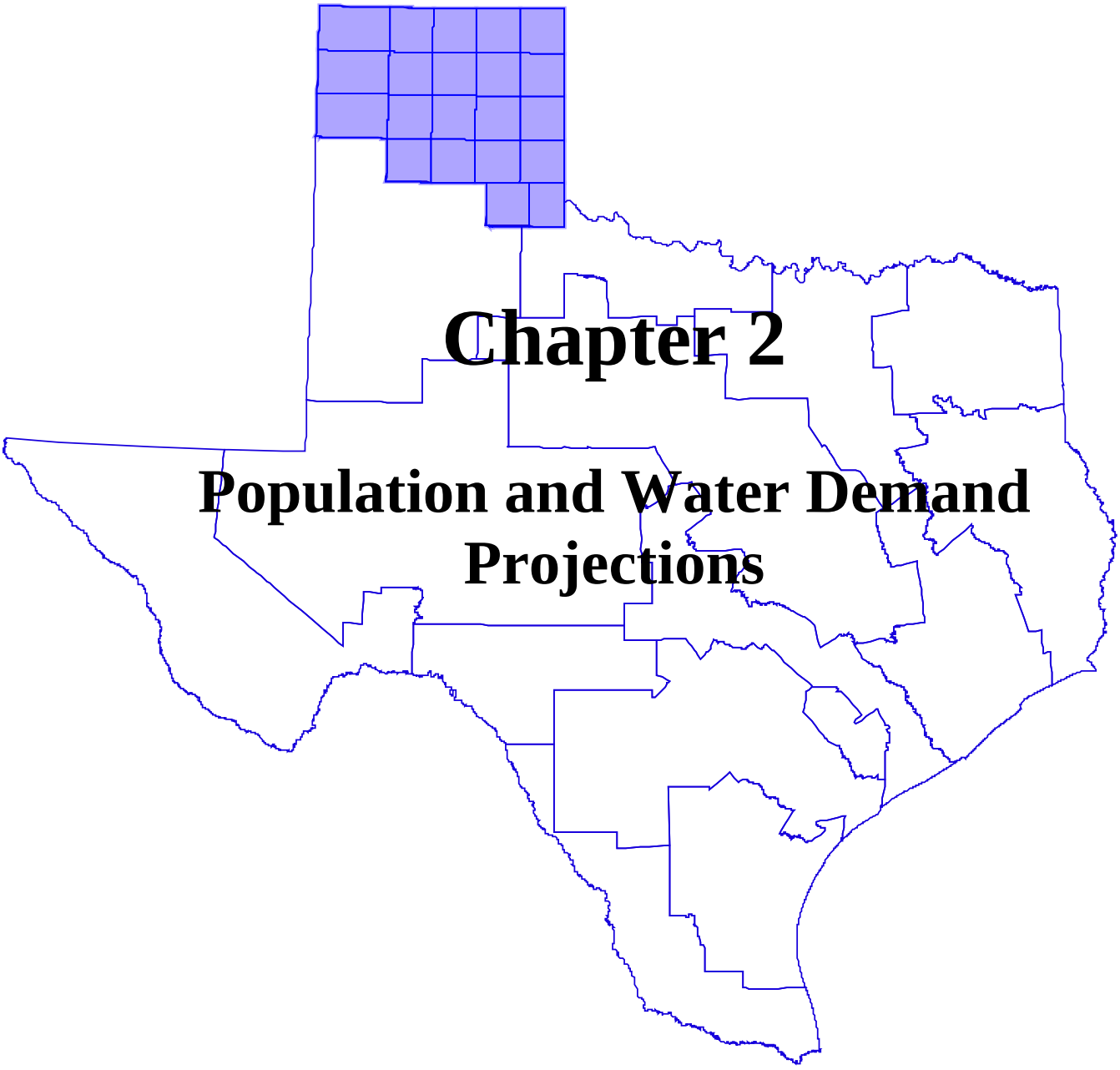


Chapter 2

Population and Water Demand Projections

2.1 Current and Projected Population and Water Demand for the Region

In November 2003[1], the Texas Water Development Board (TWDB) approved population and water demand projections for the Panhandle Water Planning Area (PWPA) for use in the 2006 regional water plan. As part of this regional water planning update, these projections were reviewed by the region and revised as needed. Due to the substantial changes in the agricultural sector in the region, a detailed study of the current and projected agricultural water use was conducted for this plan update. Also, revisions were made to mining and steam electric power water demands. There were no revisions to population or municipal and manufacturing water use.

The TWDB distributes its population and demand projections by Water User Groups. A Water User Group is defined as one of the following:

- Cities with population of 500 or more,
- Individual utilities providing more than 0.25 million gallons per day (MGD) for municipal use,
- Rural/unincorporated areas of municipal water use, known as County Other,
- Manufacturing (aggregated on a county/basin basis),
- Steam electric power (aggregated on a county/basin basis),
- Mining (aggregated on a county/basin basis),
- Irrigation (aggregated on a county/basin basis), or
- Livestock (aggregated on a county/basin basis).

Each Water User Group has an associated water demand. Only municipal Water User Groups have population projections.

To simplify the presentation of these data all projections in this chapter are aggregated by county where the water is used. Projections divided by Water User Group, county and basin may be found in the tables at the end of this chapter. The projections were developed by decade and cover the period from 2010 to 2060.

Projected demands on water sources are addressed in Chapter 3. Specifically, expected demands on the Ogallala aquifer by county are included in Table 3-19. Demands on other sources are accounted for through the allocation of water supplies to users and recommended water management strategies.

This chapter documents historical and projected estimates of population and water demands of cities and counties in the PWPA, as well as the demands on designated wholesale water providers. Revisions to population and water demand projections discussed in this chapter have been approved by the TWDB.

[1] Texas Water Development Board: *Final Projected Water Use Data for Region A*, approved by the Board of the TWDB on August 20, 2009.

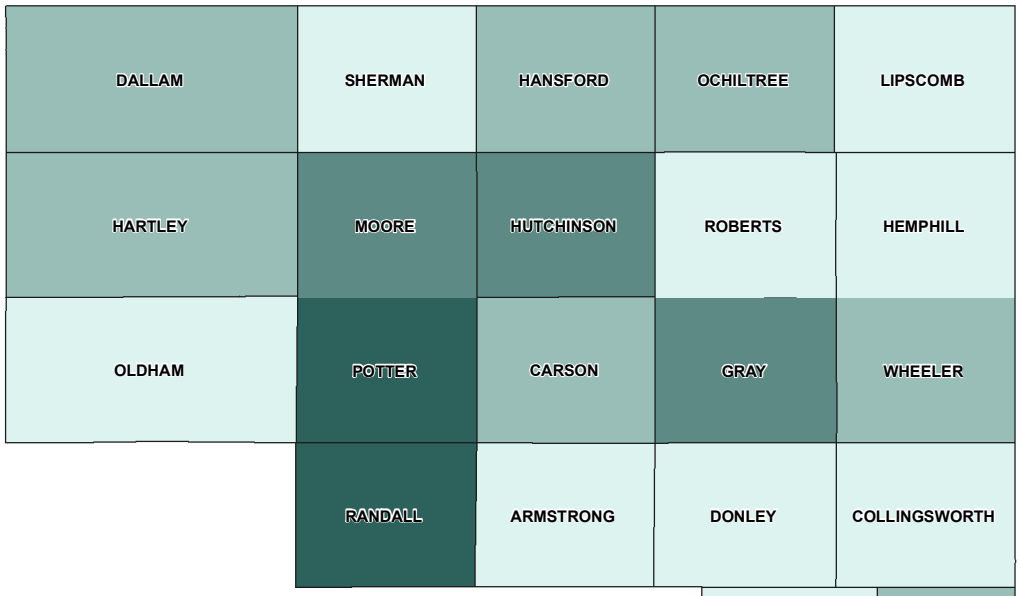
2.1.1 Population

In 2000, the population of the State of Texas was approximately 20,000,000. The population of the PWPA in 2000 was estimated to be 355,832. This represents approximately 1.7 percent of the state's population. Most of the region's population is located in Potter and Randall Counties, which contains Amarillo and surrounding areas. The remaining population in the PWPA is distributed among the other 19 counties, ranging from populations of 887 in Roberts County to 23,857 in Hutchinson County.

Population projections for the PWPA are based on the 2000 U.S. Census. The projections use a standard methodology known as the *cohort-component method*. This method is based upon historical birth and survival rates of the region's population. The population for the PWPA is projected to increase from the 355,832 in 2000 to 541,035 in 2060, or an average annual growth rate of 0.7 percent. As shown on Table 2-1, approximately 61 percent of the region's growth is expected to occur in Randall and Potter Counties, with much of this growth occurring outside of the city limits of Amarillo. Other counties showing increases in population include Childress, Hansford, Moore, Ochiltree and Sherman counties. The 2000 population and 2060 population projections by county are shown in Figure 2-1.

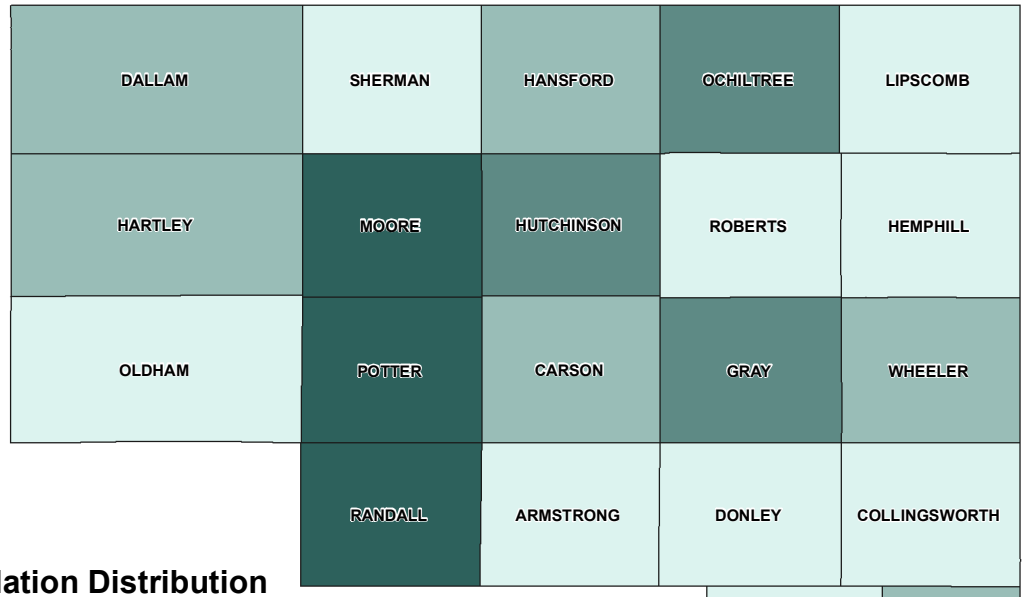
Table 2-1: PWPA Population by County 2000-2060

County Name	2000	2010	2020	2030	2040	2050	2060
Armstrong	2,148	2,171	2,240	2,163	2,074	2,053	1,994
Carson	6,516	6,541	6,610	6,557	6,345	5,767	5,237
Childress	7,688	7,847	7,977	8,090	8,129	8,133	7,925
Collingsworth	3,206	3,134	3,139	3,029	2,880	2,767	2,578
Dallam	6,222	6,851	7,387	7,724	7,808	7,645	7,291
Donley	3,828	3,764	3,694	3,536	3,375	3,238	3,026
Gray	22,744	22,163	21,988	21,371	20,542	19,286	18,064
Hall	3,782	3,750	3,832	3,884	3,841	3,859	3,783
Hansford	5,369	5,699	6,148	6,532	6,948	7,191	7,406
Hartley	5,537	5,697	5,889	5,989	6,026	5,950	5,646
Hemphill	3,351	3,496	3,511	3,394	3,269	3,181	3,024
Hutchinson	23,857	24,320	24,655	24,311	23,513	22,209	21,087
Lipscomb	3,057	3,084	3,149	3,054	2,966	2,925	2,784
Moore	20,121	23,049	26,241	29,057	31,293	32,655	33,474
Ochiltree	9,006	9,685	10,440	11,001	11,380	11,566	11,803
Oldham	2,185	2,322	2,373	2,204	1,942	1,689	1,364
Potter	113,546	127,580	142,703	156,846	172,950	190,526	204,933
Randall	104,312	117,420	131,546	144,757	159,800	176,218	189,811
Roberts	887	930	955	857	719	622	561
Sherman	3,186	3,469	3,770	3,886	4,005	4,110	4,164
Wheeler	5,284	5,132	5,133	5,112	5,149	5,139	5,080
PWPA Total	**355,832**	**388,104**	**423,380**	**453,354**	**484,954**	**516,729**	**541,035**



2000 Population

Total = 355,832



2060 Population

Total = 541,035

Population Distribution

- < 5,000
- 5,000 - 10,000
- 10,000 - 25,000
- > 25,000

0 10 20 40 Miles

DATE: JANUARY 2010

SCALE: 1:2,534,400

DATUM & COORDINATE SYSTEM: GCS NORTH AMERICAN 1983

PREPARED BY: DLB

FILE: PPC07480 H:\WR_PLANNING\WORKING\2060\R12_Figures\Chapter2\Figure2_1.mxd

N W E S

PANHANDLE WATER PLANNING AREA

POPULATION PROJECTIONS FOR COUNTIES IN THE PWPA

Location Map

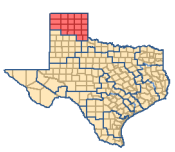
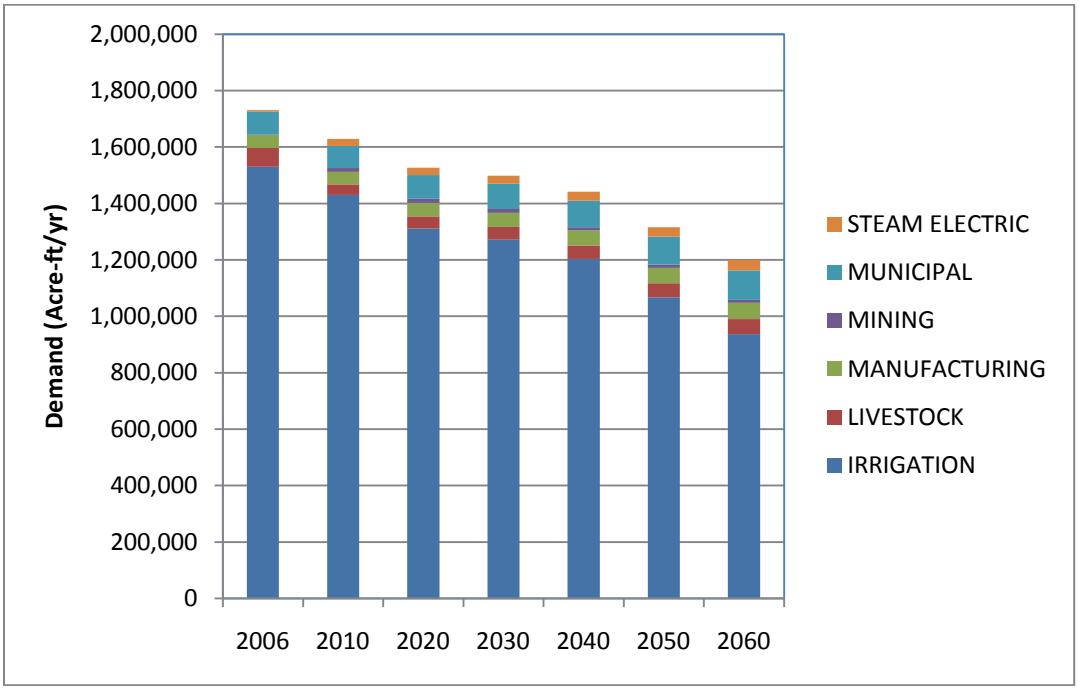


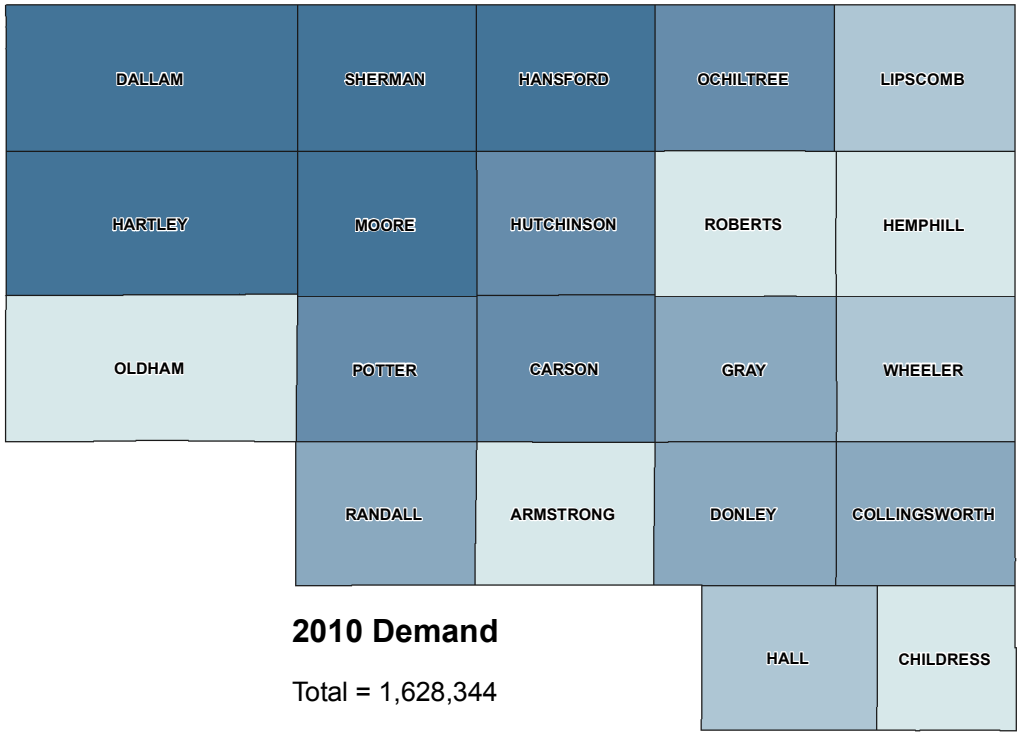
FIGURE 2-1

2.2 Historical Water Use and Projected Water Demand

Water use in the PWPA during 2006 totaled over 1.7 million acre-feet, or approximately 13 percent of the state total. Three counties in the PWPA, Dallam, Hartley and Sherman, reported water use of over 200,000 acre-feet with a combined water use of more than 0.8 million acre-feet in 2006. Water use by these three counties represents approximately 52 percent of the total water use in the PWPA during 2006. Water use of the remaining 18 counties totaled nearly 840,000 acre-feet and ranged from 8,037 acre-feet in Armstrong County to 165,841 acre-feet in Moore County. Projections for water demand indicate that total water usage in the PWPA will decrease from 1,628,344 acre-feet in 2010 to 1,199,644 acre-feet in 2060. (Figure 2-2). Most of the water use will continue to be used in the three, above noted, counties. Figure 2-3 shows the distribution of total water demands by county.

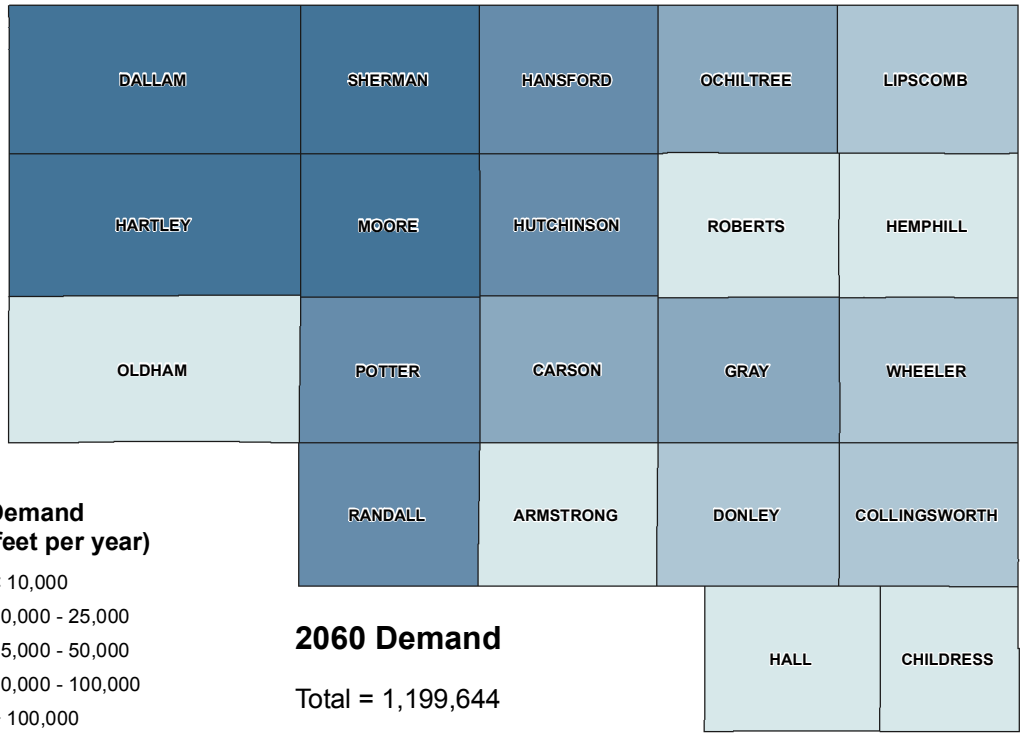
Figure 2-2: Total Water Use for PWPA 2006-2060





2010 Demand

Total = 1,628,344



2060 Demand

Total = 1,199,644

Total Demand (Acre-feet per year)

- < 10,000
- 10,000 - 25,000
- 25,000 - 50,000
- 50,000 - 100,000
- > 100,000

0 10 20 40 Miles

DATE: JANUARY 2010

SCALE: 1:2,534,400

DATUM & COORDINATE SYSTEM: GCS NORTH AMERICAN 1983

PREPARED BY: DLB

FILE: PPC07480 H:\WR_PLANNING\WORKING\2009\R12_Figures\Chapter2\Figure2_3.mxd

N W E S

PANHANDLE WATER PLANNING AREA

PROJECTED TOTAL PWPA WATER DEMAND BY COUNTY

Location Map

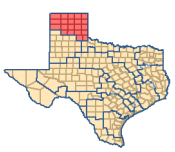
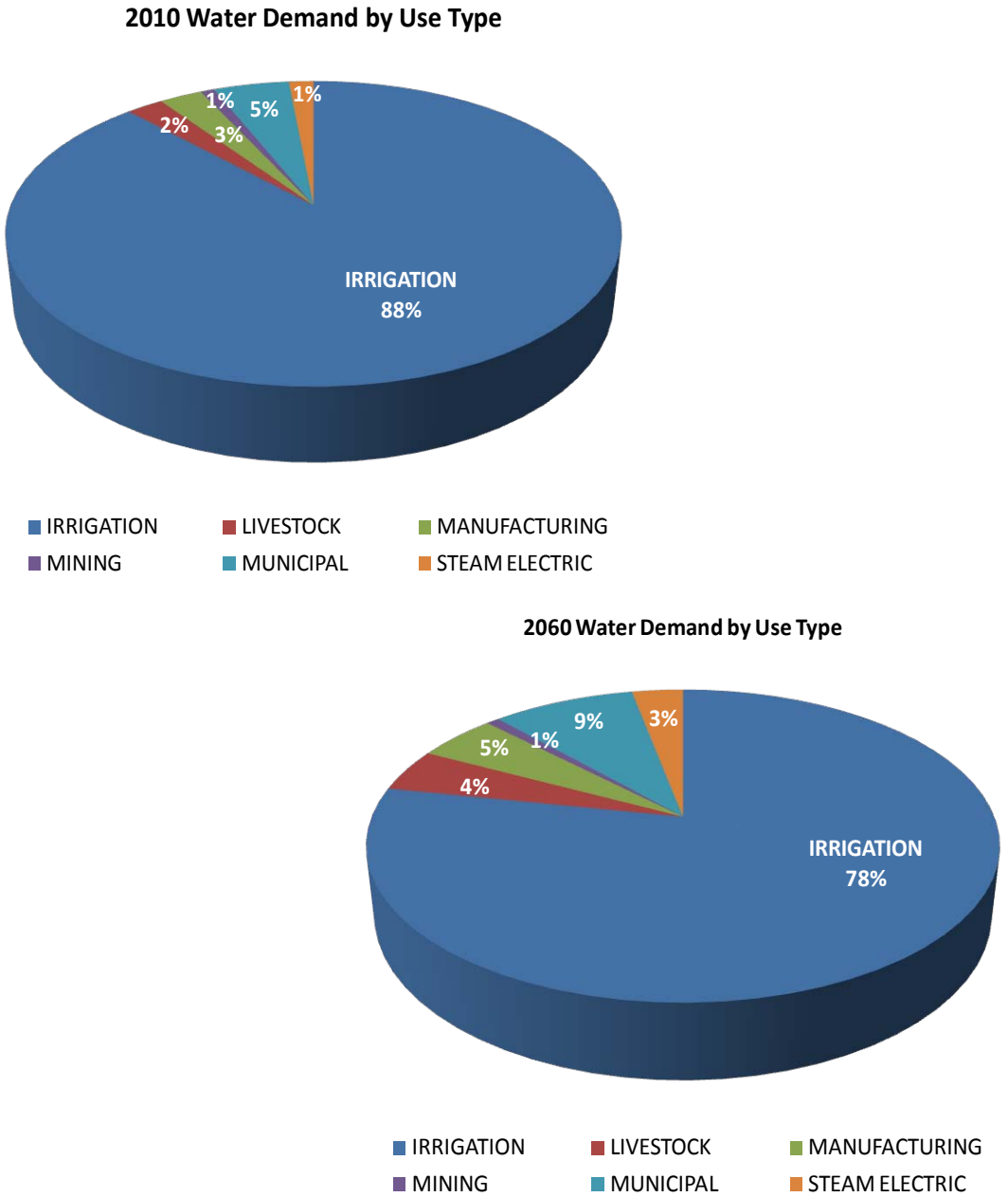


FIGURE 2-3

The largest water use in the PWPA is for agricultural purposes, followed by municipal water use. Figure 2-4 shows the distribution of water demand by use type. Tables at the end of this chapter contain detailed information on projected water use by municipal, agricultural, steam-electric, and industrial water users.

Figure 2-4 Water Demand by Use Type

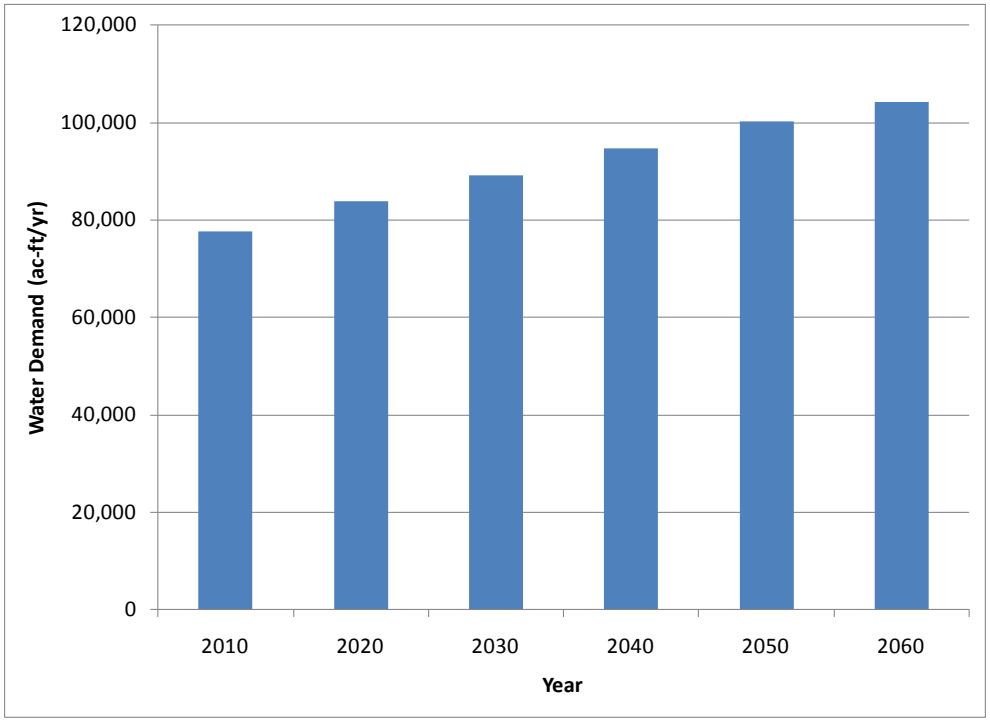


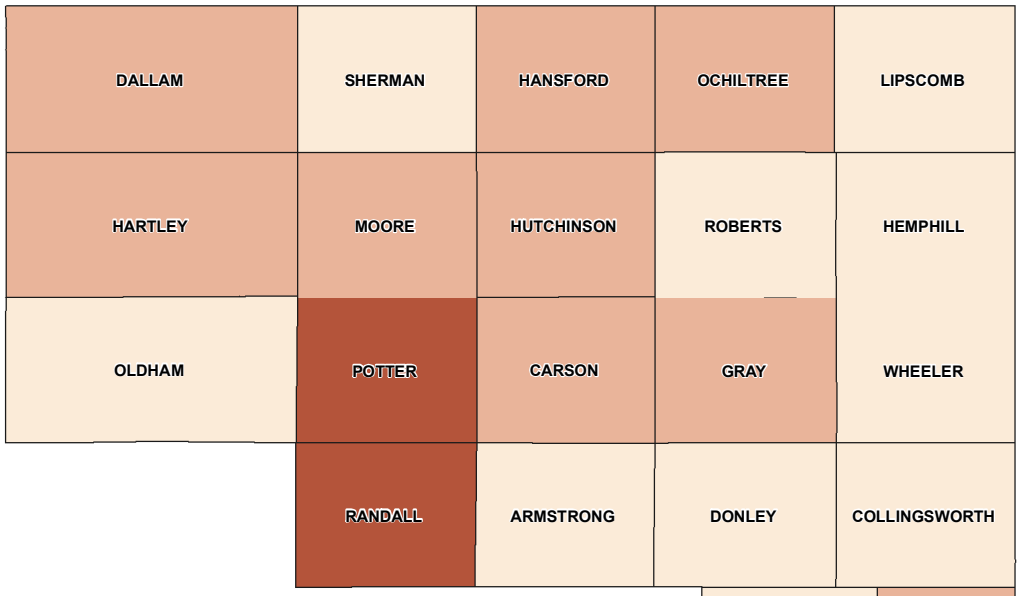
2.2.1 Municipal Water Demands

The distribution of municipal water use in the PWPA corresponds closely to the distribution of population centers in the PWPA. Projections of municipal water demands are calculated based on estimated changes in populations for cities and rural areas and on estimates of daily per capita water use. Through implementation of the Plumbing Code Fixture Act, per capita water use is estimated to decrease for each decade of the planning period under the assumption that conservation measures will be implemented and result in lower water use. These conservation savings will be further explored and discussed in the subsequent chapter highlighting conservation efforts in the region.

Municipal water use in the PWPA accounts for approximately 5 percent of total water use in the PWPA in 2010. With the projected population growth, the municipal water demand for the PWPA is projected to increase from 77,605 acre-feet in 2010 to 104,242 acre-feet in 2060. This is approximately a 34 percent increase in water demand. Potter and Randall Counties represent most of the municipal water use increase over the planning period. In these counties the populations and municipal water demands in the County-Other municipal water user group are growing at nearly twice the rate of the population within the city of Amarillo. Since most of these users are not supplied by municipal water supply systems but domestic wells, water user shortages in these areas are occurring now and need to be carefully considered. Figure 2-5 shows the increasing trend in projected municipal water demand for users in the PWPA through 2060. Figure 2-6 shows the municipal use by county.

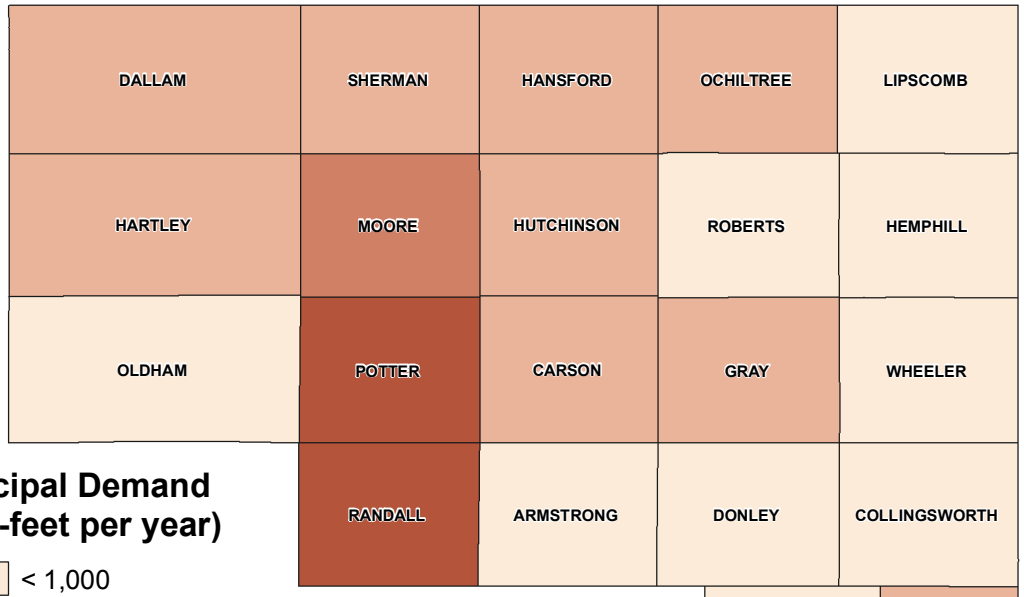
Figure 2-5: Projected Municipal Water Demand for Counties in the PWPA





2010 Demand

Total = 77,605



Municipal Demand (Acre-feet per year)

- < 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- > 10,000

2060 Demand

Total = 104,242

0 10 20 40 Miles

DATE: JANUARY 2010

SCALE: 1:2,534,400

DATUM & COORDINATE SYSTEM: GCS NORTH AMERICAN 1983

PREPARED BY: DLB

FILE: PPC07480 H:\WR_PLANNING\WORKING\2009\R12_Figures\Chapter2\Figure2_6.mxd

N W E S

PANHANDLE WATER PLANNING AREA

PROJECTED MUNICIPAL PWPA WATER DEMAND BY COUNTY

Location Map

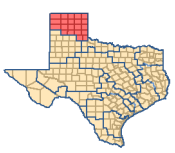


FIGURE 2-6

2.2.2 Industrial Water Demands

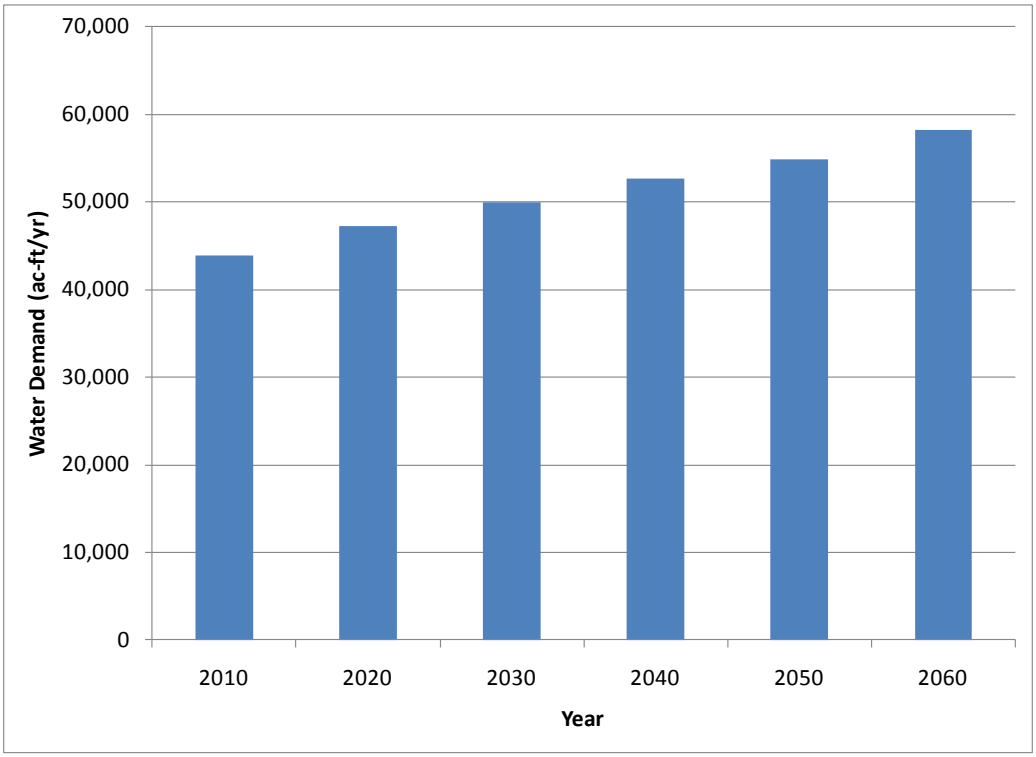
The TWDB defines industrial water use as water required in the production process of manufactured products, including water used by employees for drinking and sanitation purposes. The industrial use category includes manufacturing, steam power generation, and mining. Each of these categories is discussed below. Figure 2-7 shows the total industrial water demand in the PWPA by county for years 2010 and 2060.

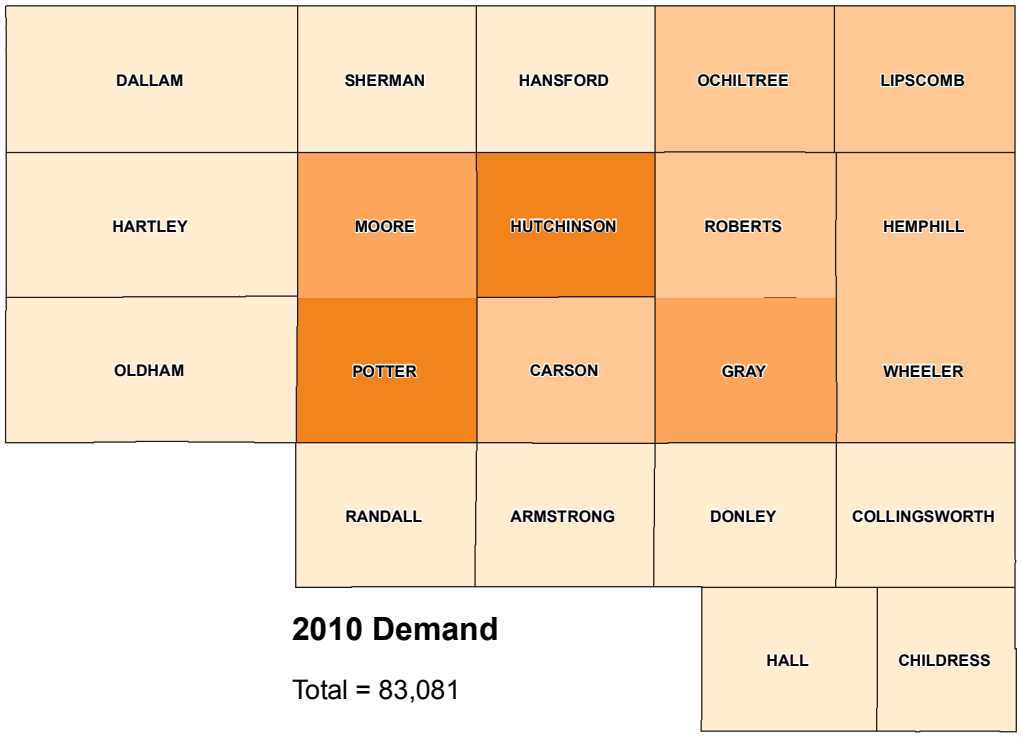
2.2.2.1 Manufacturing

Most of the manufacturing industries in the PWPA are associated with agribusiness or energy production (oil and gas). There are ten counties in the region with Manufacturing water use. The larger users are located in Hutchinson, Moore and Potter Counties.

Figure 2-8 shows the total projected water demand of manufacturing users in the PWPA through 2060. Total manufacturing water demand for the PWPA is projected to increase from 43,930 acre-feet in 2010 to 58,231 acre-feet by 2060. Manufacturing water use represents 3 to 5 percent of the total water use in the PWPA over the planning period.

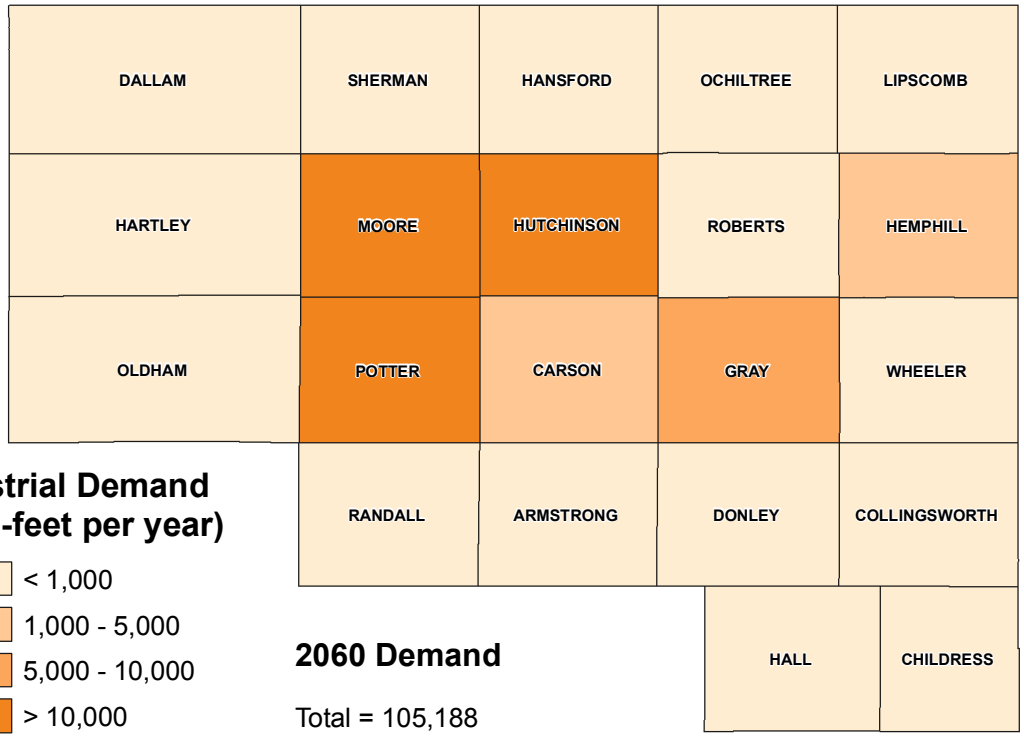
Figure 2-8: Projected Manufacturing Water Use for Counties in the PWPA





2010 Demand

Total = 83,081



Industrial Demand (Acre-feet per year)

- < 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- > 10,000

2060 Demand

Total = 105,188

0 10 20 40 Miles

DATE: JANUARY 2010

SCALE: 1:2,534,400

DATUM & COORDINATE SYSTEM: GCS NORTH AMERICAN 1983

PREPARED BY: DLB

FILE: PPC07480 H:\WR_PLANNING\WORKING\2009\R12_Figures\Chapter2\Figure2_7.mxd

N W E S

PANHANDLE WATER PLANNING AREA

PROJECTED INDUSTRIAL PWPA WATER DEMAND BY COUNTY

Location Map

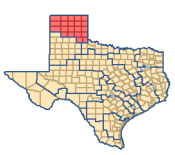


FIGURE 2-7

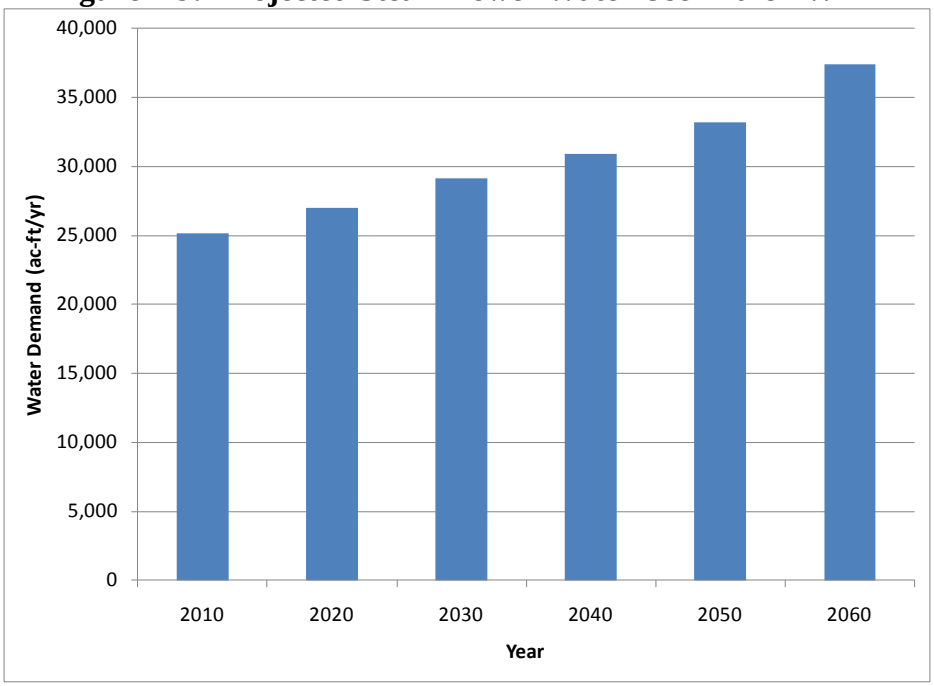
2.2.2.2 Steam Electric Power

Xcel Energy has power generation plants located in Moore and Potter counties that account for nearly all of the current water use by power generators in the PWPA. In conjunction with regional water planning efforts, Xcel performed a detailed analysis of steam electric generation and water use for their facilities in the PWPA. This analysis was the basis for the steam electric demands developed for the 2006 regional water plan. An updated analysis showed a slight reduction in projected water use by Xcel Energy. The reduced water use is partly attributed to water conservation measures that have been implemented and projected new generation from wind energy rather than gas turbines or combined cycle plants. However, these differences were not large enough to recommend revising the 2006 projections.

In addition to the Xcel Energy facilities there is a proposed new coal plant in Gray County that is planned to support wind generation in the Panhandle. Water demands for this facility were developed by the Bureau of Economic Geology (BEG) as part of a study contracted by the TWDB[2]. These demands are included in this planning update.

Considering existing and proposed facilities, water demand for power generation in the PWPA is projected to increase from 25,139 acre-feet in 2010 to 37,415 acre-feet by 2060. This represents between 1 to 3 percent of the total water use in the PWPA over the planning period. Figure 2-9 illustrates the projected water demands of steam power generators in the PWPA.

Figure 2-9: Projected Steam Power Water Use in the PWPA



[2] Bureau of Economic Geology, *Water Demand Projections for Power Generation in Texas*, prepared for the Texas Water Development Board, August 2008.

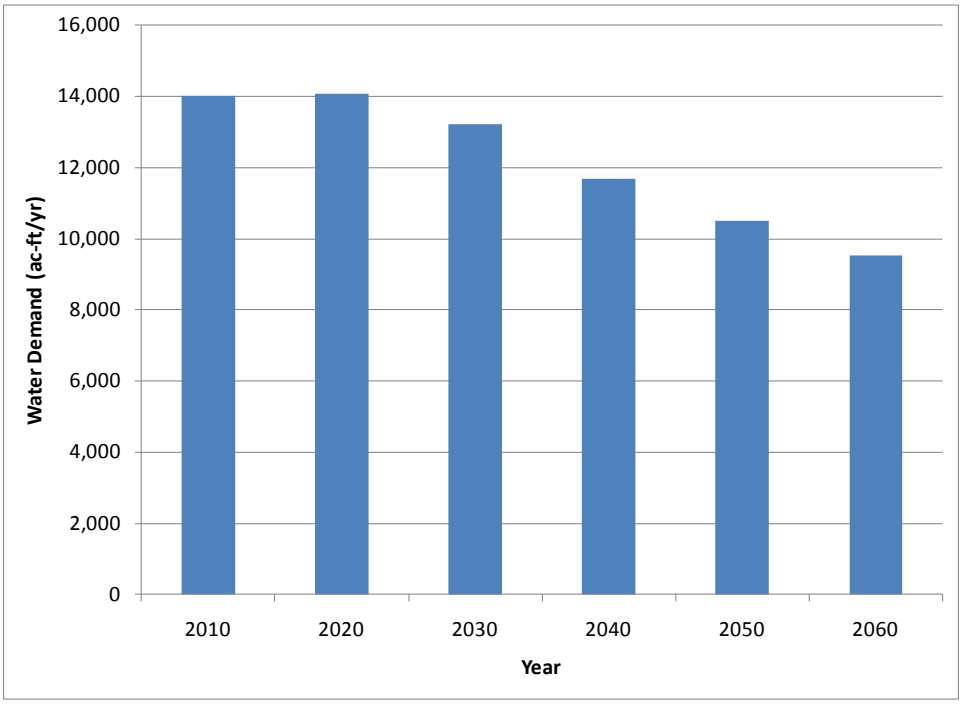
2.2.2.3 Mining

Mining activities in the PWPA consist primarily of oil and gas extraction and removal of industrial minerals such as sand, gravel, and gypsum. Technological advancements in natural gas development have increased mining activities in the Woodford Shale Formation in the Panhandle Region. This has resulted in increased mining water use in several northeastern counties in the region. These activities are expected to continue over the next 10 to 20 years, and then decrease over time. Water use for other oil and gas activities has seen recent fluctuation with the volatility of the energy market. In response to these changes, the TWDB is sponsoring a study of long-term mining use associated with the oil and gas industry across the State. This study will be available for use in the 2016 regional water plan.

For this plan update, mining water use was reviewed and updated to reflect the increased oil and gas activities in five counties: Hemphill, Lipscomb, Ochiltree, Roberts and Wheeler. The mining water demand in Moore County was reduced to reflect current mining use in the county.

Mining water use is projected for 18 counties in the PWPA, totaling 14,012 acre-feet in 2010 and reducing to 9,542 acre-feet by 2060. Mining water use represents a small fraction of the total water use in the region (less than 1 percent). 2-10 shows the projected water demands for mining in the PWPA.

Figure 2-10 Projected Mining Water Use in the PWPA



2.2.3 Agricultural Water Demands

Agricultural water demands include water used for irrigation purposes and water for livestock production. It does not include water for processing agricultural or livestock products. This demand is included under manufacturing.

Agricultural water use accounts for nearly 90 percent of the total water demand in the PWPA. Figure 2-11 shows the agricultural water use by county in the region. The largest agricultural water users are in Dallam, Hartley, Moore and Sherman Counties.

2.2.3.1 Irrigation Water Demands

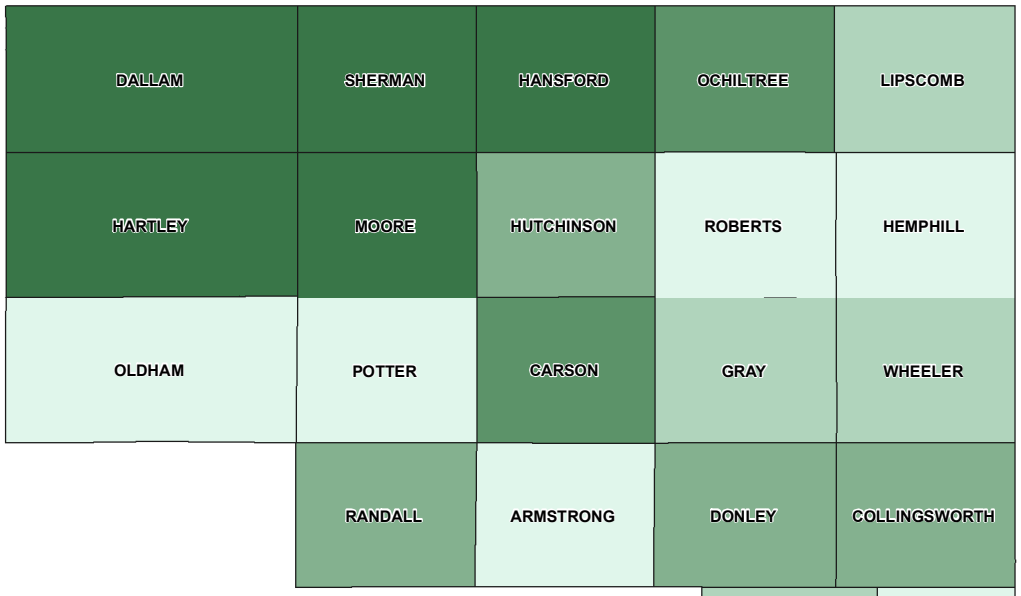
Irrigation water use accounts for the majority of the water used in the PWPA. Accurate estimates of current and projected water use can be difficult because historically most irrigation water is not metered. The methodology used to estimate irrigation water use is based on the number of irrigated acres, water use by crop type, effective rainfall received during the growing season, and seasonal usable soil moisture from the soil profile. Projections of annual future water use are made using planted irrigated acreage (pia) and the long-term averages for rainfall and potential evapotranspiration (PET) by county.

Changes to the crop mix and acreages can have a significant impact to projected irrigation water use. As part of the scope of work for the update to the Panhandle Regional Water Plan, facility at the Texas AgriLife Research and Extension Center in Amarillo (Texas AgriLife) conducted a review and update to the agricultural demands in the PWPA. The report is provided in Appendix C.

The updated study shows a reduction in agricultural demands across the region from the 2006 water plan, including both irrigation and livestock water demands. Much of the reduced irrigation water demands are due to fewer irrigated acres, of which most is associated with wheat. This difference may be in part due to an error in the irrigated acreages for wheat that was used for the 2006 regional water plan. Several counties also showed shifts in crop type, with significant acreage shifts in the counties of Hutchison, Moore, Ochiltree, Roberts and Sherman.

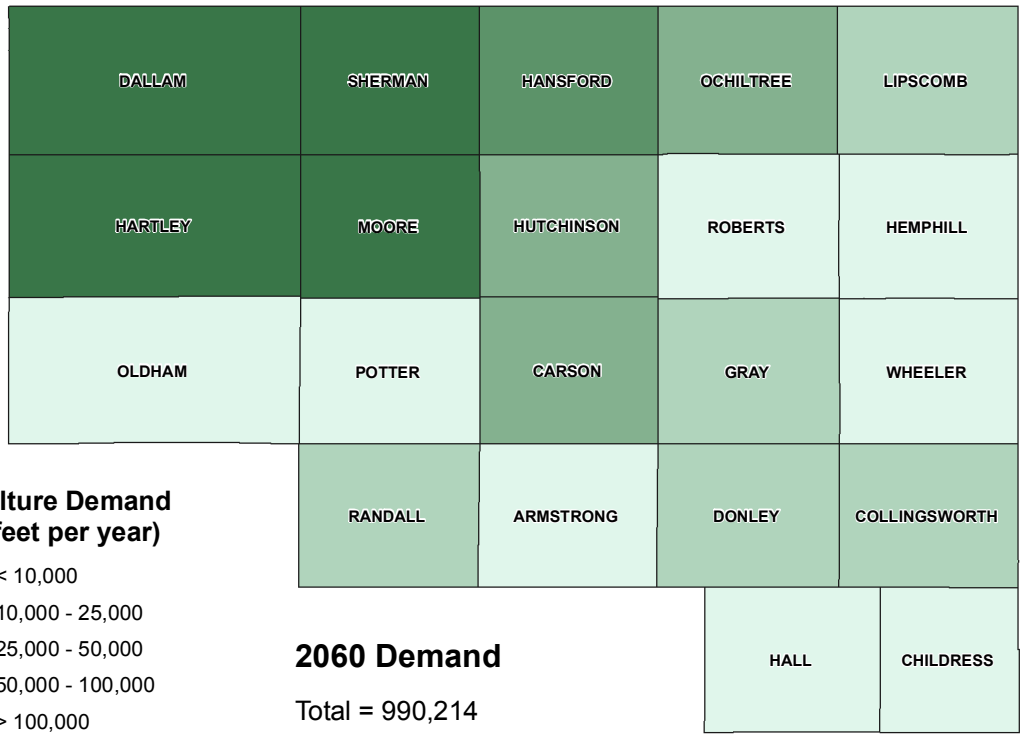
Considering the current irrigated acreages by crop type, irrigation equipment, energy prices for irrigation wells, and the shifts in crop demands, the irrigation water demands for 2010 in the PWPA are projected to be 1.43 million acre-feet per year. This is a reduction of about 222,000 acre-feet per year from the 2006 regional water plan. As with the 2006 plan, irrigated water needs are projected to decline over time due to increases in conservation and conversion of acreages to other uses. By 2060, the updated irrigation water demands are projected to be 937,000 acre-feet per year.

The results of the evaluation and modeling efforts represent water use based on best available current data. The irrigation water use projections should be verified during the next round of planning as more metered water data become available and to reflect changes in the farming community due to new technologies, economic considerations, or crop acreages. Figure 2-12 show the total projected irrigation water demand in the PWPA.



2010 Demand

Total = 1,467,658



2060 Demand

Total = 990,214

Agriculture Demand (Acre-feet per year)

- < 10,000
- 10,000 - 25,000
- 25,000 - 50,000
- 50,000 - 100,000
- > 100,000

0 10 20 40 Miles

DATE: JANUARY 2010

SCALE: 1:2,534,400

DATUM & COORDINATE SYSTEM: GCS NORTH AMERICAN 1983

PREPARED BY: DLB

FILE: PPC07480 H:\WR_PLANNING\WORKING\2009\0512_Figures\Chapter2\Figure2_11.mxd

N W E S

PANHANDLE WATER PLANNING AREA

PROJECTED AGRICULTURE PWPA WATER DEMAND BY COUNTY

Location Map

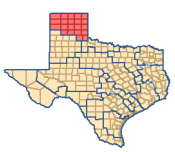
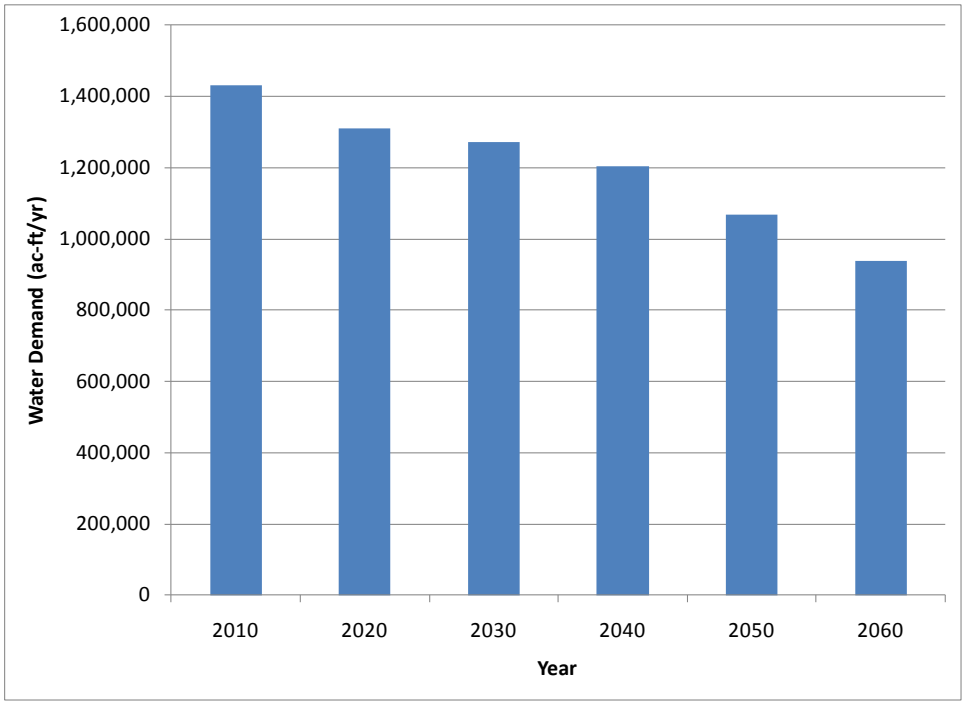


FIGURE 2-11

Figure 2-12: Projected Water Use for Irrigation in the PWPA



2.2.3.2 Livestock Water Demands

Livestock water use is part of the total agricultural demand in the PWPA. While comprising only about 2 percent of the region's current water use, livestock production is an important component of the overall economy of the PWPA. Changes to types of livestock production impact not only this demand sector but also associated agribusinesses. Due to recent trends in future livestock production, the demands for livestock water use were reviewed and updated by Texas AgriLife. The report is included in Appendix C.

New projections developed by Texas AgriLife included the most recent inventories of various livestock species for each county, estimates of annual industry growth rates, and updated regional species-level water use estimates. Future trends were developed with input from three advisory committees consisting of industry experts and local stakeholders.

Inventories of current livestock production, along with estimates of water use by species, result in an estimated livestock use of 37,668 acre-feet in 2010 and increasing to 53,285 acre-feet per year by 2060. The updated livestock water use estimates are significantly less (70%) than projected in the 2006 regional water plan. This is mainly due to reductions in the previous swine projections and changes in water use by species. The largest livestock water use group is the fed cattle industry with an annual usage of about 26,000 acre-feet per year by 2060. The forecasted expansion of the dairy industry results in a water usage estimate by 2060 of just over 10,000 acre-feet per year. These two user groups account for 68 percent of projected livestock water use in 2060. The swine industry is the third largest water user

group with a projected annual water use of nearly 6,000 acre-feet per year in 2060. Overall, water use in the PWPA livestock sector is predicted to increase 40 percent from 2000 to 2060.

Figure 2-13 shows the projected livestock demand in the PWPA. Figure 2-14 illustrates the water demand by major livestock category for the planning period. Detailed livestock population and water demand data is contained in the Texas AgriLife report in Appendix C.

Figure 2-13: Projected Livestock Water Demands for PWPA

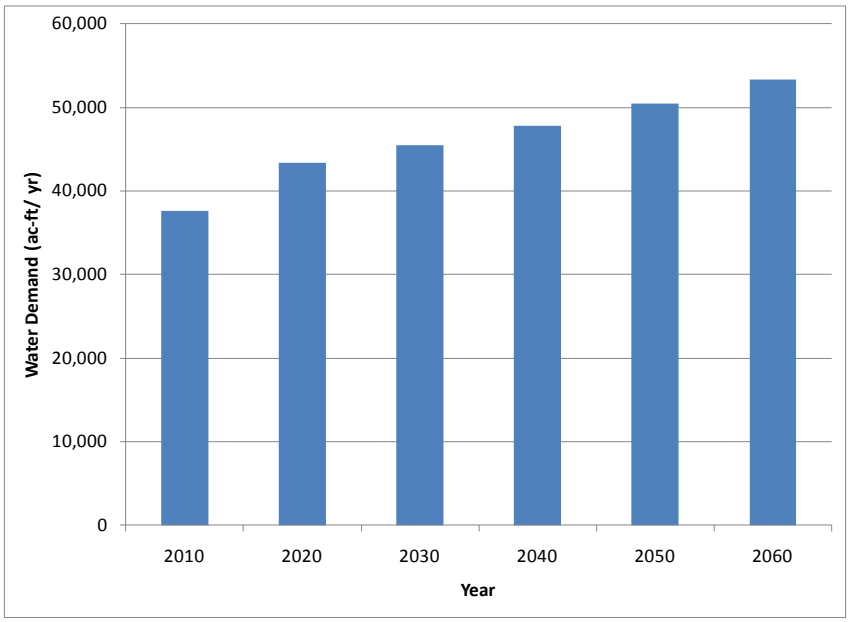
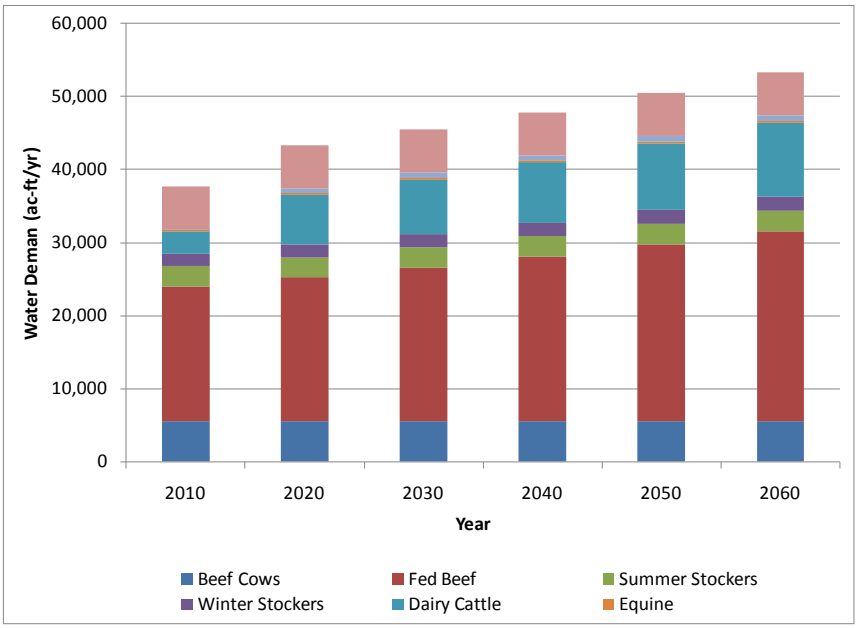


Figure 2-14: Projected Livestock Water Demands by Animal Category



2.2.3.3 Uncertainty in Agricultural Demand Projections

The methodology used to develop the agricultural water demands is based on estimates of current production and expected trends in the agricultural sectors. These trends are contingent upon many factors, including changing market conditions, government subsidies, and availability of resources. In just the last five years, the region has seen a significant shift from the expansion of the hog industry to the dairy industry. This not only affects the water use by that industry, but has significant impacts on the crop mix in the PWPA to support this shift. Commodity and fuel prices also play important roles in agricultural water demands. These economic factors are often the driving force in the types of crops planted, irrigated acreage and ultimately the amount of water needed. These trends can result in both location and quantity changes to demands on the region's water sources and will need to be monitored and updated for subsequent planning efforts.

With the changing economic and political climate, governmental programs are also changing. The 2008 Farm Bill reduced the maximum number of acres that could be enrolled in the Conservation Reserve Program (this program pays landowners to take acreage out of agricultural production). As a result, over 1.2 million acres of farmland in the High Plains could potentially be coming out of the Conservation Reserve Program by October 2010. Not all of this acreage is located in the PWPA and some of the acreage will not be put back into production, but the potential exists to impact future agricultural water demands. Additional study will be needed for or prior to the 2016 regional water plan to assess the potential impacts of this additional acreage on water demands in the PWPA.

2.3 Wholesale Water Providers

The category of Wholesale Water Provider (WWP) was created to include major providers of water for municipal and industrial use in the regional planning process. The PWPG has designated seven WWPs in the region. These include the Canadian River Municipal Water Authority (CRMWA), cities of Amarillo, Borger, and Cactus, Mesa Water, Inc., Greenbelt Municipal and Industrial Water Authority (Greenbelt M&IWA) and Palo Duro River Authority (PDRA). Descriptions of each of these wholesale water providers are provided in Section 1.4 of this plan.

Of the seven wholesale water providers, Mesa Water Inc. and PDRA are not currently providing water to customers but each of these entities expect to provide wholesale water during the planning period. CRMWA and Greenbelt M&IWA provide water to customers in the PWPA and adjoining regions. CRMWA provides water to customer cities in the Llano Estacado Water Planning Region (Region O) and Greenbelt M&IWA provides water to customers in Region B.

Table 2-2 shows the total sales for each wholesale water provider that provided water in 2006 and 2007.

Table 2-2 Historical Sales for Wholesale Water Providers
(Values are in Acre-feet per year)

	2006 Total Water Sales	2007 Total Water Sales
City of Amarillo[1]	66,905	57,258
Greenbelt M & IWA	4,424	3,865
CRMWA	81,962	71,106
City of Borger	7,896	9,510
City of Cactus	2,417	3,317

1. Sales from Amarillo include sales of reuse water to Xcel Energy.

2.3.1 City of Amarillo

In 2010, the City of Amarillo is projected to provide 70,456 acre-feet of water for municipal use by the City of Amarillo, the City of Canyon, Texas Parks and Wildlife Department (Palo Duro State Park), and industrial use by ASARCO, IBP, Inc., and Xcel Energy. Most of the water from Amarillo to Xcel Energy in 2010 is treated wastewater, and after 2010 all of Xcel Energy's demands will be supplied through reuse. By 2060, Amarillo is expected to provide approximately 102,849 acre-feet per year to existing customers. Most of the increase in projected demand on Amarillo is associated with growth of the city and local manufacturing needs. As the surrounding County-Other in Potter and Randall Counties continue to grow, additional demands may be placed on Amarillo.

Table 2-3 Projected Water Demands for the City of Amarillo

	Demands (AF/Y)					
Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
City of Amarillo	42,329	45,817	49,079	52,794	56,848	60,188
Manufacturing - Potter County	6,516	7,169	7,721	8,260	8,726	9,367
City of Canyon	1,000	1,000	1,000	1,000	1,000	1,000
Manufacturing - Randall County	300	300	300	300	300	300
Palo Duro State Park	25	25	25	25	25	25
Steam Electric Power	20,286	23,241	24,658	26,262	27,865	31,969
Total Demand	**70,456**	**77,552**	**82,783**	**88,641**	**94,764**	**102,849**

2.3.2 Greenbelt Municipal and Industrial Water Authority (Greenbelt M&IWA)

Greenbelt M&IWA provides water to four cities in the PWPA, three cities in Region B, and to the Red River Authority (RRA) for subsequent sales in both regions. Approximately 60 percent of the current demand on Greenbelt M&IWA is to the cities of Childress, Clarendon, Hedley, and Memphis, and to the RRA for sales in the PWPA. The remaining sales are to the cities of Chillicothe, Crowell, and Quanah, and to the RRA in Region B. Demand projections for Greenbelt M&IWA were developed based on each recipient's projected water demand and the percentage of the historical water demands that the Greenbelt M&IWA had supplied. The demand on Greenbelt M&IWA is expected to remain about the same through the planning period.

Table 2-4 Projected Water Demands for Greenbelt M&IWA

	Demands (AF/Y)					
Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
City of Childress	1,457	1,481	1,502	1,509	1,510	1,471
City of Chillicothe	61	55	53	51	50	49
City of Clarendon	440	440	440	440	440	440
City of Crowell	332	317	302	289	280	269
City of Memphis	100	100	100	100	100	100
Childress County-Other	196	199	202	203	203	198
Donley County-Other	219	210	191	171	154	128
Foard County-Other	68	68	68	68	68	68
Hall County-Other	353	379	395	382	387	363
Hardeman County-Other	210	210	210	210	210	210
Hardeman County Manufacturing	449	478	509	542	576	576
City of Quanah	652	612	589	544	511	463
Wilbarger County-Other	6	6	6	6	6	6
Total	**4,543**	**4,554**	**4,567**	**4,515**	**4,495**	**4,341**

2.3.3 Canadian River Municipal Water Authority (CRMWA)

CRMWA is the largest wholesale water provider in the PWPA. In 2006 CRMWA supplied nearly 82,000 acre-feet of water to customers in the PWPA and Region O. CRMWA delivers water to Amarillo, Borger, and Pampa in the PWPA and to eight cities in Region O, including Lubbock. Projected water demands on CRMWA through the planning period are anticipated to hold steady at approximately 100,000 acre-feet per year.

Table 2-5 Projected Water Demands for CRMWA

	Demands (AF/Y)					
Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
PWPA:						
City of Pampa	3,300	3,273	3,182	3,058	2,871	2,689
City of Borger	4,000	5,510	5,510	5,510	5,510	5,510
City of Amarillo	42,987	42,987	42,987	42,987	42,987	42,987
Region O:						
City of Lamesa	2,528	2,528	2,528	2,528	2,328	2,328
City of O'Donnell	322	322	322	322	292	292
City of Plainview	4,281	4,281	4,281	4,281	3,881	3,881
City of Levelland	3,236	3,236	3,236	3,236	2,808	2,808
City of Lubbock	32,000	34,000	34,000	34,000	32,000	32,000
City of Slaton	1,369	1,369	1,369	1,369	1,369	1,369
City of Tahoka	534	534	534	534	460	460
City of Brownfield	2,549	2,549	2,549	2,549	2,549	2,549
Total	**97,106**	**100,589**	**100,498**	**100,374**	**97,055**	**96,873**

2.3.4 City of Borger

The City of Borger provides wholesale water to industrial customers in Hutchinson and Carson Counties and retail services to its city customers and Hutchinson County-Other. Currently, the industrial demands on Borger total about 6 MGD, which accounts for about 25 percent of the manufacturing demand in Hutchinson County (assuming a peaking factor of 1.25). It is expected that Borger will continue to provide water for 25 percent of the projected manufacturing demands. The City also provides water to a carbon plant in Carson County. Borger has a contract to supply water to TCW Supply. This contract is met through a complex agreement of trading water supplies with several of its industrial customers such that the net demand on the City of Borger is zero.

Table 2-6 Projected Water Demands for the City of Borger

	Demands (AF/Y)					
Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Borger	2,352	2,384	2,351	2,274	2,148	2,039
Manufacturing - Hutchinson Co.	5,910	6,370	6,740	7,100	7,410	7,930
Manufacturing Carson Co.	450	450	450	450	450	450
Hutchinson County-Other	56	57	57	55	52	49
TCW Supply	0	0	0	0	0	0
Total Demand	**8,768**	**9,261**	**9,598**	**9,879**	**10,060**	**10,468**

2.3.5 City of Cactus

The City of Cactus provides wholesale water to manufacturers in Moore County and retail water to its municipal customers. The City has a contract for 3.2 MGD with a meat packing plant in Moore County and also provides water to the Etter Community outside the city limits. In 2007 the City supplied over 750 acre-feet of water for municipal purposes.

Table 2-7 Projected Water Demands for the City of Cactus

	Demands (AF/Y)					
Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
City of Cactus	533	615	615	615	615	615
Moore County-Other	70	96	126	151	165	174
Moore County Manufacturing	2,758	2,958	3,120	3,280	3,421	3,587
Total Demand	**3,361**	**3,669**	**3,861**	**4,046**	**4,201**	**4,376**

ATTACHMENT 2-1

TWDB Population and Demand Projections

Texas Water Development Board
2011 Regional Water Plan Population Projections for 2000 - 2060
Region A Panhandle

WATER USER GROUP	COUNTY NAME	P2000 [1)]	P2010	P2020	P2030	P2040	P2050	P2060
CLAUDE	ARMSTRONG	1,313	1,327	1,369	1,322	1,268	1,255	1,219
COUNTY-OTHER	ARMSTRONG	835	844	871	841	806	798	775
	ARMSTRONG Total	**2,148**	**2,171**	**2,240**	**2,163**	**2,074**	**2,053**	**1,994**
COUNTY-OTHER	CARSON	1,178	1,182	1,195	1,186	1,147	1,043	947
GROOM	CARSON	587	589	595	591	572	520	472
HI TEXAS WATER COMPANY	CARSON	492	494	499	495	479	435	395
PANHANDLE	CARSON	2,589	2,599	2,626	2,605	2,521	2,291	2,081
SKELLYTOWN	CARSON	610	612	619	614	594	540	490
WHITE DEER	CARSON	1,060	1,065	1,076	1,066	1,032	938	852
	CARSON Total	**6,516**	**6,541**	**6,610**	**6,557**	**6,345**	**5,767**	**5,237**
CHILDRESS	CHILDRESS	6,778	6,918	7,033	7,132	7,167	7,170	6,987
COUNTY-OTHER	CHILDRESS	910	929	944	958	962	963	938
	CHILDRESS Total	**7,688**	**7,847**	**7,977**	**8,090**	**8,129**	**8,133**	**7,925**
COUNTY-OTHER	COLLINGSWORTH	931	895	898	842	766	709	613
WELLINGTON	COLLINGSWORTH	2,275	2,239	2,241	2,187	2,114	2,058	1,965
	COLLINGSWORTH Total	**3,206**	**3,134**	**3,139**	**3,029**	**2,880**	**2,767**	**2,578**
COUNTY-OTHER	DALLAM	1,063	1,170	1,262	1,320	1,334	1,306	1,245
DALHART	DALLAM	4,648	5,118	5,518	5,770	5,833	5,711	5,447
TEXLINE	DALLAM	511	563	607	634	641	628	599
	DALLAM Total	**6,222**	**6,851**	**7,387**	**7,724**	**7,808**	**7,645**	**7,291**
CLARENDON	DONLEY	1,974	1,974	1,974	1,974	1,974	1,974	1,974
COUNTY-OTHER	DONLEY	1,854	1,790	1,720	1,562	1,401	1,264	1,052
	DONLEY Total	**3,828**	**3,764**	**3,694**	**3,536**	**3,375**	**3,238**	**3,026**
COUNTY-OTHER	GRAY	3,468	3,379	3,354	3,259	3,132	2,941	2,755
LEFORS	GRAY	559	545	540	525	505	474	444
MCLEAN	GRAY	830	809	802	780	750	704	659
PAMPA	GRAY	17,887	17,430	17,292	16,807	16,155	15,167	14,206
	GRAY Total	**22,744**	**22,163**	**21,988**	**21,371**	**20,542**	**19,286**	**18,064**
COUNTY-OTHER	HALL	1,303	1,267	1,358	1,416	1,368	1,388	1,303
MEMPHIS	HALL	2,479	2,483	2,474	2,468	2,473	2,471	2,480
	HALL Total	**3,782**	**3,750**	**3,832**	**3,884**	**3,841**	**3,859**	**3,783**
COUNTY-OTHER	HANSFORD	1,186	1,388	1,663	1,898	2,152	2,301	2,433
GRUVER	HANSFORD	1,162	1,169	1,178	1,186	1,195	1,200	1,204
SPEARMAN	HANSFORD	3,021	3,142	3,307	3,448	3,601	3,690	3,769
	HANSFORD Total	**5,369**	**5,699**	**6,148**	**6,532**	**6,948**	**7,191**	**7,406**
COUNTY-OTHER	HARTLEY	2,948	3,033	3,135	3,189	3,208	3,168	3,006
DALHART	HARTLEY	2,589	2,664	2,754	2,800	2,818	2,782	2,640
	HARTLEY Total	**5,537**	**5,697**	**5,889**	**5,989**	**6,026**	**5,950**	**5,646**
CANADIAN	HEMPHILL	2,233	2,330	2,340	2,262	2,178	2,120	2,015
COUNTY-OTHER	HEMPHILL	1,118	1,166	1,171	1,132	1,091	1,061	1,009
	HEMPHILL Total	**3,351**	**3,496**	**3,511**	**3,394**	**3,269**	**3,181**	**3,024**
BORGER	HUTCHINSON	14,302	14,580	14,780	14,574	14,096	13,314	12,641
COUNTY-OTHER	HUTCHINSON	303	308	314	310	299	283	268
FRITCH	HUTCHINSON	2,226	2,269	2,300	2,268	2,194	2,072	1,968

Texas Water Development Board
2011 Regional Water Plan Population Projections for 2000 - 2060
Region A Panhandle

WATER USER GROUP	COUNTY NAME	P2000 [1)]	P2010	P2020	P2030	P2040	P2050	P2060
HI TEXAS WATER COMPANY	HUTCHINSON	3,020	3,079	3,121	3,077	2,976	2,811	2,669
STINNETT	HUTCHINSON	1,936	1,974	2,001	1,973	1,908	1,802	1,711
TCW SUPPLY INC	HUTCHINSON	2,070	2,110	2,139	2,109	2,040	1,927	1,830
	HUTCHINSON Total	**23,857**	**24,320**	**24,655**	**24,311**	**23,513**	**22,209**	**21,087**
BOOKER	LIPSCOMB	1,306	1,318	1,345	1,305	1,267	1,250	1,189
COUNTY-OTHER	LIPSCOMB	1,751	1,766	1,804	1,749	1,699	1,675	1,595
	LIPSCOMB Total	**3,057**	**3,084**	**3,149**	**3,054**	**2,966**	**2,925**	**2,784**
CACTUS	MOORE	2,538	2,600	3,000	3,000	3,000	3,000	3,000
COUNTY-OTHER	MOORE	1,877	3,307	4,534	5,970	7,110	7,805	8,223
DUMAS	MOORE	13,747	14,884	16,123	17,216	18,084	18,613	18,931
FRITCH	MOORE	9	21	34	45	54	59	62
SUNRAY	MOORE	1,950	2,237	2,550	2,826	3,045	3,178	3,258
	MOORE Total	**20,121**	**23,049**	**26,241**	**29,057**	**31,293**	**32,655**	**33,474**
BOOKER	OCHILTREE	9	9	9	9	9	9	9
COUNTY-OTHER	OCHILTREE	1,223	1,223	1,223	1,223	1,223	1,223	1,223
PERRYTON	OCHILTREE	7,774	8,453	9,208	9,769	10,148	10,334	10,571
	OCHILTREE Total	**9,006**	**9,685**	**10,440**	**11,001**	**11,380**	**11,566**	**11,803**
COUNTY-OTHER	OLDHAM	1,249	1,327	1,356	1,260	1,110	965	780
VEGA	OLDHAM	936	995	1,017	944	832	724	584
	OLDHAM Total	**2,185**	**2,322**	**2,373**	**2,204**	**1,942**	**1,689**	**1,364**
AMARILLO	POTTER	99,833	107,316	115,380	122,922	131,510	140,882	148,564
COUNTY-OTHER	POTTER	13,713	20,264	27,323	33,924	41,440	49,644	56,369
	POTTER Total	**113,546**	**127,580**	**142,703**	**156,846**	**172,950**	**190,526**	**204,933**
AMARILLO	RANDALL	73,794	80,688	88,117	95,065	102,976	111,611	118,760
CANYON	RANDALL	12,875	14,227	15,684	17,047	18,599	20,293	21,695
COUNTY-OTHER	RANDALL	16,783	21,446	26,471	31,169	36,520	42,359	47,194
HAPPY	RANDALL	35	66	100	132	168	207	239
LAKE TANGLEWOOD	RANDALL	825	993	1,174	1,344	1,537	1,748	1,923
	RANDALL Total	**104,312**	**117,420**	**131,546**	**144,757**	**159,800**	**176,218**	**189,811**
COUNTY-OTHER	ROBERTS	299	313	322	289	242	210	189
MIAMI	ROBERTS	588	617	633	568	477	412	372
	ROBERTS Total	**887**	**930**	**955**	**857**	**719**	**622**	**561**
COUNTY-OTHER	SHERMAN	1,195	1,297	1,405	1,447	1,490	1,528	1,547
STRATFORD	SHERMAN	1,991	2,172	2,365	2,439	2,515	2,582	2,617
	SHERMAN Total	**3,186**	**3,469**	**3,770**	**3,886**	**4,005**	**4,110**	**4,164**
COUNTY-OTHER	WHEELER	1,877	1,795	1,796	1,785	1,805	1,799	1,766
SHAMROCK	WHEELER	2,029	1,963	1,963	1,954	1,970	1,966	1,941
WHEELER	WHEELER	1,378	1,374	1,374	1,373	1,374	1,374	1,373
	WHEELER Total	**5,284**	**5,132**	**5,133**	**5,112**	**5,149**	**5,139**	**5,080**
	Region A Total	**355,832**	**388,104**	**423,380**	**453,354**	**484,954**	**516,729**	**541,035**

2011 Regional Water Plan
Municipal Water Demand Projections for 2010 - 2060 in acft
Region A

WATER USER GROUP	COUNTY NAME	D2010	D2020	D2030	D2040	D2050	D2060
CLAUDE	ARMSTRONG	262	270	261	250	247	240
COUNTY-OTHER	ARMSTRONG	109	112	108	104	103	100
	ARMSTRONG Total	**371**	**382**	**369**	**354**	**350**	**340**
COUNTY-OTHER	CARSON	256	259	258	249	227	206
GROOM	CARSON	142	143	142	138	125	114
HI TEXAS WATER COMPANY	CARSON	55	55	55	53	48	44
PANHANDLE	CARSON	574	579	575	556	506	459
SKELLYTOWN	CARSON	106	107	106	102	93	85
WHITE DEER	CARSON	164	165	164	159	144	130
	CARSON Total	**1,297**	**1,308**	**1,300**	**1,257**	**1,143**	**1,038**
CHILDRESS	CHILDRESS	1,457	1,481	1,502	1,509	1,510	1,471
COUNTY-OTHER	CHILDRESS	196	199	202	203	203	198
	CHILDRESS Total	**1,653**	**1,680**	**1,704**	**1,712**	**1,713**	**1,669**
COUNTY-OTHER	COLLINGSWORTH	234	234	220	200	185	160
WELLINGTON	COLLINGSWORTH	456	457	446	431	420	401
	COLLINGSWORTH Total	**690**	**691**	**666**	**631**	**605**	**561**
COUNTY-OTHER	DALLAM	181	195	204	206	202	192
DALHART	DALLAM	1,319	1,422	1,487	1,503	1,471	1,403
TEXLINE	DALLAM	211	227	237	240	235	224
	DALLAM Total	**1,711**	**1,844**	**1,928**	**1,949**	**1,908**	**1,819**
CLARENDON	DONLEY	440	440	440	440	440	440
COUNTY-OTHER	DONLEY	219	210	191	171	154	128
	DONLEY Total	**659**	**650**	**631**	**611**	**594**	**568**
COUNTY-OTHER	GRAY	511	507	493	473	444	417
LEFORS	GRAY	86	85	83	80	75	70
MCLEAN	GRAY	185	183	178	171	161	151
PAMPA	GRAY	3,300	3,273	3,182	3,058	2,871	2,689
	GRAY Total	**4,082**	**4,048**	**3,936**	**3,782**	**3,551**	**3,327**
COUNTY-OTHER	HALL	353	379	395	382	387	363
MEMPHIS	HALL	442	441	440	440	440	442
	HALL Total	**795**	**820**	**835**	**822**	**827**	**805**
COUNTY-OTHER	HANSFORD	266	319	364	412	441	466
GRUVER	HANSFORD	325	327	329	332	333	334
SPEARMAN	HANSFORD	707	745	776	811	831	849
	HANSFORD Total	**1,298**	**1,391**	**1,469**	**1,555**	**1,605**	**1,649**
COUNTY-OTHER	HARTLEY	523	541	550	553	546	519
DALHART	HARTLEY	686	710	721	726	717	680
	HARTLEY Total	**1,209**	**1,251**	**1,271**	**1,279**	**1,263**	**1,199**
CANADIAN	HEMPHILL	475	477	461	444	432	411
COUNTY-OTHER	HEMPHILL	158	159	153	148	143	137
	HEMPHILL Total	**633**	**636**	**614**	**592**	**575**	**548**
BORGER	HUTCHINSON	2,352	2,384	2,351	2,274	2,148	2,039
COUNTY-OTHER	HUTCHINSON	56	57	57	55	52	49
FRITCH	HUTCHINSON	407	412	406	393	371	353

2011 Regional Water Plan
Municipal Water Demand Projections for 2010 - 2060 in acft
Region A

WATER USER GROUP	COUNTY NAME	D2010	D2020	D2030	D2040	D2050	D2060
HI TEXAS WATER COMPANY	HUTCHINSON	341	346	341	330	312	296
STINNETT	HUTCHINSON	365	370	365	353	333	316
TCW SUPPLY INC	HUTCHINSON	603	611	602	583	550	523
	HUTCHINSON Total	**4,124**	**4,180**	**4,122**	**3,988**	**3,766**	**3,576**
BOOKER	LIPSCOMB	354	362	351	341	336	320
COUNTY-OTHER	LIPSCOMB	394	402	390	379	373	356
	LIPSCOMB Total	**748**	**764**	**741**	**720**	**709**	**676**
CACTUS	MOORE	533	615	615	615	615	615
COUNTY-OTHER	MOORE	700	960	1,264	1,505	1,652	1,741
DUMAS	MOORE	2,734	2,962	3,163	3,322	3,419	3,478
FRITCH	MOORE	4	6	8	10	11	11
SUNRAY	MOORE	534	608	674	727	758	777
	MOORE Total	**4,505**	**5,151**	**5,724**	**6,179**	**6,455**	**6,622**
BOOKER	OCHILTREE	2	2	2	2	2	2
COUNTY-OTHER	OCHILTREE	181	181	181	181	181	181
PERRYTON	OCHILTREE	1,960	2,135	2,265	2,353	2,396	2,451
	OCHILTREE Total	**2,143**	**2,318**	**2,448**	**2,536**	**2,579**	**2,634**
COUNTY-OTHER	OLDHAM	174	178	165	146	126	102
VEGA	OLDHAM	242	247	229	202	176	142
	OLDHAM Total	**416**	**425**	**394**	**348**	**302**	**244**
AMARILLO	POTTER	24,162	25,978	27,675	29,609	31,719	33,449
COUNTY-OTHER	POTTER	1,703	2,295	2,850	3,482	4,171	4,736
	POTTER Total	**25,865**	**28,273**	**30,525**	**33,091**	**35,890**	**38,185**
AMARILLO	RANDALL	18,167	19,839	21,404	23,185	25,129	26,739
CANYON	RANDALL	2,438	2,688	2,922	3,188	3,478	3,718
COUNTY-OTHER	RANDALL	2,715	3,351	3,945	4,623	5,361	5,973
HAPPY	RANDALL	11	17	22	27	33	38
LAKE TANGLEWOOD	RANDALL	160	189	217	248	282	310
	RANDALL Total	**23,491**	**26,084**	**28,510**	**31,271**	**34,283**	**36,778**
COUNTY-OTHER	ROBERTS	44	45	41	34	30	27
MIAMI	ROBERTS	145	149	134	112	97	88
	ROBERTS Total	**189**	**194**	**175**	**146**	**127**	**115**
COUNTY-OTHER	SHERMAN	218	236	243	250	257	260
STRATFORD	SHERMAN	628	683	705	727	746	756
	SHERMAN Total	**846**	**919**	**948**	**977**	**1,003**	**1,016**
COUNTY-OTHER	WHEELER	277	278	276	279	278	273
SHAMROCK	WHEELER	312	312	311	313	313	309
WHEELER	WHEELER	291	291	291	291	291	291
	WHEELER Total	**880**	**881**	**878**	**883**	**882**	**873**
	Region A Total	**77,605**	**83,890**	**89,188**	**94,683**	**100,130**	**104,242**

2011 Regional Water Plan Irrigation Water Demand Projections for 2010 -2060 (in acft[1]) Region A						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
ARMSTRONG	5,118	4,688	4,544	4,305	3,827	3,349
CARSON	58,775	49,230	47,982	45,457	36,368	35,355
CHILDRESS	7,418	5,519	5,350	5,068	4,505	3,942
COLLINGSWORTH	28,693	21,907	21,236	20,118	17,883	15,648
DALLAM	292,031	283,315	274,642	260,187	231,278	202,368
DONLEY	32,000	29,676	28,771	27,257	24,228	21,200
GRAY	22,705	20,410	19,785	18,744	16,661	14,578
HALL	16,719	10,731	10,403	9,855	8,760	7,665
HANSFORD	130,694	115,027	111,506	105,637	93,899	82,162
HARTLEY	294,932	281,648	273,026	258,657	229,917	201,177
HEMPHILL	1,825	1,705	1,653	1,566	1,392	1,218
HUTCHINSON	43,104	39,971	38,748	36,708	32,630	28,551
LIPSCOMB	16,956	15,546	15,070	14,277	12,690	11,104
MOORE	147,471	135,001	130,869	123,981	110,205	96,430
OCHILTREE	60,844	51,839	50,252	47,607	42,317	37,028
OLDHAM	4,235	3,914	3,794	3,594	3,195	2,795
POTTER	6,226	5,697	5,525	5,234	4,652	4,071
RANDALL	22,477	19,900	19,291	18,275	16,245	14,214
ROBERTS	6,084	5,639	5,466	5,179	4,603	4,028
SHERMAN	220,372	200,521	194,437	182,913	163,736	143,269
WHEELER	11,311	9,488	9,198	8,713	7,745	6,777
Region A Total	**1,429,990**	**1,311,372**	**1,271,548**	**1,203,332**	**1,066,736**	**936,929**

2011 Regional Water Plan
Livestock Water Demand Projections for 2010 -2060 (in acft[1])
Region A

	2010	2020	2030	2040	2050	2060
ARMSTRONG	566	670	673	677	681	685
CARSON	607	711	716	720	725	730
CHILDRESS	368	470	472	473	475	477
COLLINGSWORTH	461	564	566	569	571	574
DALLAM	3,509	4,654	4,996	5,373	5,788	6,246
DONLEY	1,267	1,268	1,270	1,271	1,273	1,275
GRAY	1,348	1,451	1,474	1,499	1,527	1,557
HALL	329	330	331	332	334	335
HANSFORD	3,683	3,956	4,256	4,586	4,948	5,346
HARTLEY	5,106	7,103	7,731	8,422	9,184	10,024
HEMPHILL	1,276	1,281	1,285	1,290	1,296	1,301
HUTCHINSON	685	689	698	708	720	732
LIPSCOMB	1,005	1,007	1,028	1,051	1,076	1,104
MOORE	2,831	3,605	3,931	4,290	4,685	5,120
OCHILTREE	3,367	3,463	3,605	3,761	3,932	4,119
OLDHAM	1,154	1,257	1,259	1,262	1,265	1,267
POTTER	502	504	505	507	509	511
RANDALL	2,732	2,741	2,756	2,772	2,789	2,808
ROBERTS	385	385	386	387	388	388
SHERMAN	4,933	5,579	5,889	6,230	6,606	7,019
WHEELER	1,554	1,657	1,660	1,662	1,664	1,667
Region A Total	**37,668**	**43,345**	**45,487**	**47,842**	**50,436**	**53,285**

2011 Regional Water Plan
Manufacturing Water Demand Projections for 2010 -2060 (in acft[1])
Region A

	2010	2020	2030	2040	2050	2060
ARMSTRONG	0	0	0	0	0	0
CARSON	591	669	735	797	849	920
CHILDRESS	0	0	0	0	0	0
COLLINGSWORTH	0	0	0	0	0	0
DALLAM	0	0	0	0	0	0
DONLEY	0	0	0	0	0	0
GRAY	4,264	4,383	4,451	4,497	4,515	4,334
HALL	0	0	0	0	0	0
HANSFORD	49	52	54	56	58	62
HARTLEY	5	5	5	5	5	5
HEMPHILL	1	1	1	1	1	1
HUTCHINSON	23,659	25,482	26,969	28,399	29,640	31,708
LIPSCOMB	89	95	100	104	108	116
MOORE	7,879	8,450	8,914	9,371	9,773	10,436
OCHILTREE	0	0	0	0	0	0
OLDHAM	0	0	0	0	0	0
POTTER	6,788	7,468	8,043	8,604	9,090	9,757
RANDALL	605	670	726	778	821	892
ROBERTS	0	0	0	0	0	0
SHERMAN	0	0	0	0	0	0
WHEELER	0	0	0	0	0	0
Region A Total	**43,930**	**47,275**	**49,998**	**52,612**	**54,860**	**58,231**

2011 Regional Water Plan
Mining Water Demand Projections for 2010 -2060 (in acft[1])
Region A

	2010	2020	2030	2040	2050	2060
ARMSTRONG	13	12	12	12	12	12
CARSON	1,461	1,412	1,393	1,376	1,360	1,339
CHILDRESS	17	16	16	16	16	16
COLLINGSWORTH	0	0	0	0	0	0
DALLAM	0	0	0	0	0	0
DONLEY	15	14	14	14	14	14
GRAY	1,929	1,999	2,028	2,056	2,083	2,118
HALL	15	14	14	14	14	14
HANSFORD	543	533	529	525	521	516
HARTLEY	0	0	0	0	0	0
HEMPHILL	2,575	2,575	2,314	1,844	1,479	1,183
HUTCHINSON	398	393	394	395	396	396
LIPSCOMB	1,235	1,235	1,114	887	713	574
MOORE	700	700	630	567	510	459
OCHILTREE	1,148	1,148	1,027	818	661	522
OLDHAM	328	341	347	352	357	364
POTTER	329	367	392	417	442	462
RANDALL	18	19	20	21	22	23
ROBERTS	1,270	1,270	1,148	922	731	592
SHERMAN	17	16	16	16	16	16
WHEELER	2,001	2,001	1,810	1,444	1,148	922
Region A Total	**14,012**	**14,065**	**13,218**	**11,696**	**10,495**	**9,542**

2011 Regional Water Plan Steam Electric Water Demand Projections for 2010 -2060 (in acft[1]) Region A						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
ARMSTRONG	0	0	0	0	0	0
CARSON	0	0	0	0	0	0
CHILDRESS	0	0	0	0	0	0
COLLINGSWORTH	0	0	0	0	0	0
DALLAM	0	0	0	0	0	0
DONLEY	0	0	0	0	0	0
GRAY	2,507	1,409	2,112	2,299	2,952	3,087
HALL	0	0	0	0	0	0
HANSFORD	0	0	0	0	0	0
HARTLEY	0	0	0	0	0	0
HEMPHILL	0	0	0	0	0	0
HUTCHINSON	0	0	0	0	0	0
LIPSCOMB	0	0	0	0	0	0
MOORE	200	200	200	200	200	213
OCHILTREE	0	0	0	0	0	0
OLDHAM	0	0	0	0	0	0
POTTER	22,432	25,387	26,804	28,408	30,011	34,115
RANDALL	0	0	0	0	0	0
ROBERTS	0	0	0	0	0	0
SHERMAN	0	0	0	0	0	0
WHEELER	0	0	0	0	0	0
Region A Total	**25,139**	**26,996**	**29,116**	**30,907**	**33,163**	**37,415**