4 IDENTIFICATION OF WATER NEEDS

Water needs are identified by finding the difference between currently available supplies developed for water users in Chapter 3 and projected demands developed in Chapter 2. Currently available supplies and demands can be defined in multiple ways yielding different levels of water needs. This chapter outlines First, Second, and Third Tier water needs analyses, as defined below, each utilizing different definitions of supplies and demands. The Texas Water Development Board (TWDB) specifies that the currently available supplies to a water user be defined as the most restrictive of current water rights, contracts, infrastructure capacity and available yields for surface water and historical use and/or modeled available groundwater (MAG) for groundwater, henceforth called "current" supplies.

Under the First Tier water needs analysis, current surface water supplies are analyzed using the Water Availability Model (WAM). Assumptions in the WAM, including the use of strict priority order, underestimate the surface water supplies for some sources in the Colorado River Basin in Region F. These WAM supplies are considered as the most restrictive constraint when developing the First Tier water needs. For groundwater users, the most restrictive constraint is commonly infrastructure limitation and/or the MAG values for a specific aquifer. These current supplies are then compared to the full demand scenario outlined in Chapter 2 to yield the First Tier needs analysis.

The Second Tier needs analysis identifies water needs after consideration of reduced demands due to implemented conservation and direct reuse strategies. In some cases, conservation reduces water needs for a particular water user group (WUG) and enables the conserved water to be applied to the needs of others.

The First and Second Tier analyses are required by TWDB. The Third Tier analysis is unique to Region F. This analysis considers surface water supplies, based on a modification to the Colorado River WAM, which subordinates water rights in the lower portion of the Colorado River Basin to those water rights in Region F. These available supplies with subordination are distributed to the water users and incorporated into the entity's total available supplies. This total supply (called "subordination supplies" for the discussion of the Third Tier water needs) is then compared to the demands after conservation and reuse to provide analyses of a more realistic assessment of potential water needs. The Third Tier analysis provides an estimate of the amount of additional water needs that may require the development of infrastructure strategies.

This comparison of current water supply to demands is made for the region, county, basin, major water provider, and water user group. If the projected demands for an entity exceed the current supplies, then a shortage is identified

Region F Has 3 Tiers of Water Needs

- **First Tier Water Needs** compare the currently available supplies to each WUG (limited by contracts and current infrastructure) to the demands.
- **Second Tier Water Needs** compare current supplies with demands after reductions from conservation and direct reuse. This analysis is required by TWDB.
- **Third Tier Water Needs** compare supplies with subordination to demands after reductions from conservation and direct reuse. Third tier water needs are unique to Region F and identify the amount of water supply that need to be met with new strategies.
- Third Tier water needs are 25-35% lower than the First Tier water needs identified in Region F.

(represented by a negative number). For some users, the supplies may exceed the demands (represented by a positive number).

Attachment 4A shows the needs of each Major Water Provider (MWP) in Region F, categorized by water use type, e.g., irrigation, livestock, manufacturing, mining, municipal, steam electric power. Attachment 4B shows a summary of First, Second, and Third Tier needs analyses by each WUG in Region F. Both attachments are provided at the end of this chapter.

4.1.1 First Tier Water Needs Analysis

The current supply in Region F consists of groundwater, surface water, local supplies and wastewater reuse. There is a small amount of water that comes from outside the region (Regions E, G, and O). The TWDB requires the use of the TCEQ's Water Availability Models (WAM) for regional water planning. Most of the surface water rights in Region F are in the Colorado River Basin. Chapter 3 discusses the use of the WAM models for water supply estimates and the impacts to the available supplies in the upper Colorado River Basin. Under a WAM analysis, water rights are fully allocated based on strict priority order and thus downstream senior water rights holders continuously make priority calls on major municipal water rights in Region F. Although this does not give an accurate assessment of water supplies based on the way the basin has historically been operated, TWDB requires the regional water planning groups to use the WAM to determine supplies. Therefore, by definition, several sources in Region F have no supply, even though in practice, their supply may be greater than indicated by the WAM.

A similar concern is associated with groundwater supplies. The TWDB requires the use of the MAG values as the cap to groundwater supplies in a county. In some situations, this cap has artificially limited the amount of groundwater that is distributed to existing water users for current supplies and may not be representative of the water that is developed and currently being used. As with the surface water supplies, these restrictions may result in artificially higher water needs.

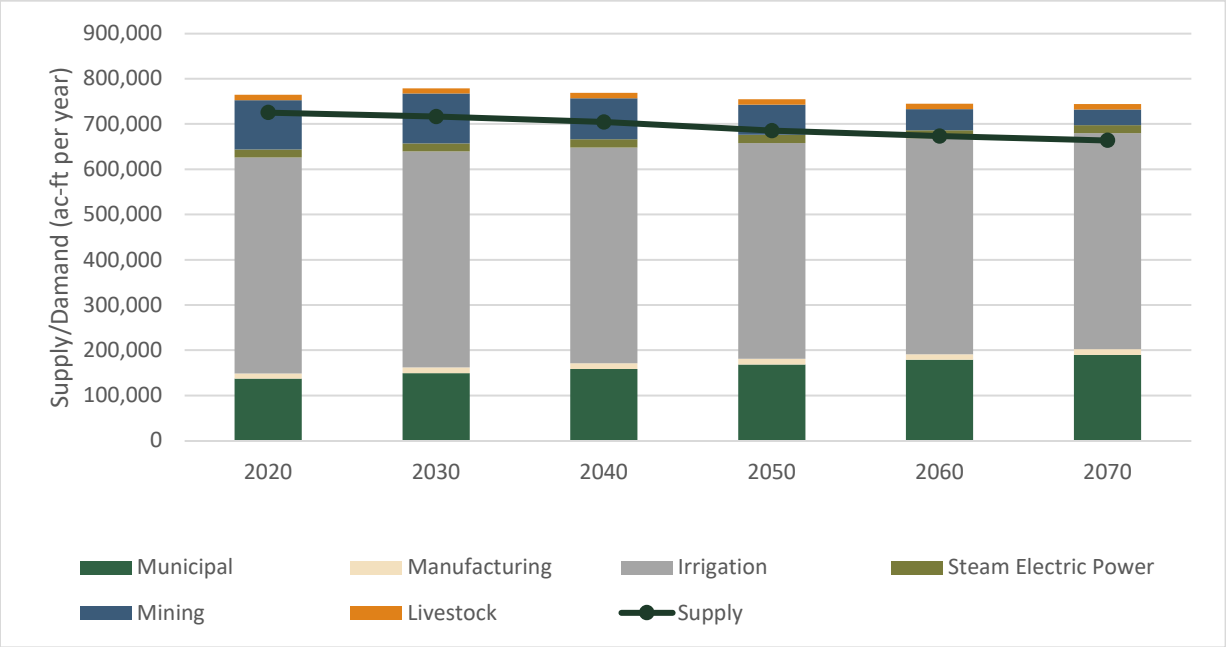
For the First Tier water needs, the current supplies as evaluated in Chapter 3 are compared to the projected demands from Chapter 2 in accordance with TWDB rules. Considering only the current supplies for Region F, on a regional basis there is a projected regional shortage of over 65,000 acre-feet per year in 2020, increasing to a maximum shortage of over 103,000 acre-feet per year in 2070. This is shown in Table 4-1 and graphically in Figure 4-1.

On a county basis, there are twenty-two counties that have a shortage at some point over the planning period. These include Andrews, Borden, Brown, Coke, Coleman, Ector, Howard, Irion, Kimble, Loving, Martin, Mason, McCulloch, Menard, Midland, Mitchell, Pecos, Reeves, Runnels, Scurry, Tom Green, and Ward. Based on this analysis, there are significant irrigation, municipal, and mining shortages over the 50-year planning horizon. As previously discussed, some of these shortages are due to limited supply availability either in the surface water modeling (WAM Run 3) or limitations set up by the MAG.

Table 4-1
Comparison of Supplies and Demands for Region F
-Values are in acre-feet per year-

Region F (Acre-feet)	2020	2030	2040	2050	2060	2070
Supply	725,466	716,742	704,937	685,456	673,156	663,969
Demand	764,817	779,178	769,209	754,802	744,638	744,057
Need	-65,237	-72,308	-75,636	-83,210	-90,915	-103,346

Figure 4-1
Region F Supplies and Demands (acre-feet per year)



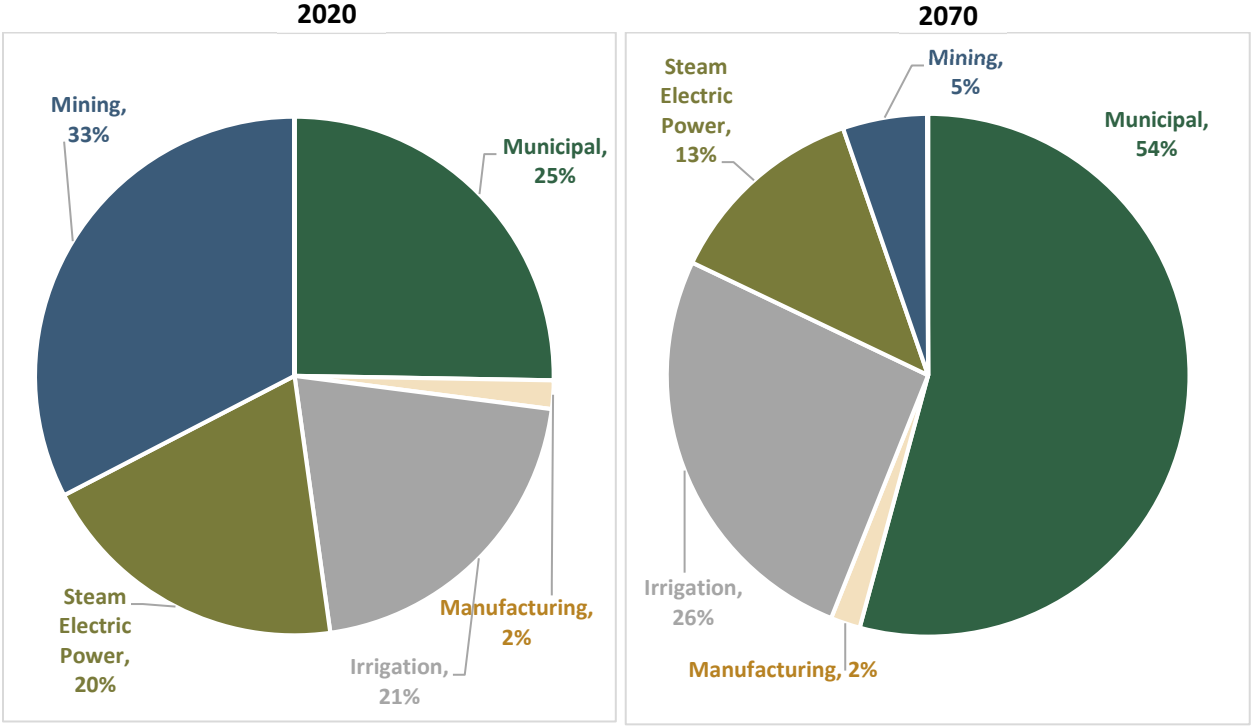
4.1.2 First Tier Water Needs for Water User Groups

A shortage occurs when current supplies are not sufficient to meet projected demands. In Region F there are 67 water user groups with identified shortages over the planning period. Of these, there are 30 municipal utilities and county-other water users spanning 16 counties that are projected to experience a water shortage before 2070.

Of the six use types, mining accounts for the largest percentage of the shortage in the short term. In 2020, mining represents nearly 36 percent of the water needs. As mining demands decline over time, the percentage of water needs attributed to mining falls to 5 percent in 2070. Municipal users account for the second highest portion of needs in Region F. In 2020, municipal users account for over 25 percent of the region's water needs. By 2070, this percentage grows to 54 percent.

Figure 4-2 graphically illustrates the First Tier water needs in Region F by use type in 2020 and 2070. Table 4-2 and Table 4-3 quantitatively show the water needs by county and use type in 2020 and 2070, respectively.

Figure 4-2
Region F First Tier Needs by Use Type in Year 2020 and 2070



Identified Needs for Municipal Users

Municipal users are shown to have significant water needs throughout the planning period. 30 municipal water user groups, not accounting for river basin splits, show a shortage at some point during the planning horizon. According to the WAM, the cities of Brady, Coleman, Junction, Mason, and Winters and their customers have no water supply. The Morgan Creek power plant in Mitchell County has no supply to generate power. Mason also has no supplies due to poor quality groundwater that exceeds the maximum contaminant limit for gross alpha particles. The cities of Andrews, Ballinger, Balmorhea, Big Spring, Brady, Bronte, Coahoma, Coleman, Colorado City, Grandfalls, Junction, Mason, Menard, Midland, Miles, Odessa, Robert Lee, San Angelo, Snyder, Stanton, and Winters do not have sufficient water to meet current demands. Other municipal water suppliers that have a water need include Coleman County SUD, Ector County UD, Goodfellow Airforce Base, Greater Gardendale WSC, North Runnels WSC, and County-Other users in Andrews, Coleman, Runnels, and Scurry counties. The counties with the largest municipal needs are Ector, Midland, and Tom Green counties. A significant portion of the needs in these counties are associated with large population centers of Odessa, Midland, and San Angelo.

Identified Needs for Manufacturing Users

There are eight counties showing manufacturing needs over the planning period: Andrews, Coleman, Ector, Howard, Kimble, Pecos, Scurry, and Tom Green counties. Manufacturing needs in Ector, Coleman, Howard, Pecos, and Tom Green counties are associated with needs for the cities of Odessa, Coleman, Big Spring, Fort Stockton, and San Angelo, respectively, and will be met by strategies developed for these cities.

Identified Needs for Irrigation Users

Irrigation water shortages are identified for nine counties in Region F, including Andrews, Borden, Brown, Coleman, Irion, Kimble, Martin, Mitchell, and Scurry counties.

Table 4-2
Water Needs by County and Use Type in Year 2020
-Values are in acre-feet per year-

County	Irrigation	Manufacturing	Mining	Municipal	Steam Electric Power	Livestock	Total
Andrews	(1,699)	(31)	(1,186)	(222)	0	(9)	**(3,147)**
Borden	0	0	0	0	0	0	**0**
Brown	(1,708)	0	(261)	(12)	0	0	**(1,981)**
Coke	0	0	0	(449)	0	0	**(449)**
Coleman	(396)	(2)	0	(855)	0	0	**(1,253)**
Concho	0	0	0	0	0	0	**0**
Crane	0	0	0	0	0	0	**0**
Crockett	0	0	0	0	0	0	**0**
Ector	0	0	0	(2,638)	(109)	0	**(2,747)**
Glasscock	0	0	0	0	0	0	**0**
Howard	0	(147)	0	(662)	(7)	0	**(816)**
Irion	(507)	0	(1,766)	0	0	0	**(2,273)**
Kimble	(1,103)	(603)	0	(626)	0	0	**(2,332)**
Loving	0	0	(3,906)	0	0	0	**(3,906)**
Martin	0	0	0	(52)	0	0	**(52)**
Mason	0	0	0	(700)	0	0	**(700)**
McCulloch	0	0	0	(1,391)	0	0	**(1,391)**
Menard	0	0	0	(211)	0	0	**(211)**
Midland	(1)	0	0	(47)	0	0	**(48)**
Mitchell	(1,584)	0	0	0	(10,326)	0	**(11,910)**
Pecos	0	(161)	(3,500)	0	0	0	**(3,661)**
Reagan	0	0	0	0	0	0	**0**
Reeves	0	0	(10,400)	(107)	0	0	**(10,507)**
Runnels	0	0	0	(839)	0	0	**(839)**
Schleicher	0	0	0	0	0	0	**0**
Scurry	(6,531)	(130)	(242)	(596)	0	0	**(7,499)**
Sterling	0	0	0	0	0	0	**0**
Sutton	0	0	0	0	0	0	**0**
Tom Green	0	(88)	(2)	(7,073)	0	0	**(7,163)**
Upton	0	0	0	0	0	0	**0**
Ward	0	0	0	0	(2,352)	0	**(2,352)**
Winkler	0	0	0	0	0	0	**0**
Total	**(13,529)**	**(1,162)**	**(21,263)**	**(16,480)**	**(12,794)**	**(9)**	**(65,237)**

Table 4-3
Water Needs by County and Use Type in Year 2070
-Values are in acre-feet per year-

County	Irrigation	Manufacturing	Mining	Municipal	Steam Electric Power	Livestock	Total
Andrews	(10,134)	(209)	0	(3,075)	0	(60)	**(13,478)**
Borden	(282)	0	0	0	0	0	**(282)**
Brown	(1,711)	0	(263)	(11)	0	0	**(1,985)**
Coke	0	0	0	(437)	0	0	**(437)**
Coleman	(396)	(2)	0	(822)	0	0	**(1,220)**
Concho	0	0	0	0	0	0	**0**
Crane	0	0	0	0	0	0	**0**
Crockett	0	0	0	0	0	0	**0**
Ector	0	(25)	0	(12,589)	(316)	0	**(12,930)**
Glasscock	0	0	0	0	0	0	**0**
Howard	0	(424)	0	(1,937)	(45)	0	**(2,406)**
Irion	(507)	0	0	0	0	0	**(507)**
Kimble	(1,103)	(704)	0	(604)	0	0	**(2,411)**
Loving	0	0	(1,000)	0	0	0	**(1,000)**
Martin	(4,729)	0	0	(243)	0	0	**(4,972)**
Mason	0	0	0	(676)	0	0	**(676)**
McCulloch	0	0	0	(1,414)	0	0	**(1,414)**
Menard	0	0	0	(196)	0	0	**(196)**
Midland	0	0	0	(19,115)	0	0	**(19,115)**
Mitchell	(1,482)	0	0	(183)	(10,326)	0	**(11,991)**
Pecos	0	(161)	0	0	0	0	**(161)**
Reagan	0	0	0	0	0	0	**0**
Reeves	0	0	(4,000)	(147)	0	0	**(4,147)**
Runnels	0	0	0	(807)	0	0	**(807)**
Schleicher	0	0	0	0	0	0	**0**
Scurry	(6,563)	(156)	(144)	(1,506)	0	0	**(8,369)**
Sterling	0	0	0	0	0	0	**0**
Sutton	0	0	0	0	0	0	**0**
Tom Green	0	(215)	(2)	(12,118)	0	0	**(12,335)**
Upton	0	0	0	0	0	0	**0**
Ward	0	0	0	(155)	(2,352)	0	**(2,507)**
Winkler	0	0	0	0	0	0	**0**
Total	**(26,907)**	**(1,896)**	**(5,409)**	**(56,035)**	**(13,039)**	**(60)**	**(103,346)**

Identified Needs for Livestock Users

Livestock needs have been identified for one county within Region F: Andrews County. Needs in Andrews County are due to limited MAG.

Identified Needs for Mining Users

Recent significant growth in demand for mining water, particularly for oil and gas exploration, has created mining shortages throughout Region F, especially in early decades of the planning horizon. There are five counties showing mining water shortages over the next fifty years: Brown, Loving, Reeves, Scurry, and Tom Green.

Identified Needs for Steam Electric Power Users

Ector, Howard, Mitchell, and Ward counties all show a shortage for steam electric power (SEP) water use. The SEP shortages in Ector County are associated with MAG limitations in Andrews County (one of their sources of supply). The SEP shortage in Mitchell County is attributed to

there being no firm yield under WAM Run 3 for Champion Lake, as well as the development of new facilities projected to be brought online by FGE Power. The SEP needs in Howard County are associated with needs of the City of Big Spring and will be met through strategies developed for the Colorado River Municipal Water District (CRMWD), who provides water supplies for Big Spring. Ward County SEP shortage is associated with artificially high water demands. The facility in Ward County recently retired their steam combustion units and replaced them with combined cycle combustion units, which use significantly less water. The demands in Ward County still account for the use of steam generation technology, even though that technology will not be used going forward. To avoid limitations to other users, only the much smaller anticipated future use was allocated water, resulting in a paper shortage for SEP in Ward County.

Identified Needs for Major Water Providers

Table 4-4 is a summary of the needs for the six Major Water Providers (MWPs) in Region F. All MWPs have a water shortage at some point over the next fifty years, with the exception of BCWID. Needs for CRMWD, San Angelo, and Odessa are partially the result of using the Colorado WAM for water availability. A summary of the supply, demand, and needs comparison for each designated major provider is included in Attachment 4A.

Table 4-4

Comparison of Supplies and Demands for Major Water Providers

-Values in Acre-Feet per Year-

Major Water Provider	Category	2020	2030	2040	2050	2060	2070
BCWID	Supply	18,900	18,760	18,620	18,480	18,340	18,200
	Demand	11,939	12,016	11,880	11,807	11,793	11,794
	Surplus (Need)	6,961	6,744	6,740	6,673	6,547	6,406
CRMWD	Supply	72,284	63,060	65,731	63,120	60,355	57,590
	Demand	78,465	63,060	65,731	68,636	71,595	75,072
	Surplus (Need)	(6,181)	0	0	(5,516)	(11,240)	(17,482)
City of Fort Stockton	Supply	6,041	6,372	6,748	7,013	7,267	7,500
	Demand	23,502	23,833	24,209	24,474	7,428	7,661
	Surplus (Need)	(17,461)	(17,461)	(17,461)	(17,461)	(161)	(161)
City of Odessa	Supply	38,061	44,797	47,849	46,873	45,785	44,571
	Demand	41,162	44,797	47,849	51,134	54,581	58,372
	Surplus (Need)	(3,101)	0	0	(4,261)	(8,796)	(13,801)
City of Midland	Supply	55,211	37,357	36,039	35,598	35,250	34,956
	Demand	39,329	43,190	45,643	48,198	50,792	53,619
	Surplus (Need)	15,882	(5,833)	(9,604)	(12,600)	(15,542)	(18,663)
City of San Angelo	Supply	11,934	14,024	13,853	13,683	13,512	13,341
	Demand[a]	19,862	21,706	22,571	23,666	24,994	26,438
	Surplus (Need)	(7,928)	(7,682)	(8,718)	(9,983)	(11,482)	(13,097)

a. The demands on San Angelo do not include irrigation demands from Twin Buttes Reservoir

4.1.3 Summary of First Tier Water Needs

The total demands in Region F exceed the total current supply by over 65,000 acre-feet beginning in 2020. The regional need grows to over 103,000 acre-feet by 2070. Most of these needs are associated with either mining, municipal, or irrigation demands. Manufacturing, steam electric power, and livestock needs collectively account for only about 20 percent of the needs in Region F in 2020 and 15 percent in 2070. First Tier water needs are largely attributed to assumptions made in the WAM model and limitations by the MAG in certain counties. Other shortages are due to limitations of infrastructure and/or growth. The First Tier needs report provided by the TWDB is provided in Appendix J and is summarized by WUG in Attachment 4B. Further review of the region's options and strategies to meet shortages is explored in more detail in Chapter 5 and the impacts of these strategies on water quality are discussed in Chapter 6. Second Tier Water Needs Analysis

The Second Tier water needs analysis compares current supplies with demands after reductions from conservation and direct reuse. Conservation and direct reuse are both considered water management strategies and are discussed further in Chapter 5B. The Second Tier needs report provided by TWDB is provided in Appendix J and is part of the summary provided in Attachment 4B.

4.1.4 Summary of Second Tier Water Needs

Under the Second Tier water needs analysis, municipal water needs were reduced through conservation and direct reuse supplies. Conservation was considered for all municipal and irrigation water users. Recycling of water was considered for all mining water user groups. More detail on each of these strategies can be found in Chapter 5B and Appendix C. The plan assumes that a significant reduction in water needs could potentially be achieved through conservation. The realization of these water use reductions is contingent upon the implementation of conservation strategies by individual water users and producers.

4.2 Third Tier Water Needs Analysis

The TCEQ WAM does not give an accurate assessment of water supplies based on the way the basin has historically been operated, so Region F has developed a water management strategy called "subordination." Subordination assumes that downstream senior water rights do not make priority calls on Region F water rights in the upper Colorado River Basin, which provides a more realistic assessment of surface water supplies in the upper Colorado River Basin. A full description of the subordination strategy is included in Chapter 5C and Appendix C.

The Third Tier water needs analysis compares the subordination supplies (total current supplies with the subordinated surface water supplies) and the demands after conservation and reuse. The results of the Third Tier water needs analysis is what was used to determine a water user group or major water provider's need for additional water management strategies.

4.2.1 Summary of Third Tier Water Needs

Implementation of the subordination strategy eliminates many of the needs shown in the First and Second Tier needs analyses. Fourteen water user groups (WUGs) show no needs after subordination: Ballinger, Big Spring, Bronte, Coahoma, Coleman, Coleman County SUD, Ector County Utility District, Odessa, Snyder, Coleman County-Other, Runnels County-Other, irrigation in Coleman County, manufacturing in Ector County, and steam electric power in Howard County. However, there are eleven

municipal WUGs that do not have sufficient supplies even after the subordination strategy: Brady, Goodfellow Air Force Base, Junction, Midland, Miles, North Runnels WSC, Robert Lee, San Angelo, Scurry County-Other, Stanton, and Winters. There are two non-municipal WUG for whom subordination does not meet their needs: manufacturing in Tom Green County and steam electric power in Mitchell County. WUGs that do not utilize any surface water sources are not impacted by subordination and continue to show needs throughout the planning period. Figure 4 3 and Table 4 5 compare the First, Second and Third Tier water needs in Region F throughout the planning cycle. The needs are 25 to 35 percent lower after conservation, direct reuse, and subordination (Third Tier needs) than they are under strict WAM analysis (First Tier needs). Attachment 4B shows the summary of each water user group and major water provider's demands, current supplies, conservation supplies, subordination supplies and Third Tier water needs.

Figure 4-3
Comparison of First, Second, and Third Tier Water Needs in Region F

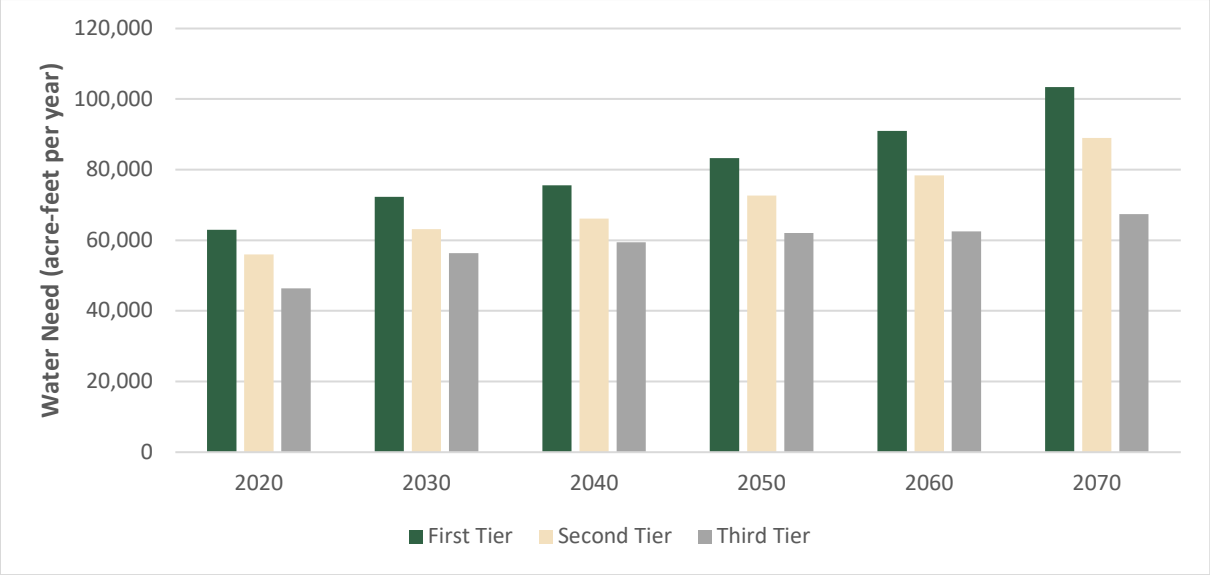


Table 4-5
Comparison of First, Second, and Third Tier Needs in Region F

Tier	2020	2030	2040	2050	2060	2070
First Tier	62,970	72,246	75,562	83,213	90,922	103,357
Second Tier	55,961	63,137	66,129	72,689	78,356	88,981
Third Tier	46,359	56,341	59,414	62,063	62,475	67,428

ATTACHMENT 4A

COMPARISON OF SUPPLY AND DEMAND BY MAJOR WATER PROVIDER

Major Water Provider First Tier Needs by Category of Use in Each Decade

Major Water Provider	Category of Use	2020	2030	2040	2050	2060	2070
BCWID #1	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**
CRMWD	Irrigation	(160)	0	0	(164)	(318)	(457)
	Livestock	0	0	0	0	0	0
	Manufacturing	(333)	0	0	(352)	(674)	(975)
	Mining	0	0	0	0	0	0
	Municipal	(5,463)	0	0	(4,864)	(9,972)	(15,562)
	Steam Electric Power	(130)	0	0	(136)	(259)	(375)
	Total	**(6,086)**	**0**	**0**	**(5,516)**	**(11,223)**	**(17,369)**
City of Fort Stockton	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	(161)	(161)	(161)	(161)	(161)	(161)
	Mining	(17,300)	(17,300)	(17,300)	(17,300)	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**(17,461)**	**(17,461)**	**(17,461)**	**(17,461)**	**(161)**	**(161)**
City of Midland	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	(5,926)	(9,690)	(12,680)	(15,617)	(18,733)
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**(5,926)**	**(9,690)**	**(12,680)**	**(15,617)**	**(18,733)**

Major Water Provider	Category of Use	2020	2030	2040	2050	2060	2070
City of Odessa	Irrigation	(121)	0	0	(124)	(239)	(344)
	Livestock	0	0	0	0	0	0
	Manufacturing	(186)	0	0	(199)	(381)	(551)
	Mining	0	0	0	0	0	0
	Municipal	(2,685)	0	0	(3,824)	(7,957)	(12,590)
	Steam Electric Power	0	0	0	0	0	0
	Total	**(2,992)**	**0**	**0**	**(4,147)**	**(8,577)**	**(13,485)**
City of San Angelo	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	(163)	(163)	(178)	(197)	(217)	(234)
	Mining	0	0	0	0	0	0
	Municipal	(7,765)	(7,519)	(8,540)	(9,786)	(11,265)	(12,863)
	Steam Electric Power	0	0	0	0	0	0
	Total	**(7,928)**	**(7,682)**	**(8,718)**	**(9,983)**	**(11,482)**	**(13,097)**

Major Water Provider Second Tier Needs (After Conservation and Direct Reuse) by Category of Use in Each Decade

Major Water Provider	Category of Use	2020	2030	2040	2050	2060	2070
BCWID #1	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**
CRMWD	Irrigation	(160)	0	0	(164)	(318)	(457)
	Livestock	0	0	0	0	0	0
	Manufacturing	(333)	0	0	(352)	(674)	(975)
	Mining	0	0	0	0	0	0
	Municipal	(4,544)	0	0	(3,589)	(8,604)	(14,060)
	Steam Electric Power	(130)	0	0	(136)	(259)	(375)
	Total	**(5,167)**	**0**	**0**	**(4,241)**	**(9,855)**	**(15,867)**
City of Fort Stockton	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	(161)	(161)	(161)	(161)	(161)	(161)
	Mining	(17,300)	(17,300)	(17,300)	(17,300)	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**(17,461)**	**(17,461)**	**(17,461)**	**(17,461)**	**(161)**	**(161)**
City of Midland	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	(5,171)	(8,874)	(11,798)	(14,673)	(17,721)
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**(5,171)**	**(8,874)**	**(11,798)**	**(14,673)**	**(17,721)**

Major Water Provider	Category of Use	2020	2030	2040	2050	2060	2070
City of Odessa	Irrigation	(121)	0	0	(124)	(239)	(344)
	Livestock	0	0	0	0	0	0
	Manufacturing	(186)	0	0	(199)	(381)	(551)
	Mining	0	0	0	0	0	0
	Municipal	(2,057)	0	0	(2,870)	(6,915)	(11,451)
	Steam Electric Power	0	0	0	0	0	0
	Total	**(2,364)**	**0**	**0**	**(3,193)**	**(7,535)**	**(12,346)**
City of San Angelo	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	(163)	(163)	(178)	(197)	(217)	(234)
	Mining	0	0	0	0	0	0
	Municipal	(7,298)	(6,978)	(7,973)	(9,184)	(10,626)	(12,184)
	Steam Electric Power	0	0	0	0	0	0
	Total	**(7,461)**	**(7,141)**	**(8,151)**	**(9,381)**	**(10,843)**	**(12,418)**

Major Water Provider Third Tier (After Conservation, Direct Reuse, and Subordination)
Needs by Category of Use in Each Decade

Major Water Provider	Category of Use	2020	2030	2040	2050	2060	2070
BCWID #1	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**
CRMWD	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**
City of Fort Stockton	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	(161)	(161)	(161)	(161)	(161)	(161)
	Mining	(17,300)	(17,300)	(17,300)	(17,300)	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**(17,461)**	**(17,461)**	**(17,461)**	**(17,461)**	**(161)**	**(161)**
City of Midland	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	(4,719)	(8,397)	(11,297)	(14,145)	(17,168)
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**(4,719)**	**(8,397)**	**(11,297)**	**(14,145)**	**(17,168)**

Major Water Provider	Category of Use	2020	2030	2040	2050	2060	2070
City of Odessa	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	0	0	0	0	0	0
	Mining	0	0	0	0	0	0
	Municipal	0	0	0	0	0	0
	Steam Electric Power	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**
City of San Angelo	Irrigation	0	0	0	0	0	0
	Livestock	0	0	0	0	0	0
	Manufacturing	(119)	(118)	(139)	(158)	(181)	(203)
	Mining	0	0	0	0	0	0
	Municipal	(5,343)	(5,089)	(6,141)	(7,417)	(8,919)	(10,536)
	Steam Electric Power	0	0	0	0	0	0
	Total	**(5,462)**	**(5,207)**	**(6,280)**	**(7,575)**	**(9,100)**	**(10,739)**

ATTACHMENT 4B

WATER USER GROUP NEEDS BY TIER

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
IRRIGATION, ANDREWS	(1,699)	(5,688)	(7,297)	(8,389)	(9,312)	(10,134)	(681)	(3,651)	(5,260)	(6,352)	(7,275)	(8,097)	(681)	(3,651)	(5,260)	(6,352)	(7,275)	(8,097)
IRRIGATION, BORDEN	0	(138)	(202)	(240)	(265)	(282)	147	157	93	55	30	13	147	157	93	55	30	13
IRRIGATION, BROWN	(1,708)	(1,712)	(1,711)	(1,713)	(1,710)	(1,711)	(1,302)	(1,062)	(1,061)	(1,063)	(1,060)	(1,061)	(1,302)	(1,062)	(1,061)	(1,063)	(1,060)	(1,061)
IRRIGATION, COKE	0	0	0	0	0	0	34	69	83	83	83	83	34	69	83	83	83	83
IRRIGATION, COLEMAN	(396)	(396)	(396)	(396)	(396)	(396)	(373)	(349)	(349)	(349)	(349)	(349)	27	51	51	51	51	51
IRRIGATION, CONCHO	0	0	0	0	0	0	245	490	539	539	539	539	245	490	539	539	539	539
IRRIGATION, CROCKETT	0	0	0	0	0	0	7	14	20	20	20	20	7	14	20	20	20	20
IRRIGATION, ECTOR	879	1,033	1,031	868	717	579	917	1,109	1,144	981	830	692	1,074	1,109	1,144	1,143	1,142	1,141
IRRIGATION, GLASSCOCK	0	0	0	0	0	0	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050
IRRIGATION, HOWARD	0	0	0	0	0	0	344	688	757	757	757	757	344	688	757	757	757	757
IRRIGATION, IRION	(507)	(507)	(507)	(507)	(507)	(507)	(454)	(402)	(349)	(349)	(349)	(349)	(454)	(402)	(349)	(349)	(349)	(349)
IRRIGATION, KIMBLE	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(970)	(837)	(784)	(784)	(784)	(784)	(970)	(837)	(784)	(784)	(784)	(784)
IRRIGATION, MARTIN	0	0	0	(573)	(3,030)	(4,729)	1,825	3,649	5,474	4,901	2,444	745	1,825	3,649	5,474	4,901	2,444	745
IRRIGATION, MASON	0	0	0	0	0	0	248	497	745	745	745	745	248	497	745	745	745	745
IRRIGATION, MCCULLOCH	0	0	0	0	0	0	116	232	349	349	349	349	116	232	349	349	349	349
IRRIGATION, MENARD	0	0	0	0	0	0	183	366	549	549	549	549	183	366	549	549	549	549

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
IRRIGATION, MIDLAND	(1)	0	0	0	(1)	0	904	1,811	2,716	2,716	2,715	2,716	907	1,811	2,716	2,718	2,721	2,724
IRRIGATION, MITCHELL	(1,584)	(1,858)	(1,763)	(1,645)	(1,566)	(1,482)	(1,328)	(1,602)	(1,507)	(1,389)	(1,310)	(1,226)	(1,328)	(1,602)	(1,507)	(1,389)	(1,310)	(1,226)
IRRIGATION, PECOS	0	0	0	0	0	0	7,167	14,335	21,502	21,502	21,502	21,502	7,167	14,335	21,502	21,502	21,502	21,502
IRRIGATION, REAGAN	0	0	0	0	0	0	1,102	2,203	3,305	3,305	3,305	3,305	1,102	2,203	3,305	3,305	3,305	3,305
IRRIGATION, REEVES	0	0	0	0	0	0	2,947	5,894	8,841	8,841	8,841	8,841	2,947	5,894	8,841	8,841	8,841	8,841
IRRIGATION, RUNNELS	0	0	0	0	0	0	155	311	373	373	373	373	155	311	373	373	373	373
IRRIGATION, SCHLEICHER	0	0	0	0	0	0	91	109	109	109	109	109	91	109	109	109	109	109
IRRIGATION, SCURRY	(6,531)	(6,555)	(6,565)	(6,562)	(6,560)	(6,563)	(6,153)	(5,799)	(5,582)	(5,579)	(5,577)	(5,580)	(6,153)	(5,799)	(5,582)	(5,579)	(5,577)	(5,580)
IRRIGATION, STERLING	0	0	0	0	0	0	45	90	135	135	135	135	45	90	135	135	135	135
IRRIGATION, SUTTON	0	0	0	0	0	0	56	112	168	168	168	168	56	112	168	168	168	168
IRRIGATION, TOM GREEN	558	509	452	437	386	332	2,683	4,758	5,551	5,536	5,485	5,431	2,683	4,758	5,551	5,536	5,485	5,431
IRRIGATION, UPTON	0	0	0	0	0	0	520	1,040	1,560	1,560	1,560	1,560	520	1,040	1,560	1,560	1,560	1,560
IRRIGATION, WARD	2,898	2,893	2,894	2,901	2,910	2,916	3,056	3,209	3,368	3,375	3,384	3,390	3,056	3,209	3,368	3,375	3,384	3,390
IRRIGATION, WINKLER	0	0	0	0	0	0	175	351	526	526	526	526	175	351	526	526	526	526
LIVESTOCK, ANDREWS	(9)	(17)	(25)	(39)	(50)	(60)	(9)	(17)	(25)	(39)	(50)	(60)	(9)	(17)	(25)	(39)	(50)	(60)
LIVESTOCK, BORDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
LIVESTOCK, BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, COKE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, COLEMAN	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
LIVESTOCK, CONCHO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, CRANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, CROCKETT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, ECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, GLASSCOCK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, HOWARD	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
LIVESTOCK, IRION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, KIMBLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, LOVING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, MARTIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, MASON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, MCCULLOCH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, MENARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
LIVESTOCK, MIDLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, MITCHELL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, PECOS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, REAGAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, REEVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, RUNNELS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, SCHLEICHER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, SCURRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, STERLING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, SUTTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, TOM GREEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, UPTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, WARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVESTOCK, WINKLER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, ANDREWS	(31)	(59)	(87)	(134)	(174)	(209)	(31)	(59)	(87)	(134)	(174)	(209)	(31)	(59)	(87)	(134)	(174)	(209)
MANUFACTURING, BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
MANUFACTURING, COLEMAN	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0	0	0	0	0	0
MANUFACTURING, CRANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, CROCKETT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, ECTOR	1,065	1,061	1,050	831	(31)	(25)	1,065	1,061	1,050	831	(31)	(25)	1,251	1,061	1,050	1,030	350	526
MANUFACTURING, GLASSCOCK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, HOWARD	(147)	0	0	(153)	(293)	(424)	(147)	0	0	(153)	(293)	(424)	0	0	0	0	0	0
MANUFACTURING, IRION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, KIMBLE	(603)	(704)	(704)	(704)	(704)	(704)	(603)	(704)	(704)	(704)	(704)	(704)	(375)	(476)	(476)	(476)	(476)	(476)
MANUFACTURING, MCCULLOCH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, MIDLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, MITCHELL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, PECOS	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)	(161)
MANUFACTURING, REEVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, RUNNELS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, SCURRY	(130)	(156)	(156)	(156)	(156)	(156)	(130)	(156)	(156)	(156)	(156)	(156)	(130)	(156)	(156)	(156)	(156)	(156)
MANUFACTURING, SUTTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
MANUFACTURING, TOM GREEN	(38)	(144)	(159)	(178)	(198)	(215)	(38)	(144)	(159)	(178)	(198)	(215)	(1)	(108)	(127)	(149)	(172)	(193)
MANUFACTURING, UPTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, WARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING, WINKLER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINING, ANDREWS	(1,186)	(1,128)	(288)	376	952	1,395	(909)	(868)	(66)	552	1,087	1,499	(909)	(868)	(66)	552	1,087	1,499
MINING, BORDEN	0	0	0	0	0	0	29	39	33	21	10	5	29	39	33	21	10	5
MINING, BROWN	(261)	(266)	(266)	(268)	(264)	(263)	(195)	(200)	(199)	(201)	(198)	(197)	(195)	(200)	(199)	(201)	(198)	(197)
MINING, COKE	0	0	0	0	0	0	20	20	18	16	14	12	20	20	18	16	14	12
MINING, COLEMAN	0	0	0	0	0	0	5	4	4	4	3	3	5	4	4	4	3	3
MINING, CONCHO	0	0	0	0	0	0	20	20	18	15	13	12	20	20	18	15	13	12
MINING, CRANE	0	0	0	0	0	0	26	35	36	29	22	17	26	35	36	29	22	17
MINING, CROCKETT	689	587	1,962	1,962	1,962	1,962	1,079	977	2,080	2,061	2,044	2,040	1,079	977	2,080	2,061	2,044	2,040
MINING, ECTOR	307	225	113	453	745	932	335	255	140	475	763	947	335	255	140	475	763	947
MINING, GLASSCOCK	0	0	0	0	0	0	248	248	189	134	88	63	248	248	189	134	88	63
MINING, HOWARD	0	0	0	0	0	0	143	143	101	59	25	13	143	143	101	59	25	13
MINING, IRION	(1,766)	(1,762)	(456)	93	93	93	(1,444)	(1,440)	(225)	121	107	100	(1,444)	(1,440)	(225)	121	107	100

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
MINING, KIMBLE	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
MINING, LOVING	(3,906)	(3,906)	(3,005)	(1,805)	(1,000)	(1,000)	(3,381)	(3,381)	(2,543)	(1,427)	(699)	(762)	(3,381)	(3,381)	(2,543)	(1,427)	(699)	(762)
MINING, MARTIN	0	0	0	1,117	2,717	3,617	302	302	227	1,166	2,744	3,631	302	302	227	1,166	2,744	3,631
MINING, MASON	0	0	0	0	0	0	43	40	30	24	19	16	43	40	30	24	19	16
MINING, MCCULLOCH	1	1	1	1	0	1	376	352	280	237	203	177	376	352	280	237	203	177
MINING, MENARD	0	0	0	0	0	0	46	45	40	35	30	26	46	45	40	35	30	26
MINING, MIDLAND	0	0	0	0	213	1,013	445	445	344	231	259	1,045	445	445	344	231	259	1,045
MINING, MITCHELL	0	0	0	0	0	0	25	31	27	21	16	12	25	31	27	21	16	12
MINING, PECOS	(3,500)	(3,500)	(3,500)	(3,500)	500	500	(2,961)	(2,961)	(2,961)	(3,066)	567	552	(2,961)	(2,961)	(2,961)	(3,066)	567	552
MINING, REAGAN	0	0	0	263	2,963	4,063	445	445	323	325	2,987	4,071	445	445	323	325	2,987	4,071
MINING, REEVES	(10,400)	(10,400)	(9,900)	(7,700)	(5,600)	(4,000)	(9,518)	(9,518)	(9,053)	(7,007)	(5,054)	(3,566)	(9,518)	(9,518)	(9,053)	(7,007)	(5,054)	(3,566)
MINING, RUNNELS	0	0	0	0	0	0	11	11	10	9	8	7	11	11	10	9	8	7
MINING, SCHLEICHER	0	0	0	0	0	0	26	31	24	16	10	6	26	31	24	16	10	6
MINING, SCURRY	(242)	(395)	(419)	(315)	(213)	(144)	(222)	(363)	(385)	(290)	(196)	(132)	(222)	(363)	(385)	(290)	(196)	(132)
MINING, STERLING	0	0	0	0	0	0	33	40	34	22	11	6	33	40	34	22	11	6
MINING, SUTTON	0	0	0	0	0	0	19	30	32	24	16	11	19	30	32	24	16	11

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
MINING, TOM GREEN	(1)	(3)	(2)	(3)	(2)	(2)	43	42	45	44	46	47	43	42	45	44	46	47
MINING, UPTON	506	506	905	1,705	2,505	3,205	607	607	985	1,758	2,537	3,227	607	607	985	1,758	2,537	3,227
MINING, WARD	0	0	0	0	0	0	80	80	71	55	38	25	80	80	71	55	38	25
MINING, WINKLER	0	0	0	0	0	0	33	49	42	32	22	16	33	49	42	32	22	16
AIRLINE MOBILE HOME PARK LTD	0	0	0	0	0	0	7	7	8	9	10	10	7	7	8	9	10	10
ANDREWS	(192)	(416)	(715)	(1,297)	(1,979)	(2,800)	(147)	(361)	(619)	(1,186)	(1,850)	(2,650)	(147)	(361)	(619)	(1,186)	(1,850)	(2,650)
BALLINGER	(383)	(351)	(334)	(332)	(336)	(365)	(371)	(339)	(322)	(320)	(324)	(353)	423	412	428	428	429	438
BALMORHEA	(107)	(118)	(129)	(137)	(142)	(147)	(105)	(116)	(127)	(135)	(140)	(145)	(105)	(116)	(127)	(135)	(140)	(145)
BANGS	0	0	0	0	0	0	33	33	33	33	33	33	33	33	33	33	33	33
BARSTOW	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
BIG LAKE	0	0	0	0	0	0	10	12	12	13	13	14	10	12	12	13	13	14
BIG SPRING	(611)	0	0	(647)	(1,233)	(1,785)	(480)	138	140	(508)	(1,094)	(1,646)	131	138	140	139	139	139
BRADY	(1,391)	(1,420)	(1,402)	(1,410)	(1,412)	(1,414)	(1,373)	(1,402)	(1,383)	(1,391)	(1,393)	(1,395)	(532)	(561)	(542)	(550)	(552)	(554)
BRONTE	(202)	(201)	(199)	(197)	(197)	(197)	(199)	(198)	(196)	(194)	(194)	(194)	3	3	3	3	3	3
BROOKESMITH SUD	0	0	0	0	1	1	105	105	103	102	103	103	105	105	103	102	103	103
BROWNWOOD	0	0	0	0	0	0	61	91	91	91	91	91	61	91	91	91	91	91

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
COAHOMA	(51)	0	0	(56)	(105)	(152)	(43)	8	8	(48)	(97)	(144)	8	8	8	8	8	8
COLEMAN	(821)	(814)	(795)	(793)	(792)	(792)	(747)	(741)	(723)	(721)	(720)	(720)	572	555	553	534	507	480
COLEMAN COUNTY SUD	(37)	(37)	(36)	(35)	(35)	(35)	(35)	(35)	(34)	(33)	(33)	(33)	2	1	1	1	1	1
COLORADO CITY	0	(133)	(144)	(155)	(168)	(183)	16	(115)	(126)	(137)	(150)	(164)	16	(115)	(126)	(137)	(150)	(164)
CONCHO RURAL WATER	8	0	(3)	(6)	(9)	(13)	28	21	19	17	15	11	36	28	25	22	19	15
COUNTY-OTHER, ANDREWS	(30)	(58)	(91)	(152)	(212)	(275)	(16)	(43)	(74)	(134)	(192)	(254)	(16)	(43)	(74)	(134)	(192)	(254)
COUNTY-OTHER, BORDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, COKE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, COLEMAN	(24)	(22)	(22)	(21)	(21)	(21)	(23)	(21)	(21)	(20)	(20)	(20)	1	1	1	1	1	1
COUNTY-OTHER, CONCHO	0	0	0	0	0	0	3	3	3	3	3	3	6	6	6	6	6	6
COUNTY-OTHER, CRANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, CROCKETT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, ECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, GLASSCOCK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, HOWARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, IRION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, KIMBLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, LOVING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, MARTIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, MASON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, MCCULLOCH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, MENARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, MIDLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, MITCHELL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, PECOS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, REAGAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, REEVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, RUNNELS	(23)	(21)	(19)	(18)	(18)	(19)	(21)	(19)	(17)	(16)	(16)	(17)	2	2	2	2	2	2
COUNTY-OTHER, SCHLEICHER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, SCURRY	(402)	(414)	(447)	(522)	(606)	(692)	(382)	(392)	(423)	(496)	(578)	(662)	(353)	(392)	(423)	(465)	(519)	(577)
COUNTY-OTHER, STERLING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, SUTTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, TOM GREEN	264	252	208	173	140	112	264	252	208	173	140	112	356	340	295	257	223	193
COUNTY-OTHER, UPTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, WARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COUNTY-OTHER, WINKLER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRANE	0	0	0	0	0	0	11	12	13	13	14	14	11	12	13	13	14	14
CROCKETT COUNTY WCID 1	0	0	0	0	0	0	12	13	13	13	13	13	12	13	13	13	13	13
DADS SUPPORTED LIVING CENTER	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
EARLY	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	9
ECTOR COUNTY UTILITY DISTRICT	(234)	0	0	(332)	(694)	(1,097)	(174)	84	94	(207)	(557)	(948)	60	84	94	125	137	149
EDEN	25	25	25	25	25	25	29	29	29	29	29	29	29	29	29	29	29	29
ELDORADO	0	0	0	0	0	0	6	6	6	6	6	6	6	6	6	6	6	6
FORT STOCKTON	0	0	0	0	0	0	36	39	42	44	46	48	36	39	42	44	46	48
GOODFELLOW AIR FORCE BASE	(136)	(191)	(222)	(258)	(298)	(345)	(128)	(182)	(213)	(248)	(288)	(334)	(84)	(140)	(173)	(210)	(253)	(301)
GRANDFALLS	0	0	0	0	(152)	(155)	1	1	1	1	(150)	(153)	1	1	1	1	(150)	(153)
GREATER GARDENDALE WSC	0	(157)	(283)	(368)	(409)	(451)	12	(144)	(268)	(351)	(390)	(431)	12	(144)	(268)	(351)	(390)	(431)

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
GREENWOOD WATER	0	0	0	0	0	0	3	3	4	4	4	5	3	3	4	4	4	5
IRAAN	0	0	0	0	0	0	4	4	5	5	5	5	4	4	5	5	5	5
JUNCTION	(626)	(620)	(609)	(605)	(604)	(604)	(618)	(612)	(601)	(597)	(596)	(596)	(368)	(362)	(351)	(347)	(346)	(346)
KERMIT	0	0	0	0	0	0	18	18	19	19	19	19	18	18	19	19	19	19
LORAINE	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2
MADERA VALLEY WSC	0	0	0	0	0	0	5	5	5	6	6	6	5	5	5	6	6	6
MASON	(700)	(690)	(682)	(677)	(676)	(676)	(693)	(683)	(675)	(670)	(669)	(669)	(693)	(683)	(675)	(670)	(669)	(669)
MCCAMEY	0	0	0	0	0	0	7	7	8	8	8	8	7	7	8	8	8	8
MENARD	(211)	(203)	(197)	(196)	(196)	(196)	(139)	(131)	(125)	(124)	(124)	(124)	(139)	(131)	(125)	(124)	(124)	(124)
MERTZON	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3
MIDLAND	15,882	(5,833)	(9,604)	(12,600)	(15,542)	(18,663)	16,513	(5,078)	(8,788)	(11,718)	(14,598)	(17,651)	18,686	(4,719)	(8,397)	(11,297)	(14,145)	(17,168)
MILES	(19)	(34)	(35)	(39)	(42)	(48)	(16)	(31)	(32)	(36)	(39)	(45)	(7)	(22)	(25)	(29)	(33)	(40)
MILLERSVIEW-DOOLE WSC	135	181	184	181	161	99	213	261	263	261	242	182	265	261	263	261	251	244
MITCHELL COUNTY UTILITY	0	0	0	0	0	0	5	5	5	5	5	6	5	5	5	5	5	6
MONAHANS	1,486	1,377	1,320	1,269	1,237	1,211	1,509	1,401	1,345	1,295	1,264	1,238	1,509	1,401	1,345	1,295	1,264	1,238
NORTH RUNNELS WSC	(162)	(159)	(155)	(154)	(154)	(156)	(158)	(155)	(151)	(150)	(150)	(152)	(72)	(69)	(64)	(63)	(63)	(63)

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
ODESSA	(2,451)	0	0	(3,492)	(7,263)	(11,493)	(1,883)	680	752	(2,663)	(6,358)	(10,503)	568	680	752	829	905	990
PECOS	0	0	0	0	0	0	29	31	33	34	35	35	29	31	33	34	35	35
PECOS COUNTY FRESH WATER	0	0	0	0	0	0	2	2	3	3	3	3	2	2	3	3	3	3
PECOS COUNTY WCID 1	0	0	0	0	0	0	9	10	11	11	12	12	9	10	11	11	12	12
RANKIN	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3
RICHLAND SUD	78	72	74	77	73	70	81	75	77	80	76	73	81	75	77	80	76	73
ROBERT LEE	(247)	(243)	(241)	(241)	(240)	(240)	(244)	(240)	(238)	(238)	(237)	(237)	(78)	(73)	(69)	(69)	(68)	(68)
SAN ANGELO	(4,785)	(6,658)	(7,632)	(8,824)	(10,243)	(11,773)	(4,326)	(6,126)	(7,074)	(8,232)	(9,614)	(11,105)	(2,451)	(4,307)	(5,308)	(6,523)	(7,958)	(9,505)
SANTA ANNA	0	0	0	0	0	0	3	4	4	4	4	4	3	4	4	4	4	4
SNYDER	(194)	0	0	(256)	(524)	(814)	(153)	47	51	(201)	(465)	(721)	41	47	51	55	59	93
SONORA	0	0	0	0	0	0	115	121	123	126	127	128	115	121	123	126	127	128
SOUTHWEST SANDHILLS WSC	0	0	0	0	0	0	20	22	24	26	28	30	20	22	24	26	28	30
STANTON	23	16	(10)	(145)	(197)	(243)	31	25	0	(135)	(186)	(232)	62	25	0	(102)	(124)	(142)
STERLING CITY	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3
TOM GREEN COUNTY FWSD 3	0	0	0	0	0	0	3	4	4	4	5	5	3	4	4	4	5	5
WICKETT	967	957	955	959	963	966	969	959	957	961	965	968	969	959	957	961	965	968

Water User Group	Future Unmet Needs/Surplus by Planning Decade (acre-feet per year) – First Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation and Direct Reuse (acre-feet per year) – Second Tier						Future Unmet Needs/Surplus by Planning Decade After Conservation, Direct Reuse, and Subordination (acre-feet per year) – Third Tier					
	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070	2020	2030	2040	2050	2060	2070
WINK	0	0	0	0	0	0	3	4	4	4	4	5	3	4	4	4	4	5
WINTERS	(226)	(218)	(206)	(205)	(204)	(204)	(218)	(209)	(197)	(196)	(195)	(195)	(118)	(110)	(99)	(98)	(97)	(98)
ZEPHYR WSC	0	0	0	0	0	0	32	32	31	31	31	31	32	32	31	31	31	31
STEAM ELECTRIC POWER, ECTOR	(109)	0	0	(114)	(219)	(316)	(109)	0	0	(114)	(219)	(316)	0	0	0	0	0	0
STEAM ELECTRIC POWER, HOWARD	(7)	14	14	(8)	(26)	(45)	(7)	14	14	(8)	(26)	(45)	14	14	14	14	14	14
STEAM ELECTRIC POWER, MITCHELL	(10,326)	(10,326)	(10,326)	(10,326)	(10,326)	(10,326)	(9,789)	(9,736)	(9,732)	(9,727)	(9,722)	(9,716)	(8,619)	(8,580)	(8,590)	(8,599)	(8,608)	(8,616)
STEAM ELECTRIC POWER, WARD	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)	(2,352)