for a majority of the total regional population throughout the planning horizon. As the greater Austin metropolitan area grows, counties such as Bastrop, Hays, and Williamson also account for substantial population increases in the planning region. Notably slower population growth is likely in more rural areas of the region, such as Llano and San Saba Counties.

Figure 2.1: Lower Colorado Region Population Projections

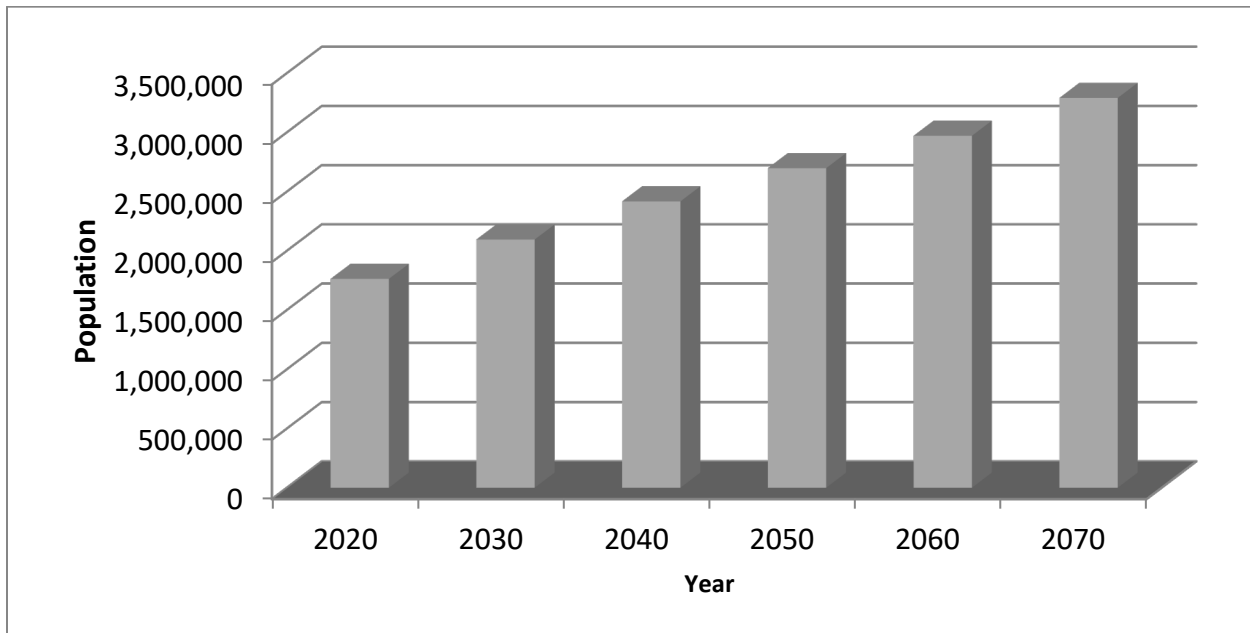


Table 2.2: Population Projections by County*

County	2020	2030	2040	2050	2060	2070
Bastrop	95,487	125,559	164,648	217,608	289,140	384,244
Blanco	13,015	15,475	16,917	17,672	18,175	18,472
Burnet	53,114	64,268	73,673	82,668	90,571	97,426
Colorado	21,884	22,836	23,544	24,582	25,449	26,293
Fayette	28,373	32,384	35,108	37,351	39,119	40,476
Gillespie	26,795	28,852	30,548	32,536	34,365	36,142
Hays (p)	55,584	73,243	94,747	121,629	152,007	186,579
Llano	21,291	22,453	22,422	22,035	22,779	23,549
Matagorda	39,166	41,226	42,548	43,570	44,296	44,815
Mills	4,912	5,076	5,213	5,417	5,625	5,859
San Saba	6,484	6,793	6,833	6,722	6,879	7,039
Travis	1,298,624	1,538,784	1,767,636	1,936,583	2,075,875	2,233,259
Wharton (p)	27,184	28,928	30,322	31,529	32,643	33,629
Williamson (p)	70,678	88,787	102,566	117,404	134,232	152,695
TOTAL	1,762,591	2,094,664	2,416,725	2,697,306	2,971,155	3,290,477

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

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

The regional planning area covers a portion of four major river basins and two coastal basins and population projections for each basin are shown in *Table 2.3*. Of these, approximately 92 percent of the total population in the year 2070 is projected to reside within the Colorado River Basin, constituting a substantial impact on the water resources within that basin.

Table 2.3: Population Projections by River Basin

River Basin	2020	2030	2040	2050	2060	2070
Brazos	83,791	103,909	118,722	135,599	154,526	175,172
Brazos-Colorado	46,351	48,964	50,820	52,392	53,679	54,743
Colorado	1,599,137	1,904,807	2,207,649	2,467,647	2,719,446	3,015,415
Colorado-Lavaca	12,176	12,831	13,268	13,612	13,871	14,063
Guadalupe	8,938	10,628	11,848	12,832	13,772	14,716
Lavaca	12,198	13,525	14,418	15,224	15,861	16,368
TOTAL	1,762,591	2,094,664	2,416,725	2,697,306	2,971,155	3,290,477

All population projections for the Lower Colorado Region by water user group are provided in Appendix 2A. Chapter 11 provides a comparison of the 2016 and 2021 Lower Colorado Regional Water Plan population projections. Appendix 2B provides the per capita daily use for each municipal water user group.

2.3 WATER DEMAND PROJECTIONS

Total water demand for the Lower Colorado Region is projected to increase 17 percent to approximately 1.31 million acre-feet per year by 2070 as shown in *Figure 2.2*. While demands such as municipal, manufacturing, and mining are anticipated to increase due to population growth and economic activity, other water demand categories are projected to decline or remain constant. For instance, irrigation water demand constitutes 52 percent of the region's total water demand in 2020 but decreases over the planning horizon will have an impact in the reduction of the relative share of this use to 39 percent of the region's total demand by 2070. The distribution of water demands in the region for all decades is shown in *Figure 2.3*, as projected for the years 2020 through 2070.

Figure 2.2: Lower Colorado Region Total Water Demand Projections

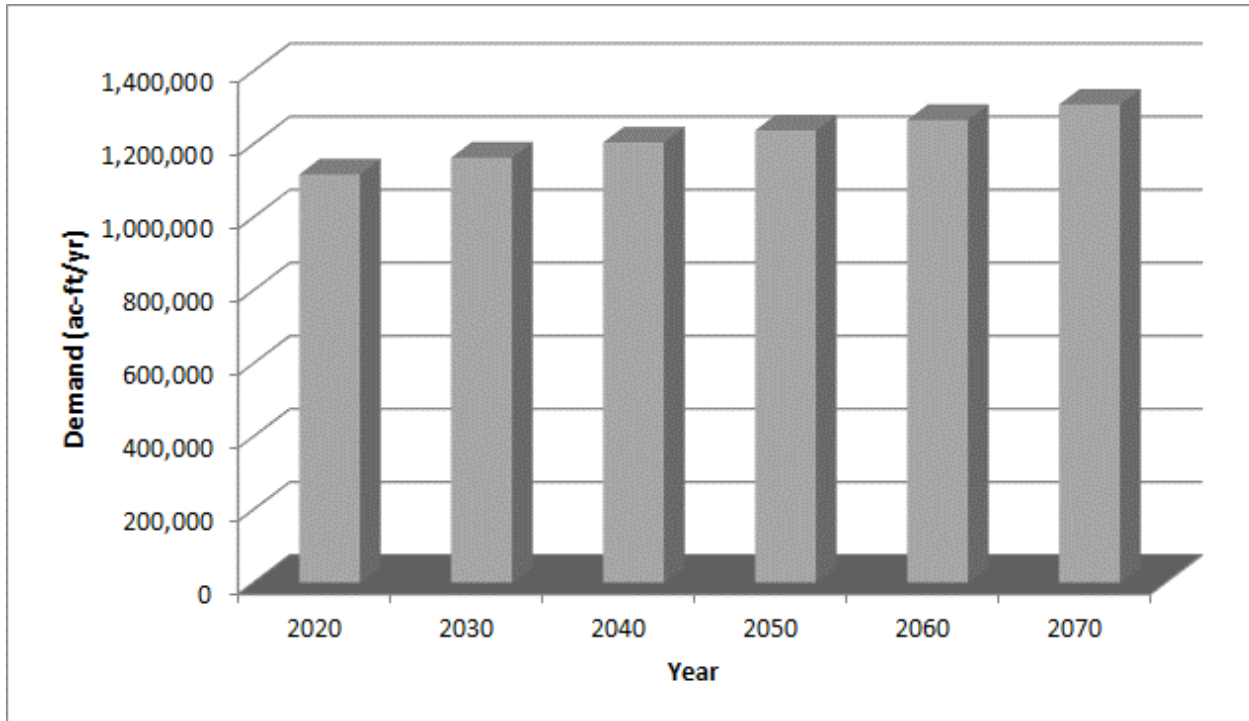
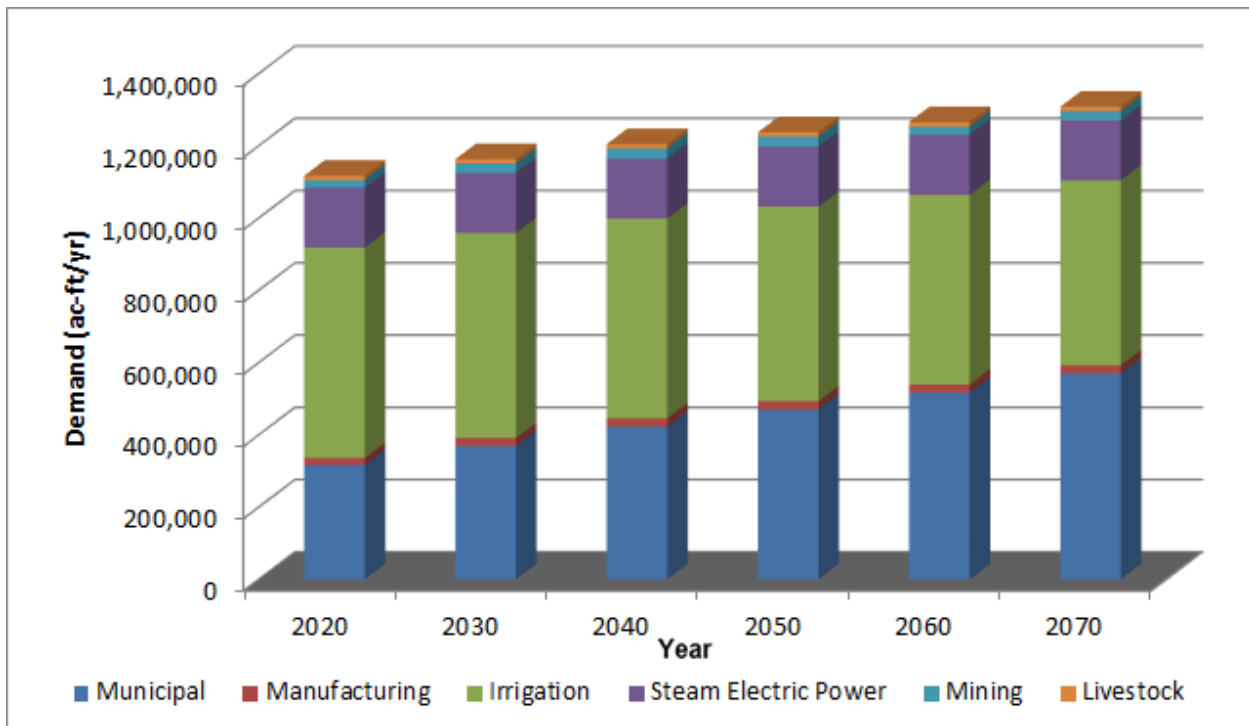


Figure 2.3: Total Water Demand by Type of Use



2.3.1 Municipal Water Demand Projections

2.3.1.1 Methodology

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

The per capita daily use estimate is unique for each municipal reporting entity and generally determined using responses to the TWDB's 2011 Water Use Survey. The year 2011 is generally considered a "dry year" for much of the State of Texas and this dataset is assumed to be representative of water use during times of drought. In projecting per capita daily use for future decades of the planning horizon, the TWDB reduced per capita use assuming future water efficiency savings due to federal standards of plumbing fixtures and appliances.

For this planning cycle, the draft municipal water demand projections incorporated GPCD values that were carried over from the 2017 State Water Plan. These values were based on city boundaries. The TWDB also provided, for information purposes, historical GPCD estimates that reflected the new utility boundaries. The LCRWPG agreed that the utility boundary GPCD values likely better represent the new utility-based planning. As such, the LCRWPG identified WUGs where the difference between the city boundary GPCD and the utility boundary GPCD was 10 GPCD or greater. WUGs that have portions of their planning areas within Region G and Region L were not included in the group identified for potential changes to their GPCD at the request of those regions. For the applicable WUGs, a communication was sent to the WUG representatives letting them know about the potential change and asking for their feedback. Their response dictated whether or not the LCRWPG requested that the TWDB revise the GPCD for their WUG.

In addition to the GPCD revisions, there were a few requests from WUGs to make revisions to the water demand projections that were not related to population or GPCD changes. Further details are provided in *Appendix 2C* which contains the Lower Colorado Region population and demand revision requests as submitted to TWDB.

These municipal water demand projections were adopted by the TWDB for use in the 2021 Lower Colorado Regional Water Plan and are presented for each municipal water user group by county, river basin, and decade in *Appendix 2A*. The GPCD values and the calculated municipal water demand savings due to plumbing codes and water-efficient appliances for Region K can be found in *Appendix 2B*.

2.3.1.2 Regional Municipal Water Demand Projections

Municipal water demand for the Lower Colorado Region is projected to increase by approximately 254,011 acre-feet per year from 2020 through 2070 as shown in *Figure 2.4*. Due to the TWDB's water efficiency savings assumptions which project reductions in per capita water use, municipal demand is projected to increase approximately 80 percent over the planning horizon while the population projections increase 87 percent. The most substantive municipal demand increases are projected to occur in the City of Austin and surrounding metropolitan areas, including Travis, Bastrop, Hays, and Williamson counties. The distribution of municipal water demand projections for all 14 counties in the Lower Colorado Region is presented in *Table 2.4*.

Figure 2.4: Lower Colorado Region Municipal Water Demand Projections

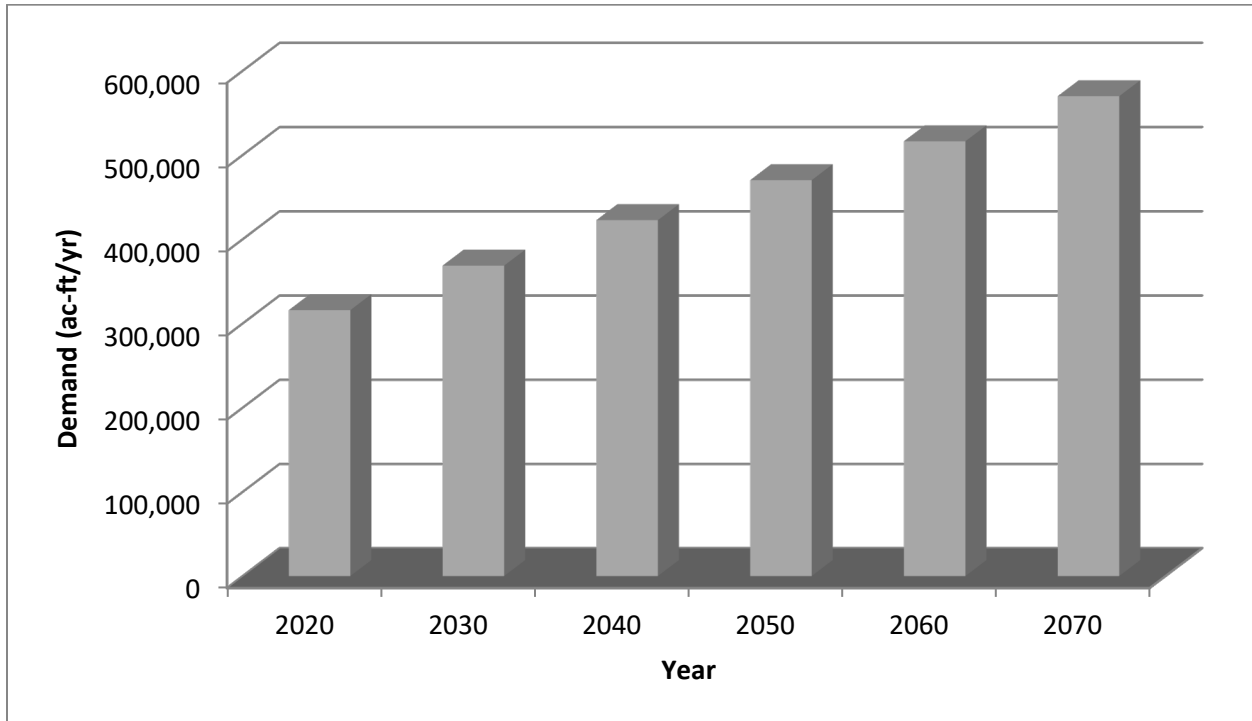


Table 2.4: Municipal Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	15,465	19,771	25,517	33,456	44,307	58,760
Blanco	1,760	2,034	2,188	2,269	2,331	2,369
Burnet	10,470	12,682	14,824	16,635	18,162	19,385
Colorado	3,647	3,703	3,737	3,856	3,984	4,114
Fayette	4,464	4,945	5,261	5,543	5,791	5,989
Gillespie	5,086	5,351	5,572	5,878	6,193	6,506
Hays (p)	11,448	15,026	18,723	23,819	29,575	35,806
Llano	4,569	4,713	4,623	4,575	4,636	4,691
Matagorda	5,163	5,233	5,244	5,305	5,380	5,442
Mills	765	766	766	788	816	851
San Saba	1,817	1,873	1,863	1,825	1,865	1,908
Travis	235,239	273,547	312,905	342,025	366,091	393,494
Wharton (p)	4,176	4,295	4,392	4,540	4,689	4,829
Williamson (p)	11,708	14,659	17,013	19,559	22,458	25,644
TOTAL	315,777	368,598	422,628	470,073	516,278	569,788

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

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

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

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

River Basin	2020	2030	2040	2050	2060	2070
Brazos	13,894	17,135	19,639	22,497	25,722	29,244
Brazos-Colorado	6,715	6,852	6,926	7,080	7,238	7,384
Colorado	290,451	339,521	390,723	434,911	477,479	527,086
Colorado-Lavaca	1,393	1,405	1,408	1,421	1,446	1,466
Guadalupe	1,210	1,397	1,534	1,653	1,780	1,913
Lavaca	2,114	2,288	2,398	2,511	2,613	2,695
TOTAL	315,777	368,598	422,628	470,073	516,278	569,788

2.3.2 Manufacturing Water Demand Projections

2.3.2.1 Methodology

For regional water planning purposes, manufacturing water use is considered to be the cumulative water demand by county and river basin for all industries within specified industrial classifications (SIC) as calculated by the TWDB. In previous water plans, volumes of reuse water were not included. However, because the regions are increasingly including reuse water as an available supply, the draft manufacturing demand projections were developed to include the reuse volumes reported by the manufacturing facilities.

For this planning cycle, the methodology the TWDB used to develop the draft manufacturing water demand projections for the 2020 projections assume the highest water use volume from 2010-2014, using data from the annual water use survey. The most recent 10-year projections for employment growth from the Texas Workforce Commission were used as a proxy for increasing demand by manufacturing sectors between 2020 and 2030. The manufacturing water demands were then held constant from 2030-2070. It should be noted that the new methodology used for this planning cycle reduced the projected 2020 manufacturing water demand for the region by 65% and the 2070 demand by 81%, as compared to the 2016 RWP. In their draft projection methodology summary document, the TWDB identified resources showing that the long-term trend of manufacturing water use in Texas and the U.S. has been decreasing even while output has been increasing.

In addition, TWDB staff provided additional data on potentially unaccounted-for 2015 manufacturing water use and allowed the RWPGs to consider the information when making their revision request. In several counties, by adding the 2015 unaccounted for manufacturing water use volume to the TWDB-provided 2015 historical water use volume, the year 2015 water use became greater than the peak 2010-2014 water use. The LCRWPG requested to use the updated 2015 water use for the 2020 demands. The LCRWPG then requested to apply the same percent increase from 2020 to 2030 as TWDB used to develop the draft projections. Further details are provided in *Appendix 2C* which contains the Lower Colorado Region population and demand revision requests as submitted to TWDB.

These manufacturing water demand projections were adopted by the TWDB for use in the 2021 Lower Colorado Regional Water Plan and are presented by county, river basin, and decade in *Appendix 2A*.

Additionally, for Travis County, the City of Austin provided documentation to support an increased manufacturing demand beyond the draft projections for the 2040-2070 decades, based on their expected industrial employment projections. This specific revision request was denied by the TWDB, though, preferring to keep their constant 2030-2070 methodology.

2.3.2.2 Regional Manufacturing Water Demand Projections

Annual manufacturing water demand in the Lower Colorado Region is projected to increase from 19,708 acre-feet per year in 2020 to 22,493 acre-feet per year in 2070. These demands are predominantly associated with existing and future anticipated industries in Travis County, where in 2070 manufacturing water demand is projected to account for over 66 percent of the total manufacturing demand in the region. The expected usage of water for manufacturing purposes in Matagorda County comprises the second largest share of manufacturing demand in the region. Projected total regional manufacturing demand is shown in *Figure 2.5*, while *Table 2.6* presents the projected manufacturing water demand distributed by county in the region.

Figure 2.5: Lower Colorado Region Manufacturing Water Demand Projections

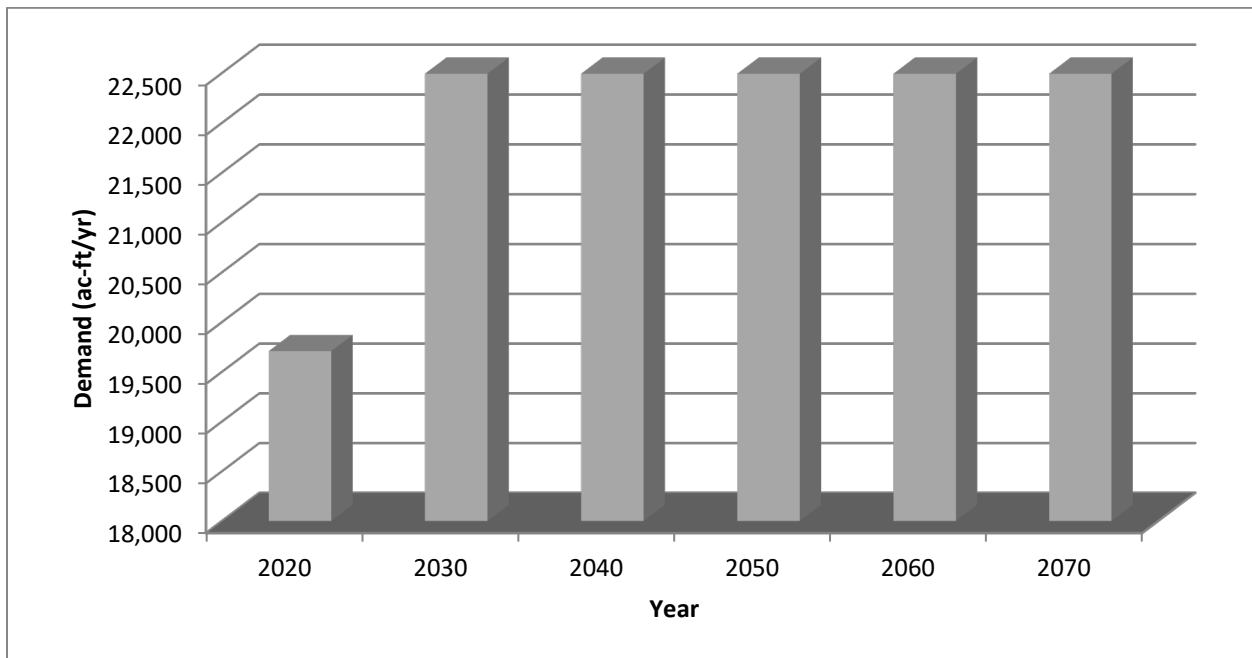


Table 2.6: Manufacturing Water Demand Projections by River Basin (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	188	215	215	215	215	215
Blanco	0	0	0	0	0	0
Burnet	251	299	299	299	299	299
Colorado	960	1,132	1,132	1,132	1,132	1,132
Fayette	396	442	442	442	442	442
Gillespie	77	93	93	93	93	93
Hays (p)	277	324	324	324	324	324
Llano	3	4	4	4	4	4
Matagorda	4,199	4,916	4,916	4,916	4,916	4,916
Mills	2	2	2	2	2	2
San Saba	10	12	12	12	12	12
Travis	13,164	14,853	14,853	14,853	14,853	14,853
Wharton (p)	156	171	171	171	171	171
Williamson (p)	25	30	30	30	30	30
TOTAL	19,708	22,493	22,493	22,493	22,493	22,493

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

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

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

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

River Basin	2020	2030	2040	2050	2060	2070
Brazos	25	30	30	30	30	30
Brazos-Colorado	76	84	84	84	84	84
Colorado	18,316	20,882	20,882	20,882	20,882	20,882
Colorado-Lavaca	0	0	0	0	0	0
Guadalupe	0	0	0	0	0	0
Lavaca	1,291	1,497	1,497	1,497	1,497	1,497
TOTAL	19,708	22,493	22,493	22,493	22,493	22,493

2.3.3 Irrigation Water Demand Projections

2.3.3.1 Methodology

For this planning cycle, the methodology proposed by the TWDB to develop the draft irrigation water demand projections was to take the average irrigation water use estimate by county for the years 2010-2014 and hold it constant for the 2020-2070 planning decades.

The LCRWPG Population and Water Demand Committee met several times to review and discuss the draft irrigation water demand projections, specifically with respect to the demands for Colorado County, Matagorda County, and Wharton County, and determined that the draft irrigation demand projections were not representative of a dry/drought year demand because water use data for 2010-2014 was not indicative of future water use conditions due to the emergency curtailment of surface water from the Colorado River that occurred in that timeframe. The Committee directed two members to develop an alternative water-use metrics based methodology for calculating the base demand for surface water demands for the Garwood, Lakeside, Pierce Ranch, and Gulf Coast Irrigation Districts. This methodology involves a rigorous build-up of the demand based on projected irrigated planted acreage, water usage for 1st and second crops and canal losses for each of the irrigation districts, along with supplemental usage. The on-farm demands reflected recent efficiency improvements and provide a good baseline for evaluating the effectiveness of new water management strategies and improvement goals. Canal distribution losses also represent a significant portion of the water usage and vary quite a bit between the irrigation districts. This methodology is also more analogous to the per-capita metrics approach used for developing municipal water demands. An October 5, 2017 memo describing the methodology is included in *Appendix 2C*. This methodology was recommended by the Committee to the RWPG at the January 10, 2018 Region K meeting.

To project revised total irrigation demands for these three counties, the Committee recommended to the RWPG to additionally include 2,400 acre-feet/year of non-rice irrigation demand in the Lakeside Irrigation District, the average 2010-2014 surface water use for other irrigation water rights in these counties (as provided by the TCEQ Water Use Reports data), and the average 2010-2014 groundwater use for irrigation in these counties. Meeting minutes describing these recommendations as well as a table summarizing the breakdown of water use components is included in *Appendix 2C* as well. The Committee also recommended a decadal decrease of 2.69% be applied to projected irrigation water demands, instead of keeping the projections flat. This percent decrease is consistent with the 2017 State Water Plan projections for these counties. However, given the large size of the irrigation demand, the Committee agreed that this was an area that deserved significant focus during the development of water management conservation strategies in identifying additional efficiencies and savings. The LCRWPG approved to request these revisions to the draft irrigation demands in Colorado, Matagorda, and Wharton counties at the January 10, 2018 Region K meeting.

During the review period, TWDB staff found a data error with the historical water use for irrigation in Travis County, which was used to develop the draft projections. By correcting this error, the average 2010-2014 water use for Travis County was reduced from 6,010 acre-feet/year to 4,816 acre-feet/year. The LCRWPG requested to revise the draft projection for Travis County to reflect the correct average 2010-2014 water use of 4,816 acre-feet/year for all decades.

These irrigation water demand projections were adopted by the TWDB for use in the 2021 Lower Colorado Regional Water Plan and are presented by county, river basin, and decade in *Appendix 2A*.

2.3.3.2 Regional Irrigation Water Demand Projections

Irrigation water demand for the Lower Colorado Region is projected to decrease from 582,407 acre-feet per year in 2020 to 511,822 acre-feet per year in 2070. Irrigation water demand is concentrated in Colorado, Matagorda, and Wharton Counties and is largely used to meet irrigation needs for rice farming. Over the next 50 years, a decrease in irrigation water demand is projected due to improvements in irrigation efficiency and reductions in irrigated acres due to urbanization, although economics and world agricultural conditions play a role that could either increase or decrease irrigation demands. *Figure 2.6* presents the projected regional irrigation demands, and *Table 2.8* presents the projected irrigation water demands by county.

Figure 2.6: Lower Colorado Region Irrigation Water Demand Projections

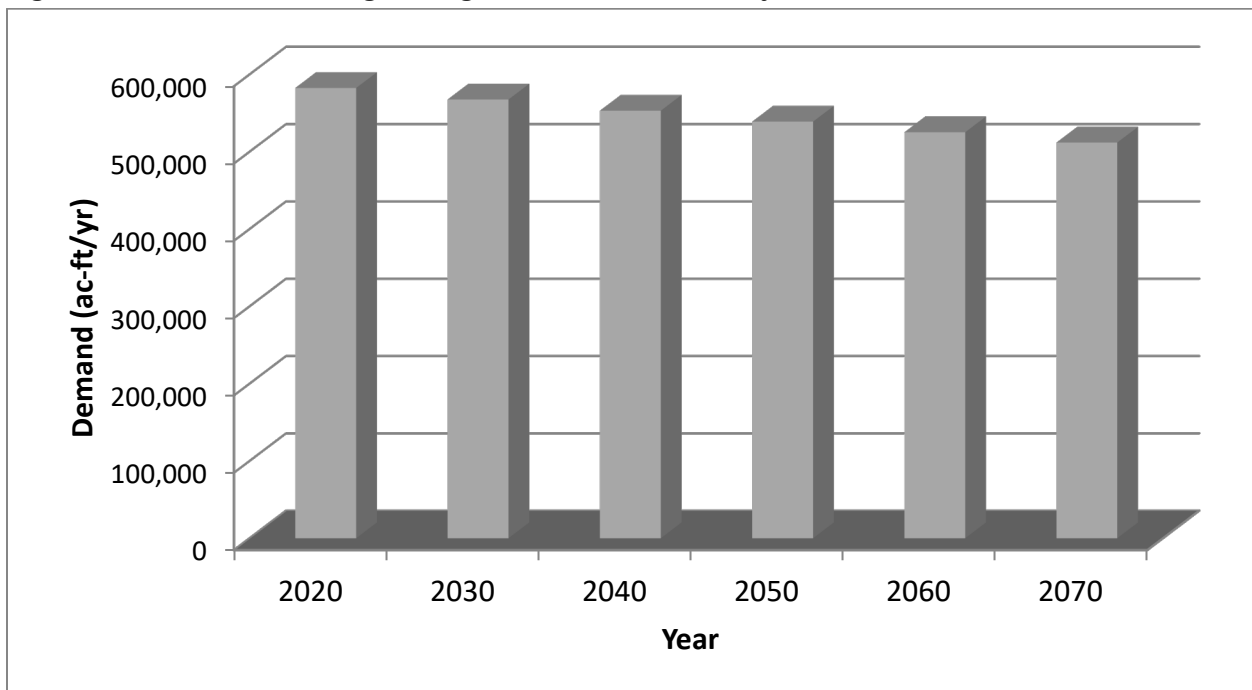


Table 2.8: Irrigation Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	4,280	4,280	4,280	4,280	4,280	4,280
Blanco	1,327	1,327	1,327	1,327	1,327	1,327
Burnet	1,498	1,498	1,498	1,498	1,498	1,498
Colorado	173,112	168,455	163,924	159,514	155,223	151,048
Fayette	828	828	828	828	828	828
Gillespie	2,383	2,383	2,383	2,383	2,383	2,383
Hays (p)	525	525	525	525	525	525
Llano	998	998	998	998	998	998
Matagorda	191,588	186,434	181,419	176,539	171,790	167,169
Mills	4,743	4,743	4,743	4,743	4,743	4,743
San Saba	7,199	7,199	7,199	7,199	7,199	7,199
Travis	4,816	4,816	4,816	4,816	4,816	4,816
Wharton (p)	189,110	184,023	179,073	174,256	169,569	165,008
Williamson (p)	0	0	0	0	0	0
TOTAL	582,407	567,509	553,013	538,906	525,179	511,822

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

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

The Lower Colorado Region’s irrigation water demand projections are concentrated in the Brazos-Colorado and Colorado-Lavaca Coastal Basins and the Colorado and Lavaca River Basins and are presented by basin in *Table 2.9*.

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

River Basin	2020	2030	2040	2050	2060	2070
Brazos	3,405	3,405	3,405	3,405	3,405	3,405
Brazos-Colorado	249,618	242,904	236,370	230,011	223,824	217,804
Colorado	126,195	123,452	120,784	118,189	115,663	113,206
Colorado-Lavaca	114,217	111,145	108,155	105,246	102,415	99,659
Guadalupe	691	691	691	691	691	691
Lavaca	88,281	85,912	83,608	81,364	79,181	77,057
TOTAL	582,407	567,509	553,013	538,906	525,179	511,822

2.3.4 Steam-Electric Water Demand Projections

2.3.4.1 Methodology

For this planning cycle, the methodology the TWDB used to develop the draft steam-electric water demand projections is the 2020 projections assume the highest water use volume from 2010-2014, plus new planned

facility demands and minus scheduled retiring facility demands. The draft projections were kept constant from 2020-2070.

The LCRWPG Population and Water Demand Committee reviewed the draft projections and determined that revisions should be requested for Llano County and Wharton County. For Llano County, the draft projections were based on the Ferguson Power Plant water use during a period when the facility was under reconstruction. Thus, the committee felt the demands were under-projected. The committee recommended to the RWPG that the projections be revised to use 2015-2016 water use data for the facility. For Wharton County, the county is shared between two regions, Region K and Region P. During the review, it was determined that one of the power facilities shown to be located within Region P is actually located within Region K. The committee recommended to the RWPG that the projections be revised to include the demands of this additional facility. Region P requested a corresponding revision to their steam-electric demands in Wharton County. Further details are provided in *Appendix 2C*.

The LCRWPG approved to request these revisions to the draft steam-electric demands in Llano and Wharton counties at the January 10, 2018 Region K meeting.

These steam-electric water demand projections were adopted by the TWDB for use in the 2021 Lower Colorado Regional Water Plan and are presented by county, river basin, and decade in *Appendix 2A*.

2.3.4.2 Regional Steam-Electric Water Demand Projections

Steam-electric water demand is projected to remain at 166,095 acre-feet per year from 2020 to 2070. The projected total regional steam-electric demands are shown in *Figure 2.7*, and *Table 2.10* presents the distributed steam-electric water demand for each county in the region.

Figure 2.7: Lower Colorado Region Steam Electric Water Demand Projections

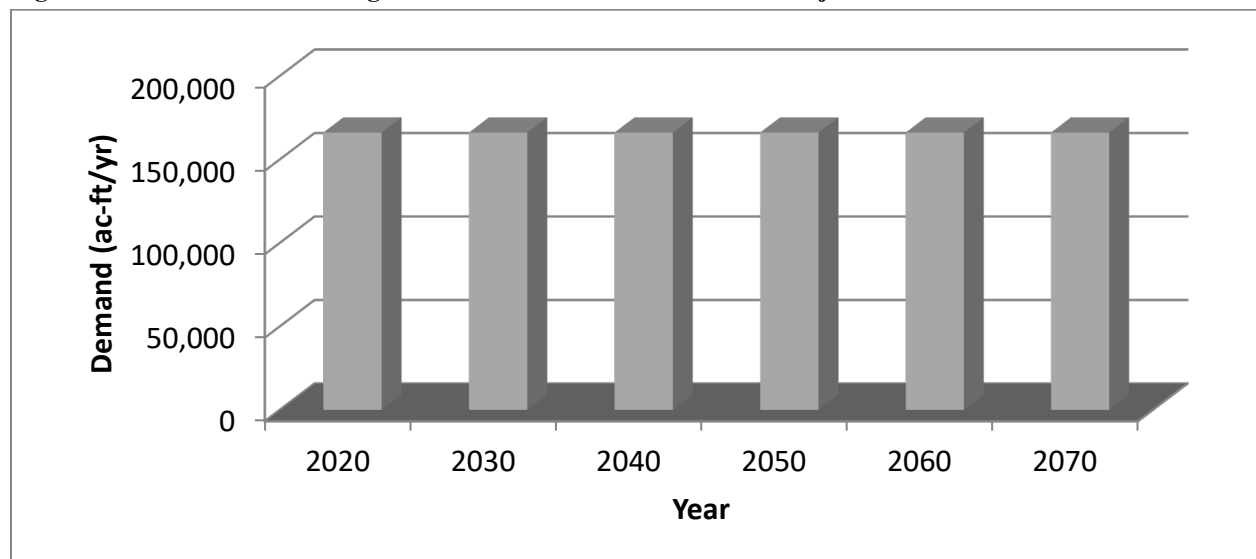


Table 2.10: Steam-Electric Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	10,288	10,288	10,288	10,288	10,288	10,288
Blanco	0	0	0	0	0	0
Burnet	0	0	0	0	0	0
Colorado	4,971	4,971	4,971	4,971	4,971	4,971
Fayette	49,211	49,211	49,211	49,211	49,211	49,211
Gillespie	0	0	0	0	0	0
Hays (p)	1,187	1,187	1,187	1,187	1,187	1,187
Llano	1,748	1,748	1,748	1,748	1,748	1,748
Matagorda	80,536	80,536	80,536	80,536	80,536	80,536
Mills	0	0	0	0	0	0
San Saba	0	0	0	0	0	0
Travis	10,253	10,253	10,253	10,253	10,253	10,253
Wharton (p)	7,901	7,901	7,901	7,901	7,901	7,901
Williamson (p)	0	0	0	0	0	0
TOTAL	166,095	166,095	166,095	166,095	166,095	166,095

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

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

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

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

River Basin	2020	2030	2040	2050	2060	2070
Brazos	0	0	0	0	0	0
Brazos-Colorado	1	1	1	1	1	1
Colorado	161,351	161,351	161,351	161,351	161,351	161,351
Colorado-Lavaca	0	0	0	0	0	0
Guadalupe	0	0	0	0	0	0
Lavaca	4,743	4,743	4,743	4,743	4,743	4,743
TOTAL	166,095	166,095	166,095	166,095	166,095	166,095

2.3.5 Mining Water Demand Projections

2.3.5.1 Methodology

The mining water demand projections from the 2017 State Water Plan were carried over as the draft mining water demand projections for this planning cycle. During the last planning cycle, the TWDB mining water demand projections were developed through a TWDB-contracted study with the Bureau of Economic Geology. The study estimated current mining water use and projected that use across the planning horizon utilizing data collected from trade organizations, government agencies, and other industry representatives. Individual projections were made for sectors including oil and gas, aggregates, coal and lignite, and other mining activities. These projections were then summed for each county. The LCRWPG requested small revisions to the TWDB draft mining projections during the previous planning cycle, and those revisions were approved by TWDB.

This planning cycle, the LCRWPG Population and Water Demand Committee reviewed the draft projections and determined that revisions should be requested for Bastrop County, based on knowledge gained towards the end of the previous planning cycle. The majority of the demand projections in Bastrop County are for the Three Oaks Mine involving lignite coal mining. The Population and Water Demand Committee discussed that it is unlikely that increased mining will occur for the next 50 years. The mining will more likely continue for another 20-25 more years of use before the reclamation process. Gravel mining in the county is expected to continue indefinitely. The committee recommended that the RWPG request to begin decreasing the mining demands beginning in the 2050 decade, eliminating the lignite coal mining by 2060, and leaving only the gravel mining demands in 2060 and 2070. Further details on the revision request are provided in *Appendix 2C*.

The LCRWPG approved to request these revisions to the draft mining demands in Bastrop County at the January 10, 2018 Region K meeting.

These mining water demand projections were adopted by the TWDB for use in the 2021 Lower Colorado Regional Water Plan and are presented by county, river basin, and decade in *Appendix 2A*.

2.3.5.2 Regional Mining Water Demand Projections

Mining water demands for the Lower Colorado Region are projected to increase 34 percent, to 27,991 acre-feet per year in 2040, and then begin decreasing to 25,441 acre-feet per year by 2070. The total projected regional mining water demands are shown in *Figure 2.8*, and *Table 2.12* presents the projected mining water demand distributed for each county. As in other areas of Texas, hydraulic fracturing activities are expected to influence mining water demands in the future, although this activity is difficult to anticipate and quantify in many instances.

Figure 2.8: Lower Colorado Region Mining Water Demand Projections

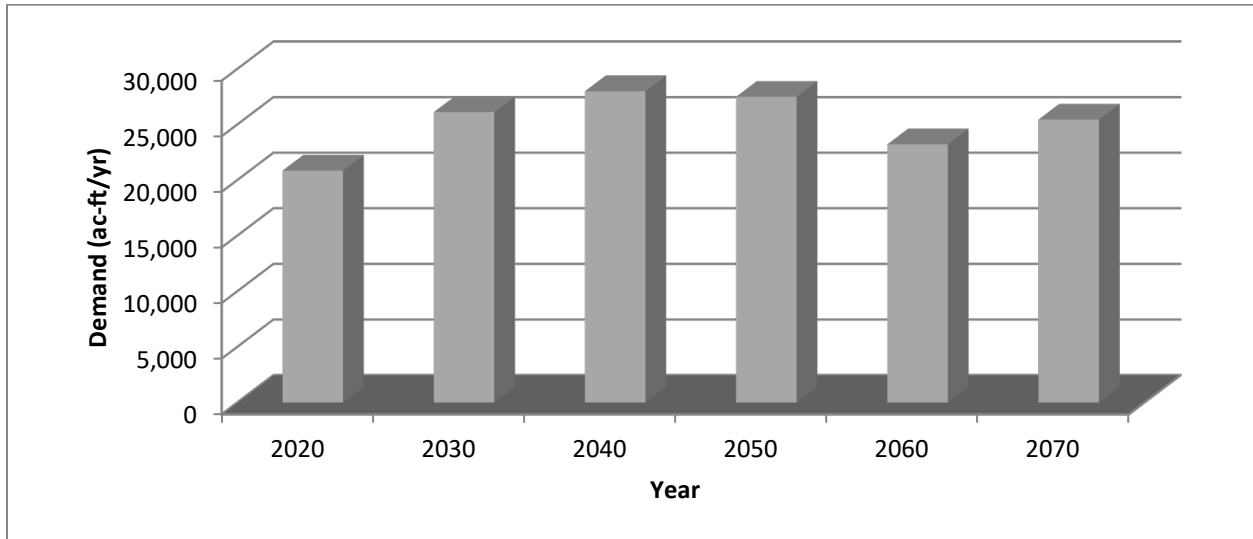


Table 2.12: Mining Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	2884	6813	7498	5998	399	476
Blanco	5	5	5	5	5	5
Burnet	4490	5412	6379	7255	8263	9412
Colorado	5325	5378	5433	5487	5542	5597
Fayette	2526	2032	1465	918	359	350
Gillespie	4	4	4	4	4	4
Hays (p)	845	1075	1361	1445	1654	1893
Llano	3	3	3	3	3	3
Matagorda	96	100	75	55	35	22
Mills	4	4	4	4	4	4
San Saba	1088	1093	944	900	864	838
Travis	3502	4108	4762	5374	6046	6817
Wharton (p)	71	74	55	41	26	17
Williamson (p)	5	3	3	3	3	3
TOTAL	20,848	26,104	27,991	27,492	23,207	25,441

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

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

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

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

River Basin	2020	2030	2040	2050	2060	2070
Brazos	1303	1768	2050	2180	2096	2388
Brazos-Colorado	252	259	235	218	200	190
Colorado	18,327	22,999	24,703	24,269	20,471	22,416
Colorado-Lavaca	41	42	32	23	15	9
Guadalupe	305	482	495	399	98	109
Lavaca	620	554	476	403	327	329
TOTAL	20,848	26,104	27,991	27,492	23,207	25,441

2.3.6 Livestock Water Demand Projections

2.3.6.1 Methodology

The TWDB draft livestock water demand projections utilized an average of TWDB's 2010-2014 livestock water use estimates for the 2020 projections. Water use estimates apply a water use coefficient for each livestock category to county level inventory estimates from the Texas Agricultural Statistics Service. The

rate of change for projections from the 2016 Regional Water Plans was then applied to the new base. In the case of the Lower Colorado Region, the livestock water demand was constant from 2020-2070.

The LWRWPG did not request any revisions to the TWDB draft livestock water demand projections. These livestock water demand projections were adopted by the TWDB for use in the 2021 Lower Colorado Regional Water Plan and are presented for by county, river basin, and decade in *Appendix 2A*.

2.3.6.2 Regional Livestock Water Demand Projections

Livestock water demand for the Lower Colorado Region represents a small portion of total regional water demand and is projected to remain constant over the 50-year planning period. This constant projected demand of 12,004 acre-feet per year is reflected in *Figure 2.9*. Livestock water demand by county is presented in *Table 2.14*, and the rural counties indicate more livestock farming activities.

Figure 2.9: Lower Colorado Region Livestock Water Demand Projections

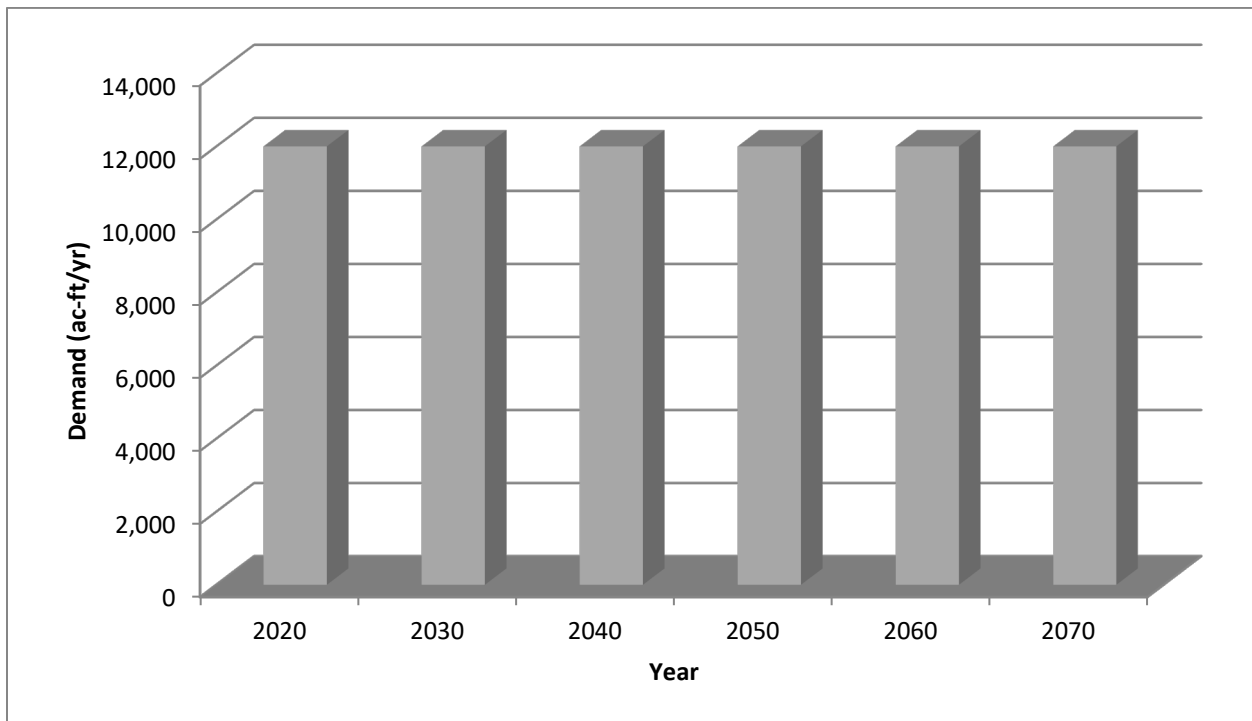


Table 2.14: Livestock Water Demand Projections by County* (ac-ft/yr)

County	2020	2030	2040	2050	2060	2070
Bastrop	1,135	1,135	1,135	1,135	1,135	1,135
Blanco	331	331	331	331	331	331
Burnet	1,691	1,691	1,691	1,691	1,691	1,691
Colorado	1,276	1,276	1,276	1,276	1,276	1,276
Fayette	1,726	1,726	1,726	1,726	1,726	1,726
Gillespie	1,212	1,212	1,212	1,212	1,212	1,212
Hays (p)	17	17	17	17	17	17
Llano	580	580	580	580	580	580
Matagorda	1,075	1,075	1,075	1,075	1,075	1,075
Mills	863	863	863	863	863	863
San Saba	779	779	779	779	779	779
Travis	527	527	527	527	527	527
Wharton (p)	792	792	792	792	792	792
Williamson (p)	0	0	0	0	0	0
TOTAL	12,004	12,004	12,004	12,004	12,004	12,004

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

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

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

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

River Basin	2020	2030	2040	2050	2060	2070
Brazos	993	993	993	993	993	993
Brazos-Colorado	1,042	1,042	1,042	1,042	1,042	1,042
Colorado	8,462	8,462	8,462	8,462	8,462	8,462
Colorado-Lavaca	593	593	593	593	593	593
Guadalupe	263	263	263	263	263	263
Lavaca	651	651	651	651	651	651
TOTAL	12,004	12,004	12,004	12,004	12,004	12,004

2.4 ENVIRONMENTAL WATER DEMANDS

Although not a water demand use category in TWDB rules, environmental water demands are recognized as a significant consideration in regional water planning by the Lower Colorado Region. Environmental water demands are considered important to preserve a healthy aquatic ecosystem within the region.

2.4.1 The Story/History of Matagorda Bay ^{1, 2, 3, 4, 5}

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

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

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

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

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

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

Historically, efforts were made to reopen Parker’s Cut to accommodate recreational fishing by shortening travel time to the fishing areas. The resource agencies opposed the reopening believing it would be

¹ *Bay City and Matagorda County – A History*, Pages 4, 8, 16, 165, 166

² *Corralling the Colorado*, Page 7

³ *Historic Matagorda County*, Pages 135, 139

⁴ Originally authored by Haskell Simon, Vice Chairman Region K, modified for this report

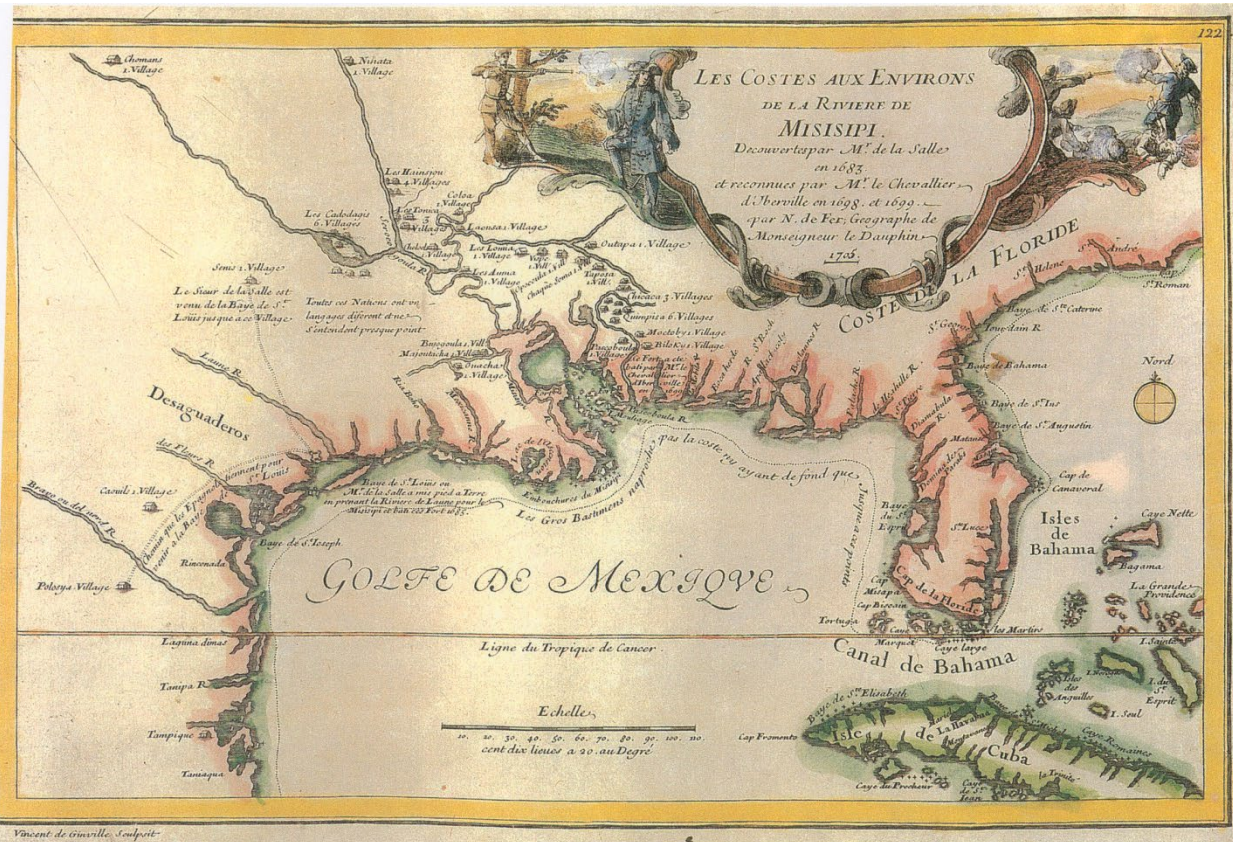
⁵ Additional information from *Flood to Faucet* and interviews with Earl Eidelbach, LCRA from *The Daily Tribune*

detrimental to fisheries production. A compromise was reached that opened a channel into the Bay just North of the diversion dam (Bragg’s Cut). This allowed access to the Bay without going through the locks, but with minimal diversion of fresh water.

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

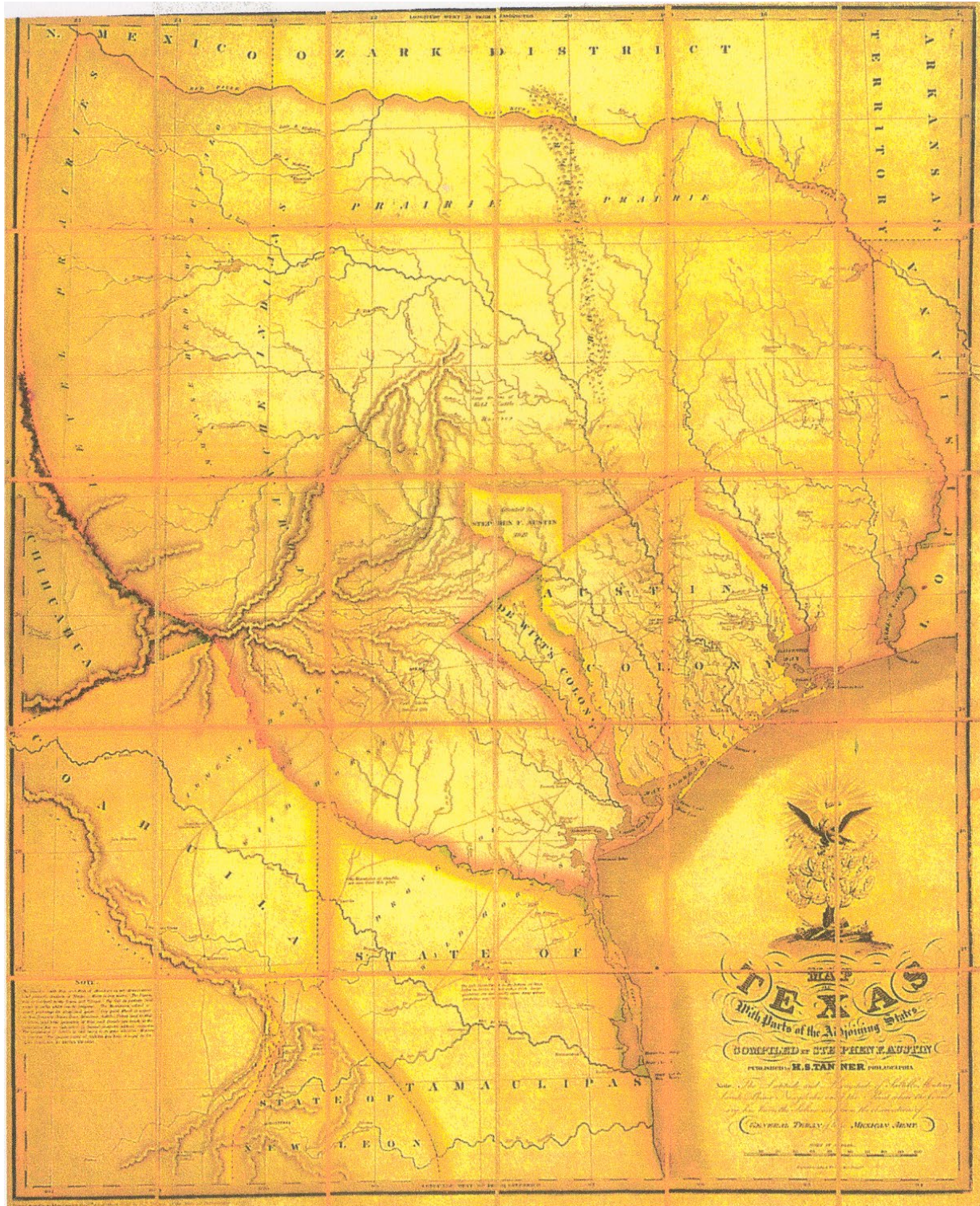
It is difficult to determine the effect of these changes on the Bay’s performance. Most entities seem to agree that short-term analysis or comparisons will not yield significant “cause and effects.” Certainly, with the major changes in the geography and hydrology of the Bay, it is questionable how useful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

Figure 2.10: Matagorda Bay in 1705



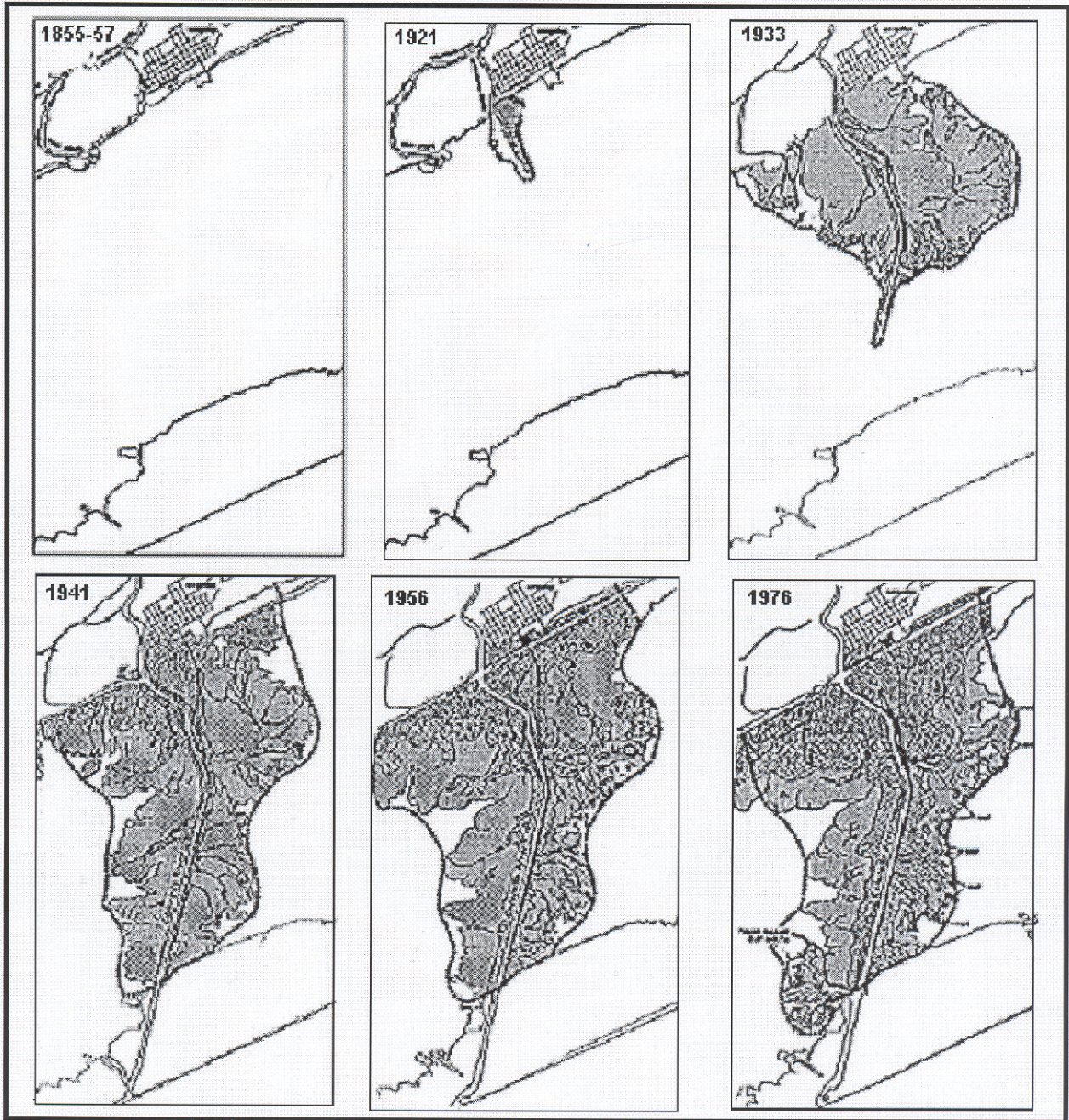
Nicolas de Fer 1705 – Collection of F. Carrington Weems Houston, Texas as shown in *Maps of Texas and the Southwest 1513-1900* by James C. Martin and Robert Sidney Martin, Page 49.

Figure 2.11: Austin's Colony and Matagorda Bay



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

Figure 2.12: Development of Colorado River Delta



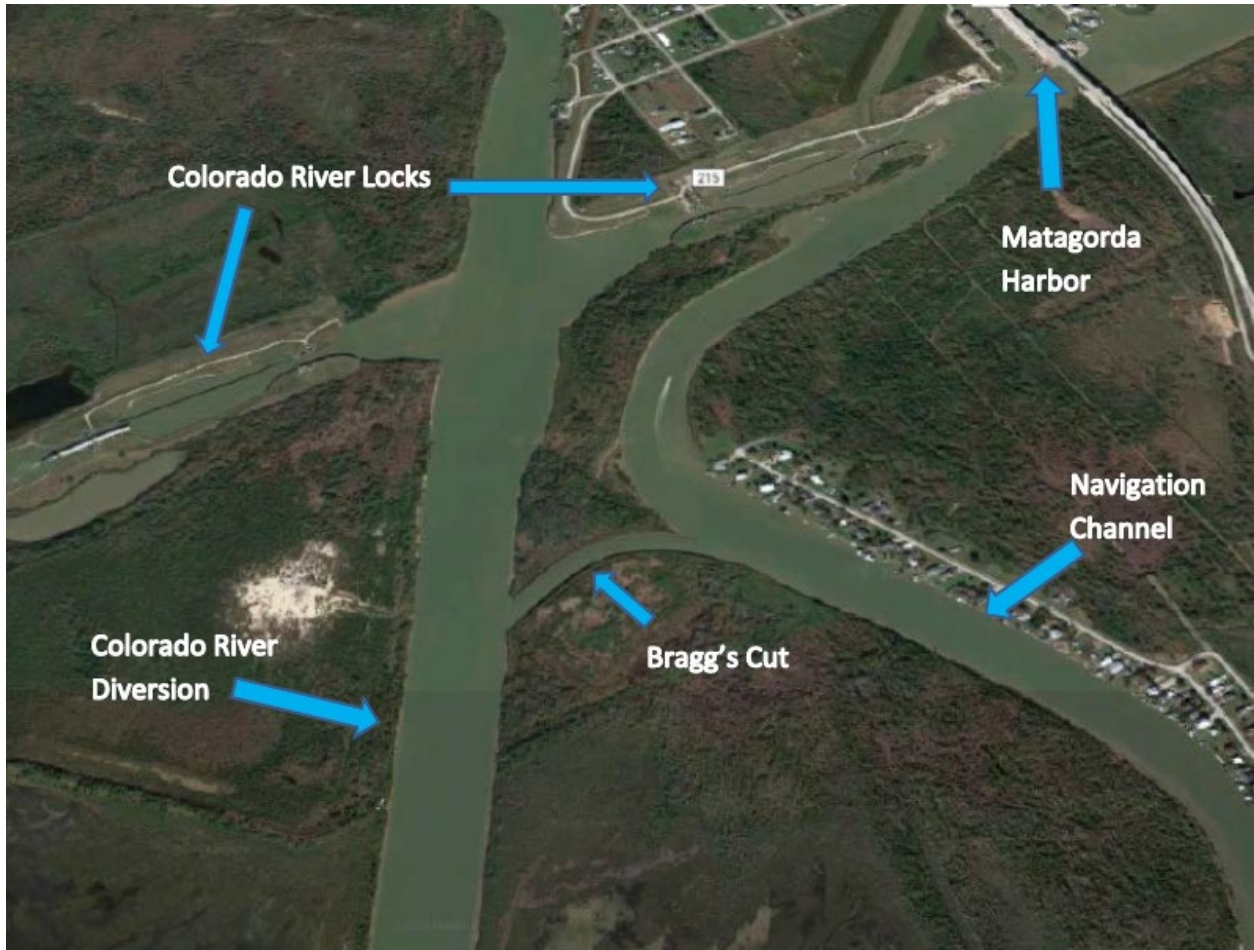
Delta Development – Mouth of Colorado River Project Assessment Report Coastal Technology Corporation (Adapted from USGS, Tobin & Kargl)

Figure 2.13: Mouth of the Colorado River, Matagorda Texas



Google Maps (February 2020)

Figure 2.14: Colorado River Diversion Channel and Navigation Channel



Google Maps (February 2020)

2.4.2 Lower Colorado River Authority Water Management Plan

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

The current WMP was approved by TCEQ in 2020. However, due to timing with the regional water planning process, the LCRA WMP referenced throughout this plan was approved by TCEQ in 2015 and operates under the following framework:

- Maintains combined storage of lakes Travis and Buchanan above 600,000 acre-feet through a repeat of historic hydrology;
- Includes hydrology through 2013;
- Includes a 35,000 acre-foot per year demand associated with Corpus Christi's Garwood water rights (this demand is associated with Corpus Christi and included in the Region N plan); and
- Includes a three-tier regime for interruptible agricultural customers that considers lake storage and inflow conditions. The structure includes three curtailment conditions: extraordinary drought, less severe drought and normal conditions, for decisions on whether and how much stored water from the Highland lakes would be available for interruptible agricultural customers.
- Allocates water to most interruptible agricultural customers separately for first season (March 1 conditions) and second season (July 1 conditions).
- Includes a look-ahead test that prevents release of interruptible stored water if the LCRA Board of Directors determines that lake storage will drop below set levels in the upcoming crop season or the next 12 months.
- Environmental flow criteria are determined on two dates during the year based on several conditions in the basin.

2.4.3 Current Instream Flow Criteria for the Colorado River⁶

A comprehensive instream flow study ("BIO-WEST, Inc. *Colorado River Flow Relationships to Aquatic Habitat and State Threatened Species: Blue Sucker, Final Report Prepared for LCRA and SAWS (2008)*") was completed in 2008 that recommended both subsistence flow conditions and base flow conditions, including base-dry and base-average conditions being met approximately 80% and 60% of the time, respectively. The TCEQ environmental flow standards for the Colorado River Basin are found in 30 TAC, 298 Subchapter D, and are largely based on the results of this study. The flow criteria at the Austin, Bastrop, Columbus, and Wharton gauge locations, as included in the 2015 LCRA Water Management Plan, are provided in the table below.

⁶Taken from information provided by the LCRA.

Table 2.16: Instream Flow Criteria from the 2015 LCRA WMP (cfs)

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

2.4.4 Current Bay and Estuary Inflow Criteria

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

TCEQ environmental flow standards for Matagorda Bay are found in 30 TAC, 298 Subchapter D. The standard for the lower Colorado was largely based on LCRA-SAWS Water Project study *Final Report: Matagorda Bay Inflow Criteria (Colorado River), Matagorda Bay Health Evaluation*, prepared for LCRA and SAWS (Dec. 2008). *Tables 2.17 and 2.18* describe the freshwater inflow standards and the various Matagorda Bay Health Evaluation (MBHE) inflow levels, respectively.

Table 2.17: Bay and Estuary Freshwater Inflow Standards to Matagorda Bay from the Colorado River Basin (acre-feet)

Inflow Regime	Monthly	Spring (3 month total)	Fall (3 month total)	Intervening (6 month total)	Long-Term Annual Strategy Quantity	Annual Strategy Frequency
Threshold	15,000	-	-	-	-	100%
MBHE-1	-	114,000	81,000	105,000	-	90%
MBHE-2	-	168,700	119,900	155,400	-	75%
MBHE-3	-	246,200	175,000	226,800	-	60%
MBHE-4	-	433,200	307,800	399,000	-	35%
Annual Average	-	-	-	-	1,400,000	-

Table 2.18: Summary of Matagorda Bay Health Evaluation (MBHE) Inflow Levels

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

Additional details related to the incorporation of the MBHE freshwater inflows into the LCRA WMP can be found on the LCRA website at www.lcra.org.

2.5 MAJOR WATER PROVIDERS

Each regional water planning group designates Major Water Providers, which are Water User Groups or Wholesale Water Providers of particular significance to the region's water supply as determined by the planning group. Major Water Providers are responsible for developing and/or delivering significant quantities of water in the region. The Lower Colorado Region has designated three Major Water Providers for the 2021 Plan: Austin (Austin Water), the Lower Colorado River Authority (LCRA), and West Travis County Public Utility Agency (WTCPUA). Associated water demands for these Major Water Providers are identified within the plan. Austin and West Travis County Public Utility Agency are also water customers of the LCRA, and together these entities supply a large portion of the Lower Colorado Region's water needs.

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

2.5.1 Austin

Austin (Austin Water) provides water on both a retail and wholesale basis for municipal, manufacturing, and steam-electric water uses. The utility's existing service area covers portions of Travis, Williamson, and Hays Counties. *Table 2.19* presents the municipal and manufacturing water demands for the Austin utility. These water demands consist of Austin's retail and wholesale service area water demands and commitments. The wholesale commitments represent contract amounts as reported by Austin. For a complete list of the City's wholesale water commitments refer to *Chapter 3*.

Table 2.19: Projected Municipal and Manufacturing Water Demands for Austin Service Area (ac-ft/yr)

County/WUG	2020	2030	2040	2050	2060	2070
Hays County						
Austin	188	827	1,304	2,063	3,025	4,357
Travis County						
Austin	170,686	198,992	230,751	252,570	269,954	293,513
Wholesale Commitments ¹	12,954	13,001	759	750	749	749
Manufacturing	12,422	14,111	14,397	14,853	14,853	14,853
Williamson County						
Austin	10,787	13,742	16,122	18,685	21,592	24,782
Wholesale Commitments ²	854	824	0	0	0	0
County-Other ³	87	87	87	87	87	87
Total	207,978	241,584	263,420	289,008	310,260	338,341

¹ The wholesale commitments in Travis County include the following WUGs: a portion of Creedmoor-Maha WSC, North Austin MUD 1, Northtown MUD, Rollingwood, Shady Hollow MUD (became a retail customer after WUGs were determined), Sunset Valley, Travis County WCID #10, Wells Branch MUD, and a portion of Windemere Utility.

² The wholesale commitments in Williamson County include the following WUGs: a portion of North Austin MUD #1, and a portion of Wells Branch MUD.

³ County-Other in Williamson County consists of several small communities, which are too small to be considered WUGs.

Table 2.20 presents Austin's projected steam-electric water demands in Fayette and Travis Counties. Austin's portion of the South Texas Project (STP) demand is included in the STP total steam-electric demand in Matagorda County.

Table 2.20: Projected Steam-Electric Water Demands for the Austin Service Area (ac-ft/yr)

County/WUG	2020	2030	2040	2050	2060	2070
Fayette County						
Steam Electric ¹	10,300	10,300	10,300	10,300	10,300	10,300
Travis County						
Steam Electric	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 City of Austin portion - based on estimated current supply levels and approved projections.

2.5.2 Lower Colorado River Authority

LCRA supplies water for municipal, agricultural (irrigation), manufacturing, steam-electric, mining, and other water uses. The LCRA currently supplies water to entities in Bastrop, Burnet, Colorado, Fayette, Hays, Lampasas (Region G), Llano, Matagorda, San Saba, Travis, Wharton, and Williamson (the portion of Williamson in Region G) counties. Table 2.21 presents a summary of LCRA firm commitments to water user groups in the Lower Colorado Region (Region K) and Region G. Table 2.22 lists the projected irrigation demands in the Lower Basin using water supplies from LCRA.

Most of Williamson County is outside the lower Colorado River watershed, but House Bill 1437 authorizes LCRA to provide water to entities in the county in some circumstances.

The Texas Legislature passed HB 1437 in 1999. The bill authorizes LCRA to transfer up to 25,000 ac-ft/yr of water to Williamson County, if the transfer results in "no net loss" of water to the lower Colorado River basin. "No net loss" means an amount of water equal to that transferred is conserved, replaced or offset. LCRA has a contract with the Brazos River Authority for 25,000 acre-feet of water, as shown below in *Table 2.21*. The water demands associated with this water supply are not included in Region K but are accounted for in the Region G *Brazos Regional Water Plan*. Accounting related to this provision is included in an annual report produced by LCRA (*2018 Annual Report: House Bill 1437 Agricultural Water Conservation Program*).

HB 1437 also establishes a conservation surcharge on water contracted under this bill. The surcharge funds conservation projects that result in "no net loss" of water to the basin. Water conserved using this mechanism will be reflected in the regional water plan either within the projected water demands or as water management strategies used to meet water needs.

The municipal County-Other water commitments actually consist of water that is supplied to several smaller retail water customers.

Table 2.21: 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

Table 2.21: LCRA Firm Water Commitment Summary (ac-ft/yr) (Continued)

County/WUG	2020	2030	2040	2050	2060	2070
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
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

Table 2.21: LCRA Firm Water Commitment Summary (ac-ft/yr) (Continued)

County/WUG	2020	2030	2040	2050	2060	2070
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

*Environmental demands are not one of the six water uses planned for in regional water planning.

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 2.22: 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.

2.5.3 West Travis County Public Utility Agency

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 being delivered water from WTCPUA have 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. Wholesale customers listed below in *Table 2.23* that have a water contract with LCRA are identified as so and are also listed in *Table 2.21* in *Section 2.5.2* under LCRA.

Table 2.23: Projected Water Demand Commitments for WTCPUA Service Area (ac-ft/yr)

County/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*	1,632	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
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**	1,640	1,640	1,640	1,640	1,640	1,640
Deer Creek Ranch Water* (also in Hays Co.)	250	250	250	250	250	250
Irrigation*	62	62	62	62	62	62
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
Total	20,335	22,085	23,336	25,673	27,687	29,645

* These wholesale customers have water contracts for these volumes with LCRA, but West Travis County PUA provides the treatment and transport of the water to their community.

** For County-Other in Travis County, several smaller communities make up the wholesale customers that are delivered water by West Travis County PUA. One of these smaller communities, Crystal Mountain HOA, does not have a water contract with LCRA. The rest of the wholesale customers falling under County-Other have a water contract with LCRA, while West Travis County PUA provides the treatment and transport of the water to their community.

2021 LCRWPG WATER PLAN

APPENDIX 2A

***TWDB DB22 REPORTS
LCRWPG POPULATION AND WATER DEMAND PROJECTIONS***

Region K Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
AQUA WSC*	551	725	950	1,256	1,668	2,217
LEE COUNTY WSC*	423	556	729	963	1,280	1,702
COUNTY-OTHER	47	54	64	77	94	117
BRAZOS BASIN TOTAL	1,021	1,335	1,743	2,296	3,042	4,036
AQUA WSC*	55,243	72,640	95,256	125,894	167,279	222,301
BASTROP	11,069	15,008	20,129	27,068	36,439	48,898
BASTROP COUNTY WCID 2	5,007	7,450	10,626	14,930	20,741	28,469
CREEDMOOR-MAHA WSC*	22	25	29	33	37	40
ELGIN	9,380	12,273	16,034	21,128	28,009	37,158
LEE COUNTY WSC*	575	755	990	1,310	1,741	2,313
POLONIA WSC*	236	300	385	498	653	858
SMITHVILLE	4,797	6,308	8,273	10,933	14,527	19,306
COUNTY-OTHER	7,559	8,735	10,256	12,323	15,115	18,828
COLORADO BASIN TOTAL	93,888	123,494	161,978	214,117	284,541	378,171
AQUA WSC*	390	513	672	889	1,181	1,569
COUNTY-OTHER	188	217	255	306	376	468
GUADALUPE BASIN TOTAL	578	730	927	1,195	1,557	2,037
BASTROP COUNTY TOTAL	95,487	125,559	164,648	217,608	289,140	384,244
JOHNSON CITY	2,053	2,441	2,668	2,787	2,867	2,914
COUNTY-OTHER	4,650	5,448	5,851	5,986	6,025	5,989
COLORADO BASIN TOTAL	6,703	7,889	8,519	8,773	8,892	8,903
BLANCO	2,156	2,563	2,802	2,927	3,010	3,061
CANYON LAKE WATER SERVICE*	665	933	1,204	1,478	1,749	2,011
COUNTY-OTHER	3,491	4,090	4,392	4,494	4,524	4,497
GUADALUPE BASIN TOTAL	6,312	7,586	8,398	8,899	9,283	9,569
BLANCO COUNTY TOTAL	13,015	15,475	16,917	17,672	18,175	18,472
BERTRAM	1,764	2,134	2,445	2,745	3,007	3,235
BURNET	30	36	42	47	51	55
GEORGETOWN*	379	460	527	591	647	696
KEMPNER WSC*	759	852	937	1,019	1,097	1,171
COUNTY-OTHER	7,998	9,104	9,230	10,215	11,119	11,898
BRAZOS BASIN TOTAL	10,930	12,586	13,181	14,617	15,921	17,055
BURNET	7,394	8,947	10,256	11,508	12,609	13,564
CORIX UTILITIES TEXAS INC*	809	979	1,122	1,259	1,379	1,484
COTTONWOOD SHORES	1,395	1,688	1,935	2,171	2,379	2,559
GRANITE SHOALS	5,401	6,211	6,832	7,515	8,643	10,371
HORSESHOE BAY	1,192	1,683	2,097	2,493	2,841	3,142
KINGSLAND WSC	425	515	590	662	726	781
MARBLE FALLS	8,784	12,906	18,684	21,713	23,732	24,741
MEADOWLAKES	2,540	2,540	2,540	2,540	2,540	2,540
COUNTY-OTHER	14,244	16,213	16,436	18,190	19,801	21,189
COLORADO BASIN TOTAL	42,184	51,682	60,492	68,051	74,650	80,371
BURNET COUNTY TOTAL	53,114	64,268	73,673	82,668	90,571	97,426
EAGLE LAKE	1,160	1,210	1,248	1,302	1,349	1,393
COUNTY-OTHER	1,253	1,308	1,348	1,408	1,457	1,505
BRAZOS-COLORADO BASIN TOTAL	2,413	2,518	2,596	2,710	2,806	2,898
COLUMBUS	3,832	3,999	4,123	4,305	4,457	4,605
CORIX UTILITIES TEXAS INC*	275	287	296	309	320	331

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

Region K Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
EAGLE LAKE	2,643	2,758	2,843	2,968	3,072	3,175
WEIMAR	710	741	764	798	825	853
COUNTY-OTHER	7,871	8,214	8,467	8,842	9,154	9,457
COLORADO BASIN TOTAL	15,331	15,999	16,493	17,222	17,828	18,421
WEIMAR	1,454	1,516	1,565	1,633	1,691	1,747
COUNTY-OTHER	2,686	2,803	2,890	3,017	3,124	3,227
LAVACA BASIN TOTAL	4,140	4,319	4,455	4,650	4,815	4,974
COLORADO COUNTY TOTAL	21,884	22,836	23,544	24,582	25,449	26,293
AQUA WSC*	24	27	30	31	33	34
FAYETTE COUNTY WCID MONUMENT HILL	760	803	870	926	970	1,003
FAYETTE WSC	4,350	4,965	5,383	5,728	5,997	6,206
LA GRANGE	5,478	6,253	6,778	7,212	7,552	7,816
LEE COUNTY WSC*	1,435	1,638	1,775	1,889	1,979	2,047
WEST END WSC*	1,197	1,366	1,521	1,686	1,855	2,032
COUNTY-OTHER	6,241	7,166	7,743	8,192	8,522	8,744
COLORADO BASIN TOTAL	19,485	22,218	24,100	25,664	26,908	27,882
FAYETTE WSC	282	322	349	371	389	402
FLATONIA	313	357	387	412	432	446
COUNTY-OTHER	375	430	465	492	512	525
GUADALUPE BASIN TOTAL	970	1,109	1,201	1,275	1,333	1,373
FAYETTE WSC	510	582	631	671	703	728
FLATONIA	1,345	1,536	1,665	1,771	1,855	1,919
SCHULENBURG	3,147	3,592	3,894	4,143	4,339	4,490
COUNTY-OTHER	2,916	3,347	3,617	3,827	3,981	4,084
LAVACA BASIN TOTAL	7,918	9,057	9,807	10,412	10,878	11,221
FAYETTE COUNTY TOTAL	28,373	32,384	35,108	37,351	39,119	40,476
FREDERICKSBURG	12,056	12,938	13,666	14,519	15,304	16,067
COUNTY-OTHER	14,172	15,302	16,233	17,324	18,328	19,303
COLORADO BASIN TOTAL	26,228	28,240	29,899	31,843	33,632	35,370
COUNTY-OTHER	567	612	649	693	733	772
GUADALUPE BASIN TOTAL	567	612	649	693	733	772
GILLESPIE COUNTY TOTAL	26,795	28,852	30,548	32,536	34,365	36,142
AUSTIN	1,074	4,796	7,560	11,957	17,535	25,255
BUDA*	9,831	14,132	19,369	25,916	33,315	41,735
CIMARRON PARK WATER	2,115	2,115	2,115	2,115	2,115	2,115
DEER CREEK RANCH WATER	331	392	451	494	529	569
DRIPPING SPRINGS WSC	11,000	18,500	24,000	31,000	39,500	44,000
GOFORTH SUD*	1,366	1,801	2,329	2,985	3,724	4,564
HAYS	1,222	1,606	2,038	2,429	3,036	3,727
HAYS COUNTY WCID 1	3,647	3,647	3,647	3,647	3,647	3,647
HAYS COUNTY WCID 2	1,224	1,608	2,041	2,433	3,041	3,732
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	12,788	15,985	17,981	22,131	26,281	30,431
COUNTY-OTHER*	10,986	8,661	13,216	16,522	19,284	26,804
COLORADO BASIN TOTAL	55,584	73,243	94,747	121,629	152,007	186,579
HAYS COUNTY TOTAL	55,584	73,243	94,747	121,629	152,007	186,579
CORIX UTILITIES TEXAS INC*	1,199	1,211	1,223	1,235	1,248	1,260
HORSESHOE BAY	4,933	5,117	4,989	5,058	4,984	4,872
KINGSLAND WSC	8,419	9,716	9,680	9,247	10,078	10,938

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Region K Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
LLANO	3,565	3,759	3,754	3,689	3,814	3,943
SUNRISE BEACH VILLAGE	720	724	723	721	723	726
COUNTY-OTHER	2,455	1,926	2,053	2,085	1,932	1,810
COLORADO BASIN TOTAL	21,291	22,453	22,422	22,035	22,779	23,549
LLANO COUNTY TOTAL	21,291	22,453	22,422	22,035	22,779	23,549
BAY CITY	19,246	20,259	20,908	21,410	21,766	22,021
CANEY CREEK MUD OF MATAGORDA COUNTY	2,088	2,198	2,270	2,324	2,362	2,390
CORIX UTILITIES TEXAS INC*	36	39	39	40	41	42
MATAGORDA COUNTY WCID 6	1,099	1,158	1,194	1,223	1,244	1,258
MATAGORDA WASTE DISPOSAL & WSC	276	291	300	308	312	317
COUNTY-OTHER	4,304	4,529	4,674	4,787	4,867	4,924
BRAZOS-COLORADO BASIN TOTAL	27,049	28,474	29,385	30,092	30,592	30,952
BAY CITY	39	41	42	43	44	45
CORIX UTILITIES TEXAS INC*	7	7	8	8	8	8
MATAGORDA WASTE DISPOSAL & WSC	415	437	451	461	469	475
COUNTY-OTHER	914	962	993	1,017	1,034	1,046
COLORADO BASIN TOTAL	1,375	1,447	1,494	1,529	1,555	1,574
MARKHAM MUD	1,013	1,066	1,101	1,127	1,146	1,159
PALACIOS	5,019	5,283	5,453	5,584	5,677	5,743
COUNTY-OTHER	4,710	4,956	5,115	5,238	5,326	5,387
COLORADO-LAVACA BASIN TOTAL	10,742	11,305	11,669	11,949	12,149	12,289
MATAGORDA COUNTY TOTAL	39,166	41,226	42,548	43,570	44,296	44,815
GOLDTHWAITE	54	56	57	60	62	64
COUNTY-OTHER	1,108	1,145	1,175	1,222	1,269	1,322
BRAZOS BASIN TOTAL	1,162	1,201	1,232	1,282	1,331	1,386
BROOKESMITH SUD*	48	50	51	53	55	57
CORIX UTILITIES TEXAS INC*	74	76	78	81	84	87
GOLDTHWAITE	2,021	2,088	2,146	2,229	2,315	2,411
ZEPHYR WSC*	39	40	42	43	45	47
COUNTY-OTHER	1,568	1,621	1,664	1,729	1,795	1,871
COLORADO BASIN TOTAL	3,750	3,875	3,981	4,135	4,294	4,473
MILLS COUNTY TOTAL	4,912	5,076	5,213	5,417	5,625	5,859
CORIX UTILITIES TEXAS INC*	94	99	100	98	100	103
NORTH SAN SABA WSC	647	678	681	671	686	702
RICHLAND SUD*	956	1,002	1,007	991	1,015	1,038
SAN SABA	3,384	3,546	3,565	3,507	3,591	3,673
COUNTY-OTHER	1,403	1,468	1,480	1,455	1,487	1,523
COLORADO BASIN TOTAL	6,484	6,793	6,833	6,722	6,879	7,039
SAN SABA COUNTY TOTAL	6,484	6,793	6,833	6,722	6,879	7,039
AQUA WSC*	6,627	7,652	8,618	9,700	10,656	11,544
AUSTIN	976,785	1,153,560	1,337,673	1,464,157	1,564,930	1,701,504
BARTON CREEK WEST WSC	1,337	1,337	1,337	1,337	1,337	1,337
BARTON CREEK WSC	702	832	956	1,047	1,121	1,206
BRIARCLIFF	2,009	2,320	2,613	2,942	3,231	3,500
CEDAR PARK*	10,913	11,641	12,521	12,521	12,521	12,521
COTTONWOOD CREEK MUD 1	1,447	1,715	1,970	2,158	2,312	2,485
CREEDMOOR-MAHA WSC*	5,429	6,241	7,007	7,864	8,625	9,336

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Region K Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
CYPRESS RANCH WCID 1	1,233	1,416	1,551	1,661	1,786	1,786
DEER CREEK RANCH WATER	556	659	757	829	888	954
ELGIN	1,814	2,615	3,371	4,217	4,963	5,658
GARFIELD WSC	1,772	2,100	2,412	2,641	2,830	3,042
HORNSBY BEND UTILITY	7,066	8,372	9,616	10,531	11,282	12,130
HURST CREEK MUD	3,095	3,095	3,095	3,095	3,095	3,095
JONESTOWN WSC	3,948	4,222	4,481	4,768	5,022	5,259
KELLY LANE WCID 1	1,693	1,693	1,693	1,693	1,693	1,693
LAGO VISTA	7,580	8,964	10,269	11,730	13,020	14,220
LAKEWAY MUD	10,906	11,546	12,186	12,826	13,025	13,025
LEANDER*	11,246	26,735	28,349	29,963	30,689	32,033
LOOP 360 WSC	2,086	2,169	2,262	2,344	2,420	2,556
MANOR	8,650	12,017	15,193	18,750	21,889	24,808
MANVILLE WSC*	15,661	19,292	22,716	26,550	29,934	33,081
NORTH AUSTIN MUD 1	780	780	780	780	780	780
NORTHTOWN MUD	10,834	12,509	14,091	15,859	17,421	18,874
OAK SHORES WATER SYSTEM	546	632	632	632	632	632
PFLUGERVILLE*	62,745	78,245	95,599	112,807	130,167	130,167
ROLLINGWOOD	1,421	1,429	1,436	1,444	1,451	1,458
ROUGH HOLLOW IN TRAVIS COUNTY	2,767	5,698	5,698	5,698	5,698	5,698
ROUND ROCK*	1,732	2,003	2,258	2,544	2,796	3,030
SENNA HILLS MUD	1,219	1,445	1,660	1,818	1,947	2,093
SHADY HOLLOW MUD	4,366	4,366	4,366	4,366	4,366	4,366
SUNSET VALLEY	930	1,063	1,234	1,432	1,662	1,929
SWEETWATER COMMUNITY	2,760	5,832	5,832	5,832	5,832	5,832
TRAVIS COUNTY MUD 10	348	412	474	519	556	597
TRAVIS COUNTY MUD 14	2,015	2,388	2,742	3,003	3,218	3,459
TRAVIS COUNTY MUD 2	2,527	2,994	3,439	3,767	4,036	4,338
TRAVIS COUNTY MUD 4	2,446	2,825	3,182	3,581	3,934	4,263
TRAVIS COUNTY WCID 10	7,628	8,364	9,058	9,835	10,521	11,160
TRAVIS COUNTY WCID 17	36,720	39,741	43,715	44,473	45,671	47,125
TRAVIS COUNTY WCID 18	6,344	7,324	8,250	9,287	10,201	11,051
TRAVIS COUNTY WCID 19	682	682	682	682	682	682
TRAVIS COUNTY WCID 20	1,130	1,130	1,130	1,130	1,130	1,130
TRAVIS COUNTY WCID POINT VENTURE	1,036	1,325	1,568	1,900	2,273	2,601
WELLS BRANCH MUD	18,750	18,750	18,750	18,750	18,750	18,750
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	19,039	21,037	22,715	25,324	26,990	28,480
WILLIAMSON COUNTY WSID 3*	910	1,143	1,143	1,143	1,143	1,143
WILLIAMSON TRAVIS COUNTIES MUD 1*	1,113	1,113	1,113	1,113	1,113	1,113
WINDERMERE UTILITY	17,866	17,866	17,866	17,866	17,866	17,866
COUNTY-OTHER AQUA TEXAS - RIVERCREST	774	774	774	774	774	774
COUNTY-OTHER	6,130	6,130	6,130	6,130	6,130	6,130
COLORADO BASIN TOTAL	1,298,113	1,538,193	1,766,963	1,935,813	2,075,009	2,232,294
CREEDMOOR-MAHA WSC*	348	400	449	504	553	598
GOFORTH SUD*	87	115	148	190	237	291
COUNTY-OTHER	76	76	76	76	76	76
GUADALUPE BASIN TOTAL	511	591	673	770	866	965
TRAVIS COUNTY TOTAL	1,298,624	1,538,784	1,767,636	1,936,583	2,075,875	2,233,259

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Region K Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
BOLING MWD	855	910	954	992	1,027	1,058
WHARTON	5,185	5,518	5,784	6,014	6,226	6,414
WHARTON COUNTY WCID 2	2,235	2,379	2,493	2,593	2,684	2,765
COUNTY-OTHER*	8,614	9,165	9,608	9,991	10,344	10,656
BRAZOS-COLORADO BASIN TOTAL	16,889	17,972	18,839	19,590	20,281	20,893
EL CAMPO*	27	29	30	31	32	33
WHARTON	4,242	4,515	4,732	4,920	5,094	5,248
COUNTY-OTHER*	4,452	4,737	4,966	5,163	5,346	5,508
COLORADO BASIN TOTAL	8,721	9,281	9,728	10,114	10,472	10,789
COUNTY-OTHER*	1,434	1,526	1,599	1,663	1,722	1,774
COLORADO-LAVACA BASIN TOTAL	1,434	1,526	1,599	1,663	1,722	1,774
COUNTY-OTHER*	140	149	156	162	168	173
LAVACA BASIN TOTAL	140	149	156	162	168	173
WHARTON COUNTY TOTAL	27,184	28,928	30,322	31,529	32,643	33,629
AUSTIN	61,729	79,661	93,459	108,319	125,171	143,660
NORTH AUSTIN MUD 1	7,442	7,442	7,442	7,442	7,442	7,442
WELLS BRANCH MUD	1,073	1,073	1,073	1,073	1,073	1,073
COUNTY-OTHER*	434	611	592	570	546	520
BRAZOS BASIN TOTAL	70,678	88,787	102,566	117,404	134,232	152,695
WILLIAMSON COUNTY TOTAL	70,678	88,787	102,566	117,404	134,232	152,695
REGION K POPULATION TOTAL	1,762,591	2,094,664	2,416,725	2,697,306	2,971,155	3,290,477

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Region K Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
AQUA WSC*	90	116	150	197	262	347
LEE COUNTY WSC*	54	68	88	115	153	203
COUNTY-OTHER	9	10	11	14	17	21
MINING	173	409	450	360	24	29
LIVESTOCK	70	70	70	70	70	70
IRRIGATION	257	257	257	257	257	257
BRAZOS BASIN TOTAL	653	930	1,026	1,013	783	927
AQUA WSC*	9,072	11,636	15,054	19,775	26,231	34,832
BASTROP	2,046	2,709	3,590	4,803	6,458	8,660
BASTROP COUNTY WCID 2	479	690	971	1,357	1,882	2,580
CREEDMOOR-MAHA WSC*	2	3	3	3	4	4
ELGIN	1,317	1,674	2,155	2,822	3,734	4,950
LEE COUNTY WSC*	73	93	120	157	208	276
POLONIA WSC*	29	36	45	58	76	100
SMITHVILLE	821	1,048	1,351	1,774	2,353	3,125
COUNTY-OTHER	1,375	1,567	1,828	2,187	2,677	3,333
MANUFACTURING	188	215	215	215	215	215
MINING	2,567	6,064	6,674	5,339	355	423
STEAM ELECTRIC POWER	10,288	10,288	10,288	10,288	10,288	10,288
LIVESTOCK	1,011	1,011	1,011	1,011	1,011	1,011
IRRIGATION	3,808	3,808	3,808	3,808	3,808	3,808
COLORADO BASIN TOTAL	33,076	40,842	47,113	53,597	59,300	73,605
AQUA WSC*	64	82	106	140	185	246
COUNTY-OTHER	34	39	45	54	67	83
MINING	144	340	374	299	20	24
LIVESTOCK	54	54	54	54	54	54
IRRIGATION	215	215	215	215	215	215
GUADALUPE BASIN TOTAL	511	730	794	762	541	622
BASTROP COUNTY TOTAL	34,240	42,502	48,933	55,372	60,624	75,154
JOHNSON CITY	353	411	443	460	473	480
COUNTY-OTHER	576	653	688	698	701	696
MINING	5	5	5	5	5	5
LIVESTOCK	255	255	255	255	255	255
IRRIGATION	934	934	934	934	934	934
COLORADO BASIN TOTAL	2,123	2,258	2,325	2,352	2,368	2,370
BLANCO	316	365	393	407	418	425
CANYON LAKE WATER SERVICE*	83	115	147	180	213	245
COUNTY-OTHER	432	490	517	524	526	523
LIVESTOCK	76	76	76	76	76	76
IRRIGATION	393	393	393	393	393	393
GUADALUPE BASIN TOTAL	1,300	1,439	1,526	1,580	1,626	1,662
BLANCO COUNTY TOTAL	3,423	3,697	3,851	3,932	3,994	4,032
BERTRAM	430	511	581	649	710	764
BURNET	7	8	9	10	11	12
GEORGETOWN*	84	100	114	128	140	150
KEMPNER WSC*	132	146	158	171	184	196
COUNTY-OTHER	1,228	1,366	1,364	1,499	1,627	1,740
MINING	1,123	1,354	1,595	1,815	2,067	2,354

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Region K Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
LIVESTOCK	630	630	630	630	630	630
IRRIGATION	160	160	160	160	160	160
BRAZOS BASIN TOTAL	3,794	4,275	4,611	5,062	5,529	6,006
BURNET	1,654	1,968	2,235	2,496	2,731	2,937
CORIX UTILITIES TEXAS INC*	126	149	168	187	204	220
COTTONWOOD SHORES	245	291	330	368	402	433
GRANITE SHOALS	578	646	701	765	877	1,052
HORSESHOE BAY	548	767	952	1,128	1,285	1,421
KINGSLAND WSC	46	55	62	69	75	81
MARBLE FALLS	2,354	3,400	4,884	5,661	6,184	6,446
MEADOWLAKES	852	843	838	836	835	835
COUNTY-OTHER	2,186	2,432	2,428	2,668	2,897	3,098
MANUFACTURING	251	299	299	299	299	299
MINING	3,367	4,058	4,784	5,440	6,196	7,058
LIVESTOCK	1,061	1,061	1,061	1,061	1,061	1,061
IRRIGATION	1,338	1,338	1,338	1,338	1,338	1,338
COLORADO BASIN TOTAL	14,606	17,307	20,080	22,316	24,384	26,279
BURNET COUNTY TOTAL	18,400	21,582	24,691	27,378	29,913	32,285
EAGLE LAKE	159	160	160	165	170	176
COUNTY-OTHER	154	155	156	160	165	170
MANUFACTURING	13	15	15	15	15	15
MINING	160	162	163	165	167	168
LIVESTOCK	163	163	163	163	163	163
IRRIGATION	50,709	49,345	48,017	46,726	45,469	44,246
BRAZOS-COLORADO BASIN TOTAL	51,358	50,000	48,674	47,394	46,149	44,938
COLUMBUS	1,134	1,164	1,185	1,229	1,271	1,313
CORIX UTILITIES TEXAS INC*	43	44	44	46	47	49
EAGLE LAKE	362	365	366	375	388	400
WEIMAR	163	166	169	175	181	187
COUNTY-OTHER	969	975	977	1,005	1,038	1,072
MANUFACTURING	50	59	59	59	59	59
MINING	4,899	4,947	4,999	5,048	5,098	5,149
STEAM ELECTRIC POWER	228	228	228	228	228	228
LIVESTOCK	740	740	740	740	740	740
IRRIGATION	34,346	33,422	32,523	31,648	30,797	29,969
COLORADO BASIN TOTAL	42,934	42,110	41,290	40,553	39,847	39,166
WEIMAR	333	341	346	358	370	382
COUNTY-OTHER	330	333	334	343	354	365
MANUFACTURING	897	1,058	1,058	1,058	1,058	1,058
MINING	266	269	271	274	277	280
STEAM ELECTRIC POWER	4,743	4,743	4,743	4,743	4,743	4,743
LIVESTOCK	373	373	373	373	373	373
IRRIGATION	88,057	85,688	83,384	81,140	78,957	76,833
LAVACA BASIN TOTAL	94,999	92,805	90,509	88,289	86,132	84,034
COLORADO COUNTY TOTAL	189,291	184,915	180,473	176,236	172,128	168,138
AQUA WSC*	4	4	5	5	5	5
FAYETTE COUNTY WCID MONUMENT HILL	184	192	205	217	227	235
FAYETTE WSC	610	679	725	765	799	827

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Region K Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
LA GRANGE	957	1,063	1,132	1,194	1,248	1,292
LEE COUNTY WSC*	182	202	215	226	236	244
WEST END WSC*	130	142	153	167	183	201
COUNTY-OTHER	810	897	945	988	1,025	1,052
MANUFACTURING	2	3	3	3	3	3
MINING	2,046	1,646	1,187	743	291	284
STEAM ELECTRIC POWER	49,211	49,211	49,211	49,211	49,211	49,211
LIVESTOCK	1,370	1,370	1,370	1,370	1,370	1,370
IRRIGATION	521	521	521	521	521	521
COLORADO BASIN TOTAL	56,027	55,930	55,672	55,410	55,119	55,245
FAYETTE WSC	40	44	47	50	52	54
FLATONIA	65	73	78	82	86	89
COUNTY-OTHER	49	54	57	59	62	63
MINING	126	101	73	46	18	17
LIVESTOCK	78	78	78	78	78	78
IRRIGATION	83	83	83	83	83	83
GUADALUPE BASIN TOTAL	441	433	416	398	379	384
FAYETTE WSC	72	80	85	90	94	97
FLATONIA	281	313	334	353	369	381
SCHULENBURG	701	783	838	885	926	958
COUNTY-OTHER	379	419	442	462	479	491
MANUFACTURING	394	439	439	439	439	439
MINING	354	285	205	129	50	49
LIVESTOCK	278	278	278	278	278	278
IRRIGATION	224	224	224	224	224	224
LAVACA BASIN TOTAL	2,683	2,821	2,845	2,860	2,859	2,917
FAYETTE COUNTY TOTAL	59,151	59,184	58,933	58,668	58,357	58,546
FREDERICKSBURG	3,351	3,543	3,703	3,911	4,118	4,322
COUNTY-OTHER	1,668	1,738	1,797	1,891	1,995	2,100
MANUFACTURING	77	93	93	93	93	93
MINING	4	4	4	4	4	4
LIVESTOCK	1,175	1,175	1,175	1,175	1,175	1,175
IRRIGATION	2,383	2,383	2,383	2,383	2,383	2,383
COLORADO BASIN TOTAL	8,658	8,936	9,155	9,457	9,768	10,077
COUNTY-OTHER	67	70	72	76	80	84
LIVESTOCK	37	37	37	37	37	37
GUADALUPE BASIN TOTAL	104	107	109	113	117	121
GILLESPIE COUNTY TOTAL	8,762	9,043	9,264	9,570	9,885	10,198
AUSTIN	188	827	1,304	2,063	3,025	4,357
BUDA*	1,768	2,508	3,419	4,563	5,860	7,338
CIMARRON PARK WATER	244	236	230	226	225	225
DEER CREEK RANCH WATER	26	29	33	35	38	41
DRIPPING SPRINGS WSC	1,930	3,190	4,103	5,278	6,716	7,476
GOFORTH SUD*	153	196	249	317	395	484
HAYS	183	235	294	348	435	533
HAYS COUNTY WCID 1	821	808	801	798	797	797
HAYS COUNTY WCID 2	285	369	464	551	688	844
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	4,499	5,590	6,273	7,711	9,151	10,593

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Region K Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER*	1,351	1,038	1,553	1,929	2,245	3,118
MANUFACTURING*	277	324	324	324	324	324
MINING	845	1,075	1,361	1,445	1,654	1,893
STEAM ELECTRIC POWER	1,187	1,187	1,187	1,187	1,187	1,187
LIVESTOCK*	17	17	17	17	17	17
IRRIGATION*	525	525	525	525	525	525
COLORADO BASIN TOTAL	14,299	18,154	22,137	27,317	33,282	39,752
HAYS COUNTY TOTAL	14,299	18,154	22,137	27,317	33,282	39,752
CORIX UTILITIES TEXAS INC*	187	184	183	184	185	187
HORSESHOE BAY	2,268	2,333	2,264	2,289	2,255	2,203
KINGSLAND WSC	918	1,032	1,015	962	1,045	1,133
LLANO	862	891	877	855	883	913
SUNRISE BEACH VILLAGE	74	71	69	68	68	68
COUNTY-OTHER	260	202	215	217	200	187
MANUFACTURING	3	4	4	4	4	4
MINING	3	3	3	3	3	3
STEAM ELECTRIC POWER	1,748	1,748	1,748	1,748	1,748	1,748
LIVESTOCK	580	580	580	580	580	580
IRRIGATION	998	998	998	998	998	998
COLORADO BASIN TOTAL	7,901	8,046	7,956	7,908	7,969	8,024
LLANO COUNTY TOTAL	7,901	8,046	7,956	7,908	7,969	8,024
BAY CITY	2,910	2,963	2,979	3,025	3,068	3,104
CANEY CREEK MUD OF MATAGORDA COUNTY	252	255	255	258	261	264
CORIX UTILITIES TEXAS INC*	6	6	6	6	6	6
MATAGORDA COUNTY WCID 6	113	113	112	113	115	116
MATAGORDA WASTE DISPOSAL & WSC	51	52	52	53	54	55
COUNTY-OTHER	449	451	448	450	456	461
MINING	53	56	42	30	19	12
LIVESTOCK	475	475	475	475	475	475
IRRIGATION	92,589	90,098	87,675	85,316	83,021	80,788
BRAZOS-COLORADO BASIN TOTAL	96,898	94,469	92,044	89,726	87,475	85,281
BAY CITY	6	6	6	6	6	6
CORIX UTILITIES TEXAS INC*	1	1	1	1	1	1
MATAGORDA WASTE DISPOSAL & WSC	76	78	79	80	81	82
COUNTY-OTHER	95	96	95	96	97	98
MANUFACTURING	4,199	4,916	4,916	4,916	4,916	4,916
MINING	8	8	6	5	3	2
STEAM ELECTRIC POWER	80,536	80,536	80,536	80,536	80,536	80,536
LIVESTOCK	94	94	94	94	94	94
IRRIGATION	1,719	1,672	1,627	1,584	1,541	1,500
COLORADO BASIN TOTAL	86,734	87,407	87,360	87,318	87,275	87,235
MARKHAM MUD	97	96	96	96	98	99
PALACIOS	615	623	624	629	638	645
COUNTY-OTHER	492	493	491	492	499	505
MINING	35	36	27	20	13	8
LIVESTOCK	506	506	506	506	506	506

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Region K Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
IRRIGATION	97,280	94,664	92,117	89,639	87,228	84,881
COLORADO-LAVACA BASIN TOTAL	99,025	96,418	93,861	91,382	88,982	86,644
MATAGORDA COUNTY TOTAL	282,657	278,294	273,265	268,426	263,732	259,160
GOLDTHWAITE	10	10	11	11	11	12
COUNTY-OTHER	142	141	140	144	149	155
MINING	2	2	2	2	2	2
LIVESTOCK	293	293	293	293	293	293
IRRIGATION	2,988	2,988	2,988	2,988	2,988	2,988
BRAZOS BASIN TOTAL	3,435	3,434	3,434	3,438	3,443	3,450
BROOKSMITH SUD*	7	7	7	7	8	8
CORIX UTILITIES TEXAS INC*	12	12	12	12	12	13
GOLDTHWAITE	390	393	395	407	422	439
ZEPHYR WSC*	3	3	3	3	3	4
COUNTY-OTHER	201	200	198	204	211	220
MANUFACTURING	2	2	2	2	2	2
MINING	2	2	2	2	2	2
LIVESTOCK	570	570	570	570	570	570
IRRIGATION	1,755	1,755	1,755	1,755	1,755	1,755
COLORADO BASIN TOTAL	2,942	2,944	2,944	2,962	2,985	3,013
MILLS COUNTY TOTAL	6,377	6,378	6,378	6,400	6,428	6,463
CORIX UTILITIES TEXAS INC*	15	15	15	15	15	15
NORTH SAN SABA WSC	185	191	190	187	191	195
RICHLAND SUD*	224	231	229	224	229	235
SAN SABA	1,175	1,216	1,212	1,186	1,213	1,241
COUNTY-OTHER	218	220	217	213	217	222
MANUFACTURING	10	12	12	12	12	12
MINING	1,088	1,093	944	900	864	838
LIVESTOCK	779	779	779	779	779	779
IRRIGATION	7,199	7,199	7,199	7,199	7,199	7,199
COLORADO BASIN TOTAL	10,893	10,956	10,797	10,715	10,719	10,736
SAN SABA COUNTY TOTAL	10,893	10,956	10,797	10,715	10,719	10,736
AQUA WSC*	1,088	1,226	1,362	1,524	1,671	1,809
AUSTIN	170,686	198,992	230,751	252,570	269,954	293,513
BARTON CREEK WEST WSC	436	433	430	428	427	427
BARTON CREEK WSC	524	619	709	776	830	893
BRIARCLIFF	300	340	380	425	466	504
CEDAR PARK*	2,251	2,387	2,554	2,550	2,547	2,546
COTTONWOOD CREEK MUD 1	95	107	120	129	138	148
CREEDMOOR-MAHA WSC*	602	662	721	797	872	944
CYPRESS RANCH WCID 1	121	134	144	153	164	163
DEER CREEK RANCH WATER	43	49	55	59	63	68
ELGIN	255	357	453	563	662	754
GARFIELD WSC	199	230	259	281	301	323
HORNSBY BEND UTILITY	594	678	761	823	879	944
HURST CREEK MUD	1,718	1,709	1,703	1,700	1,699	1,699
JONESTOWN WSC	675	709	744	787	828	866
KELLY LANE WCID 1	322	317	313	312	311	311

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Region K Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
LAGO VISTA	1,868	2,184	2,487	2,832	3,140	3,428
LAKEWAY MUD	2,757	2,882	3,019	3,166	3,212	3,211
LEANDER*	1,519	3,550	3,747	3,953	4,046	4,222
LOOP 360 WSC	1,225	1,268	1,318	1,363	1,407	1,486
MANOR	1,110	1,517	1,907	2,346	2,736	3,099
MANVILLE WSC*	2,439	2,946	3,435	3,994	4,496	4,966
NORTH AUSTIN MUD 1	81	78	76	75	75	75
NORTHTOWN MUD	728	841	947	1,066	1,171	1,268
OAK SHORES WATER SYSTEM	150	171	170	169	169	169
PFLUGERVILLE*	10,403	12,819	15,598	18,364	21,167	21,156
ROLLINGWOOD	383	379	375	374	375	377
ROUGH HOLLOW IN TRAVIS COUNTY	589	1,213	1,213	1,213	1,213	1,213
ROUND ROCK*	278	315	352	395	434	470
SENNA HILLS MUD	420	493	564	616	659	708
SHADY HOLLOW MUD	793	775	759	750	749	749
SUNSET VALLEY	368	417	483	559	649	753
SWEETWATER COMMUNITY	408	862	862	862	862	862
TRAVIS COUNTY MUD 10	74	87	99	108	115	124
TRAVIS COUNTY MUD 14	172	196	220	238	254	273
TRAVIS COUNTY MUD 2	322	372	421	457	489	525
TRAVIS COUNTY MUD 4	1,500	1,728	1,945	2,188	2,402	2,603
TRAVIS COUNTY WCID 10	3,499	3,802	4,094	4,433	4,739	5,026
TRAVIS COUNTY WCID 17	9,370	10,053	11,016	11,186	11,479	11,841
TRAVIS COUNTY WCID 18	1,070	1,207	1,341	1,499	1,643	1,779
TRAVIS COUNTY WCID 19	449	447	445	444	444	444
TRAVIS COUNTY WCID 20	584	581	579	577	577	577
TRAVIS COUNTY WCID POINT VENTURE	255	322	378	456	545	624
WELLS BRANCH MUD	1,397	1,352	1,321	1,303	1,298	1,297
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	6,698	7,357	7,925	8,824	9,398	9,914
WILLIAMSON COUNTY WSID 3*	120	147	145	144	144	144
WILLIAMSON TRAVIS COUNTIES MUD 1*	145	141	139	139	138	138
WINDERMERE UTILITY	2,920	2,864	2,831	2,815	2,810	2,809
COUNTY-OTHER AQUA TEXAS - RIVERCREST	317	315	313	312	312	312
COUNTY-OTHER	859	852	850	847	841	839
MANUFACTURING	13,164	14,853	14,853	14,853	14,853	14,853
MINING	3,467	4,067	4,714	5,320	5,986	6,749
STEAM ELECTRIC POWER	10,253	10,253	10,253	10,253	10,253	10,253
LIVESTOCK	509	509	509	509	509	509
IRRIGATION	4,816	4,816	4,816	4,816	4,816	4,816
COLORADO BASIN TOTAL	267,388	307,980	347,978	377,695	402,417	430,573
CREEDMOOR-MAHA WSC*	39	42	46	51	56	60
GOFORTH SUD*	10	12	16	20	25	31
COUNTY-OTHER	11	11	10	10	10	10
MINING	35	41	48	54	60	68
LIVESTOCK	18	18	18	18	18	18
GUADALUPE BASIN TOTAL	113	124	138	153	169	187
TRAVIS COUNTY TOTAL	267,501	308,104	348,116	377,848	402,586	430,760
BOLING MWD	105	107	109	112	115	119

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Region K Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
WHARTON	924	956	980	1,010	1,044	1,075
WHARTON COUNTY WCID 2	456	474	488	503	520	535
COUNTY-OTHER*	1,136	1,160	1,181	1,225	1,264	1,303
MANUFACTURING*	63	69	69	69	69	69
MINING*	39	41	30	23	14	10
STEAM ELECTRIC POWER*	1	1	1	1	1	1
LIVESTOCK*	404	404	404	404	404	404
IRRIGATION*	106,320	103,461	100,678	97,969	95,334	92,770
BRAZOS-COLORADO BASIN TOTAL	109,448	106,673	103,940	101,316	98,765	96,286
EL CAMPO*	5	5	5	6	6	6
WHARTON	756	782	802	827	854	880
COUNTY-OTHER*	587	599	611	633	654	673
MANUFACTURING*	93	102	102	102	102	102
MINING*	26	27	20	15	10	6
STEAM ELECTRIC POWER*	7,900	7,900	7,900	7,900	7,900	7,900
LIVESTOCK*	301	301	301	301	301	301
IRRIGATION*	65,853	64,081	62,357	60,680	59,048	57,460
COLORADO BASIN TOTAL	75,521	73,797	72,098	70,464	68,875	67,328
COUNTY-OTHER*	189	193	197	204	211	217
MINING*	6	6	5	3	2	1
LIVESTOCK*	87	87	87	87	87	87
IRRIGATION*	16,937	16,481	16,038	15,607	15,187	14,778
COLORADO-LAVACA BASIN TOTAL	17,219	16,767	16,327	15,901	15,487	15,083
COUNTY-OTHER*	18	19	19	20	21	21
LAVACA BASIN TOTAL	18	19	19	20	21	21
WHARTON COUNTY TOTAL	202,206	197,256	192,384	187,701	183,148	178,718
AUSTIN	10,787	13,742	16,122	18,685	21,592	24,782
NORTH AUSTIN MUD 1	774	747	726	714	711	711
WELLS BRANCH MUD	80	77	76	75	74	74
COUNTY-OTHER*	67	93	89	85	81	77
MANUFACTURING*	25	30	30	30	30	30
MINING*	5	3	3	3	3	3
BRAZOS BASIN TOTAL	11,738	14,692	17,046	19,592	22,491	25,677
WILLIAMSON COUNTY TOTAL	11,738	14,692	17,046	19,592	22,491	25,677
REGION K DEMAND TOTAL	1,116,839	1,162,803	1,204,224	1,237,063	1,265,256	1,307,643

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APPENDIX 2B

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

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

			Region K Gallons per Capita per Day (GPCD) Projections					
Region	County	WUG Name	2020	2030	2040	2050	2060	2070
K	BASTROP	AQUA WSC	147	143	141	140	140	140
K	BASTROP	BASTROP	165	161	159	158	158	158
K	BASTROP	BASTROP COUNTY WCID 2	85	83	82	81	81	81
K	BASTROP	COUNTY-OTHER, BASTROP	162	160	159	158	158	158
K	BASTROP	CREEDMOOR-MAHA WSC	81	107	92	81	97	89
K	BASTROP	ELGIN	125	122	120	119	119	119
K	BASTROP	LEE COUNTY WSC	113	110	108	107	106	106
K	BASTROP	POLONIA WSC	110	107	104	104	104	104
K	BASTROP	SMITHVILLE	153	148	146	145	145	145
K	BLANCO	BLANCO	131	127	125	124	124	124
K	BLANCO	CANYON LAKE WATER SERVICE	111	110	109	109	109	109
K	BLANCO	COUNTY-OTHER, BLANCO	111	107	105	104	104	104
K	BLANCO	JOHNSON CITY	154	150	148	147	147	147
K	BURNET	BERTRAM	218	214	212	211	211	211
K	BURNET	BURNET	200	196	195	194	193	193
K	BURNET	CORIX UTILITIES TEXAS INC	139	136	134	133	132	132
K	BURNET	COTTONWOOD SHORES	157	154	152	151	151	151
K	BURNET	COUNTY-OTHER, BURNET	137	134	132	131	131	131
K	BURNET	GEORGETOWN	198	194	193	193	193	192
K	BURNET	GRANITE SHOALS	96	93	92	91	91	91
K	BURNET	HORSESHOE BAY	410	407	405	404	404	404
K	BURNET	KEMPNER WSC	155	153	151	150	150	149
K	BURNET	KINGSLAND WSC	97	95	94	93	92	93
K	BURNET	MARBLE FALLS	239	235	233	233	233	233
K	BURNET	MEADOWLAKES	299	296	295	294	293	293
K	COLORADO	COLUMBUS	264	260	257	255	255	255
K	COLORADO	CORIX UTILITIES TEXAS INC	140	137	133	133	131	132
K	COLORADO	COUNTY-OTHER, COLORADO	110	106	103	101	101	101
K	COLORADO	EAGLE LAKE	122	118	115	113	113	112
K	COLORADO	WEIMAR	204	201	197	196	195	195
K	FAYETTE	AQUA WSC	147	143	141	140	140	140
K	FAYETTE	COUNTY-OTHER, FAYETTE	116	112	109	108	107	107
K	FAYETTE	FAYETTE COUNTY WCID MONUMENT HILL	216	213	210	209	209	209
K	FAYETTE	FAYETTE WSC	125	122	120	119	119	119
K	FAYETTE	FLATONIA	187	182	179	178	178	177
K	FAYETTE	LA GRANGE	156	152	149	148	148	148
K	FAYETTE	LEE COUNTY WSC	113	110	108	107	106	106
K	FAYETTE	SCHULENBURG	199	195	192	191	191	190
K	FAYETTE	WEST END WSC	97	93	90	88	88	88
K	GILLESPIE	COUNTY-OTHER, GILLESPIE	105	101	99	97	97	97
K	GILLESPIE	FREDERICKSBURG	248	244	242	240	240	240
K	HAYS	AUSTIN	156	154	154	154	154	154
K	HAYS	BUDA	161	158	158	157	157	157
K	HAYS	CIMARRON PARK WATER	103	100	97	95	95	95
K	HAYS	COUNTY-OTHER, HAYS	110	107	105	104	104	104
K	HAYS	DEER CREEK RANCH WATER	70	66	65	63	64	64
K	HAYS	DRIPPING SPRINGS WSC	157	154	153	152	152	152
K	HAYS	GOFORTH SUD	100	97	95	95	95	95
K	HAYS	HAYS	134	131	129	128	128	128
K	HAYS	HAYS COUNTY WCID 1	201	198	196	195	195	195
K	HAYS	HAYS COUNTY WCID 2	208	205	203	202	202	202
K	HAYS	WEST TRAVIS COUNTY PUBLIC UTILITY	314	312	311	311	311	311
K	LLANO	CORIX UTILITIES TEXAS INC	139	136	134	133	132	132
K	LLANO	COUNTY-OTHER, LLANO	95	94	93	93	92	92
K	LLANO	HORSESHOE BAY	410	407	405	404	404	404
K	LLANO	KINGSLAND WSC	97	95	94	93	93	92
K	LLANO	LLANO	216	212	209	207	207	207
K	LLANO	SUNRISE BEACH VILLAGE	92	88	85	84	84	84

			Region K Gallons per Capita per Day (GPCD) Projections					
Region	County	WUG Name	2020	2030	2040	2050	2060	2070
K	MATAGORDA	BAY CITY	135	131	127	126	126	126
K	MATAGORDA	CANEY CREEK MUD OF MATAGORDA COUNTY	108	104	100	99	99	99
K	MATAGORDA	CORIX UTILITIES TEXAS INC	149	137	137	134	131	128
K	MATAGORDA	COUNTY-OTHER, MATAGORDA	93	89	86	84	84	84
K	MATAGORDA	MARKHAM MUD	85	80	78	76	76	76
K	MATAGORDA	MATAGORDA COUNTY WCID 6	92	87	84	82	83	82
K	MATAGORDA	MATAGORDA WASTE DISPOSAL & WSC	163	159	156	155	154	154
K	MATAGORDA	PALACIOS	109	105	102	101	100	100
K	MILLS	BROOKESMITH SUD	130	125	123	118	130	125
K	MILLS	CORIX UTILITIES TEXAS INC	145	141	137	132	128	133
K	MILLS	COUNTY-OTHER, MILLS	114	110	106	105	105	105
K	MILLS	GOLDTHWAITE	172	168	164	163	163	163
K	MILLS	ZEPHYR WSC	69	67	64	62	60	76
K	SAN SABA	CORIX UTILITIES TEXAS INC	142	135	134	137	134	130
K	SAN SABA	COUNTY-OTHER, SAN SABA	139	134	131	131	130	130
K	SAN SABA	NORTH SAN SABA WSC	255	251	249	249	249	248
K	SAN SABA	RICHLAND SUD	209	206	203	202	201	202
K	SAN SABA	SAN SABA	310	306	304	302	302	302
K	TRAVIS	AQUA WSC	147	143	141	140	140	140
K	TRAVIS	AUSTIN	156	154	154	154	154	154
K	TRAVIS	BARTON CREEK WEST WSC	291	289	287	286	285	285
K	TRAVIS	BARTON CREEK WSC	666	664	662	662	661	661
K	TRAVIS	BRIARCLIFF	133	131	130	129	129	129
K	TRAVIS	CEDAR PARK	184	183	182	182	182	182
K	TRAVIS	COTTONWOOD CREEK MUD 1	59	56	54	53	53	53
K	TRAVIS	COUNTY-OTHER, TRAVIS	125	124	124	123	122	122
K	TRAVIS	COUNTY-OTHER, TRAVIS (AQUA TEXAS - RIVERCREST)	366	363	361	360	360	360
K	TRAVIS	CREEDMOOR-MAHA WSC	99	95	92	90	90	90
K	TRAVIS	CYPRESS RANCH WCID 1	88	84	83	82	82	81
K	TRAVIS	DEER CREEK RANCH WATER	69	66	65	64	63	64
K	TRAVIS	ELGIN	125	122	120	119	119	119
K	TRAVIS	GARFIELD WSC	100	98	96	95	95	95
K	TRAVIS	GOFORTH SUD	103	93	97	94	94	95
K	TRAVIS	HORNSBY BEND UTILITY	75	72	71	70	70	69
K	TRAVIS	HURST CREEK MUD	496	493	491	490	490	490
K	TRAVIS	JONESTOWN WSC	153	150	148	147	147	147
K	TRAVIS	KELLY LANE WCID 1	170	167	165	165	164	164
K	TRAVIS	LAGO VISTA	220	218	216	216	215	215
K	TRAVIS	LAKEWAY MUD	226	223	221	220	220	220
K	TRAVIS	LEANDER	121	119	118	118	118	118
K	TRAVIS	LOOP 360 WSC	524	522	520	519	519	519
K	TRAVIS	MANOR	115	113	112	112	112	112
K	TRAVIS	MANVILLE WSC	139	136	135	134	134	134
K	TRAVIS	NORTH AUSTIN MUD 1	93	89	87	86	86	86
K	TRAVIS	NORTHTOWN MUD	60	60	60	60	60	60
K	TRAVIS	OAK SHORES WATER SYSTEM	245	242	240	239	239	239
K	TRAVIS	PFLUGERVILLE	148	146	146	145	145	145
K	TRAVIS	ROLLINGWOOD	241	237	233	231	231	231
K	TRAVIS	ROUGH HOLLOW IN TRAVIS COUNTY	190	190	190	190	190	190
K	TRAVIS	ROUND ROCK	143	140	139	139	139	138
K	TRAVIS	SENNA HILLS MUD	308	305	303	302	302	302
K	TRAVIS	SHADY HOLLOW MUD	162	158	155	153	153	153
K	TRAVIS	SUNSET VALLEY	353	350	349	348	349	348
K	TRAVIS	SWEETWATER COMMUNITY	132	132	132	132	132	132
K	TRAVIS	TRAVIS COUNTY MUD 10	190	189	186	186	185	185
K	TRAVIS	TRAVIS COUNTY MUD 14	76	73	72	71	70	70

			Region K Gallons per Capita per Day (GPCD) Projections					
Region	County	WUG Name	2020	2030	2040	2050	2060	2070
K	TRAVIS	TRAVIS COUNTY MUD 2	114	111	109	108	108	108
K	TRAVIS	TRAVIS COUNTY MUD 4	547	546	546	545	545	545
K	TRAVIS	TRAVIS COUNTY WCID 10	410	406	403	402	402	402
K	TRAVIS	TRAVIS COUNTY WCID 17	228	226	225	225	224	224
K	TRAVIS	TRAVIS COUNTY WCID 18	151	147	145	144	144	144
K	TRAVIS	TRAVIS COUNTY WCID 19	588	585	583	581	581	581
K	TRAVIS	TRAVIS COUNTY WCID 20	461	459	457	456	456	456
K	TRAVIS	TRAVIS COUNTY WCID POINT VENTURE	220	217	215	214	214	214
K	TRAVIS	WELLS BRANCH MUD	67	64	63	62	62	62
K	TRAVIS	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	314	312	311	311	311	311
K	TRAVIS	WILLIAMSON COUNTY WSID 3	118	115	113	112	112	112
K	TRAVIS	WILLIAMSON TRAVIS COUNTIES MUD 1	116	113	111	111	111	111
K	TRAVIS	WINDERMERE UTILITY	146	143	141	141	140	140
K	WHARTON	BOLING MWD	110	105	102	101	100	100
K	WHARTON	COUNTY-OTHER, WHARTON	118	113	110	109	109	109
K	WHARTON	EL CAMPO	165	154	149	173	167	162
K	WHARTON	WHARTON	159	155	151	150	150	150
K	WHARTON	WHARTON COUNTY WCID 2	182	178	175	173	173	173
K	WILLIAMSON	AUSTIN	156	154	154	154	154	154
K	WILLIAMSON	COUNTY-OTHER, WILLIAMSON	138	136	134	133	132	132
K	WILLIAMSON	NORTH AUSTIN MUD 1	93	90	87	86	85	85
K	WILLIAMSON	WELLS BRANCH MUD	67	64	63	62	62	62

Region	County	WUG Name	Region K Municipal Water Savings Projections (Ac-Ft/Yr)					
			2020	2030	2040	2050	2060	2070
K	BASTROP	AQUA WSC	591.20	1,075.31	1,618.36	2,261.92	3,050.83	4,081.77
K	BASTROP	BASTROP	123.80	232.95	355.79	503.01	684.96	925.24
K	BASTROP	BASTROP COUNTY WCID 2	48.20	94.44	147.85	215.03	301.89	417.60
K	BASTROP	COUNTY-OTHER, BASTROP	66.42	99.35	128.88	164.56	207.52	260.15
K	BASTROP	CREEDMOOR-MAHA WSC	0.71	0.08	0.57	1.07	0.56	0.93
K	BASTROP	ELGIN	101.44	181.92	269.65	372.96	501.50	669.01
K	BASTROP	LEE COUNTY WSC	9.81	17.48	26.70	38.68	52.58	70.10
K	BASTROP	POLONIA WSC	2.72	4.33	6.75	8.94	11.77	15.33
K	BASTROP	SMITHVILLE	60.23	110.80	168.78	234.43	315.66	421.58
K	BLANCO	BLANCO	24.52	39.80	49.55	55.29	57.40	58.46
K	BLANCO	CANYON LAKE WATER SERVICE	5.64	9.37	13.49	17.01	20.14	23.06
K	BLANCO	COUNTY-OTHER, BLANCO	86.29	139.07	171.84	186.69	190.97	190.50
K	BLANCO	JOHNSON CITY	21.84	34.69	44.13	48.86	50.47	52.05
K	BURNET	BERTRAM	18.54	31.62	40.70	48.98	54.60	58.57
K	BURNET	BURNET	77.32	127.09	166.71	198.95	221.79	239.44
K	BURNET	CORIX UTILITIES TEXAS INC	9.02	14.40	19.26	23.13	26.16	27.68
K	BURNET	COTTONWOOD SHORES	14.39	22.87	29.80	35.68	40.36	42.83
K	BURNET	COUNTY-OTHER, BURNET	223.48	342.37	405.44	478.38	532.69	573.08
K	BURNET	GEORGETOWN	3.03	5.63	7.01	7.71	8.57	9.82
K	BURNET	GRANITE SHOALS	45.14	70.59	87.24	102.04	120.18	144.55
K	BURNET	HORSESHOE BAY	12.79	24.78	34.56	44.86	51.58	57.19
K	BURNET	KEMPNER WSC	7.43	10.52	14.13	16.19	17.52	19.12
K	BURNET	KINGSLAND WSC	4.46	6.15	8.05	9.60	11.20	11.73
K	BURNET	MARBLE FALLS	105.84	214.14	348.19	419.42	461.81	482.37
K	BURNET	MEADOWLAKES	24.31	33.31	38.31	40.31	41.31	41.31
K	COLORADO	COLUMBUS	42.12	63.37	80.43	92.29	96.94	100.36
K	COLORADO	CORIX UTILITIES TEXAS INC	2.90	3.90	5.40	5.57	6.41	6.24
K	COLORADO	COUNTY-OTHER, COLORADO	121.24	179.89	226.54	260.45	273.84	284.35
K	COLORADO	EAGLE LAKE	41.31	61.70	78.89	91.36	95.68	99.42
K	COLORADO	WEIMAR	23.13	33.35	43.38	49.79	52.60	54.73
K	FAYETTE	AQUA WSC	0.25	0.39	0.50	0.55	0.59	0.61
K	FAYETTE	COUNTY-OTHER, FAYETTE	107.33	174.47	224.96	256.78	270.91	278.62
K	FAYETTE	FAYETTE COUNTY WCID MONUMENT HILL	8.40	11.28	15.24	17.42	18.56	18.91
K	FAYETTE	FAYETTE WSC	49.81	77.93	98.08	111.17	119.05	123.13
K	FAYETTE	FLATONIA	19.87	31.73	40.81	46.72	49.67	51.88
K	FAYETTE	LA GRANGE	61.60	99.71	128.33	147.03	156.25	161.34
K	FAYETTE	LEE COUNTY WSC	14.10	21.85	27.57	32.15	34.45	35.74
K	FAYETTE	SCHULENBURG	35.74	57.92	73.62	84.92	89.80	93.15
K	FAYETTE	WEST END WSC	13.47	21.72	29.30	35.08	39.33	42.55
K	GILLESPIE	COUNTY-OTHER, GILLESPIE	147.12	224.16	286.77	333.71	359.02	379.51
K	GILLESPIE	FREDERICKSBURG	119.64	181.55	231.13	268.69	287.67	303.32
K	HAYS	AUSTIN	6.89	43.30	67.86	106.76	156.96	225.86
K	HAYS	BUDA	82.04	151.42	225.94	313.98	409.36	515.87
K	HAYS	CIMARRON PARK WATER	21.34	29.34	35.34	39.34	40.34	40.34
K	HAYS	COUNTY-OTHER, HAYS	101.10	106.78	193.85	254.83	303.90	424.87
K	HAYS	DEER CREEK RANCH WATER	2.92	5.25	6.40	8.16	8.22	8.71
K	HAYS	DRIPPING SPRINGS WSC	103.06	229.24	332.77	451.54	584.54	656.24
K	HAYS	GOFORTH SUD	13.78	23.89	35.36	47.46	59.68	73.24
K	HAYS	HAYS	12.74	22.25	32.45	41.08	51.31	63.99
K	HAYS	HAYS COUNTY WCID 1	36.88	49.88	56.88	59.88	60.88	60.88
K	HAYS	HAYS COUNTY WCID 2	12.52	21.86	32.11	40.39	51.18	63.14
K	HAYS	WEST TRAVIS COUNTY PUBLIC UTILITY	99.13	157.67	192.36	246.56	298.76	348.96
K	LLANO	CORIX UTILITIES TEXAS INC	13.11	18.12	21.12	22.12	23.29	23.30
K	LLANO	COUNTY-OTHER, LLANO	23.25	20.21	21.86	23.56	22.90	21.83
K	LLANO	HORSESHOE BAY	52.78	74.35	83.13	90.59	89.77	89.08
K	LLANO	KINGSLAND WSC	81.63	121.63	134.36	135.94	151.61	165.73
K	LLANO	LLANO	40.49	60.60	73.33	78.88	82.52	85.18
K	LLANO	SUNRISE BEACH VILLAGE	6.65	10.10	11.99	12.76	12.99	13.32
K	MATAGORDA	BAY CITY	216.29	328.14	417.72	453.41	468.40	473.98
K	MATAGORDA	CANEY CREEK MUD OF MATAGORDA COUNTY	23.99	35.52	45.04	49.18	51.20	51.90
K	MATAGORDA	CORIX UTILITIES TEXAS INC	0.18	0.68	0.84	1.01	1.18	1.35
K	MATAGORDA	COUNTY-OTHER, MATAGORDA	109.44	165.32	209.97	235.97	243.31	246.31
K	MATAGORDA	MARKHAM MUD	10.80	17.44	21.16	23.93	23.95	24.33
K	MATAGORDA	MATAGORDA COUNTY WCID 6	11.33	18.01	23.08	25.36	25.74	26.32
K	MATAGORDA	MATAGORDA WASTE DISPOSAL & WSC	7.36	11.13	13.98	15.57	16.46	16.75

Region	County	WUG Name	Region K Municipal Water Savings Projections (Ac-Ft/Yr)					
			2020	2030	2040	2050	2060	2070
K	MATAGORDA	PALACIOS	54.02	81.21	102.87	115.33	118.73	120.53
K	MILLS	BROOKSMITH SUD	0.63	0.95	1.11	1.43	0.75	1.07
K	MILLS	CORIX UTILITIES TEXAS INC	0.35	0.68	1.02	1.52	2.02	1.52
K	MILLS	COUNTY-OTHER, MILLS	28.69	43.19	56.33	61.89	65.58	68.50
K	MILLS	GOLDTHWAITE	20.70	31.69	40.65	46.09	48.93	50.80
K	MILLS	ZEPHYR WSC	0.58	0.67	0.86	0.95	1.13	0.32
K	SAN SABA	CORIX UTILITIES TEXAS INC	0.69	1.52	1.69	1.36	1.69	2.19
K	SAN SABA	COUNTY-OTHER, SAN SABA	16.16	25.01	30.01	29.84	31.18	32.19
K	SAN SABA	NORTH SAN SABA WSC	6.33	9.50	11.38	11.43	11.86	12.59
K	SAN SABA	RICHLAND SUD	8.38	12.56	15.77	16.88	17.72	17.31
K	SAN SABA	SAN SABA	34.19	51.08	61.87	67.14	70.16	71.46
K	TRAVIS	AQUA WSC	69.73	111.38	143.97	171.36	191.09	208.42
K	TRAVIS	AUSTIN	6,564.64	10,336.81	11,987.57	13,120.77	14,023.37	15,247.54
K	TRAVIS	BARTON CREEK WEST WSC	11.79	14.79	17.79	19.79	20.79	20.79
K	TRAVIS	BARTON CREEK WSC	6.78	10.07	13.83	15.63	17.58	18.85
K	TRAVIS	BRIARCLIFF	17.30	26.42	32.70	39.66	44.31	48.79
K	TRAVIS	CEDAR PARK	108.26	129.64	152.89	156.89	159.89	160.89
K	TRAVIS	COTTONWOOD CREEK MUD 1	13.60	21.71	27.85	32.96	35.51	38.50
K	TRAVIS	COUNTY-OTHER, TRAVIS	75.42	82.42	85.42	88.42	94.42	96.42
K	TRAVIS	COUNTY-OTHER, TRAVIS (AQUA TEXAS - RIVERCREST)	7.25	9.25	11.25	12.25	12.25	12.25
K	TRAVIS	CREEDMOOR-MAHA WSC	70.82	114.28	151.70	183.07	202.87	220.03
K	TRAVIS	CYPRESS RANCH WCID 1	11.59	18.27	22.78	25.61	28.06	29.06
K	TRAVIS	DEER CREEK RANCH WATER	5.58	8.58	11.14	13.43	14.59	15.35
K	TRAVIS	ELGIN	19.31	38.44	56.76	74.69	88.50	101.60
K	TRAVIS	GARFIELD WSC	17.35	26.40	35.49	41.45	44.53	48.42
K	TRAVIS	GOFORTH SUD	0.62	2.04	2.07	3.20	3.94	4.53
K	TRAVIS	HORNSBY BEND UTILITY	62.94	100.36	133.02	156.09	169.91	183.75
K	TRAVIS	HURST CREEK MUD	29.29	38.29	44.29	47.29	48.29	48.29
K	TRAVIS	JONESTOWN WSC	36.99	52.41	64.12	72.88	77.68	82.42
K	TRAVIS	KELLY LANE WCID 1	15.56	20.56	24.56	25.56	26.56	26.56
K	TRAVIS	LAGO VISTA	67.88	105.34	135.63	163.76	185.21	203.69
K	TRAVIS	LAKEWAY MUD	101.61	144.36	175.12	195.87	202.03	203.03
K	TRAVIS	LEANDER	93.43	283.22	317.63	343.05	354.14	370.84
K	TRAVIS	LOOP 360 WSC	18.08	24.54	29.96	33.83	35.12	37.16
K	TRAVIS	MANOR	72.09	125.21	169.24	216.33	255.30	291.20
K	TRAVIS	MANVILLE WSC	157.30	252.25	330.89	407.49	466.50	518.21
K	TRAVIS	NORTH AUSTIN MUD 1	7.24	10.24	12.24	13.24	13.24	13.24
K	TRAVIS	NORTHTOWN MUD	0.00	0.00	0.00	0.00	0.00	0.00
K	TRAVIS	OAK SHORES WATER SYSTEM	4.73	8.11	9.11	10.11	10.11	10.11
K	TRAVIS	PFLUGERVILLE	490.93	766.08	1,000.12	1,221.81	1,432.89	1,443.89
K	TRAVIS	ROLLINGWOOD	14.93	21.17	27.13	30.37	31.33	31.29
K	TRAVIS	ROUGH HOLLOW IN TRAVIS COUNTY	0.00	0.00	0.00	0.00	0.00	0.00
K	TRAVIS	ROUND ROCK	16.89	26.03	32.45	38.15	42.05	45.89
K	TRAVIS	SENNA HILLS MUD	11.48	18.48	23.58	27.51	30.17	32.85
K	TRAVIS	SHADY HOLLOW MUD	43.28	61.28	77.28	86.28	87.28	87.28
K	TRAVIS	SUNSET VALLEY	9.11	14.04	17.38	21.66	24.93	29.19
K	TRAVIS	SWEETWATER COMMUNITY	0.09	0.31	0.31	0.31	0.31	0.31
K	TRAVIS	TRAVIS COUNTY MUD 10	3.57	4.84	6.66	7.69	8.94	9.08
K	TRAVIS	TRAVIS COUNTY MUD 14	17.60	28.69	38.00	44.56	48.79	52.46
K	TRAVIS	TRAVIS COUNTY MUD 2	23.33	37.15	48.97	57.79	62.55	67.82
K	TRAVIS	TRAVIS COUNTY MUD 4	17.89	25.08	29.62	34.22	39.28	42.45
K	TRAVIS	TRAVIS COUNTY WCID 10	81.13	123.56	157.28	182.96	198.93	211.84
K	TRAVIS	TRAVIS COUNTY WCID 17	337.08	452.69	540.23	570.61	594.31	616.68
K	TRAVIS	TRAVIS COUNTY WCID 18	66.99	105.63	137.59	165.44	185.25	201.59
K	TRAVIS	TRAVIS COUNTY WCID 19	5.54	7.54	9.54	10.54	10.54	10.54
K	TRAVIS	TRAVIS COUNTY WCID 20	9.64	12.64	14.64	16.64	16.64	16.64
K	TRAVIS	TRAVIS COUNTY WCID POINT VENTURE	9.59	16.40	22.46	29.25	35.51	40.28
K	TRAVIS	WELLS BRANCH MUD	199.21	244.21	275.21	293.21	298.21	299.21
K	TRAVIS	WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY	147.78	207.19	242.55	281.65	306.69	326.44
K	TRAVIS	WILLIAMSON COUNTY WSID 3	8.44	14.32	16.32	17.32	17.32	17.32
K	TRAVIS	WILLIAMSON TRAVIS COUNTIES MUD 1	12.09	16.09	18.09	18.09	19.09	19.09
K	TRAVIS	WINDERMERE UTILITY	161.92	217.92	250.92	266.92	271.92	272.92
K	WHARTON	BOLING MWD	8.97	14.30	18.17	20.23	21.90	22.03
K	WHARTON	COUNTY-OTHER, WHARTON	169.06	262.41	333.23	352.42	370.59	382.73

Region	County	WUG Name	Region K Municipal Water Savings Projections (Ac-Ft/Yr)					
			2020	2030	2040	2050	2060	2070
K	WHARTON	EL CAMPO	0.38	0.78	0.98	0.18	0.38	0.58
K	WHARTON	WHARTON	104.57	161.29	208.72	232.85	244.92	252.67
K	WHARTON	WHARTON COUNTY WCID 2	24.68	37.65	48.16	54.67	57.24	59.66
K	WILLIAMSON	AUSTIN	414.55	713.55	837.38	970.92	1,121.94	1,287.02
K	WILLIAMSON	COUNTY-OTHER, WILLIAMSON	4.95	8.29	9.14	9.50	9.52	9.21
K	WILLIAMSON	NORTH AUSTIN MUD 1	67.95	94.95	115.95	127.95	130.95	130.95
K	WILLIAMSON	WELLS BRANCH MUD	11.35	14.35	15.35	16.35	17.35	17.35

APPENDIX 2C

*REVISION REQUEST SUBMITTALS TO THE TWDB BY THE LCRWPG
REGARDING POPULATION, MUNICIPAL, AND NON-MUNICIPAL
WATER DEMAND PROJECTIONS FOR THE 2021 REGIONAL WATER
PLANNING CYCLE*

*Region K Population and Municipal Demand Projection Revision Memo
Region K Non-Municipal Demand Projection Revision Memo
Irrigation Projections Memo Dated October 5, 2017*

Region K Population and Municipal Demand Projection Revision Memo

To Texas Water Development Board Staff Page 1

CC John Burke, Lauri Gillam, File

Subject **Requested Population and Municipal Demand Projection Revisions**

From Jaime Burke

Date January 10, 2018

The Region K Regional Water Planning Group and the Region K Population and Water Demand Committee have spent the last year reviewing the draft municipal projections from the TWDB and coordinating with the municipal WUGs in the region to determine appropriate revisions for the TWDB staff to consider. At the January 10, 2018 Region K meeting, the Region K RWPG approved to request the following revisions to the draft municipal projections, for consideration by the TWDB staff.

Municipal Population and Demand Projection Requested Revisions:

Many of the following requested revisions involve changing the base GPCD for a WUG from the city-boundary GPCD to the utility-boundary GPCD. The documentation to support these revisions includes the following:

On June 30th, TWDB staff sent an email containing historical population and GPCD estimates for Utility WUGs. The email explained that “The base GPCDs used to calculate draft water demand projections were carried over from the 2017 State Water Plan, which were based on city boundaries. The historical GPCDs provided in the attached table were developed using utility population and water use data from the WUS and estimated based on utility service area boundaries. Therefore, you will see some differences between the base GPCDs in the draft projections and historical GPCD estimates in many WUGs.” The email went on to state that “This information can be potentially used as supporting documentation/data to justify changes to the draft population or the base GPCDs in the draft projections.”

1. **Bastrop County** – No population revisions; requesting revision to base GPCD for City of Bastrop.
 - a. **Bastrop** – Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	191	Demand (AF)	2,244	2,978	3,951	5,288	7,111	9,536
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	175	Demand (AF)	2,046	2,709	3,590	4,803	6,458	8,660
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-16	Demand (AF)	-198	-269	-361	-485	-653	-876

2. **Blanco County** – No population revisions; requesting revision to base GPCD for City of Blanco.

- a. **Blanco** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	161	Demand (AF)	365	423	456	472	485	493
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	141	Demand (AF)	316	365	393	407	418	425
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-20	Demand (AF)	-49	-58	-63	-65	-67	-68

3. **Burnet County** – Requesting revision to population for County-Other, Granite Shoals, and Meadowlakes MUD; requesting revision to base GPCD for Burnet, Cottonwood Shores, and Horseshoe Bay; requesting WUG name change for Chisholm Trail SUD.

- a. **Burnet** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	231	Demand (AF)	1,844	2,197	2,497	2,790	3,054	3,284
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	209	Demand (AF)	1,661	1,976	2,244	2,506	2,742	2,949
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-22	Demand (AF)	-183	-221	-253	-284	-312	-335

- b. **Chisholm Trail SUD** – Chisholm Trail SUD requested WUG name be changed to Georgetown. Request should be consistent with Region G.
- c. **Cottonwood Shores** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	154	Demand (AF)	227	268	304	339	371	398
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	166	Demand (AF)	245	291	330	368	402	433
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	12	Demand (AF)	18	23	26	29	31	35

- d. **County-Other, Burnet** – Increase County-Other population to balance out other population changes so no change to Burnet County total population. Revised demands reflected – no change to base GPCD.

DRAFT	2020	2030	2040	2050	2060	2070
Population	20,892	22,826	22,151	24,000	26,259	28,955
REVISED	2020	2030	2040	2050	2060	2070
Population	22,242	25,317	25,666	28,405	30,920	33,087
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	1,350	2,491	3,515	4,405	4,661	4,132

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	146	Demand (AF)	3,207	3,424	3,272	3,520	3,842	4,234
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	146	Demand (AF)	3,414	3,798	3,792	4,167	4,524	4,838
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	207	374	520	647	682	604

- e. **Granite Shoals** - Request to decrease population due to lower anticipated growth than the numbers show. Homes are on individual septic, and do not expect fast growth. Moved population balance to County-Other. Revised demands reflected – no change to base GPCD.

DRAFT	2020	2030	2040	2050	2060	2070
Population	6,751	8,168	9,363	10,506	11,512	12,383
REVISED	2020	2030	2040	2050	2060	2070
Population	5,401	6,211	6,832	7,515	8,643	10,371
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-1,350	-1,957	-2,531	-2,991	-2,869	-2,012

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	103	Demand (AF)	722	850	960	1,069	1,169	1,256
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	103	Demand (AF)	578	646	701	765	877	1,052
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	-144	-204	-259	-304	-292	-204

- f. **Horseshoe Bay** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade. (Similar request for Horseshoe Bay under Llano County)

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	569	Demand (AF)	747	1,048	1,302	1,545	1,759	1,945
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	420	Demand (AF)	548	767	952	1,128	1,285	1,421
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-149	Demand (AF)	-199	-281	-350	-417	-474	-524

- g. **Meadowlakes MUD** - Request decrease to population in 2030-2070, based on expected build-out conditions. Mike Williams, Public Works Director, said they are currently at 90% buildout, and will reach 100% buildout early in the 2020 decade. Moved balance to County-Other. Revised demands reflected – no change to base GPCD.

DRAFT	2020	2030	2040	2050	2060	2070
Population	2,540	3,074	3,524	3,954	4,332	4,660
REVISED	2020	2030	2040	2050	2060	2070
Population	2,540	2,540	2,540	2,540	2,540	2,540
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	0	-534	-984	-1,414	-1,792	-2,120

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	308	Demand (AF)	852	1,020	1,163	1,301	1,425	1,532
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	308	Demand (AF)	852	842	839	836	836	834
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	0	-178	-324	-465	-589	-698

4. **Colorado County** – No population revisions; requesting revision to base GPCD for City of Weimar.

- a. **Weimar** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	229	Demand (AF)	532	545	554	574	593	613
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	214	Demand (AF)	496	507	515	533	551	569
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-15	Demand (AF)	-36	-38	-39	-41	-42	-44

5. **Fayette County** – Requesting small revision to 2020 population for County-Other and Fayette County WCID Monument Hill; requesting revision to base GPCD for County-Other, Fayette County WCID Monument Hill, Fayette WSC, and La Grange.

a. **County-Other, Fayette** – Requesting decrease to County-Other 2020 population to balance out population increase to Fayette County WCID Monument Hill so no change to Fayette County total population. Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	2020	2030	2040	2050	2060	2070
Population	9,589	10,943	11,825	12,511	13,015	13,353
REVISED	2020	2030	2040	2050	2060	2070
Population	9,532	10,943	11,825	12,511	13,015	13,353
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-57	0	0	0	0	0

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	112	Demand (AF)	1,095	1,198	1,259	1,313	1,362	1,397
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	126	Demand (AF)	1,238	1,370	1,444	1,509	1,566	1,606
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	14	Demand (AF)	143	172	185	196	204	209

b. **Fayette County WCID Monument Hill** – Request slight increase to 2020 population based on TCEQ WDD listed current population of 744. Draft projections/historical data does not match submitted water use reports. Request increasing GPCD and demand to better represent 2011 water use. Water use reports have been included as supporting documentation.

DRAFT	2020	2030	2040	2050	2060	2070
Population	703	803	870	926	970	1,003
REVISED	2020	2030	2040	2050	2060	2070
Population	760	803	870	926	970	1,003
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	57	0	0	0	0	0

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	144	Demand (AF)	106	118	126	133	139	143
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	226	Demand (AF)	180	185	199	210	219	225
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	82	Demand (AF)	74	67	73	77	80	82

- c. **Fayette WSC** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	119	Demand (AF)	636	705	750	791	826	854
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	134	Demand (AF)	722	803	857	905	945	978
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	15	Demand (AF)	86	98	107	114	119	124

- d. **La Grange** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	154	Demand (AF)	883	979	1,041	1,097	1,147	1,187
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	166	Demand (AF)	957	1,063	1,132	1,194	1,248	1,292
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	12	Demand (AF)	74	84	91	97	101	105

6. **Gillespie County** – no revisions requested

7. **Hays County** – Requesting revision to population for Austin, County-Other, Dripping Springs WSC, and West Travis County Public Utility Agency; requesting revision to base GPCD for Austin and West Travis County Public Utility Agency

- a. **Austin** – Request increases to Austin population projections based on their submitted City Demographer’s projections. A portion of those increases is requested for inclusion in the Hays County portion of Austin.

Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated based on the increased population and the revised base GPCD incorporating TWDB-provided water efficiency savings by decade.

Austin has submitted a formal revision request to the RWPG. It has been included in this request as supporting documentation. See Austin under Travis County and Williamson County for similar requests.

DRAFT	2020	2030	2040	2050	2060	2070
Population	74	796	1,560	3,957	9,535	17,255
REVISED	2020	2030	2040	2050	2060	2070
Population	1,074	4,796	7,560	11,957	17,535	25,255
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	1,000	4,000	6,000	8,000	8,000	8,000

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	157	Demand (AF)	13	133	260	660	1,591	2,880
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	162	Demand (AF)	188	827	1,304	2,063	3,025	4,357
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	5	Demand (AF)	175	694	1,044	1,403	1,434	1,477

- b. **County-Other, Hays** – Request decrease to population in County-Other to balance out population revisions elsewhere in the county, so there is no change to Hays County total population. Demand decreases reflective of decreased population – no base GPCD change.

DRAFT	2020	2030	2040	2050	2060	2070
Population	17,821	22,702	28,847	35,419	39,663	43,122
REVISED	2020	2030	2040	2050	2060	2070
Population	10,986	8,661	13,216	16,522	19,284	26,804
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-6,835	-14,041	-15,631	-18,897	-20,379	-16,318

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	118	Demand (AF)	2,192	2,720	3,390	4,134	4,617	5,016
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	118	Demand (AF)	1,351	1,038	1,553	1,929	2,245	3,118
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	-841	-1,682	-1,837	-2,205	-2,372	-1,898

- c. **Dripping Springs WSC** – Request increase to population based on the following input from the WSC: Currently in our CCN (as of 30 Apr 2017), DSWSC has 1810 meters totaling 2400 LUE’s, which we consider a population equal to 7,200. At this rate plus taking in the pending projects and contracted projects, population to increase from 11,000 in 2020 to 44,000 in 2070. Dripping Springs WSC obtains a portion of their water supply from WTCPUA, so their numbers are coordinated with WTCPUA. Additional information is provided as supporting documentation. Demand increases reflective of increased population – no base GPCD change.

DRAFT	2020	2030	2040	2050	2060	2070
Population	5,165	6,368	7,833	9,666	11,736	14,092
REVISED	2020	2030	2040	2050	2060	2070
Population	11,000	18,500	24,000	31,000	39,500	44,000
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	5,835	12,132	16,167	21,334	27,764	29,908

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	165	Demand (AF)	906	1,098	1,339	1,646	1,995	2,394
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	165	Demand (AF)	1,930	3,190	4,103	5,278	6,716	7,476
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	1,024	2,092	2,764	3,632	4,721	5,082

- d. **West Travis County PUA** - Request decrease to population for 2030-2070. WUG provided overall numbers, including retail and wholesale, by county (Hays and Travis). Dripping Springs WSC requested increases, and is served by WTCPUA as a wholesale customer. Region K coordinated with WTCPUA regarding splits and retail/wholesale. Draft projections for Hays County were too high, so requesting to decrease. Additional information is provided as supporting documentation.

Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated based on the decreased population and the revised base GPCD incorporating TWDB-provided water efficiency savings by decade.

See West Travis County PUA under Travis County for similar request.

DRAFT	2020	2030	2040	2050	2060	2070
Population	12,788	18,076	24,517	32,568	41,666	52,021
REVISED	2020	2030	2040	2050	2060	2070
Population	12,788	15,985	17,981	22,131	26,281	30,431
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	0	-2,091	-6,536	-10,437	-15,385	-21,590

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	391	Demand (AF)	5,501	7,739	10,476	13,901	17,775	22,188
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	321	Demand (AF)	4,499	5,590	6,273	7,711	9,151	10,593
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-70	Demand (AF)	-1,002	-2,149	-4,203	-6,190	-8,624	-11,595

8. **Llano County** – No population revisions; requesting revision to base GPCD for Horseshoe Bay

- a. **Horseshoe Bay** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade. (Similar request for Horseshoe Bay under Burnet County)

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	569	Demand (AF)	3,091	3,187	3,097	3,134	3,086	3,017
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	420	Demand (AF)	2,268	2,333	2,264	2,289	2,255	2,203
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-149	Demand (AF)	-823	-854	-833	-845	-831	-814

9. **Matagorda County** – No population revisions; requesting revision to base GPCD for Markham MUD and Palacios.

- a. **Markham MUD** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	112	Demand (AF)	116	117	116	118	119	120
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	95	Demand (AF)	97	96	96	96	98	99
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-17	Demand (AF)	-19	-21	-20	-22	-21	-21

- b. **Palacios** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	130	Demand (AF)	677	688	691	698	708	716
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	119	Demand (AF)	615	623	624	629	638	645
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-11	Demand (AF)	-62	-65	-67	-69	-70	-71

10. **Mills County** – No revisions

11. **San Saba County** - no population revisions; requesting revision to base GPCD for Richland SUD

- a. **Richland SUD** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade. Region K has coordinated with Region F to ensure consistency between regions.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	135	Demand (AF)	136	139	137	133	136	139
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	217	Demand (AF)	224	231	229	224	229	235
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	82	Demand (AF)	88	92	92	91	93	96

12. **Travis County** – Overall, projections show that Region K is approximately 1.5% underprojected as compared to Census data. Region K requests that the Travis County population be increased to include the additional 1.5% of the region’s total.

DRAFT	2020	2030	2040	2050	2060	2070
Population	1,273,260	1,508,642	1,732,860	1,897,769	2,033,120	2,185,909
REVISED	2020	2030	2040	2050	2060	2070
Population	1,298,624	1,538,784	1,767,636	1,936,583	2,075,875	2,233,259
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	25,364	30,142	34,776	38,814	42,755	47,350

Requesting sub-WUG to County-Other (Aqua Texas – Rivercrest). Region K has included population and demand projections broken out from County-Other. Also acknowledging that TWDB staff have developed population and demand projections for Rough Hollow in Travis County CRU and Sweetwater CRU, and Region K is not requesting any revisions to those numbers.

Requesting revisions to population for Austin, County-Other, Lakeway MUD, Leander, Manville WSC, Oak Shores Water System, Pflugerville, Sunset Valley, Travis County WCID 17, Travis County WCID Point Venture, Wells Branch MUD, and West Travis County Public Utility Agency.

Requesting revisions to the base GPCD for Austin, Barton Creek West WSC, Barton Creek WSC, Cottonwood Creek MUD 1, Hurst Creek MUD, Jonestown WSC, Lakeway MUD, Leander, Shady Hollow MUD, Sunset Valley, Travis County MUD 10, Travis County MUD 2, Travis County MUD 4, Travis County WCID 10, Travis County WCID 19, Travis County WCID Point Venture, Wells Branch MUD, and West Travis County Public Utility Agency.

- a. **Aqua Texas- Rivercrest** (sub-WUG to County-Other) – Sub-WUG has been broken out of County-Other and we have used historical data to estimate population and demands, assuming buildout conditions. Used water efficiency savings similar to Oak Shores Water System.

DRAFT	2020	2030	2040	2050	2060	2070
Population	n/a	n/a	n/a	n/a	n/a	n/a
REVISED	2020	2030	2040	2050	2060	2070
Population	774	774	774	774	774	774
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	774	774	774	774	774	774

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	n/a	Demand (AF)	n/a	n/a	n/a	n/a	n/a	n/a
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	374	Demand (AF)	317	315	313	312	312	312
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	374	Demand (AF)	317	315	313	312	312	312

- b. **Austin** – Request increases to Austin population projections based on their submitted City Demographer’s projections. A majority of those increases is requested for inclusion in the Travis County portion of Austin. A portion of County-Other has been moved under Austin as part of the requested revision, based on those that are retail customers of Austin.

Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated based on the increased population and the revised base GPCD incorporating TWDB-provided water efficiency savings by decade.

Austin has submitted a formal revision request to the RWPG. It has been included in this request as supporting documentation. See Austin under Hays County and Williamson County for similar requests.

DRAFT	2020	2030	2040	2050	2060	2070
Population	960,709	1,125,478	1,285,243	1,402,811	1,496,994	1,607,291
REVISED	2020	2030	2040	2050	2060	2070
Population	976,785	1,153,560	1,337,673	1,464,157	1,564,930	1,701,504
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	16,076	28,082	52,430	61,346	67,936	94,213

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	157	Demand (AF)	162,496	187,844	214,509	234,131	249,850	268,259
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	162	Demand (AF)	170,686	198,992	230,751	252,570	269,954	293,513
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	5	Demand (AF)	8,190	11,148	16,242	18,439	20,104	25,254

- c. **Barton Creek West WSC** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	272	Demand (AF)	396	392	389	388	387	387
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	299	Demand (AF)	436	433	430	428	427	427
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	27	Demand (AF)	40	41	41	40	40	40

- d. **Barton Creek WSC** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	649	Demand (AF)	504	594	681	745	798	858
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	675	Demand (AF)	524	619	709	776	830	893
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	26	Demand (AF)	20	25	28	31	32	35

- e. **Cottonwood Creek MUD 1** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	80	Demand (AF)	116	133	149	161	172	184
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	67	Demand (AF)	95	107	120	129	138	148
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-13	Demand (AF)	-21	-26	-29	-32	-34	-36

- f. **County-Other, Travis** – Decrease County-Other population to balance out other population changes so no change to Travis County total population, other than 1.5% overall increase. Revised demands reflected – no change to base GPCD.

DRAFT	2020	2030	2040	2050	2060	2070
Population	14,744	13,073	11,999	8,903	6,411	7,067
REVISED	2020	2030	2040	2050	2060	2070
Population	6,206	6,206	6,206	6,206	6,206	6,206
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-8,538	-6,867	-5,793	-2,697	-205	-861

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	136	Demand (AF)	2,067	1,818	1,663	1,229	879	967
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	136	Demand (AF)	870	863	860	857	851	849
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	-1,197	-955	-803	-372	-28	-118

- g. **Hurst Creek MUD** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	447	Demand (AF)	1,520	1,511	1,505	1,502	1,501	1,501
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	504	Demand (AF)	1,718	1,709	1,703	1,700	1,699	1,699
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	57	Demand (AF)	198	198	198	198	198	198

- h. **Jonestown WSC** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	138	Demand (AF)	574	601	629	665	699	732
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	161	Demand (AF)	675	709	744	787	828	866
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	23	Demand (AF)	101	108	115	122	129	134

- i. **Lakeway MUD** - Request decreased population based on following data from WUG: Assumption of 2.56 persons per household per 2016 Census. Buildout reached at 5,088 LUEs in 2054. 2016 LUE connections = 4,160, plus 25 new per year. Provided potable water operations for 2011, calculating GPCD to be 234. Request for revised demands reflect population and GPCD reductions, incorporating TWDB-provided water efficiency savings by decade. Supporting documentation provided.

DRAFT	2020	2030	2040	2050	2060	2070
Population	13,904	18,295	18,295	18,295	18,295	18,295
REVISED	2020	2030	2040	2050	2060	2070
Population	10,906	11,546	12,186	12,826	13,025	13,025
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-2,998	-6,749	-6,109	-5,469	-5,270	-5,270

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	301	Demand (AF)	4,561	5,943	5,909	5,893	5,888	5,886
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	234	Demand (AF)	2,757	2,882	3,019	3,166	3,212	3,211
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-67	Demand (AF)	-1,804	-3,061	-2,890	-2,727	-2,676	-2,675

- j. **Leander** - Request revised population based on past and current growth rates, as well as anticipated growth rates. Request increased population in 2020 and 2030, and decreased population in 2040 through 2070. Requested revisions have been coordinated with Region G. Request to increase base GPCD to 128, based on 2015 water use data provided by

TWDB staff. Revisions to demands reflect population and GPCD changes, incorporating TWDB-provided water efficiency savings by decade. Supporting documentation provided.

DRAFT	2020	2030	2040	2050	2060	2070
Population	9,491	24,827	43,093	46,640	48,403	50,610
REVISED	2020	2030	2040	2050	2060	2070
Population	11,246	26,735	28,349	29,963	30,689	32,033
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	1,755	1,908	-14,744	-16,677	-17,714	-18,577

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	114	Demand (AF)	1,133	2,907	5,020	5,422	5,623	5,877
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	128	Demand (AF)	1,519	3,550	3,747	3,953	4,046	4,222
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	14	Demand (AF)	386	643	-1,273	-1,469	-1,577	-1,655

- k. **Manville WSC** – Request to decrease Manville WSC’s population, based on current population and anticipated growth rates, provided by WUG. Revisions to demands reflect population changes – no base GPCD change.

DRAFT	2020	2030	2040	2050	2060	2070
Population	22,045	27,156	31,976	37,373	42,136	46,566
REVISED	2020	2030	2040	2050	2060	2070
Population	15,661	19,292	22,716	26,550	29,934	33,081
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-6,384	-7,864	-9,260	-10,823	-12,202	-13,485

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	148	Demand (AF)	3,434	4,148	4,835	5,623	6,329	6,991
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	148	Demand (AF)	2,439	2,946	3,435	3,994	4,496	4,966
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	-995	-1,202	-1,400	-1,629	-1,833	-2,025

- i. **Oak Shores Water System** - Request revision to population, based on information provided by WUG and TCEQ Drinking Water Watch database. Buildout should occur in 2030 decade after 55 more homes are built. WUG thought demands are a little low, and should be 150 AF in 2020 and 170 AF in 2030 and beyond. Population and demands revised to reflect request, starting with current population, incorporating TWDB-provided water efficiency savings by decade.

DRAFT	2020	2030	2040	2050	2060	2070
Population	467	553	636	696	746	802
REVISED	2020	2030	2040	2050	2060	2070
Population	546	632	632	632	632	632
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	79	79	-4	-64	-114	-170

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	253	Demand (AF)	128	149	171	186	199	214
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	253	Demand (AF)	150	171	170	169	169	169
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	22	22	-1	-17	-30	-45

- m. **Pflugerville** - Request decrease to population, beginning in 2030. WUG submitted that build-out is expected in 2060 at a population of 130,167. Rescaled population for 2030-2050. Demands reflect population changes – no change to base GPCD.

DRAFT	2020	2030	2040	2050	2060	2070
Population	62,745	85,016	106,017	129,532	150,287	169,592
REVISED	2020	2030	2040	2050	2060	2070
Population	62,745	78,245	95,599	112,807	130,167	130,167
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	0	-6,771	-10,418	-16,725	-20,120	-39,425

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	155	Demand (AF)	10,403	13,928	17,298	21,087	24,438	27,564
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	155	Demand (AF)	10,403	12,819	15,598	18,364	21,167	21,156
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	0	-1,109	-1,700	-2,723	-3,271	-6,408

- n. **Rough Hollow in Travis County CRU (new WUG)** – TWDB calculated projections, pulled out of County-Other. RWPG comfortable with TWDB projections – no changes.
- o. **Shady Hollow MUD** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	151	Demand (AF)	695	677	661	653	651	651
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	171	Demand (AF)	793	775	759	750	749	749
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	20	Demand (AF)	98	98	98	97	98	98

- p. **Sunset Valley** - Request decrease to population. WUG provided calculation details to show why population should be lower. Information is provided as supporting documentation. Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating decreased population and TWDB-provided water efficiency savings by decade.

DRAFT	2020	2030	2040	2050	2060	2070
Population	1,179	1,414	1,725	2,074	2,383	2,669
REVISED	2020	2030	2040	2050	2060	2070
Population	930	1,063	1,234	1,432	1,662	1,929
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-249	-351	-491	-642	-721	-740

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	312	Demand (AF)	400	476	578	694	797	892
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	362	Demand (AF)	368	417	483	559	649	753
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	50	Demand (AF)	-32	-59	-95	-135	-148	-139

- q. **Sweetwater CRU** – TWDB calculated projections, pulled out of County-Other. RWPG comfortable with TWDB projections – no changes.
- r. **Travis County MUD 10** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	260	Demand (AF)	98	115	131	143	153	164
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	199	Demand (AF)	74	87	99	108	115	124
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-61	Demand (AF)	-24	-28	-32	-35	-38	-40

- s. **Travis County MUD 2** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	142	Demand (AF)	379	439	498	542	580	623
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	122	Demand (AF)	322	372	421	457	489	525
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-20	Demand (AF)	-57	-67	-77	-85	-91	-98

- t. **Travis County MUD 4** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	755	Demand (AF)	2,051	2,365	2,662	2,994	3,288	3,563
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	554	Demand (AF)	1,500	1,728	1,945	2,188	2,402	2,603
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-201	Demand (AF)	-551	-637	-717	-806	-886	-960

- u. **Travis County WCID 10** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	319	Demand (AF)	2,644	2,865	3,080	3,332	3,561	3,776
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	419	Demand (AF)	3,499	3,802	4,094	4,433	4,739	5,026
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	100	Demand (AF)	855	937	1,014	1,101	1,178	1,250

- v. **Travis County WCID 17** – Request increase to 2020 population, based on WUG-reported population of 34,290 to TWDB for 2016, which is higher than draft projected 2020 population of 33,117. Growth is faster than projected. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	2020	2030	2040	2050	2060	2070
Population	33,117	39,741	43,715	44,473	45,671	47,125
REVISED	2020	2030	2040	2050	2060	2070
Population	36,720	39,741	43,715	44,473	45,671	47,125
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	3,603	0	0	0	0	0

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	236	Demand (AF)	8,450	10,053	11,016	11,186	11,479	11,841
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	236	Demand (AF)	9,370	10,053	11,016	11,186	11,479	11,841
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	920	0	0	0	0	0

- w. **Travis County WCID 19** - Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	628	Demand (AF)	474	472	470	469	469	469
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	595	Demand (AF)	449	447	445	444	444	444
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-33	Demand (AF)	-25	-25	-25	-25	-25	-25

- x. **Travis County WCID Point Venture** – Request to increase population numbers in 2020 and 2030. 2015 TWDB population estimate was 786. Adding close to 50 residents per year = 1,036 population in 2020. Adjusted 2030 population slightly upwards, then no change to draft 2040 – 2070 numbers. Request decrease base GPCD to 228, based on 2015 historical GPCD number, as WUG was comfortable with 2015 population number reported. Demands have been recalculated incorporating revised population and TWDB-provided water efficiency savings by decade.

DRAFT	2020	2030	2040	2050	2060	2070
Population	723	1,215	1,568	1,900	2,273	2,601
REVISED	2020	2030	2040	2050	2060	2070
Population	1,036	1,325	1,568	1,900	2,273	2,601
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	313	110	0	0	0	0

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	283	Demand (AF)	222	370	474	573	685	783
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	228	Demand (AF)	255	322	378	456	545	624
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-55	Demand (AF)	33	-48	-96	-117	-140	-159

- y. **Wells Branch MUD** – Request increase to population, based on information submitted by WUG. Current Data: No. of SF residential connections = 2,912, Population = 8,736; No. of apartment units = 4,435, Population = 11,087. Total population = 19,823 between Travis and Williamson Counties. Total Water Consumption for Oct. 2015-Sept. 2016 (gallons) = 450,764,000. Average/Mo. = 37.5 mil gallons. The District is almost completely built-out.

Limited remaining commercial and institutional construction, but very little land available for growth after that. Request to reduce GPCD to reflect revised population based on 2011 historical water use. Population and GPCD modified to reflect request. Also see Williamson County.

DRAFT	2020	2030	2040	2050	2060	2070
Population	14,989	14,989	14,989	14,989	14,989	14,989
REVISED	2020	2030	2040	2050	2060	2070
Population	18,750	18,750	18,750	18,750	18,750	18,750
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	3,761	3,761	3,761	3,761	3,761	3,761

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	107	Demand (AF)	1,638	1,601	1,576	1,562	1,558	1,558
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	75	Demand (AF)	1,376	1,331	1,300	1,282	1,277	1,276
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-32	Demand (AF)	-262	-270	-276	-280	-281	-282

- z. **West Travis County PUA** - Request increase to population. WUG provided overall numbers, including retail and wholesale, by county (Hays and Travis). Region K coordinated with WTCPUA regarding splits and retail/wholesale. Draft projections for Travis County were too low, so requesting to increase. Additional information is provided as supporting documentation.

Request that demand projections use 2011 utility-boundary GPCD as base GPCD. Demands have been recalculated based on the increased population and the revised base GPCD incorporating TWDB-provided water efficiency savings by decade.

See West Travis County PUA under Hays County for similar request.

DRAFT	2020	2030	2040	2050	2060	2070
Population	7,394	8,537	9,615	10,824	11,890	12,880
REVISED	2020	2030	2040	2050	2060	2070
Population	19,039	21,037	22,715	25,324	26,990	28,480
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	11,645	12,500	13,100	14,500	15,100	15,600

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	391	Demand (AF)	3,181	3,655	4,109	4,620	5,072	5,494
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	321	Demand (AF)	6,698	7,357	7,925	8,824	9,398	9,914
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-70	Demand (AF)	3,517	3,702	3,816	4,204	4,326	4,420

13. Wharton County – No population revisions; requesting revision to base GPCD for County-Other

- a. **County-Other, Wharton** – Request that demand projections use 2011 utility-boundary GPCD as base GPCD, to be consistent with Region P request. Demands have been recalculated based on the increased population and the revised base GPCD incorporating TWDB-provided water efficiency savings by decade.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	126	Demand (AF)	1,898	1,936	1,972	2,044	2,111	2,173
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	128	Demand (AF)	1,930	1,971	2,008	2,082	2,150	2,214
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	2	Demand (AF)	32	35	36	38	39	41

14. Williamson County – Requesting population revisions to Austin and County-Other; requesting revisions to base GPCD for Austin and Wells Branch MUD.

- a. **Austin** - Request to increase population. Region K County-Other population in Williamson County is nearly all retail customers of City of Austin. Request to move 97% of County-Other population under Austin. Demands have been recalculated based on the increased population and the revised base GPCD incorporating TWDB-provided water efficiency savings by decade. Also see Travis, Hays counties.

DRAFT	2020	2030	2040	2050	2060	2070
Population	47,680	59,897	74,334	89,882	107,514	126,860
REVISED	2020	2030	2040	2050	2060	2070
Population	61,729	79,661	93,459	108,319	125,171	143,660
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	14,049	19,764	19,125	18,437	17,657	16,800

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	157	Demand (AF)	8,065	9,997	12,406	15,001	17,944	21,173
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	162	Demand (AF)	10,787	13,742	16,122	18,685	21,592	24,782
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	5	Demand (AF)	2,722	3,745	3,716	3,684	3,648	3,609

- b. **County-Other, Williamson** – Request to decrease population based on moving 97% of population under Austin. (See Austin, Williamson County request above.) Demands have been recalculated based on the decreased population – no base GPCD changes.

DRAFT	2020	2030	2040	2050	2060	2070
Population	14,483	20,375	19,717	19,007	18,203	17,320
REVISED	2020	2030	2040	2050	2060	2070
Population	434	611	592	570	546	520
DIFFERENCE	2020	2030	2040	2050	2060	2070
Population	-14,049	-19,764	-19,125	-18,437	-17,657	-16,800

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	148	Demand (AF)	2,248	3,089	2,958	2,838	2,712	2,579
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	148	Demand (AF)	67	93	89	85	81	77
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	0	Demand (AF)	-2,181	-2,996	-2,869	-2,753	-2,631	-2,502

c. **Wells Branch MUD** - Request to reduce GPCD to reflect revised Travis and Williamson population based on 2011 historical water use. See Travis County for additional explanation.

DRAFT	BASE	DRAFT	2020	2030	2040	2050	2060	2070
GPCD	107	Demand (AF)	117	115	113	112	112	112
REVISED	BASE	REVISED	2020	2030	2040	2050	2060	2070
GPCD	75	Demand (AF)	79	76	74	73	73	73
DIFFERENCE	BASE	DIFFERENCE	2020	2030	2040	2050	2060	2070
GPCD	-32	Demand (AF)	-38	-39	-39	-39	-39	-39

Region K Non-Municipal Demand Projection Revision Memo

To Texas Water Development Board Staff Page 1

CC John Burke, Lauri Gillam, File

Subject **Requested Non-Municipal Demand Projection Revisions**

From Jaime Burke

Date January 10, 2018

The Region K Regional Water Planning Group and the Region K Population and Water Demand Committee have spent the last several months reviewing the draft non-municipal demand projections from the TWDB and requesting input from stakeholders in the region to determine appropriate revisions for the TWDB staff to consider. At the January 10, 2018 Region K meeting, the Region K RWPG approved to request the following revisions to the draft non-municipal demand projections, for consideration by the TWDB staff.

Non-Municipal Demand Projection Requested Revisions:

1. Mining Demands

Region K is requesting revisions to the draft mining demand projections for Bastrop County. The majority of the demand projections in Bastrop County are for the Three Oaks Mine involving lignite coal mining. The Population and Water Demand Committee discussed that it is unlikely that increased mining will occur for next 50 years. The mining will more likely continue for another 20-25 more years of use before the reclamation process. Gravel mining in the county is expected to continue indefinitely. The region is requesting to begin decreasing the mining demands beginning in the 2050 decade, eliminating the lignite coal mining by 2060, and leaving only the gravel mining demands in 2060 and 2070. Please see below for the requested revisions for Bastrop County.

RWPG	County	WUG Name	DRAFT	2020	2030	2040	2050	2060	2070
K	BASTROP	MINING	Demand (AF)	2,884	6,813	7,498	8,263	9,085	9,996
K	BASTROP	MINING	REVISED	2020	2030	2040	2050	2060	2070
K	BASTROP	MINING	Demand (AF)	2,884	6,813	7,498	5,998	399	476
K	BASTROP	MINING	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	BASTROP	MINING	Demand (AF)	0	0	0	-2,265	-8,686	-9,520

2. Steam-Electric Demands

Region K is requesting revisions to the draft steam-electric demand projections for Llano County and Wharton County.

Llano County:

The Llano County demands are based on the Ferguson Power Plant water use. The 2020 draft water demand projections were developed for each county by using the highest county aggregated

steam-electric power water use from 2010-2014. As the Ferguson Power Plant was under reconstruction during that time, the numbers provided for Llano were under-projected. Region K requests to use 2015-2016 data to revise the Llano County numbers to 1,748 acre-feet/year for all decades.

RWPG	County	WUG Name	DRAFT	2020	2030	2040	2050	2060	2070
K	LLANO	STEAM-ELECTRIC	Demand (AF)	6	6	6	6	6	6
K	LLANO	STEAM-ELECTRIC	REVISED	2020	2030	2040	2050	2060	2070
K	LLANO	STEAM-ELECTRIC	Demand (AF)	1,748	1,748	1,748	1,748	1,748	1,748
K	LLANO	STEAM-ELECTRIC	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	LLANO	STEAM-ELECTRIC	Demand (AF)	1,742	1,742	1,742	1,742	1,742	1,742

Wharton County:

Wharton County is shared between Region K and Region P. Region K would like to request to revise the Region K portion of the Wharton County demands, based on the Colorado Bend facility being accidentally located in Region P for the draft demand projections, rather than in Region K. Moving that facility’s demand to Region K would revise the Region K Wharton County numbers to 7,901 acre-feet/year for all decades. Region P has requested a corresponding revision.

RWPG	County	WUG Name	DRAFT	2020	2030	2040	2050	2060	2070
K	WHARTON	STEAM-ELECTRIC	Demand (AF)	5,465	5,465	5,465	5,465	5,465	5,465
K	WHARTON	STEAM-ELECTRIC	REVISED	2020	2030	2040	2050	2060	2070
K	WHARTON	STEAM-ELECTRIC	Demand (AF)	7,901	7,901	7,901	7,901	7,901	7,901
K	WHARTON	STEAM-ELECTRIC	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	WHARTON	STEAM-ELECTRIC	Demand (AF)	2,436	2,436	2,436	2,436	2,436	2,436

3. Manufacturing Demands

Region K is requesting revisions to the draft manufacturing demands in several counties, based on the inclusion of 2015 potentially unaccounted for manufacturing water use data provided by TWDB staff, and a request from City of Austin.

Bastrop, Fayette, Gillespie, Hays, and Williamson Counties:

In these counties, by adding the 2015 unaccounted for manufacturing water use volume to the TWDB-provided 2015 historical water use volume, the year 2015 water use becomes greater than the peak 2010-2014 water use. Region K requests to use the updated 2015 water use for the 2020 demands. Region K requests to apply the same percent increase from 2020 to 2030 as TWDB used to develop the draft projections. See table below for requested revisions.

Travis County:

In Travis County, by adding the 2015 unaccounted for manufacturing water use volume to the TWDB-provided 2015 historical water use volume, the year 2015 water use becomes greater than the peak 2010-2014 water use. Region K requests to use the updated 2015 water use for the 2020 demands. Region K requests to apply the same percent increase from 2020 to 2030 as TWDB used to develop the draft projections.

In addition, the City of Austin has provided documentation to support an increased manufacturing demand beyond the above numbers for the 2040-2070 decades, based on their expected industrial employment projections. These demand projections show growth even after passive conservation

and water efficiency has been applied. The City of Austin’s request has been included in this submittal as supporting documentation. Region K requests to increase the manufacturing demands in 2040-2070 to include the City of Austin’s projections in Travis County, as shown below.

RWPG	County	WUG Name	DRAFT	2020	2030	2040	2050	2060	2070
K	BASTROP	MANUFACTURING	Demand (AF)	104	119	119	119	119	119
K	BASTROP	MANUFACTURING	REVISED	2020	2030	2040	2050	2060	2070
K	BASTROP	MANUFACTURING	Demand (AF)	188	215	215	215	215	215
K	BASTROP	MANUFACTURING	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	BASTROP	MANUFACTURING	Demand (AF)	84	96	96	96	96	96
RWPG	County	MANUFACTURING	DRAFT	2020	2030	2040	2050	2060	2070
K	FAYETTE	MANUFACTURING	Demand (AF)	325	363	363	363	363	363
K	FAYETTE	MANUFACTURING	REVISED	2020	2030	2040	2050	2060	2070
K	FAYETTE	MANUFACTURING	Demand (AF)	396	442	442	442	442	442
K	FAYETTE	MANUFACTURING	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	FAYETTE	MANUFACTURING	Demand (AF)	71	79	79	79	79	79
RWPG	County	MANUFACTURING	DRAFT	2020	2030	2040	2050	2060	2070
K	GILLESPIE	MANUFACTURING	Demand (AF)	21	25	25	25	25	25
K	GILLESPIE	MANUFACTURING	REVISED	2020	2030	2040	2050	2060	2070
K	GILLESPIE	MANUFACTURING	Demand (AF)	77	93	93	93	93	93
K	GILLESPIE	MANUFACTURING	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	GILLESPIE	MANUFACTURING	Demand (AF)	56	68	68	68	68	68
RWPG	County	MANUFACTURING	DRAFT	2020	2030	2040	2050	2060	2070
K	HAYS	MANUFACTURING	Demand (AF)	149	174	174	174	174	174
K	HAYS	MANUFACTURING	REVISED	2020	2030	2040	2050	2060	2070
K	HAYS	MANUFACTURING	Demand (AF)	277	324	324	324	324	324
K	HAYS	MANUFACTURING	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	HAYS	MANUFACTURING	Demand (AF)	128	150	150	150	150	150
RWPG	County	MANUFACTURING	DRAFT	2020	2030	2040	2050	2060	2070
K	TRAVIS	MANUFACTURING	Demand (AF)	11,597	13,085	13,085	13,085	13,085	13,085
K	TRAVIS	MANUFACTURING	REVISED	2020	2030	2040	2050	2060	2070
K	TRAVIS	MANUFACTURING	Demand (AF)	13,164	14,853	18,300	19,492	20,684	21,877
K	TRAVIS	MANUFACTURING	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	TRAVIS	MANUFACTURING	Demand (AF)	1,567	1,768	5,215	6,407	7,599	8,792
RWPG	County	MANUFACTURING	DRAFT	2020	2030	2040	2050	2060	2070
K	WILLIAMSON	MANUFACTURING	Demand (AF)	3	4	4	4	4	4
K	WILLIAMSON	MANUFACTURING	REVISED	2020	2030	2040	2050	2060	2070
K	WILLIAMSON	MANUFACTURING	Demand (AF)	25	30	30	30	30	30
K	WILLIAMSON	MANUFACTURING	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	WILLIAMSON	MANUFACTURING	Demand (AF)	22	26	26	26	26	26

4. Irrigation Demands

Region K is requesting revisions to the draft irrigation demand projections for Travis County, based on a data error, and for Colorado, Matagorda, and Wharton counties, based on the recent historical data being an inaccurate representation of surface water demand during a dry year.

Travis County:

TWDB staff found a data error with the historical water use for irrigation in Travis County, which was used to develop the draft projections. By correcting this error, the average 2010-2014 water use for Travis County was reduced from 6,010 acre-feet/year to 4,816 acre-feet/year. Region K requests to revise the draft projection for Travis County to reflect the correct average 2010-2014 water use of 4,816 acre-feet/year for all decades.

RWPG	County	IRRIGATION	DRAFT	2020	2030	2040	2050	2060	2070
K	TRAVIS	IRRIGATION	Demand (AF)	6,010	6,010	6,010	6,010	6,010	6,010
K	TRAVIS	IRRIGATION	REVISED	2020	2030	2040	2050	2060	2070
K	TRAVIS	IRRIGATION	Demand (AF)	4,816	4,816	4,816	4,816	4,816	4,816
K	TRAVIS	IRRIGATION	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	TRAVIS	IRRIGATION	Demand (AF)	-1,194	-1,194	-1,194	-1,194	-1,194	-1,194

Colorado, Matagorda, and Wharton Counties:

Region K is requesting an increase to the draft irrigation demands in Colorado, Matagorda, and Wharton Counties. The Region K Population and Water Demand Committee met several times to discuss the irrigation demands in these counties, and determined that the draft irrigation demand projections were not representative of a dry/drought year demand because of the emergency curtailment of surface water from the Colorado River that occurred in 2012-2015. The Committee directed two members to develop an alternative methodology for calculating the surface water demands for the Garwood, Lakeside, Pierce Ranch, and Gulf Coast Irrigation Districts. A memo describing the methodology is included in this submittal as supporting documentation. This methodology was recommended by the Committee to the RWPG at the January 10, 2018 Region K meeting.

To calculate the revised total irrigation demands for these three counties, the Committee recommended to the RWPG to additionally include 2,400 acre-feet/year of non-rice irrigation demand in the Lakeside Irrigation District, the average 2010-2014 surface water use for other irrigation water rights in these counties (as provided by the TCEQ Water Use Reports data), and the average 2010-2014 groundwater use for irrigation in these counties. Meeting minutes describing these recommendations as well as a table summarizing the breakdown of water use components has been included in this submittal as supporting documentation. The Committee also recommended a decadal decrease of 2.69%, instead of keeping the projections flat. This percent decrease is consistent with the 2017 State Water Plan projections for these counties.

Region K approved to request the following revisions to the draft irrigation demands in Colorado, Matagorda, and Wharton counties at the January 10, 2018 Region K meeting, as shown in the table below.

RWPG	County	IRRIGATION	DRAFT	2020	2030	2040	2050	2060	2070
K	COLORADO	IRRIGATION	Demand (AF)	123,682	123,682	123,682	123,682	123,682	123,682
K	COLORADO	IRRIGATION	REVISED	2020	2030	2040	2050	2060	2070
K	COLORADO	IRRIGATION	Demand (AF)	173,112	168,455	163,924	159,514	155,223	151,048
K	COLORADO	IRRIGATION	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	COLORADO	IRRIGATION	Demand (AF)	49,430	44,773	40,242	35,832	31,541	27,366
RWPG	County	IRRIGATION	DRAFT	2020	2030	2040	2050	2060	2070
K	MATAGORDA	IRRIGATION	Demand (AF)	109,505	109,505	109,505	109,505	109,505	109,505
K	MATAGORDA	IRRIGATION	REVISED	2020	2030	2040	2050	2060	2070
K	MATAGORDA	IRRIGATION	Demand (AF)	191,588	186,434	181,419	176,539	171,790	167,169
K	MATAGORDA	IRRIGATION	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	MATAGORDA	IRRIGATION	Demand (AF)	82,083	76,929	71,914	67,034	62,285	57,664
RWPG	County	IRRIGATION	DRAFT	2020	2030	2040	2050	2060	2070
K	WHARTON	IRRIGATION	Demand (AF)	147,543	147,543	147,543	147,543	147,543	147,543
K	WHARTON	IRRIGATION	REVISED	2020	2030	2040	2050	2060	2070
K	WHARTON	IRRIGATION	Demand (AF)	189,110	184,023	179,073	174,256	169,569	165,008
K	WHARTON	IRRIGATION	DIFFERENCE	2020	2030	2040	2050	2060	2070
K	WHARTON	IRRIGATION	Demand (AF)	41,567	36,480	31,530	26,713	22,026	17,465

5. Livestock Demands – no revisions requested

MEMO

To: Lauri Gillam, Chair
Region K Population and Water Demand Committee
Fr: Daniel Berglund
David Wheelock
Date: Oct 5, 2017

Re: Projected Irrigation Demands for 2021 Region K Water Plan - Colorado, Matagorda,
Wharton counties

Lauri –

David and I have discussed Region K Irrigation Projections and have agreed on a methodology that we feel is appropriate considering the most current data is not representative of surface water demands. This methodology develops a base demand and keeps this demand flat for the duration of the planning period. Since no concerns were expressed regarding the groundwater demand projections, those values will simply be added to the agreed upon surface water demand projections at the county level. The TWDB representatives at the Committee meeting confirmed that our methodology should represent a dry year demand and for that reason we chose 2011. We felt that if we were to use the average of the 5 years prior to 2012, we would not be representing a dry year demand and could possibly understate future irrigation needs.

Historical Data

The agricultural surface water diversions for the most recent 10 years of available data for the four irrigation operations in Region K are shown in Table 1. It is important to note that these quantities are river diversions, and therefore include both water applied at the farms, as well as canal losses, which represents the total surface water irrigation demand from the river. Table 2 shows the planted acreage for these irrigation divisions over the same period.

Table 1. Historical Irrigation Surface Water Diversions (acre-feet)

Year	Garwood	Gulf Coast	Lakeside	Pierce Ranch	Total
2007	45,205	83,535	56,360	14,285	199,386
2008	103,623	157,332	134,304	23,630	418,889
2009	100,150	197,610	115,888	28,795	442,443
2010	88,895	150,647	96,362	23,452	359,356
2011	117,667	170,633	142,488	33,526	464,314
2012	85,478	11,812	649	4,729	102,668
2013	90,474	10,696	-	4,101	105,271
2014	82,114	-	-	4,613	86,727
2015	66,548	1,667	-	6,508	74,723
2016	68,325	84,500	88,142	13,118	254,085

Table 2. Historic Planted Acreage (acres)

Year	Garwood			Lakeside			Pierce Ranch			Gulf Coast			Total		
	1st crop	2nd crop	Supp*	1st crop	2nd crop	Supp*	1 st crop	2 nd crop	Supp*	1st crop	2nd crop	Supp*	1st crop	2nd crop	Supp*
2007	12,989	9,899		22,758	12,487	1,799	3,654	2,339	708	14,441	6,136	7,421	53,842	30,861	9,928
2008	17,133	14,453		27,974	16,501	2,727	3,419	1,813	1,533	17,241	12,428	16,044	65,767	45,195	20,304
2009	17,371	14,342	1,842	27,786	12,433	351	4,402	3,848	3,609	21,778	17,816	14,517	71,337	48,439	20,319
2010	17,703	15,219	2,380	26,951	14,207	1,323	4,333	3,693	2,459	22,552	14,373	6,776	71,539	47,492	12,938
2011	18,687	14,651	-	27,554	12,736	-	6,792	3,693	-	18,316	15,120	12,404	71,349	46,200	12,404
2012	16,866	14,949	-	-	-	-	-	324	1,920	-	-	4,543	16,866	15,273	6,463
2013	18,638	16,982	1,799	-	-	-	506	-	2,027	-	-	3,077	19,144	16,982	6,903
2014	18,750	16,263	2,376	-	-	-				-	-	-	18,750	16,263	2,376
2015	18,353	14,141	2,255	-	-	-	584		1,094			1,820	18,937	14,141	5,169
2016	19,290	14,238	2,300	24,190	18,099	1,047	2,482	2,068	1,162	13,714	10,861	3,704	59,676	45,266	8,213

*Supp = Supplemental water (acreage that was planted in crops other than rice, such as turf grass, hay, row crops, aquaculture, and water for wildlife management)

Our suggested methodology is to use the most recent dry year with no curtailment. For that reason we used 2011 planted acreage and actual applied acre-foot per acre data, but reduced the use per acre planted to reflect recent improvements in irrigation efficiency and current LCRA contracting. For this method, an adjusted acre-foot per acre demand was calculated by capping the actual water use at each individual field by the acre-foot per acre duty stated in the water use contracts. The duties stated in the water use contracts were developed by LCRA in coordination with the farmers to reflect an irrigation rate that was considered reasonable and appropriate.

Table 3 shows the actual acre-foot per acre demands applied in each irrigation operation, the cap applied for the adjustment calculation, and the adjusted duty used to develop the base demand.

Table 3. Actual and Adjusted Surface Water Acre-Feet per Acre Use for 2011

		2011 actual acre-foot per acre use	Duty specified in contract	2011 adjusted acre-foot per acre demand
		ac-ft/ac		
1st Crop	Garwood	3.80	3.25	3.07
	Lakeside	3.34	3.25	2.99
	Pierce Ranch	No on farm data	3.25	3.03*
	Gulf Coast	3.65	3.75	3.44
2nd Crop	Garwood	2.54	2.00	1.93
	Lakeside	2.31	2.00	1.88
	Pierce Ranch	No on farm data	2.00	1.91
	Gulf Coast	2.31	2.50	2.16
Supplemental	Garwood	No planted acreage	No contract duty	NA
	Lakeside	No planted acreage	No contract duty	NA
	Pierce Ranch	No planted acreage	No contract duty	NA
	Gulf Coast	1.13	No contract duty	1.13**

*Because data was not available by field, used Garwood and Lakeside average adjusted acre-foot per acre demand.

**Because there is no contract duty, no cap was applied and the actual acre-foot per acre application rate was used

These adjusted acre-foot per acre demands were then applied to the actual 2011 planted acreages to develop a base demand estimate. Because this demand represents an on farm demand, a canal loss factor was added to estimate the total diversion amount required to meet demand. Table 5 shows the 2011 planted acreages, adjusted acre-foot per acre demands, canal loss factors, and a total estimated base irrigation demand. Demands for Pierce Ranch and Garwood were adjusted downward to reflect current contractual obligations.

Table 5. Base Irrigation Demand (Surface Water) Calculation for Methodology B

		2011 Acres Planted (ac)	2011 Adjusted acre-foot per acre demand	Calculated On-Farm Dry Year Use (ac-ft)	Approximate Canal Loss (%)	Calculated Base Demand with Canal Loss (ac-ft)
1st Crop	Garwood	18,687	3.07	57,369	20%	71,711
	Lakeside	27,554	2.99	82,386	20%	102,982
	Pierce Ranch	6,792	3.03	20,580	20%	25,725
	Gulf Coast	18,316	3.44	63,007	30%	90,010
2nd Crop	Garwood	14,651	1.93	28,276	20%	28,289 ⁽¹⁾
	Lakeside	12,736	1.88	23,943	20%	29,929
	Pierce Ranch	3,693	1.91	7,035	20%	4,275 ⁽²⁾
	Gulf Coast	15,120	2.16	32,659	30%	46,656
Supplemental	Garwood	-	NA	-	20%	-
	Lakeside	-	NA	-	20%	-
	Pierce Ranch	-	NA	-	20%	-
	Gulf Coast	12,404	1.13	14,017	30%	20,024
Total		129,952		329,272		419,601

(1) Demand based on the current contractual obligation of up to 100,000 af per year to the Garwood irrigation division.

(2) Demand based on the contractual obligation of up to 30,000 af per year to Pierce Ranch.

APPENDIX 2D

***LCRWPG POPULATION AND WATER DEMAND COMMITTEE
MEETING MINUTES***

MEETING MINUTES – SEPTEMBER 14, 2017

MEETING MINUTES – OCTOBER 31, 2017

MEETING MINUTES – DECEMBER 7, 2017

**Lower Colorado Regional Water Planning Group
Population and Demand Committee Meeting
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September 14, 2017**

1. Lauri Gillam called meeting to order at 12:34 p.m.

2. Attendees (18)
Lauri Gillam – Region K Population and Water Demand Committee Chair, Small Municipalities Rep
David Wheelock –Region K, River Authority Rep
John Burke – Region K, Water Utilities Rep
James Sulzemeier – Region K, Counties Rep
David Lindsay – Region K, Recreation Rep (Alternate)
Daniel Berglund – Region K, Small Business Rep
Teresa Lutes – Region K, Municipalities Rep
Barbara Johnson – Region K, Industry Rep
Russ Robertson – Texas Dept. of Agriculture (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
Yun Cho – TWDB
William Alfaro – TWDB
Stacy Pandey – LCRA
Rebecca Batchelder – LCRA
Helen Gerlach – Austin Water

3. Public Comments
No Public Comments.

4. Meeting Objectives
The purpose of this committee meeting was to review Population and Municipal and Non-Municipal Demand projections and feedback from stakeholders, and identify recommendations to take to planning group for the October 11th meeting. The deadline to send information to TWDB is January 12, 2018.

5. **Non-Municipal Demand Projections** – Most of the comments listed below were provided prior to this meeting, and the commenters were not necessarily at the meeting to participate in the discussion.
 - a. **Livestock Demands**
 - i. Comment 1 – Ron Fieseler
 1. Livestock data is already calculated per head of cattle – Perhaps the numbers are not updated. Data is somewhat unreliable. TWDB will provide raw data. Committee agrees to send Mr. Fieseler the raw data for his review.

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2. To use an average based on five-year would not account for drought, but when drought hits, small cattle farmers tend to sell, so there is less water usage.
 3. Blanco County has exotic animals - water usage cannot be accounted for from TWDB because it has been difficult to acquire the data.
- ii. Comment 7 – Ann McElroy
1. Concern that domestic and livestock use is not being well-accounted for – it’s embedded in livestock and county-other.
 2. Inflows into domestic and livestock impoundments create a pseudo demand. TCEQ has tried and failed to gauge this demand. If it’s not accounted for, it may be a concern. A gap in supply between livestock and municipal use.
 3. D&L observation is legitimate, but there’s not time or money to develop project. Investing in the research would drive up the cost of research. What would be the return on investment?

iii. No potential revisions recommended other than possibly Blanco County.

b. Steam-Electric Demands

- i. Comment 5 – verbal
1. Llano County
 - a. Reported information is incorrect based on Ferguson Plant, LCRA will submit revised numbers. TWDB acknowledged their draft number should be revised from 6 to 669 acre-feet.
 - b. LCRA plans to submit request closer to historical uses.
 2. Matagorda County Steam-Electric
 - a. Jason Ludwig from STP said Matagorda numbers looked fine.
 3. City of Austin and LCRA will coordinate to determine LCRA-Austin split for Fayette County. Overall numbers should be fine.
 4. TWDB asked for any planned expansions to update demand projections.

ii. No potential revisions recommended other than possibly Llano County.

c. Mining Demands

- i. Projections have stayed the same since last planning cycle.
- ii. Comment 5 – verbal
1. Bastrop County Mining Demands
 - a. Drop-off shown in historical water use from 2012-2015. Look into because no adjustments were made for this cycle.
 - b. Disconnect of this cycle’s draft projections because it was based on 2005-2009 data
 - c. Unlikely that increased mining will occur for next 50 years. Likely 20-25 more years of use (lignite coal mining). Hold through 2040 decade

and cut off by 2050. Greatest pumpage comes towards the end (at deepest) before the reclamation process. Mining use not expected to drop to zero due to gravel mining in the county.

- d. AECOM will work with James Kowis to develop draft revised Bastrop County numbers for consideration by RWPG.
- iii. Central Texas Water Coalition
 - 1. Concern that projected demands may not fully incorporate existing or future planned demands in Burnet County.
 - 2. TWDB feels comfortable with numbers.
 - 3. AECOM will check with GCD in Burnet County to see if they have data they can provide.
- iv. Matagorda County
 - 1. Matagorda mining demands have increased rapidly in the last few years. The historical demands are now higher than the projected demands (since they are based on 2005-2009 data).
 - 2. What is causing the recent peak (historical water use)? Natural gas storage? TWDB will provide data.
- v. **No potential revisions other than possibly Bastrop County, Burnet County, and Matagorda County recommended at this time.**

d. Manufacturing Demands

- i. Quarries are listed as manufacturing – check to see if they’re double counted in mining and manufacturing? TWDB will send additional data.
- ii. Comment 2 – Paul Tybor
 - 1. Gillespie County demands are on the low side, but okay, because based on water use survey
- iii. Comment 5 – Travis County
 - 1. Numbers decreased dramatically – last plan demands were 30,000 acre-feet to 90,000 acre-feet. Draft projections this cycle are 11,000 to 13,000 acre-feet. City of Austin revision request packet has 14,000 to 18,000 acre-feet (for 2040 through 2070).
 - 2. Similar information to draft projections until 2040 but City of Austin sees demand increasing to 2070, instead of staying flat.
 - 3. City requests an upward trend 2040-2070. Additional demand would be approximately 1,300 AFY additional in 2040, growing to an additional amount of 4,900 AFY in 2070.
 - 4. TWDB only has 10-year employment projection, while City of Austin has a longer term. City will provide TWDB with Austin’s employment projections.
 - 5. TWDB mentioned there are several wholesale manufacturing demands that might get added to Travis County.

iv. **No potential revisions recommended other than possibly Travis County at this time.**

e. Irrigation Demands

i. Comment 3 – Donna Klaeger

1. Ms. Klaeger may be remembering that interruptible water supply for irrigation was shown as going to 0 in the later decades. There were not a 0 value for irrigation demands in the previous plan, except for Williamson County.

ii. Daniel Berglund expressed concern that numbers obtained from the TWDB averaging method are artificially low due to impacts of drought in recent years. Five years is a small snapshot. Last cycle used 20 years of data.

1. Committee came to a consensus that using the years 2010-2015 for analysis is not a good option for the surface water component of the agricultural demand projection. Noted that historical groundwater use for that period remained fairly constant and may be okay to use depending on methodology chosen for calculating demands.

Instead of average from 2010-2015, will look at year with high planted acreage (like 2011). As an option to consider take a high acreage planted amount and multiply by normal usage per acre to get a draft demand for future projections.

2. Conservation trends should be incorporated as best possible in the demand projection process. Conservation is also a water management strategy, so it should be considered regardless of the irrigation demand method used.

iii. AECOM will coordinate with David Wheelock, Daniel Berglund, and Stacy Pandey for acreage, water use information, etc. to present draft agricultural irrigation demand projections for the three main rice farming counties. New data and methodology information will be presented to the full RWPG at October 11th meeting for discussion and consideration.

iv. Comments received from CTWC regarding irrigation demands were discussed though discussion documented above.

v. AECOM noted the continual increase in Travis County and suggested we revisit the numbers. TWDB will look at the numbers again, and will respond with details.

1. Suggestion was made that some of the increase in Travis County irrigation is from small vegetable farms producing locally-grown produce.

vi. **No potential revisions recommended other than possibly Colorado County, Matagorda County, Travis County, and Wharton County, at this time.**

6. Draft Population and Municipal Demand projections

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- a. Discussion of updated WUG Response Summary, noting new responses. About 55% of WUGs have responded.
 - i. Specific discussion of
 - 1. North San Saba WSC – No documentation, small increase requested
 - 2. San Saba – No documentation, increase requested, but have confirmed with TWDB that the requested increase is not likely to be approved, will work with requestor on supplies and strategies to meet future needs.
 - 3. Wharton – Requesting large increases with a 5% growth rate, but given lack of documentation, committee does not recommend revising Wharton’s numbers. Will look at them next cycle. Will work with Wharton to incorporate strategies and supplies as able.
- b. Discussion of Requested Revision table:
 - i. Granite Shoals – **Decrease approved for recommendation to RWPG**
 - ii. Meadowlakes MUD – no request, but population decrease may be appropriate. Stacy Pandey and Lauri Gillam will reach out.
 - iii. Fayette County WCID Monument Hill – demand increase requested based on documented water use reports. **AECOM will follow up with David Van Dresar, but committee comfortable with recommending revision to RWPG.**
 - iv. North San Saba WSC – small population increase in later decades, based on expectation that current second homes will become retirement homes with permanent population. County-other would need to be decreased. **Committee comfortable with request because it is small, but TWDB may not agree due to lack of documentation.**
 - v. Travis County – identified multiple revision requests for WUGs within county and potential population increase overall for the county. City of Austin submitted their request for revisions at the meeting. AECOM acknowledged that with all of the requests within Travis County, additional effort would be needed to go through all of them to achieve a balance. AECOM also needs to coordinate with West Travis County PUA on their numbers – unclear whether future demands would be retail or wholesale customers. Travis County WUGs would not be ready for any recommendation to the RWPG at the October 11th meeting.
 - vi. Hays County – large requests from West Travis County PUA and Dripping Springs WSC (WTCPUA wholesale customer). Need to further coordinate with WTCPUA before coming back to the committee.
- c. City of Austin – requests 54% split of Travis County-Other. City of Austin requests a revision to increase population numbers to extents of TWDB limits. City of Austin will provide a breakdown of their population increase request by county (Travis, Hays, and Williamson). AECOM will coordinate further with COA. Not ready for committee recommendation at this time.

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- d. TWDB draft projections for base GPCD numbers were based on city boundaries rather than the new utility boundaries. Historical population, water use, and GPCD estimate data sent out by TWDB at end of June shows GPCD estimates based on utility boundaries. In some cases, the GPCD numbers are very different from what was sent out with the draft projections. **Committee will recommend to RWPG that where different, Region K request to TWDB that the utility boundary GPCD number be used in place of the one sent out with the draft projections, except in cases where additional changes are being requested.** Still a question of how to communicate to the affected WUGs that this is happening.

- 7. Summarize recommendations
 - a. Included above in minutes, highlighted in bold.
- 8. Agenda for next meeting
 - a. Discussion is postponed until after the October meeting.
- 9. New/Other Business
 - a. None
- 10. Public Comments
 - a. None
- 11. Lauri Gillam adjourned at 4:18.

**Lower Colorado Regional Water Planning Group
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City of Pflugerville, City Council Chambers
October 31, 2017**

1. Lauri Gillam called meeting to order at 10:15 a.m.

2. Attendees (21)
 - Lauri Gillam – Region K Population and Water Demand Committee Chair, Small Municipalities Rep
 - David Wheelock – Region K, River Authority Rep
 - John Burke – Region K, Water Utilities Rep
 - Daniel Berglund – Region K, Small Business Rep
 - Ann McElroy – Region K, Environmental Rep
 - David Lindsay – Region K, Recreation Rep (Alternate)
 - Jeff Fox – Region K, Municipalities Rep (Alternate)
 - Charlie Flatten – Region K, Environmental Rep (Alternate)
 - Linda Raschke – Region K, Counties Rep (Alternate)
 - Lann Bookout – TWDB (Region K non-voting member)
 - Jaime Burke – AECOM
 - Alicia Smiley – AECOM
 - James Kowis – James Kowis Consulting, LLC
 - Yun Cho – TWDB
 - Stacy Pandey – LCRA
 - Rebecca Batchelder – LCRA
 - Helen Gerlach – Austin Water
 - Heather Cooke – Austin Water
 - Christianne Castleberry – Castleberry Engineering / Region K, Water Utilities Rep (Alternate)
 - Cindy Smiley – Smiley Law Firm
 - Earl Foster – Lakeway MUD

3. Public Comments
 - a. No public comments.

4. Discuss meeting objectives – Jaime Burke – Meeting objective to discuss all potential revisions and determine recommendations to make to the RWPG.
 - a. Draft Population, GPCD, and Municipal Demand projections
 - b. Non-municipal demand projections
 - i. Irrigation Demands
 - ii. Manufacturing Demands
 - iii. Steam-Electric Demands
 - iv. Mining Demands
 - v. Livestock Demands

5. Discuss Draft Population, GPCD, and Municipal Demand projections and potential revisions by county, as needed. Identify recommendations to make to the entire RWPG. – Jaime Burke

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- a. Potential revisions for counties and WUGs. WUGs shared with Region G and Region L will not be changed based on utility GPCD vs. city GPCD. Revisions to GPCD are generally only recommended if 10 GPCD or greater, unless specifically requested.
- b. If there are significant decreases, based on a recommended change to GPCD, a notification will be sent to the utility regarding the change in order to provide an opportunity to comment before the January Region K meeting.
- c. Bastrop County
 - i. City of Bastrop - recommended decreased demands. (utility GPCD vs. city GPCD)
 - ii. Bastrop County-Other - recommended decreased demands. (utility GPCD vs. city GPCD)
- d. Blanco County
 - i. City of Blanco - recommended decreased demands. (utility GPCD vs. city GPCD)
- e. Burnet County
 - i. City of Bertram – no revisions to demand since no information was received.
 - ii. City of Burnet - recommended decreased demands. (utility GPCD vs. city GPCD)
 - iii. Chisholm Trail SUD – request name change to Georgetown, as confirmed by Region G.
 - iv. Cottonwood Shores - recommended increased demands. (utility GPCD vs. city GPCD)
 - v. Burnet County-Other – The population and demands increase for Burnet County-Other to balance population decreases for Granite Shoals and Meadowlakes MUD, in order to keep the County population constant. The Committee agreed to recommend.
 - vi. City of Granite Shoals - requested a population decrease and demand decrease. The Committee agreed to recommend.
 - vii. City of Horseshoe Bay - recommended decreased demands (also in Llano County). (utility GPCD vs. city GPCD)
 - viii. Kingsland WSC - recommended increased demands (also in Llano County). (utility GPCD vs. city GPCD)
 - ix. Meadowlakes MUD - requested a population decrease due to buildout capacity and demand decrease. The Committee agreed to recommend.
- f. Colorado County
 - i. City of Weimar - recommended decreased demand. (utility GPCD vs. city GPCD)
- g. Fayette County
 - i. Fayette County-Other – recommended slight decrease in population to balance Fayette County WCID Monument Hill, and increased demand. (utility GPCD vs. city GPCD)
 - ii. Fayette County WCID Monument Hill - requested to correct GPCD and demands to reflect historical data, and slightly increase 2020 population. The Committee agreed to recommend.
 - iii. Fayette WSC - recommended increased demand. (utility GPCD vs. city GPCD)
 - iv. City of La Grange - recommended increased demand. (utility GPCD vs. city GPCD)
- h. Gillespie County – No revisions.
- i. Hays County
 - i. City of Austin - requested overall large population and water demand increase. A small portion of that increase is recommended to be added to the Hays County portion of the City of Austin. City has also requested to increase their GPCD to reflect the utility-boundary number. The Committee agreed to recommend.

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- ii. Hays County-Other – Recommend population decreases to balance increases for City of Austin and Dripping Springs WSC, in order to keep County total unchanged. Population decreases also decrease demand.
 - iii. Dripping Springs WSC - requested large population and resultant water demand increase. The WSC has documentation of existing population as well as current and pending development projects to support faster growth. The Committee agreed to recommend.
 - iv. West Travis County PUA – requested decreased retail population in Hays County and increased retail population in Travis County. Decreases incorporate that the overall population numbers WTCPUA requested include wholesale customers such as Dripping Springs WSC. Committee agreed to recommend. Also recommended decreased demands (utility GPCD vs. city GPCD). See also Travis County
- j. Llano County
- i. City of Horseshoe Bay - recommended decreased demands (also in Burnet County). (utility GPCD vs. city GPCD)
 - ii. Kingsland WSC - recommended increased demands (also in Burnet County). (utility GPCD vs. city GPCD)
 - iii. City of Llano - recommended decreased demands. (utility GPCD vs. city GPCD)
 - iv. Sunrise Beach Village - recommended increased demand due to irregular source year for 2011. (utility GPCD vs. city GPCD) Linda Raschke is reaching out to mayor.
- k. Matagorda County
- i. Markham MUD - recommended decreased demand. (utility GPCD vs. city GPCD)
 - ii. Matagorda County WCID 6 - recommended decreased demand. (utility GPCD vs. city GPCD)
 - iii. City of Palacios - recommended decreased demand. (utility GPCD vs. city GPCD)
- l. Mills County – No revisions.
- m. San Saba County
- i. North San Saba WSC – requested population and demand increase, but lacked any documentation. Committee recommends no revision due to lack of documentation.
 - ii. Richland SUD - recommended increased demands. (utility GPCD vs. city GPCD). Region F is in agreement.
 - iii. City of San Saba - recommended decreased demand in order to keep with methodology. (utility GPCD vs. city GPCD). Will reach out to San Saba for feedback.
- n. Travis County
- i. Because Travis County is growing faster than predicted and Region K is 1.5% underprojected, committee will request to TWDB that the excess 1.5% (approximately 23,000 people in 2015) of population be added to Travis County.
 - ii. Aqua Texas-Rivercrest is a sub-WUG to County-Other. Population and demand projections have been developed as part of the revision request to TWDB.
 - iii. City of Austin - requested increase in population, based on the City demographer’s projections. Committee is able to recommend some increase, based on the overall Travis County population increase, but not all. City also requested to increase GPCD from 156 to 162 GPCD, based on utility GPCD number. Committee agreed to recommend. The RWPG may consider action to support the

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City of Austin submitting a separate request to the TWDB for their full projected population numbers.

- iv. Barton Creek West WSC - recommended increased demand. (utility GPCD vs. city GPCD)
- v. Barton Creek WSC - recommended increased demand. (utility GPCD vs. city GPCD)
- vi. Cottonwood Creek MUD 1- recommended decreased demand. (utility GPCD vs. city GPCD)
- vii. Travis County-Other used to balance county population projections, but adjusted to keep some population in the County in each decade.
- viii. Hurst Creek MUD - recommended increased demand. (utility GPCD vs. city GPCD)
- ix. Jonestown WSC - recommended increased demand. (utility GPCD vs. city GPCD)
 - x. City of Lago Vista - requested an increase in population. Committee recommended staying with draft numbers due to lack of documentation.
- xi. Lakeway MUD - requested decreased population and demand, based on data they provided. Committee agreed to recommend decreases.
- xii. City of Leander - requested increased population for 2020 and 2030 and requested decreased population for 2040-2070. Also requested increased GPCD, based on 2015 rate. Coordination with Region G and TWDB staff has occurred. Committee agreed to recommend revisions.
- xiii. Manville WSC requested decreased population, based on information provided to Region K by Region G staff. Lower demands reflect population changes. Committee agreed to recommend revisions.
- xiv. North Austin MUD 1- recommended increased demand. (utility GPCD vs. city GPCD)
- xv. Oak Shores Water System - requested increased population and demand for 2020 and 2030 and requested decreased population and demand for 2040-2070. Small changes based on anticipated growth and buildout conditions.
- xvi. City of Pflugerville - requested decreased population and demand. Committee agreed to recommend.
- xvii. Rough Hollow in Travis County CRU (new WUG) – no recommendations to change numbers, just providing draft numbers for information.
- xviii. Shady Hollow MUD - recommended increased demand. (utility GPCD vs. city GPCD)
- xix. City of Sunset Valley- requested decreased population, providing calculations. Committee agreed to recommend. Also recommending increase to GPCD. (utility GPCD vs. city GPCD)
 - xx. Sweetwater CRU (new WUG) – no recommendations to change numbers, just providing draft numbers for information.
- xxi. Travis County MUD 10 - recommended decreased demand. (utility GPCD vs. city GPCD)
- xxii. Travis County MUD 2 - recommended decreased demand. (utility GPCD vs. city GPCD)
- xxiii. Travis County MUD 4 - recommended decreased demand. (utility GPCD vs. city GPCD)
- xxiv. Travis County WCID 10 - recommended increased demand. (utility GPCD vs. city GPCD)
- xxv. Travis County WCID 17 – requested increase to 2020 population, based on 2016 population submitted to TWDB. Committee agreed to recommend. Also recommended increased demand. (utility GPCD vs. city GPCD)
- xxvi. Travis County WCID 19 - recommended decreased demand. (utility GPCD vs. city GPCD)
- xxvii. Travis County WCID 20 - recommended decreased demand. (utility GPCD vs. city GPCD)

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- xxviii. Travis County WCID Point Venture - requested increased population in 2020 based on 2015 population and current growth rates. 2030 population was then adjusted to better balance the growth between 2020 and 2040. 2040 – 2070 population was not changed. Committee agreed to recommend. Also recommended decreased demand. (utility GPCD vs. city GPCD)
- xxix. Wells Branch MUD – requested increased population based on documentation of current single family and multi-family population. GPCD is decreased based on updated population numbers, resulting in decreased demands. Committee agreed to recommend.
- xxx. West Travis County PUA - requested increased retail population in Travis County based on demographic study provided. Also requested lower GPCD, which includes both retail and wholesale and is lower than historical data shows for retail. Committee agreed to recommend a portion of the requested increase, based on the increase to Travis County’s population. Committee did not agree to recommend requested GPCD, but recommended lower GPCD (utility GPCD vs. city GPCD).
- o. Wharton County
 - i. Wharton County-Other -recommended increased demand based on Region P request to slightly increase GPCD (utility GPCD vs. city GPCD).
- p. Williamson County
 - i. City of Austin – initially increased population to reflect moving the County-Other population under City of Austin, based on service area. TWDB asked that we check to see if some population should be left under County-Other. City of Austin is looking at the numbers.
 - ii. Williamson County-Other – initially moved all of County-Other population under City of Austin. TWDB asked that we check to see if some population should be left under County-Other. City of Austin is looking at the numbers.
 - iii. North Austin MUD 1 - recommended increased demand. (utility GPCD vs. city GPCD)
 - iv. Wells Branch MUD - GPCD is decreased based on updated population numbers in Travis County, resulting in decreased demands. Committee agreed to recommend.
- 6. Discuss Draft Non-Municipal Demand projections and potential revisions by category, as needed. Identify recommendations to make to the entire RWPG. – Jaime Burke
 - a. Irrigation Demands
 - i. Concern regarding potential overlap / double-counting of irrigators using both surface water and groundwater. Discussion of using a consistent methodology for both water sources, or detailed inventory of groundwater.
 - ii. Discussion of Daniel Berglund and David Wheelock’s memo that developed proposed new surface water demand numbers for irrigation.
 - iii. David Lindsay discussed possible issues with irrigation demand methodology. Discussed 1988 Adjudication Order. Suggested that for planning purposes, Gulf Coast number needs to be decreased, based on 5.25 acre-foot/acre. See separate meeting handout “*Irrigation Demand Metric and Associated Water Conservation Requirements Summary and Excerpts: Court Order from 1988 Adjudication of Water Rights; Certificates of Adjudication held by LCRA; LCRA’s Water Management Plans (1989 +)*” for full discussion.
 - iv. Committee agreed to schedule another meeting, to be able to discuss materials presented in more detail. No recommendations at this time.

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- b. Manufacturing Demands
 - i. Discussion of “potential unaccounted manufacturing water use” data for 2015, provided by TWDB staff. Looked at what counties might have increased demands based on the addition of that data. Six counties would have increased demands that could be requested as revisions to the TWDB.
 - ii. Discussion of City of Austin manufacturing increases for Travis County, based on their projected employment in the manufacturing sector from the City Demographer. The Committee had some concerns that there was a large jump in demand from 2030-2040 that wasn’t well explained.
 - iii. Committee agreed to recommend revisions for all six counties, except for Travis County. The City of Austin will take another look at their numbers, which will be considered at the next Committee meeting.
 - c. Steam-Electric Demands
 - i. Llano County
 - 1. David Wheelock will submit request at next meeting.
 - ii. Wharton County
 - 1. Moving portion of demand from Region P to Region K, based on accidentally being located in the incorrect region.
 - d. Mining Demands
 - i. Bastrop County
 - 1. News article said mine was to be closed. Leaving revision request as-is for now.
 - e. Livestock Demands
 - i. No comments.
7. Summarize recommendations to make to RWPG at January 10th meeting.
- a. Need additional discussion on Irrigation, Manufacturing, Steam-Electric, and Municipal (based on changes discussed at meeting and feedback expected from WUGs regarding GPCD change).
 - i. A Doodle poll will be sent out to determine next meeting.
 - ii. Location: City of Pflugerville.
8. New / Other Business
- a. None.
9. Public Comments – limit 3 minutes per person
- a. None.
10. Lauri Gillam adjourned at 2:40 p.m.

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City of Pflugerville Public Library
December 7, 2017**

1. Lauri Gillam called meeting to order at 10:14 a.m.
 - a. Lauri Gillam mentioned that when receiving emails, in accordance with the Open Meetings Act requirements, please do not “reply to all.” Members of a governing body (i.e. committee members) cannot correspond with one another regarding planning group business outside an open meeting. All correspondence should be sent directly to Jaime Burke.

2. Attendees (23)

Lauri Gillam – Region K Population and Water Demand Committee Chair, Small Municipalities Rep
David Wheelock – Region K, River Authority Rep
John Burke – Region K, Water Utilities Rep
Daniel Berglund – Region K, Small Business Rep
Ann McElroy – Region K, Environmental Rep
David Lindsay – Region K, Recreation Rep (Alternate)
Teresa Lutes – Region K, Municipalities Rep
Lann Bookout – TWDB (Region K non-voting member)
Jaime Burke – AECOM
Alicia Smiley – AECOM
James Kowis – James Kowis Consulting, LLC
Yun Cho – TWDB
Katie Dahlberg – TWDB
Stacy Pandey – LCRA
Rebecca Batchelder – LCRA
Jeff Fox – Austin Water / Region K, Municipalities Rep (Alternate)
Helen Gerlach – Austin Water
Christianne Castleberry – Castleberry Engineering / Region K, Water Utilities Rep (Alternate)
Cindy Smiley – Smiley Law Firm
Earl Foster – Lakeway MUD
Susan Patton – CTWC
Jo Karr Tedder – CTWC
Jordan Furnans – LRE Water, LLC

3. Public Comments
 - a. No public comments.

4. Minutes Approval
 - a. Draft of September 14, 2017
 - i. David Wheelock proposed to add note in (5) Non-Municipal Demand Projections that comments had been provided prior to meeting, and the commenters were not necessarily at the meeting.

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- b. Draft of October 31, 2017
 - i. David Wheelock proposed to delete last sentence of (6aii).
 - ii. Dave Lindsay proposed to add the following sentence to (6aiii):
See separate meeting handout "Irrigation Demand Metric and Associated Water Conservation Requirements Summary and Excerpts: Court Order from 1988 Adjudication of Water Rights; Certificates of Adjudication held by LCRA; LCRA's Water Management Plans (1989 +)" for full discussion.
 - c. John Burke motioned to approve both sets of minutes with the noted changes. David Wheelock seconded. Committee passed.
5. Meeting Objectives
- a. Lauri Gillam commended AECOM for presenting such complicated information and organizing it well for the committee.
 - b. The committee needs to finalize and approve recommendation for presentation to RWPG at the January 10, 2018 meeting.
 - c. Jaime Burke lead discussion on revising:
 - i. Municipal projections based on feedback from October 31st meeting
 - ii. Manufacturing Demands for Travis County
 - iii. Steam Electric for Llano County
 - iv. Irrigation Demands, particularly in:
 - 1. Colorado County
 - 2. Wharton County
 - 3. Matagorda County
6. Municipal projections revisions (as discussed at the October 31st meeting.)
- a. Letters and emails were sent to WUGs whose draft projections have changed based on the utility boundary versus city boundary methodology agreed upon at the October 31st meeting. The following WUGs requested *not* to change their GPCD based on utility boundaries:
 - i. Bastrop County-Other
 - ii. Kingsland WSC
 - iii. City of San Saba
 - iv. Travis County WCID 17
 - v. North Austin MUD No. 1
 - vi. Teresa Lutes motioned to approve requests. John Burke seconded. Committee passed.
 - b. Travis County
 - i. As a result of Lago Vista not increasing population in draft projection due to lack of sufficient data, unaccounted population was added to City of Austin per request of the City.

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- ii. City of Austin will revise request to break municipal request into portion that will fit under the population cap that TWDB staff have agreed to consider, and a supplemental request for the additional population that City of Austin actually expects to see. The RWPG will take the municipal requests up as separate agenda items at the January Region K meeting.
 - iii. Region G and Region K need to coordinate to have the same draft projections for City of Leander. Committee came to a consensus to wait for the City to respond and the Region K planning group will decide on draft projections. This is due to incomplete information from City of Leander as of December 7th.
 - c. Williamson County
 - i. Previously, Williamson County-Other population had been revised to zero (0) to reflect moving the entire population under City of Austin. Based on TWDB staff suggestion at October 31st meeting, City of Austin revisited the numbers and determined that 3% of the County-Other population should remain in County-Other. The remaining 97% was moved under City of Austin. This is because while this population may live in the Austin service area, they use wells for water.
 - d. John Burke motioned to approve changes as noted above. Dave Lindsay seconded. Committee passed.
- 7. Manufacturing Demands – Travis County
 - a. City of Austin is requesting revisions to Manufacturing Demand in Travis County in 2040-2070 beyond what the committee agreed to recommend with the incorporation of the 2015 potentially unaccounted for additional manufacturing water use at the October 31st meeting:
 - i. 2040: 14,853 to 18,299 AFY
 - ii. 2050: 14,853 to 19,491 AFY
 - iii. 2060: 14,853 to 20,683 AFY
 - iv. 2070: 14,853 to 21,876 AFY
 - b. Teresa Lutes provided additional documentation to back this request in the form of a handout. Main points include:
 - i. When creating manufacturing demands, the North American Industry Classification System (NAICS) codes used by TWDB does not cover all manufacturing in City of Austin, leaving unaccounted water use in the industrial sector.
 - ii. Austin Water's disaggregated demand model projects higher estimates of manufacturing demand than TWDB's current projections.
 - c. TWDB staff asked that City of Austin provide additional data showing how the manufacturing growth will exceed anticipated water use efficiencies. Current trends for the State show water use for manufacturing decreasing even as manufacturing shows growth. City of Austin agreed to provide additional data. David Wheelock motioned to approve City of Austin's Manufacturing Demands projections. John Burke seconded. Committee passed.

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8. Steam Electric – Llano County
 - a. David Wheelock submitted a letter to Region K and presented the request to the committee to revise projections for Llano County. The 2020 water demands projections were developed for each county by using the highest county aggregated steam-electric power water use from 2010-2014. As the Ferguson Power Plant was under reconstruction during that time, the numbers provided for Llano were under-projected. Using 2015-2016 data, Wheelock proposed to alter the Llano County numbers to 1,748 acre-feet/year.
 - b. Committee passed the approval to recommend the requested revision to the Llano County steam-electric demand.

9. Irrigation Demands
 - a. Donna Klaeger (Region K, Counties Rep) submitted a letter of support to utilize the 5.25 acre-feet per acre-total water use waste standard requirement as a maximum allowable water usage metric for determining irrigation demand.
 - b. Explanation of various source components that make up the irrigation demands in Colorado, Matagorda, and Wharton Counties (surface water for LCRA Irrigation Districts, surface water for other irrigation water rights, and groundwater) and that the Committee would need to choose a methodology for each component in order to determine the revised total by County.
 - c. Surface Water for LCRA Irrigation Districts
 - i. Discussion of whether demand is at the field or at the point of diversion. Decision that demand is at point of diversion, similar to previous plans.
 - ii. Daniel Berglund noted that the total surface water numbers presented in 10/5/17 memo of 419,601 AF is less than 2015 LCRA WMP interim demands of 438,500 AF, and less than the 464,000 AF actually used in 2011.
 - iii. Discussion whether 5.25 AF/A is a legal requirement, and that showing demands higher than that allows for wasted water.
 - iv. Discussion focusing on 5.25 AF/A requirement for irrigation, rather than historical use, being a different methodology than other water use categories.
 - v. Showing historical use shows what happens if nothing changes, and pushes the effort to look at conservation.
 - vi. Concern that after 30 years, Gulf Coast Irrigation District has not made effort to reduce water use.
 - vii. Conservation projects being done in Gulf Coast with grant funding that is available because of water management strategies listed in the Region K Water Plan.
 - viii. Discussion of irrigation demand projections for Colorado, Matagorda, and Wharton counties being flat versus decreasing each decade. Committee fairly comfortable with decadal decrease of 2.69% over planning horizon, which is what Region K used in the last planning cycle.
 - ix. Motion made by David Wheelock to recommend to Region K RWPG to accept the surface water numbers in the 10/5/17 memo, as summarized in 12/7/17 meeting

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Handout 6 Item 1.a. for the 2020 demand. Include a reduction of 2.69% per decade for future decades. The RWPG will work to identify water management strategies that focus on conservation, along with possible other strategies. Lauri Gillam seconded. Motion passed, Dave Lindsay voted no.

- d. Surface Water for other irrigation water rights
 - i. Options presented included 1) last cycle's numbers (90th percentile of 2000-2011 water use), 2) 2011 water use, and 3) average of 2010-2014 water use.
 - ii. Some concern that Colorado County numbers for the second two options are too low and don't reflect a true demand.
- e. Groundwater
 - i. Options presented included 1) 2011 water use, and 2) average 2010-2014 water use.
 - ii. Some discussion, but no strong opinion for one option versus another.
- f. Committee felt that because the TWDB draft projections used an average 2010-2014 water use, they would recommend that method for both the groundwater component and the surface water for other irrigation rights component. Ann McElroy made the motion, David Wheelock seconded, motion passed.
- g. Additional Supplemental water discussion. David Wheelock mentioned that although supplemental (non-rice) water use had been included for the Gulf Coast irrigation district numbers, it hadn't been included for Lakeside irrigation district because in 2011, there wasn't a demand at Lakeside. Because there possibly should be, David Wheelock requested that 2,000 acres at 1.2 AF/A be added to the Lakeside irrigation district demand. Committee approved the motion.
- h. Committee also approved to apply the 2.69% demand decrease per decade to the entire irrigation demand in Colorado, Wharton, and Matagorda counties.
- i. Resulting breakdown of revised irrigation demands by county, and the projection of the 2020 demands out to 2070 – see attached sheet.

10. Additional Discussion

- a. Teresa Lutes wanted to encourage the Committee and the RWPG to take the information regarding irrigation water use that has been presented and discussed, and use it to identify conservation water management strategies in the 2021 Plan that will specifically reduce water demand, acknowledging that the recommended water demands based on historical water use have room for improvement and the region should do what it can to help make that happen. She also wanted to clarify the planning process and how it is broken into steps that are somewhat separate from each other. First step is to identify water demands, based on historical water use or some other determined methodology. Second step is to identify existing available water and supplies during drought conditions, separate from the demands. Third step is to compare the demands and existing water supplies to determine where there are "needs", or water shortages. Fourth step is to identify potential water management strategies, such as conservation or new water supply projects, to help meet the water

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shortage. Including strategies/projects in the regional water plans allows the State to help provide financing to implement the projects, and helps to show specifically what projects need to occur in order to increase supply or reduce demand where it's needed.

11. Next meeting
 - a. No meeting scheduled

12. New / Other Business
 - a. None.

13. Public Comments – limit 3 minutes per person
 - a. Jordan Furnans, LRE Water, LLC.
 - i. Concerned that the Committee's recommendation of average 2010-2014 water use for the smaller non-LCRA irrigation water rights in the lower basin is not a good representation of normal water demand. Believes that the numbers used in the last cycle (90th percentile of 2000-2011 water use) are a better representation.
 - ii. Believes use of 2011 planted acreage for calculating irrigation demands may be too high for future dry-year water demands based on changes to "open supply" concept.
 - iii. Subsidence District study is coming out soon

14. Lauri Gillam adjourned at 2:10 p.m.

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Irrigation Demand Calculations Based on Committee Recommendations at 12/07/17 Meeting

Irrigation District	Surface Water Demand (AFY)	
	Region K	Region P
Garwood	84,000	16,000
Lakeside*	135,311	
Pierce Ranch	30,000	
Gulf Coast**	156,690	
Total	406,001	16,000

Irrigation District	Surface Water by County in Region K (AFY)		
	Colorado	Wharton	Matagorda
Garwood ¹	84,000	0	0
Lakeside ²	55,478	79,833	0
Pierce Ranch ³	0	30,000	0
Gulf Coast ⁴		7,835	148,855
Other SW Rights in Lower Basin ⁵	94	2,885	8,814
Total	139,572	120,553	157,669

	Groundwater by County in Region K (AFY)		
	Colorado	Wharton	Matagorda
Avg 2010-2014 Use	33,540	68,557	33,919

	Total Demand by County in Region K (AFY)		
	Colorado	Wharton	Matagorda
Revised Projection	173,112	189,110	191,588
Draft TWDB Projection	123,682	147,543	109,595

*Includes 2,400 AF of Supplemental Water (non-rice irrigation)

**Includes 20,024 AF of Supplemental Water (non-rice irrigation)

¹ Region K portion of Garwood is 100% Colorado Co.

² Lakeside is 41% Colorado Co., 59% Wharton Co.

³ Pierce Ranch is 100% Wharton Co.

⁴ Gulf Coast is 92% Matagorda Co., 8% Wharton Co.

⁵ Surface water rights other than LCRA, STPNOC, & Corpus Christi (TCEQ Water Use Reports Average 2010-2014)

Projections

	Committee Recommended Revisions to Irrigation (AFY)					
	2020	2030	2040	2050	2060	2070
Colorado	173,112	168,455	163,924	159,514	155,223	151,048
Matagorda	191,588	186,434	181,419	176,539	171,790	167,169
Wharton	189,110	184,023	179,073	174,256	169,569	165,008
Total (Lower Basin)	553,810	538,912	524,416	510,309	496,582	483,225
Total (Region K)	582,407	567,509	553,013	538,906	525,179	511,822