

**Executive Summary – Draft 2021 Plan Population and Municipal Demand Request Changes**

Region F is suggesting changes to the draft population and/or demand projections for **nine** municipal water user groups, resulting in a 2-4 percent increase in the regional population total. Two key factors were identified impacting municipal water group population’s that were not adequately accounted for in the Texas Water Development Board (TWDB) draft population projections. These factors include errors and inaccuracies in the shift from city limit boundaries to service area boundaries and individual communities growing at different rates due to oil and gas activity. Baseline per capita water usage adjustments reflect corrected historical populations served, increased conservation, and more recent data. The changes in per capita water use result in a 2-3 percent reduction in municipal water demand, despite an increasing population.

<b>Region F</b>	<b>Pop 2020</b>	<b>Pop 2030</b>	<b>Pop 2040</b>	<b>Pop 2050</b>	<b>Pop 2060</b>	<b>Pop 2070</b>
TWDB Draft Total	700,933	766,612	825,381	884,551	943,798	1,003,347
Proposed Total	<b>715,773</b>	<b>797,589</b>	<b>858,726</b>	<b>918,597</b>	<b>977,543</b>	<b>1,039,502</b>
<b>Region F</b>	<b>Demand 2020</b>	<b>Demand 2030</b>	<b>Demand 2040</b>	<b>Demand 2050</b>	<b>Demand 2060</b>	<b>Demand 2070</b>
TWDB Draft Total	141,978	151,625	160,957	171,398	182,625	194,109
Proposed Total	<b>137,728</b>	<b>150,058</b>	<b>158,955</b>	<b>168,718</b>	<b>179,091</b>	<b>190,285</b>

**Ector County Utility District (ECUD)**

- Made ECUD a named water user group, instead of including population in Ector County-Other.
- Offsetting adjustment of Ector County-Other population.

**Eden**

- Reduced population of Eden due to a closed correctional facility.

**Fort Stockton**

- Increased population to account for residential customers and a prison outside the City Limits.
- Reduced Pecos County-Other to offset prison population served by Fort Stockton.
- Adjusted per capita water usage to account for appropriate historical population served.

**Goodfellow Airforce Base (AFB)**

- Increased Goodfellow Airforce Base population to reflect total live-in population reported by the AFB.
- Offsetting adjustment of Tom Green County-Other.
- Adjusted per capita water usage to account for appropriate historical live-in population.

**North Runnels WSC**

- Increased population to account for expanded service area and current number of connections.
- Offsetting adjustment of Runnels County-Other.

**Midland**

- Increased 2010 service area base to reflect current service area boundaries (TWDB’s were outdated).
- Offsetting adjustment of Midland County-Other.
- Increased population due to more rapid growth since 2010 than projected by TWDB.
- Reduced per capita water use to reflect enhanced conservation that has resulted in lower dry year usage.

**Odessa**

- Increased population to account for more rapid growth since 2010 than projected by TWDB.

**Sonora**

- Reduced population due to lack of oil and gas activity in the area that has led to a decrease in population.

**Richland SUD**

- Richland SUD is split between Region F and Region K. Region K is requesting an adjustment to the per capita usage to reflect more recent data. Region F proposes to adopt the same revision.

**TO:** Region F Water Planning Group

**CC:** File

**FROM:** Lissa Gregg, Simone Kiel

**SUBJECT:** Region F Draft Population and Municipal Demand Change Requests

**DATE:** November 7, 2017

**PROJECT:** CMD17216

In June 2017, the Texas Water Development Board (TWDB) released draft municipal population and water demand projections to each of the Regional Water Planning Groups for review and comment. Since no new census data has been released since the publication of the 2016 Plans, no regional or county population totals were altered in the projections provided by TWDB. However, individual water user groups (WUGs) were adjusted to be representative of retail water service area boundaries rather than political city limit boundaries. This memo details the suggested changes to the population and demand projections that the Region F Water Planning group determined were necessary to more accurately reflect the upcoming water needs of the region. The Region F Water Planning Group identified two key factors impacting municipal water user groups that may not have been adequately accounted for in the TWDB draft population projections. These factors include errors and inaccuracies in the shift from political boundaries to service area boundaries and individual communities growing at significantly different rates than was projected in the 2016 Plan. Baseline per capita water usage adjustments reflect corrected historical populations served, increased conservation, and more recent data. Projected per capita water usage incorporates the TWDB reductions for water efficiencies savings (Plumbing code implementation).

## POPULATION CHANGE REQUESTS

### Errors and Corrections

#### *Goodfellow Airforce Base*

Goodfellow Airforce Base, located in San Angelo, is a new WUG for the 2021 Plan. Based on survey information from the Airforce base, it has a live-in population of 2,500 people. Region F proposes adopting a new near term 2020 population of 2,500 and then maintaining the TWDB growth rate for the remaining decades. A corresponding decrease to Tom Green County-Other is recommended.

<b>Goodfellow Airforce Base</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
TWDB Draft Population	1,587	1,790	1,901	2,018	2,143	2,275
Proposed Population	<b>2,500</b>	<b>2,820</b>	<b>2,995</b>	<b>3,179</b>	<b>3,376</b>	<b>3,584</b>

<b>Tom Green County-Other</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
TWDB Draft Population	8,636	9,010	9,393	9,705	9,986	10,217
Proposed Population	<b>7,723</b>	<b>7,980</b>	<b>8,299</b>	<b>8,544</b>	<b>8,753</b>	<b>8,908</b>

***Ector County Utility District (ECUD)***

The Ector County Utility District (ECUD or District) was a named water user group in the 2016 Region F Plan. However, in the most recent TWDB draft projections, they were not included as a named utility. Instead, ECUD was incorporated into Ector County-Other. ECUD currently serves a population of about 17,000 people and has supplied an average of 1,500 acre-feet per year over the past three years.

ECUD is an independent utility district that purchases water directly from the City of Odessa. ECUD has historically relied upon Odessa for assistance in utility maintenance and billing to serve its customers in West Odessa. The District is currently working to be completely independent from the City of Odessa for operations. ECUD will continue to purchase water from Odessa as a wholesale customer. This transition is expected to be complete by 2020.

Based on the 2010 Census block data a total population of 32,000 within the service area boundary of the ECUD. The District currently does not serve all this population, as some residents are using groundwater. However, with the recent drought and declining groundwater elevations, many residents have requested service from ECUD. This has resulted in a larger increase in service population than would be expected to occur naturally over time. After 2020, it is expected that the service population would increase at lower growth rates.

Given ECUD’s historical service, Region F requests that they continue to be a named WUG for the 2021 Plan with the population projections shown in the table below. These projections are based on recent historical data and an ongoing water master plan projection for 2020 for ECUD. The TWDB growth rate from the 2016 Plan was then applied. A corresponding decrease was applied to Ector County-Other.

<b>Ector County Utility District (ECUD)</b>	<b>2010 Base</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
TWDB Draft Population		-	-	-	-	-	-
Proposed Population	<b>15,269</b>	<b>19,539</b>	<b>22,054</b>	<b>24,704</b>	<b>27,421</b>	<b>30,172</b>	<b>32,945</b>

<b>Ector County - Other</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
TWDB Draft Population	36,639	41,353	46,323	51,417	56,577	61,777
Proposed Population	<b>17,100</b>	<b>17,799</b>	<b>21,619</b>	<b>23,996</b>	<b>26,405</b>	<b>28,832</b>

***Eden***

The City of Eden previously housed the Eden Correctional Facility, which housed 1,558 inmates<sup>1</sup>. In 2016, the prison closed, and the contract has not been able to be renewed at this time<sup>2</sup>. Region F recommends reducing Eden’s population by 1,558 people in all decades. The potential of a renewed contract or other water users will be planned for as potential future sales from the City of Eden. No changes were made to County-Other, since these prisoners were re-located outside of Concho County.

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Eden	2020	2030	2040	2050	2060	2070
TWDB Draft Population	2,822	2,868	2,868	2,868	2,868	2,868
Proposed Population	1,264	1,310	1,310	1,310	1,310	1,310

**Fort Stockton**

The City of Fort Stockton provides retail water service to people living outside the city limits of Fort Stockton. TWDB increased the 2010 Fort Stockton Census base by 507 people to partially account for those served outside the City. However, in 2010 Fort Stockton supplied 360 active residential connections outside the city’s limits. Based on the census people per household in Fort Stockton of 3.34, this means that approximately 1,202 people were served outside the city limits of Fort Stockton in 2010. Since, 507 of these people were already counted in TWDB’s projections, it is requested that the base 2010 population be increased by 695 people for a total of 9,485.

Service Area Adjustments	Calculation Description	Calculation		Result
No. of People served outside City Limits as estimated by TWDB (2010)	2010 TWDB Estimated Census - 2010 Actual Census	8,790 - 8,283	=	507
Total No. of People served outside City Limits (2010)	Active residential connections outside city limits * Census No. People per Household	360 * 3.34	=	1202
No. of People served outside City Limits not accounted for by TWDB (2010)	Total No. of People served outside City Limits - No. of People served outside City Limits as estimated by TWDB	1,202 - 507	=	695
Region F Proposed 2010 Base Population	2010 TWDB Estimated Census + No. of People served outside City Limits not accounted for by TWDB (2010)	8,790 + 695	=	9,485

In addition to supplying residential connections outside of the city limits, Fort Stockton supplies the Texas Department of Criminal Justice’s Lynaugh Unit. This facility is outside of the city limits and was not accounted for in the TWDB service area. An updated map of the Fort Stockton service area is attached. The facility houses 1,416 people<sup>3</sup>. Since prison populations do not vary based on birth and death rates, this population was not added to the base to which a growth rate was applied. Instead, it is proposed that a constant population of 1,416 be added to Fort Stockton’s population in each decade. There is a corresponding 1,146 person decrease per decade in Pecos County Other.

The growth rate for 2020-2040 was also adjusted to reflect Fort Stockton’s historical meter data showing a growth rate of 9.22%. This information was provided in response to survey and is attached. The TWDB growth rate was then maintained for the remaining decades

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City of Fort Stockton	2010 Census (Unadjusted)	2010 Census (Adjusted for Service Area)	2020	2030	2040	2050	2060	2070
TWDB Draft Population	8,283	8,790	9,629	10,348	11,051	11,698	12,275	12,796
Proposed Population	<b>8,283</b>	<b>9,485</b>	<b>11,776</b>	<b>12,731</b>	<b>13,774</b>	<b>14,498</b>	<b>15,143</b>	<b>15,726</b>

Pecos County-Other	County	2020	2030	2040	2050	2060	2070
TWDB Draft Population	Pecos	2,244	2,414	2,575	2,727	2,862	2,984
Proposed Population	Pecos	<b>828</b>	<b>998</b>	<b>1,159</b>	<b>1,311</b>	<b>1,446</b>	<b>1,568</b>

**North Runnels WSC**

North Runnels WSC is split between Runnels County (Region F) and Taylor County (Region G). Based on a survey response from North Runnels WSC, they expanded their service area in 2013 and now serve 960 active connections. Service area maps as well connection data since 2003 is attached. Based on average of 2 people per connection, North Runnels WSC has a current population of 1,920.

The current total population of 1,920 was adopted for 2020 (960 x 2 people per connection =1,920). The increase in population was applied in 2020 in Runnels County where most North Runnels WSC service area is located. The TWDB growth rate was then maintained for the remaining decades. A corresponding decrease was applied to Runnels County-Other. No adjustments were made in Taylor County (Region G).

North Runnels WSC	County	2020	2030	2040	2050	2060	2070
TWDB Draft Population	Runnels	1,303	1,356	1,369	1,379	1,386	1,392
	Taylor	326	339	342	344	346	348
	Total	1,629	1,695	1,711	1,723	1,732	1,740
Proposed Population	Runnels	<b>1,594</b>	<b>1,656</b>	<b>1,672</b>	<b>1,684</b>	<b>1,693</b>	<b>1,700</b>
	Taylor	<b>326</b>	<b>339</b>	<b>342</b>	<b>344</b>	<b>346</b>	<b>348</b>
	Total	<b>1,920</b>	<b>1,995</b>	<b>2,014</b>	<b>2,028</b>	<b>2,039</b>	<b>2,048</b>

Runnels County-Other	County	2020	2030	2040	2050	2060	2070
TWDB Draft Population	Runnels	1,062	1,090	1,077	1,067	1,060	1,054
Proposed Population	Runnels	<b>771</b>	<b>790</b>	<b>774</b>	<b>762</b>	<b>753</b>	<b>746</b>

**Midland**

The population for Midland is underestimated in the current projections for two reasons. The first reason is that the TWDB service area boundary is outdated and does not fully capture the area to which Midland provides retail water service. The TWDB service area boundary represents an area of about 45 square miles. Midland’s service area actually covers an area upwards of 65 square miles. A shapefile showing retail water service lines has been included as an electronic attachment to this submittal. A map showing the adjusted service area and the corresponding 2010 Census block estimate is also attached. It is recommended that a 2010 adjusted base of 112,871 people be used for the City of Midland. A corresponding decrease of 6,029 to Midland County-Other

was applied in 2010 to Midland County-Other. Midland’s growth rate in each decade was then applied to the number of people shifted from County-Other to offset this change over time. The projected population changes for the City of Midland are discussed under the section on Significantly Different Growth Rates.

2010 Census (Unadjusted)	111,147
2010 TWDB Census (Adjusted for Census)	106,842
2010 Census (Adjusted for Corrected Service Area)	<b>112,871</b>

Midland County-Other	2020	2030	2040	2050	2060	2070
TWDB Draft Population	27,972	31,475	34,997	38,551	42,060	45,497
Proposed Population	<b>20,404</b>	<b>22,692</b>	<b>24,391</b>	<b>27,065</b>	<b>29,744</b>	<b>32,291</b>

### Significantly Different Growth Rates

Despite a downturn in oil prices, oil and gas production in the Permian Basin in West Texas (Region F) has not slowed significantly. The Permian Basin is the most prolific and substantial oil province in the US. Favorable conditions make the Permian Basin play more profitable than other formations, meaning that it tends to be the last to shut down and the first to restart<sup>4</sup>. As such, the population in the Midland Odessa area has not slowed down. In fact, population has continued to grow at a significantly faster pace than was projected by TWDB between 2010 and 2020. Many of the workers attracted to the Midland Odessa area are not from Region F. Workers come from across the state and sometimes, even other states. Thus, it is not reasonable to keep the regional total constant to account for additional growth due to the oil and gas industry. This is further bolstered by census estimates that show that Region F as a whole was under projected by more than 27,000 people in 2015 (4.15%). While some individual counties in Region F may be over projected (in some cases by more than 10%) these counties are small and the over projection is only a few hundred people. Adjustments within the region alone are unable to adequately account for the influx of people into the Midland-Odessa area. Thus, the Region requests an increase to the regional total population based on realized substantially different growth rates in the Midland-Odessa area.

### Midland

The population for Midland is underestimated in the current projections for two reasons: 1. the TWDB service area boundary is outdated and does not fully capture the area to which Midland provides retail water service 2. Midland’s population has grown at a significantly faster rate than the 2010-2020 projected growth rate due to oil and gas development in the Permian basin. This section focuses on changes made to reflect the faster growth in Midland over the past six years than originally anticipated.

The Midland-Odessa combined statistical area (CSA) was the fastest growing region in the US from 2010-15<sup>5,6</sup>. Midland was also among the 20 fastest growing metros in the US between 2014 and 2015. The City of Midland reports their 2016 population served as 128,027, which is higher than the TWDB draft projection for 2020. The US Census estimates the 2016 population of Midland to be 134,610, which is higher than the TWDB draft projection for 2030<sup>7</sup>. The TWDB estimated an average annual growth rate from 2010 to 2020 of 1.6% for Midland. Based on multiple other data sources, Midland’s actual average annual growth rate has been between 3.24% and 3.32% (see table below).



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Data Source	2010	2013	2016	2020	Avg. Annual Growth Rate
TWDB	106,842			125,222	1.60%
Census	111,147		134,610		3.24%
Texas State Data Center	111,147		135,175		3.32%

Given the significantly faster growth currently being experienced in Midland, it is recommended that an average annual growth rate of 2.3% be used until 2020, an average annual rate of 1.5% until 2030, and then reduce the growth rates for the long-term. The long-term growth will be reassessed for the 2026 RWP, after the 2020 Census.

Midland	2010	2020	2030	2040	2050	2060	2070
TWDB Draft Population	106,842	125,222	134,016	147,619	161,338	174,881	188,153
TWDB Draft Annual Growth Rates		1.6%	0.7%	1.0%	0.9%	0.8%	0.7%
Proposed Population	<b>112,871</b>	<b>141,690</b>	<b>164,437</b>	<b>179,850</b>	<b>194,767</b>	<b>208,838</b>	<b>223,926</b>
Proposed Annual Growth Rates		<b>2.30%</b>	<b>1.5%</b>	<b>0.9%</b>	<b>0.8%</b>	<b>0.7%</b>	<b>0.7%</b>

*Odessa*

Like Midland, Odessa is growing rapidly growing due to oil and gas activity in the Permian Basin. This was not captured in the TWDB projections from 2010-2020. The Midland-Odessa CSA was the fastest growing region in the US from 2010-15<sup>5,6</sup>. Odessa was also among the 20 fastest growing metros in the US between 2014 and 2015<sup>7</sup>. The TWDB estimated an average annual growth rate from 2010 to 2020 of 1.39% for Odessa. Over the past 6 years (2010-2016), Odessa has experienced average annual growth of between 2.79% and 3.08%.

Data Source	2010	2013	2016	2020	Avg. Annual Growth Rate
TWDB	104,642			120,082	1.39%
Census	99,940		117,871		2.79%
Texas State Data Center	99,940		119,860		3.08%

Based on the significantly greater growth experienced from 2010-2020 than projected by TWDB, Region F recommends increasing the growth rate to 2.0% through 2020, 1.5% until 2030, and then reducing the growth rates for the long-term.

Odessa	2010	2020	2030	2040	2050	2060	2070
TWDB Draft Population	104,642	120,082	135,828	152,379	169,334	186,492	203,768
TWDB Draft Annual Growth Rates		1.4%	1.2%	1.2%	1.1%	1.0%	0.9%
Proposed Population	<b>104,642</b>	<b>127,558</b>	<b>148,036</b>	<b>165,150</b>	<b>182,428</b>	<b>199,528</b>	<b>218,231</b>
Proposed Annual Growth Rates		<b>2.0%</b>	<b>1.5%</b>	<b>1.1%</b>	<b>1.0%</b>	<b>0.9%</b>	<b>0.9%</b>

It is recommended that the original percentage splits of population between Ector and Midland counties be maintained as shown below.

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<b>Odessa</b>	<b>County</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Proposed Population	Ector	125,103	144,875	161,382	178,056	194,572	212,668
	Midland	2,455	3,161	3,768	4,372	4,956	5,563
	Total	127,558	148,036	165,150	182,428	199,528	218,231

*Sonora*

The City of Sonora is experiencing a decline in population due to a lack of oil and gas production in their immediate area, which previously fueled a swell in population. The population is currently 2,800, a slight decrease from the 2010 Census. Region F recommends a 2020 population of 2,800 and then an adoption of the TWDB growth rate for the remaining decades.

<b>City of Sonora</b>	<b>2010 Census (Unadjusted)</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
TWDB Draft Population	2,924	3,509	3,777	3,875	3,950	3,991	4,014
Proposed Population	2,924	2,800	2,999	3,075	3,133	3,165	3,183

**Summary of Population Change Request**

Region F is suggesting changes to the draft population projections for eight municipal water user groups. Where possible, county totals have remained constant, especially to address corrections to service area boundaries. In some cases, where growth rates have changed due to shifts in oil and gas production in a specific area, it is not reasonable to hold populations totals constant. Thus, it is proposed that population be increased to reflect the actual movement of people to the areas where a major economic driver, such as oil and gas production, is occurring. A summary table of the requested population changes and corresponding growth rates is included as part of this submittal.

<b>Region F</b>	<b>Population 2020</b>	<b>Population 2030</b>	<b>Population 2040</b>	<b>Population 2050</b>	<b>Population 2060</b>	<b>Population 2070</b>
TWDB Draft Total	700,933	766,612	825,381	884,551	943,798	1,003,347
Proposed Total	715,773	797,589	858,726	918,597	977,543	1,039,502
Numerical Difference	14,840	30,977	33,345	34,046	33,745	36,155
Percent Change	2.1%	4.0%	4.0%	3.8%	3.6%	3.6%



## DEMAND CHANGE REQUESTS

### *Ector County Utility District (ECUD)*

It is recommended that the per capita water use for ECUD be the same as adopted for the 2016 RWP. The 2011 base per capita water use is 115 gallons. The following presents the projected water demands for ECUD.

ECUD	Base	2020	2030	2040	2050	2060	2070
Revised Population	15,269	19,539	22,054	24,704	27,421	30,172	32,945
Proposed GPCD (2016 RWP)	115	109	107	106	106	105	105
Proposed Water Demand (ac-ft./yr.)		2,386	2,643	2,933	3,256	3,549	3,875

### *Fort Stockton*

Due to the corrections in population estimates for the Fort Stockton, their per capita water usage has been adjusted to account for the appropriate population served. A 2011 base per capita use of 422 is proposed. The water efficiency savings from plumbing code reductions as developed by the TWDB has then been applied for subsequent decades. Water demands were calculated based on the proposed per capita water use and the proposed population revisions.

Year	Water Use (Ac-ft)	Fort Stockton Population	GPCD
2011	4,640	10,989	377
2012	2,576	11,076	208
2013	3,802	11,164	304
2014	3,579	11,251	284
2015	3,515	11,339	277

Fort Stockton	Base gpcd	2020	2030	2040	2050	2060	2070
Proposed GPCD	377	367	353	336	317	298	279
Revised Population		11,776	12,731	13,774	14,498	15,143	15,726
Proposed Water Demand (ac-ft./yr.)		4,841	5,034	5,184	5,148	5,055	4,915

### *Goodfellow Airforce Base*

Due to the corrections in population estimates for the Goodfellow AFB, their per capita water usage has been adjusted to account for the appropriate historical live-in population. A 2011 base per capita use of 191 is proposed. The water efficiency savings from plumbing code reductions has then been applied for subsequent decades.

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Year	Consumption (acre-feet)	Resident Population	GPCD
2011	544.02	2,549	<b>191</b>
2012	394.27	2,560	138
2013	368.00	2,561	129
2014	349.35	2,458	127
2015	332.89	2,401	124

Goodfellow AFB	Base gpcd	2020	2030	2040	2050	2060	2070
Revised Population		<b>2,500</b>	<b>2,820</b>	<b>2,995</b>	<b>3,179</b>	<b>3,376</b>	<b>3,584</b>
Proposed GCPD	<b>191</b>	<b>183</b>	<b>180</b>	<b>178</b>	<b>177</b>	<b>176</b>	<b>176</b>
Proposed Water Demand (ac-ft./yr.)		<b>513</b>	<b>568</b>	<b>596</b>	<b>629</b>	<b>666</b>	<b>707</b>

**Midland**

Due to enhanced water conservation efforts and historically realized savings during recent years, 234 gpcd is not representative of a dry year demand for Midland. The City of Midland requests to use the 2014 gpcd of 186 as a dry year base year demand. Water efficiency savings due to the implementation of the plumbing code would then be applied in subsequent decades.

Year	Total Water Use (Ac-ft)	Population Reported Water Use Survey	Total GPCD
2013	17,717	113,931	139
2014	25,812	123,933	<b>186</b>
2015	21,873	128,027	153
2016	21,931	128,037 <sup>1</sup>	153

1. Population reported for 2016 in the water Use Survey is the same as reported for 2015. The State Data Center and US Census report a population for Midland of approximately 135,000 in 2016.

Midland	Base gpcd	2020	2030	2040	2050	2060	2070
Revised Population		<b>141,690</b>	<b>164,437</b>	<b>179,850</b>	<b>194,767</b>	<b>208,838</b>	<b>223,926</b>
Proposed GCPD	<b>186</b>	<b>176</b>	<b>173</b>	<b>170</b>	<b>169</b>	<b>168</b>	<b>168</b>
Proposed Water Demand (ac-ft./yr.)		<b>27,972</b>	<b>31,803</b>	<b>34,256</b>	<b>36,811</b>	<b>39,405</b>	<b>42,232</b>

**Richland SUD**

Richland SUD is divided between Regions F (McCullough County) and K (San Saba County). Region K is requesting a per capita adjustment for Richland SUD and Region F proposes to adopt the requested revisions from Region K. Please refer to Region K's demand revision request for documentation and justification.

**Summary of Demand Change Request**

Baseline per capita water usage adjustments reflect corrected historical populations served, increased conservation, and more recent data. The changes in per capita water use result in a 2-3% reduction in municipal water demand, despite an increasing population.

Region F	Demand 2020	Demand 2030	Demand 2040	Demand 2050	Demand 2060	Demand 2070
TWDB Draft Total	141,978	151,625	160,957	171,398	182,625	194,109
Proposed Total	<b>137,728</b>	<b>150,058</b>	<b>158,955</b>	<b>168,718</b>	<b>179,091</b>	<b>190,285</b>
Numerical Difference	-4,250	-1,567	-2,002	-2,680	-3,534	-3,824
Percent Change	-3.0%	-1.0%	-1.2%	-1.6%	-1.9%	-2.0%

DRAFT

### List of Supporting Technical Data Submitted Electronically

1. Map of ECUD Service Area Boundary
2. ECUD Historical Connection and Population Data
3. Fort Stockton Historical Metered Connections
4. Fort Stockton Lynaugh Unit Capacity Documentation
5. Email confirming Fort Stockton meters outside of the City Limits in 2010
6. Update Map of Fort Stockton Service Area
7. Map showing Midland Service Area and corresponding 2010 Census Block Population Estimate
8. Shapefile of Midland's waterlines
9. North Runnels WSC Historical Connections
10. North Runnels WSC Survey Response
11. North Runnels WSC Updated Service Area Maps
12. Odessa Service Area Boundary
13. Sonora Survey Response

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<sup>1</sup> "Facility Focus: Eden Detention Center." CCA, Corrections Corporation of America, 28 Aug. 2014, [www.cca.com/insidecca/facility-focus-eden-detention-center](http://www.cca.com/insidecca/facility-focus-eden-detention-center).

<sup>2</sup> Marks, Michael. "After Eden's Prison Closes, What's Next For This Small Texas Town?" Texas Standard, 5 May 2017, [www.texasstandard.org/stories/after-edens-prison-closes-what-comes-next-for-this-small-texas-town/](http://www.texasstandard.org/stories/after-edens-prison-closes-what-comes-next-for-this-small-texas-town/).

<sup>3</sup> "Lynaugh (LH)." Unit Directory, Texas Department of Criminal Justice, 15 Sept. 2016, [www.tdcj.state.tx.us/unit\\_directory/lh.html](http://www.tdcj.state.tx.us/unit_directory/lh.html).

<sup>4</sup> Collier, Kiah. "Despite Oil Bust, Midland Is Still Bustling." The Texas Tribune, Texas Tribune, 1 June 2016, [www.texastribune.org/2016/06/01/midland-leaders-confident-bust-has-bottomed-out/](http://www.texastribune.org/2016/06/01/midland-leaders-confident-bust-has-bottomed-out/).

<sup>5</sup> Bureau, US Census. "Four Texas Metro Areas Add More Than 400,000 People in the Last Year." The United States Census Bureau, U.S. Census Bureau, 24 Mar. 2016, [www.census.gov/newsroom/press-releases/2016/cb16-43.html](http://www.census.gov/newsroom/press-releases/2016/cb16-43.html).

<sup>6</sup> [thawes@mrt.com](mailto:thawes@mrt.com), Trevor Hawes. "Midland-Odessa CSA Leads the Nation in Population Growth." Midland Reporter-Telegram, Midland Reporter-Telegram, 29 Mar. 2016, [www.mrt.com/business/article/Midland-Odessa-CSA-leads-the-nation-in-population-7405540.php](http://www.mrt.com/business/article/Midland-Odessa-CSA-leads-the-nation-in-population-7405540.php).

<sup>7</sup> "QuickFacts." U.S. Census Bureau QuickFacts Selected: Midland City, Texas; Midland County, Texas, U.S. Census Bureau, [www.census.gov/quickfacts/fact/table/midlandcitytexas,midlandcountytexas/PST045216](http://www.census.gov/quickfacts/fact/table/midlandcitytexas,midlandcountytexas/PST045216).

Draft Projections for DB22															RWPG Requested Changes													
County	WUG Name	Population 2020	Population 2030	Population 2040	Population 2050	Population 2060	Population 2070	Base GPCD	Municipal Demands 2020	Municipal Demands 2030	Municipal Demands 2040	Municipal Demands 2050	Municipal Demands 2060	Municipal Demands 2070	Population 2020	Population 2030	Population 2040	Population 2050	Population 2060	Population 2070	Base GPCD	Municipal Demands 2020	Municipal Demands 2030	Municipal Demands 2040	Municipal Demands 2050	Municipal Demands 2060	Municipal Demands 2070	
ANDREWS	ANDREWS	14,661	17,907	20,804	24,171	28,082	32,627	266	4,182	5,026	5,785	6,692	7,767	9,021														
ANDREWS	COUNTY-OTHER, ANDREWS	4,428	4,940	5,442	5,940	6,444	6,947	118	537	577	618	666	720	776														
BORDEN	COUNTY-OTHER, BORDEN	659	671	671	671	671	671	251	178	178	175	175	175	175														
BROWN	BANGS	2,506	2,566	2,566	2,566	2,566	2,566	120	310	305	296	291	290	290														
BROWN	BROOKESMITH SUD	8,047	8,240	8,241	8,240	8,240	8,241	142	1,199	1,195	1,170	1,156	1,153	1,153														
BROWN	BROWNWOOD	19,926	20,406	20,406	20,406	20,406	20,406	176	3,717	3,713	3,640	3,600	3,593	3,593														
BROWN	COLEMAN COUNTY SUD	195	199	199	199	199	199	120	24	24	23	23	23	23														
BROWN	COUNTY-OTHER, BROWN	2,007	2,054	2,053	2,054	2,054	2,053	88	170	172	171	170	169	169														
BROWN	EARLY	2,907	2,978	2,978	2,978	2,978	2,978	99	292	292	287	271	270	270														
BROWN	ZEPHYR WSC	4,173	4,274	4,274	4,274	4,274	4,274	82	343	339	330	325	324	324														
COKE	BRONTE	1,085	1,085	1,085	1,085	1,085	1,085	234	273	269	265	262	262	262														
COKE	COUNTY-OTHER, COKE	1,185	1,185	1,185	1,185	1,185	1,185	98	118	112	107	105	105	105														
COKE	ROBERT LEE	1,050	1,050	1,050	1,050	1,050	1,050	261	295	290	286	286	285	285														
COLEMAN	BROOKESMITH SUD	41	42	42	42	42	42	142	6	6	6	6	6	6														
COLEMAN	COLEMAN	4,820	4,928	4,928	4,928	4,928	4,928	162	821	814	795	793	792	792														
COLEMAN	COLEMAN COUNTY SUD	2,927	2,998	2,998	2,998	2,998	2,998	120	363	358	347	341	340	340														
COLEMAN	COUNTY-OTHER, COLEMAN	194	191	191	191	191	191	118	24	22	22	21	21	21														
COLEMAN	SANTA ANNA	1,121	1,148	1,148	1,148	1,148	1,148	134	156	154	149	149	148	148														
CONCHO	COUNTY-OTHER, CONCHO	867	881	881	881	881	881	126	114	112	109	108	107	107														
CONCHO	EDEN	2,822	2,868	2,868	2,868	2,868	2,868	154	461	459	452	449	448	448	1264	1310	1310	1310	1310	1310								
CONCHO	MILLERSVIEW-DOOLE WSC	650	661	661	661	661	661	138	94	93	90	89	89	89														
CRANE	COUNTY-OTHER, CRANE	1,411	1,787	2,089	2,372	2,609	2,809	118	170	207	238	268	294	316														
CRANE	CRANE	3,645	3,926	4,152	4,365	4,542	4,692	319	1,261	1,339	1,401	1,467	1,525	1,575														
CROCKETT	COUNTY-OTHER, CROCKETT	226	172	160	152	149	147	118	27	20	18	17	17	17														
CROCKETT	CROCKETT COUNTY WCID 1	3,885	4,214	4,286	4,334	4,351	4,359	363	1,533	1,641	1,655	1,672	1,677	1,680														
ECTOR	COUNTY-OTHER, ECTOR	36,639	41,353	46,323	51,417	56,577	61,777	120	4,630	5,125	5,677	6,261	6,870	7,496	17100	17799	21619	23996	26405	28832								
ECTOR	GREATER GARDENDALE WSC	2,547	2,876	3,221	3,575	3,934	4,295	83	211	228	247	270	296	323														
ECTOR	ODESSA	117,771	132,928	148,902	165,276	181,860	198,574	185	23,086	25,438	28,033	30,867	33,907	37,006	125103	144875	161382	178056	194572	212668								
ECTOR	ECTOR COUNTY UD														19539	22054	24704	27421	30172	32945	115	2,386	2,643	2,933	3,256	3,549	3,875	
GLASSCOCK	COUNTY-OTHER, GLASSCOCK	1,341	1,429	1,429	1,429	1,429	1,429	118	161	165	160	160	159	159														
HOWARD	BIG SPRING	29,443	30,727	31,253	31,253	31,253	31,253	198	6,227	6,368	6,379	6,327	6,316	6,316														
HOWARD	COAHOMA	2,503	2,612	2,658	2,658	2,658	2,658	198	526	534	537	537	536	536														
HOWARD	COUNTY-OTHER, HOWARD	5,364	5,597	5,692	5,692	5,692	5,692	119	652	650	646	644	642	642														
IRION	COUNTY-OTHER, IRION	861	870	870	870	870	870	118	104	101	98	97	97	97														
IRION	MERTZON	823	832	832	832	832	832	119	101	99	96	94	94	94														
KIMBLE	COUNTY-OTHER, KIMBLE	2,078	2,097	2,097	2,097	2,097	2,097	118	254	248	241	237	236	236														
KIMBLE	JUNCTION	2,632	2,657	2,657	2,657	2,657	2,657	222	626	620	609	605	604	604														
LOVING	COUNTY-OTHER, LOVING	82	82	82	82	82	82	119	10	10	9	9	9	9														
MARTIN	COUNTY-OTHER, MARTIN	2,740	3,019	3,218	3,396	3,531	3,633	127	358	380	394	410	426	438														
MARTIN	STANTON	2,693	2,967	3,164	3,339	3,469	3,572	181	514	552	578	605	628	646														
MASON	COUNTY-OTHER, MASON	1,878	1,878	1,878	1,878	1,878	1,878	118	231	224	218	215	214	214														
MASON	MASON	2,134	2,134	2,134	2,134	2,134	2,134	302	700	690	682	677	676	676														
MCCULLOCH	BRADY	5,773	6,018	6,039	6,101	6,119	6,129	225	1,391	1,420	1,402	1,410	1,412	1,414														
MCCULLOCH	COUNTY-OTHER, MCCULLOCH	838	873	874	885	888	889	147	132	135	134	135	135	135														
MCCULLOCH	MILLERSVIEW-DOOLE WSC	1,025	1,068	1,072	1,083	1,087	1,087	138	148	150	147	146	147	147														
MCCULLOCH	RICHLAND SUD	999	1,041	1,045	1,056	1,058	1,060	135	142	144	142	142	142	142							217							
MENARD	COUNTY-OTHER, MENARD	750	750	750	750	750	750	118	92	89	86	85	84	84														
MENARD	MENARD	1,492	1,492	1,492	1,492	1,492	1,492	219	350	342	336	335	335	335														
MIDLAND	AIRLINE MOBILE HOME PARK LTD	2,221	2,407	2,660	2,917	3,169	3,417	101	228	236	252	273	295	318														
MIDLAND	COUNTY-OTHER, MIDLAND	27,972	31,475	34,997	38,551	42,060	45,497	152	4,460	4,864	5,293	5,769	6,280	6,789	20404	22692	24391	27065	29744	32291								
MIDLAND	GREATER GARDENDALE WSC	1,299	1,514	1,723	1,933	2,141	2,346	83	108	120	132	146	161	176														
MIDLAND	GREENWOOD WATER	993	1,075	1,189	1,303	1,416	1,527	200	211	224	244	265	288	310														
MIDLAND	MIDLAND	125,222	134,016	147,619	161,338	174,881	188,153	234	31,453	33,125	36,054	39,168	42,401	45,602	141690	164437	179850	194767	208838	223926	186	27,972	31,803	34,256	36,811	39,405	42,232	
MIDLAND	ODESSA	2,311	2,900	3,477	4,058	4,632	5,194	185	453	555	655	758	864	968	2455	3161	3768	4372	4956	5563								
MITCHELL	COLORADO CITY	5,149	5,781	5,898	5,957	6,017	6,078	238	1,308	1,440	1,451	1,462	1,475	1,490														
MITCHELL	COUNTY-OTHER, MITCHELL	3,130	3,154	3,224	3,274	3,309	3,332	164	545	538	541	544	549	553														
MITCHELL	LORRAINE	656	677	691	701	708	713	113	76	75	74	74	75	75														
MITCHELL	MITCHELL COUNTY UTILITY	1,596	1,717	1,753	1,774	1,792	1,807	128	210	217	215	217	218	220														
PECOS	COUNTY-OTHER, PECOS	2,244	2,414	2,575	2,727	2,862	2,984	130	299	307	326	344	360	375	828	998	1159	1311	1446	1568								
PECOS	FORT STOCKTON	9,629	10,348	11,051	11,698	12,275	12,796	493	5,210	5,549	5,887	6,211	6,513	6,789	11776	12731	13774	14498	15143	15726	377	4,841	5,034	5,184	5,148	5,055	4,915	
PECOS	IRAAN	1,347	1,447	1,546	1,636	1,717	1,790	314	458	485	513	540	567	591		</												

