

Water Management Plan Update

Supplemental information on development of agriculture demand

1. Excerpt from December 7, 2017 Region K Population and Water Demand Committee Meeting Minutes
2. Region K Non-Municipal Demand Projection Revision Memo (January 10, 2018)
3. Texas Water Development Board Response to Region K Requested Population and Demand Revisions (January 2, 2018)

Excerpt from December 7, 2017 Region K Population and Water Demand Committee Meeting Minutes

Lower Colorado Regional Water Planning Group
 Population and Water Demand Committee Meeting
 City of Pflugerville Public Library
 December 7, 2017

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

Region K Non-Municipal Demand Projection Revision Memo (January 10, 2018)

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

**Texas Water Development Board Response to Region K Requested Population and Demand
Revisions (January 2, 2018)**

**2021 Regional Water Plan Water Demand Projections:
Summary of the Lower Colorado Regional Water Planning Group’s Official Revision
Request & TWDB Recommendations
2/2/2018**

The Lower Colorado Regional Water Planning Group (Region K) submitted their official revision requests to the Texas Water Development Board (TWDB) on January 12, 2018. The TWDB reviewed the requests in accordance with criteria established in Section 2 of the *First Amended General Guidelines for Fifth Cycle of Regional Water Plan Development* (Exhibit C), which was updated by the TWDB in April 2017. This document summarizes the recommended population and water demand projections released as draft by the TWDB, the revisions requested by Region K, and the final demand projections recommended by the TWDB staff. For Water User Group (WUG) level changes, see the corresponding spreadsheets which include detailed information for individual WUG-level requests. All the water demand projections are displayed in acre-feet.

1. Population & Municipal Water Demand Projections

Population	2020	2030	2040	2050	2060	2070
Draft	1,737,227	2,064,522	2,381,949	2,658,492	2,928,400	3,243,127
Requested Changes	1,762,591	2,094,664	2,416,725	2,697,306	2,971,155	3,290,477
Recommended	1,762,591	2,094,664	2,416,725	2,697,306	2,971,155	3,290,477

Region K requested revisions to the population projections for 26 WUGs. The region requested to increase the Travis County total by 1.6% in 2020 through 2070 because the county 2015 population estimate was under-estimated by the TWDB compared to the U.S. Census Bureau estimates. Per the TWDB’s planning guidelines (Exhibit C), planning groups may increase county totals if they are under-projected, though the regional total increase may not exceed the percent difference between TWDB and U.S. Census Bureau estimates. Travis County is one of the fastest growing counties in Texas, with growth mainly driven by the City of Austin. Austin is split between Hays, Travis, and Williamson counties, with more than 90% the population located in Travis County.

Region K authorized the City of Austin to submit a second population revision request for the TWDB staff to consider. Austin’s request would increase their population projections by 41,776 in 2020 and 483,684 by 2070 compared to the TWDB draft projections. This would increase the Region K regional population total by 2.1% in 2020 and 12.7% in 2070 compared to the TWDB draft projections. After careful consideration, the TWDB staff recommend Region K’s official revision request for the Austin WUG rather than the second request from the City of Austin in order for the regional total cap to be maintained. Since the planning process for the 2021 regional water plans occur in between the decadal census, the TWDB, Region K, and Austin can reconsider the projections for the next fifty years during the next planning cycle after the 2020 census is released.

Region K also requested population changes to WUGs in other counties, but offset these changes by adjusting County-Other to maintain county totals. The TWDB staff recommend Region K’s revisions for

the final population projections. The recommended population projections increase Region K’s total population by 1.5% for all decades compared to the TWDB draft projections.

Municipal Demand	2020	2030	2040	2050	2060	2070
Draft	307,133	360,373	412,983	460,092	506,714	560,858
Requested Changes	315,730	366,941	421,608	469,838	515,915	569,347
Recommended	315,777	368,598	422,628	470,073	516,278	569,788

Region K requested to use the historical utility-based gallons per capita per day (GPCD) for 36 WUGs. For six additional WUGs, the region noted corrections to historical population estimates or annual water use estimates, and subsequently requested revisions to GPCD values.

Taken together, the revisions to population projections and GPCD values resulted in a 3% increase in municipal water demand projections in 2020 and a 2% increase in 2070 compared to the TWDB draft projections. The recommended demand projections vary slightly due to rounding errors in the revision request submittal.

2. Non-Municipal Water Demand Projections

2.1 Irrigation Demand Projections:

Irrigation Demand	2020	2030	2040	2050	2060	2070
Draft	410,521	410,521	410,521	410,521	410,521	410,521
Requested Changes	582,407	567,509	553,013	538,906	525,179	511,822
Recommended	582,407	567,509	553,013	538,906	525,179	511,822

Region K requested to revise the irrigation demand projections for four counties. Three of the counties (Colorado, Matagorda, and Wharton) were revised due to emergency curtailment of surface water that occurred in the Colorado basin from 2012 to 2015; thus, the TWDB draft methodology of using a baseline average from 2010-2014 was not representative of normal water demands for these three counties. Region K requested to revise the methodology to add a baseline of 2,400 acre-feet per year for non-rice irrigation demand in the Lakeside Irrigation District, plus the 2010-2014 average of surface water reported via the TCEQ Water Use Report for all other irrigation types, and the 2010-2014 average groundwater used for irrigation. Therefore, the irrigation demands for Colorado, Matagorda, and Wharton counties increased. The irrigation demand projections for Travis County were also revised due to the correction of an error identified in the historical water use estimates. Incorporating these changes resulted in reduced demands for Travis County. At a regional level, the total irrigation demand projections increased in 2020 by 42% and by 25% in 2070 compared to the TWDB draft projections. The TWDB staff recommend Region K’s revisions for the final irrigation demand projections.

2.2 Manufacturing Demand Projections:

Manufacturing Demand	2020	2030	2040	2050	2060	2070
Draft	17,780	20,306	20,306	20,306	20,306	20,306
Requested Changes	19,708	22,493	25,940	27,132	28,324	29,517
Recommended	19,708	22,493	22,493	22,493	22,493	22,493

Region K requested to revise the manufacturing demand projections for six counties. The region requested to use the 2015 historical water use estimates as the baseline plus potentially unaccounted-for water use, which was released by the TWDB staff on July 31, 2017, for all six counties. Region K had additional requests to increase the 2040-2070 demand projections each decade for Travis County based on the employment growth rate beyond 2030. The statewide manufacturing water use has shown a statistically significant downward trend between 2005 and 2014, and is not directly correlated to manufacturing output or employment growth due to significant efficiency savings achieved by the industry. The TWDB’s methodology accounts for potential growth by basing projections on peak historical use and then multiplies it by the manufacturing employment growth rates for the 2030 projection. Then 2030-2070 is held constant to account for efficiency savings. To maintain a consistent methodology, the TWDB staff recommends Region K’s requested increase for 2020-2030 but beyond 2030, projections remain constant rather than increase. The recommended revisions result in a 10.8% increase in projected demand for all decades.

2.3 Steam-electric Demand Projections:

Steam-Electric Demand	2020	2030	2040	2050	2060	2070
Draft	161,917	161,917	161,917	161,917	161,917	161,917
Requested Changes	166,095	166,095	166,095	166,095	166,095	166,095
Recommended	166,095	166,095	166,095	166,095	166,095	166,095

Region K requested to revise the steam-electric demand projections for two counties. Llano County has one power generation facility and it was under construction during 2010-2014; thus, those years are not representative of its anticipated water demands. The region requested to revise the demands based on the 2015 water use estimate, which increased the demands for Llano County by 1,742 acre-feet. Region K also requested a revision in Wharton County due to a data error, in which a facility located in Region K was mistakenly included in the demands for Region P (Wharton County is split between the two regions, but the facility is located in Region K, not P). These revisions result in a 3% increase for all decades and are recommended by the TWDB staff.

2.4 Livestock Demand Projections:

Livestock Demand	2020	2030	2040	2050	2060	2070
Draft	12,004	12,004	12,004	12,004	12,004	12,004
Requested Changes	12,004	12,004	12,004	12,004	12,004	12,004
Recommended	12,004	12,004	12,004	12,004	12,004	12,004

Region K did not request any changes to the livestock demand projections.

2.5 Mining Demand Projections:

Mining Demand	2020	2030	2040	2050	2060	2070
Draft	20,848	26,104	27,991	29,757	31,893	34,961
Requested Changes	20,848	26,104	27,991	27,492	23,207	25,441
Recommended	20,848	26,104	27,991	27,492	23,207	25,441

Region K requested to revise mining demands for Bastrop County for 2050 through 2070. There are coal and gravel mining operations located in the county, and the coal mining facility is expected to close by 2060; thus, Region K reduced the 2050 demands and removed the facility's demands for 2060 and 2070. This revision decreased the region's mining demand projections by 8% in 2050 and by 27% for 2060 and 2070, compared to the TWDB draft projections.