2025 OCWP
Oklahoma Comprehensive Water Plan

Water Demand Forecast

FINAL / October 2025

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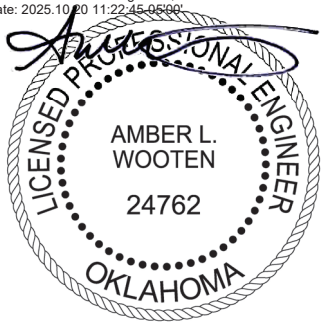

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Contents

Appendices

Tables

Figures

Abbreviations

AEO	Annual Energy Outlook
AF	acre-feet
AFY	acre-feet per year
EIA	United States Energy Information Administration
FAO	United Nations Food and Agriculture Organization
FAPRI	University of Missouri's Food and Agriculture Policy Research Institute
FSA	Oklahoma Farm Service Agency
gal/MWh	gallons per megawatt-hour
ghd	gallons per head per day
gpcd	gallons per capita per day
GIS	geographic information system
MWh	megawatt-hour
NLCD	National Land Cover Dataset
NRCS	Natural Resource Conservation Service
OCorpC	Oklahoma Corporation Commission
OCWP	2025 Oklahoma Comprehensive Water Plan
ODOC	Oklahoma Department of Commerce
OWRB	Oklahoma Water Resources Board
PT	provisional temporary
PV	photovoltaic
R-GPCD	residential per capita water demand measured in gallons per capita per day
RWD	rural water district
U.S.	United States
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WCIR	weighted average crop irrigation water requirement
WSINS	Water Supply and Infrastructure Needs Survey

SECTION 1 INTRODUCTION

In 1974, the Oklahoma Legislature enacted 82 O.S. §1086.2(1), which requires that the Oklahoma Water Resources Board (OWRB) decennially develop a strategic guide for managing the state's water resources over the next 50 years. The Oklahoma Comprehensive Water Plan (OCWP) was first published in 1974, with subsequent updates in 1980, 1995, and 2012. The Oklahoma Legislature appropriated funds for the current update due in 2025.

A forecast of water demands was prepared at the county level for this OCWP update, which is documented in this report and in Appendix A – Demand Projections by Sector and County. County-level demand forecasts were then allocated to the 82 OCWP planning basins for use in supply/demand analyses. This report describes:

- Data used in the demand forecast.
- Methodologies employed to produce a reliable county-level demand forecast.
- Results of the county-level forecast.
- Methodology used to allocate county-level forecasts to the 82 OCWP planning basins.
- Results of the OCWP planning basin forecast.

The planning basin demand forecast is used to characterize any differences between water supply and water demand, thus identifying areas of potential water surplus and shortfalls, or gaps. Basin-level demand projections are included in Appendix B – Demands by Sector by Planning Basin. The basin-level demands are provided for key planning periods only.

1.1 General Methodology

Demand projections were developed for each of the OCWP planning basins for the following demand sectors:

- Public Supply.
- Self-Supplied Domestic.
- Oil and Gas.
- Thermoelectric Power.
- Self-supplied Industrial.
- Livestock.
- Crop Irrigation.

Demand projections were developed in 5-year increments starting with an estimate of actual use for a recent year (typically 2020, based on available data) and forecasts from 2025 through 2075.

The general methodology employed herein is to estimate water demand separately for each water use sector, with the specific methodology selected for each sector determined by data availability. For each sector, water demand is estimated by the *water use factor* times a *projected rate of use*. The water use factor is defined as a countable unit of water use driving water demands up and down, which can be projected in future years. Examples of water use factors include the per capita water use, water use per oil well drilled, etc. The projected rate of use is defined as the data used to forecast future water use, such as population projections or energy generation projections.

As shown in Table 1, the water use factor and the corresponding projected rate of use was defined independently for each sector. The selection of the appropriate drivers and corresponding projected rate of use was based upon the most appropriate data available for each sector.

Table 1 Water Use Factors and Projected Rates of Use by Demand Sector

Sector	Water Use Factor	Projected Rate of Use
Public Supply	Water Use Per Municipality	Population Projection
Self-Supplied Domestic	Per Capita Water Use	Population Projection
Oil and Gas	Water Use Per Well Drilled	Historical Maximum Wells Drilled
Thermoelectric Power	Water Use Per Plant or Per kWh	Projected Energy Generation
Self-Supplied Industrial	Water Use Per Industrial Facility	Employment Projection
Livestock	Water Use Per Animal	Projected Livestock Count
Crop Irrigation	Water Use per Irrigated Acre of Crop	Projected Irrigated Acres

The water use factor can be developed for most sectors given historical or current water use data and a defined demographic unit. Projection of future water demand then requires having projected values of the defined demographic unit.

With this approach, the water use factor of each sector can be assumed to either remain constant into the future, decrease over time due to increases in water use efficiency, or increase over time due to more intensive water use. Trends in future water use can be difficult to predict with certainty, so water use factors are generally assumed to stay constant over time to develop baseline demand projections.

For all water users except Thermoelectric Power, total water withdrawals are developed and presented in this report. Total withdrawals represent the amount of water pumped or diverted from the source to meet the needs of the user. In nearly all instances, some proportion of water is returned to surface water (augmenting stream flows or lake levels) or released back into the ground. Public Supply and Crop Irrigation include a factor which accounts for returns in OWRB's H2O Tool to estimate water supply availability on a basin scale.

For Thermoelectric Power, because it is typical for there to be onsite cooling ponds or direct use of return flows, the H2O Tool utilizes consumptive demands to estimate water supply availability on a basin scale.

SECTION 2 PUBLIC SUPPLY DEMANDS

An important driver of water demand is population and employment. In Oklahoma, approximately 91 percent of the population and nearly all commercial and light industrial establishments are serviced by public water systems. This section describes the data, methodology, and results of the Public Supply forecasts.

Public Supply refers to water users receiving water from municipal or public water systems or those served by a community or rural water district (RWD). Demands met by Public Supply include the water provided to households that is used inside and outside the home for domestic activities. Indoor water uses include water for bathing, flushing, washing, drinking, etc., and capture all indoor water uses. Outdoor uses include water for landscape irrigation, car and home washing, recreation, domestic animal care, etc. Outdoor uses of Public Supply water exclude water used for livestock watering or agricultural crop irrigation, as those demands are included in the agricultural demand sectors. Public Supply

demands also include water provided to all properties other than residential housing such as office buildings, shopping centers, industrial parks, schools, churches, hotels, etc. Generally, demands associated with producing oil, gas, and power as well as those of large industrial facilities that utilize their own water supply (self-supplied) are not included in this demand sector.

2.1 Methodology

The methodology for projecting Public Supply demands is to multiply existing (2020) Public Supply demand, as reported to OWRB and/or through the 2023 Water Supply and Infrastructure Needs Survey (WSINS), by expected population growth rates through the planning horizon of 2075. The equation for this approach is shown below:

$D_{PS,C,Y} = \sum(D_{M,C,2020}) \times PGR_{C,Y}$ **Public Supply Demand Equation**

$D_{PS,C,Y}$ = Public Supply demand in county (c) and year (y)

$\sum(D_{M,C,2020})$ = Sum of Public Supply demand for each municipality/public water supplier (m) within county (c) for 2020

$PGR_{C,Y}$ = Population growth rate in county (c) in year (y) since 2020

2.2 Data

To forecast Public Supply demands, data was collected for the water use factor, existing municipal water use, and the projected rate of use, projected population growth.

2.2.1 Municipal Water Use

Water used by each public water supplier in Oklahoma for the baseline year, 2020, was collected via information reported to OWRB as part of water permit obligations or via WSINS, which was sent to all community water systems in 2022. Note that public water system is defined as serving at least 15 service connections or 25 residents, while a community system is further defined as serving the same connections or population year-round. The water use reported by the water provider to OWRB for 2020 to meet permit obligations was used as the basis of the Public Supply demand projections as it was the most consistently available information for water providers throughout the state. A total of 34 water providers responded to the WSINS with their 2020 water use (Table 2), and this was cross-checked with the water use data from OWRB. The water use reported in both places was generally found to be consistent, except for the City of Norman in Cleveland County. This water user had substantially different 2020 water use figures reported in the WSINS than what was recorded in the OWRB database, so its water use was updated to match what was provided in the WSINS for the purposes of developing Public Supply projections.

WSINS surveys were sent out in December 2022 and responses were collected through October 2023. Any survey responses received after October 2023 were not used to develop demand projections for the Public Supply water use sector.

Table 2 Water Providers Who Provided 2020 Water Use through Water Supply and Infrastructure Needs Survey

Town of Alex	Alfalfa County RWD #1	City of Ames
Bernice Public Works Authority	Caddo Public Works Authority	Town of Carney
City of Checotah	Town of Cheyenne	Town of Cleo Springs
City of Cleveland	City of Clinton	Town of Davenport
City of Edmond	Town of Elgin	City of Fairview

Town of Goodwell	Jet Public Works Authority	Johnston Co Rural Water District #3
Marietta Public Works Authority	Town of Muldrow	City of Norman
Nowata Municipal Authority	Piedmont Municipal Authority	Porum Public Works Authority
Quinlan Community RWD #1	Town of Ralston	Rogers County RWD #4
City of Shidler	City of Stigler	Town of Taloga
Thomas Public Works Authority	Tulsa Metropolitan Water Authority	City of Waynoka
City of Welch		

Total water use for 2020 from both data sources was summed across all municipalities within each county. Note that some public water suppliers in Oklahoma transport water across counties from the source of the water to the area of use. Water use reporting to OWRB is based on the location of the water use permit, or the water source. The water use reported for these permits was assigned to their county of use based on known inter-county transfers throughout the state. The estimated total Public Supply water used in 2020 in each county is shown in Appendix A along with forecasted water demand.

2.2.2 Population

The Oklahoma Department of Commerce (ODOC) prepared a tabulation of population projections for the state in 2023 that estimates population to the year 2070 for each county (Chiappe, 2023). These population projections are based on the most recent demographic data from the 2020 United States (U.S.) Census and historical population trends. Given that the ODOC population projections extend through 2070 and the planning horizon for this OCWP is 2075, linear forecasting was used to extrapolate the population for each county through 2075.

The resulting population projections, representing all people living in the given county, are included in Appendix C – Population Projections by County. Statewide population is projected to increase by 20 percent from 3.96 million in 2020 to 4.76 million in 2075. Public Supply water demands are expected to grow proportionally to population, so the calculated population projection growth rates for each county are applied to the existing Public Supply demand for that county to project Public Supply demand through 2075. The assumption that demands grow proportionally to population is equivalent to assuming that water use per person stays constant and there are no additional conservation savings or other changes in per capita water demands. This conservative approach is taken due to the uncertainty associated with accurately forecasting future conservation savings or other changes in demand trends in response to economic, social, or environmental factors.

Total water use for 2020 from both data sources was summed across all municipalities within each county. Note that some public water suppliers in Oklahoma transport water across counties from the source of the water to the area of use. Water use reporting to OWRB is based on the location of the water use permit, or the water source. The water use reported for these permits was assigned to their county of use based on known inter-county transfers throughout the state. Total Public Supply water use for 2020 in each county is shown in Appendix A, along with forecasted water use.

2.3 Forecast

The results of the Public Supply demand forecast are included in Appendix A for each county. Since water demand growth is attributable to the projected population growth (conservatively ignoring potential increases in conservation savings and efficiency) and the publicly supplied population is expected to increase by 21 percent by 2075, projected demand for this sector is similarly expected to increase by 18 percent from 2020 to 2075. This increase in estimated statewide Public Supply demand from

606,251 acre-feet per year (AFY) to 713,935 AFY is shown in Figure 1. Statewide population is also shown in Figure 1 to illustrate the correlation between population growth and Public Supply demand growth.

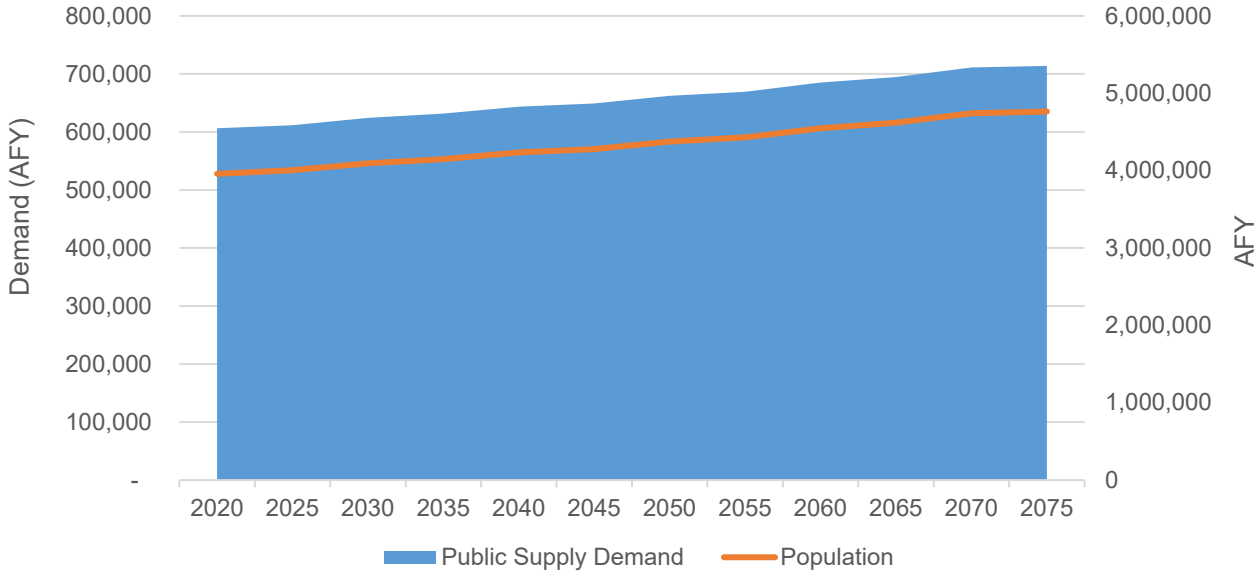


Figure 1 Statewide Public Supply Demand and Population Projections through 2075

2.4 Demand Allocation by Water Source and Basin

Water use information provided to OWRB as part of permit obligations includes the type of water source (groundwater or surface water) associated with each permit. This information was used to differentiate water demand supplied from groundwater and surface water sources.

The Public Supply water demand projections were developed for each county throughout the state since population data is most readily available by county. However, demand forecasts are needed for each basin to feed into the H2O Tool used in this OCWP. To allocate demand projections to basins, demands within counties were assumed to be concentrated proportionally to population. Spatial population data from the 2020 census was used in the geographic information system (GIS) to distribute demands across the county proportionally to the population in each census tract. This information was overlaid by the basins used in this OCWP to assign the demands, distributed proportionally to the projected population, to the basins.

Demands by water source and OCWP planning basin are shown in Appendix B.

SECTION 3 SELF-SUPPLIED DOMESTIC DEMANDS

The Self-Supplied Domestic sector captures water use from households not connected to a public water supply system. It is assumed that these households are primarily located in rural areas of the state. While some Self-Supplied Domestic homes use well water for livestock or crop irrigation purposes, the demands for the Self-Supplied Domestic sector only represent water use for indoor household purposes and outside for gardening, car washing, domestic animal care, recreation, etc. Livestock and crop irrigation

demands are captured in those sectors. The Self-Supplied Domestic sector represents the demand associated with the domestic use set-aside that OWRB uses in its permitting analysis.

3.1 Methodology

The methodology for projecting Self-Supplied Domestic demands is to multiply estimated residential per capita daily water use by the expected self-supplied population for each county through the planning horizon of 2075. The equation for this approach is shown below:

$D_{SSD,C,Y} = rgpcd_C \times P_{SSR,C,Y}$ **Self-Supplied Domestic Demand Equation**

$D_{SSD,C,Y}$ = Self-Supplied Domestic demand in county (c) and year (y)

$rgpcd_c$ = Residential per capita daily water use in county (c) from U.S. Geological Survey (USGS) data

$P_{SSR,C,Y}$ = Self-supplied population in county (c) in year (y)

3.2 Data

Similar to the Public Supply demands, the Self-Supplied Domestic demands are correlated to population. Population projections for each county and planning basin are included in Appendix C. The population projections for each county were divided into public-supplied and self-supplied households using 2015 USGS estimates (Dieter, 2018). The percentage of the population assumed to reside in self-supplied households for each county is shown in Table 3. The ratio of public-supplied to self-supplied for each county is assumed to remain constant in the future, in lieu of available forecasts of this parameter.

The residential per capita water demand measured in gallons per capita per day (R-GPCD) for the population living in self-supplied residences was also derived from 2015 USGS estimates (Dieter, 2018). This per capita demand is shown for each county in Table 3. As shown, the statewide average R-GPCD is 88 gpcd; however, this ranges from as high as 157 R-GPCD in Cimarron County to as low as 76 R-GPCD in Tillman County. As with the Public Supply sector, per capita water use is conservatively assumed to stay constant in the future given uncertainty surrounding conservation, social, economic, and environmental trends. To calculate projected demands for the Self-Supplied Domestic sector, the per capita water use for each county was multiplied by the self-suppled population for that county for the year of interest. The self-supplied population was calculated by multiplying the projected total population for the county by that county's estimated proportion of self-supplied population.

Table 3 Percentage of Population that is Self-Supplied Domestic and Residential GPCD by County

County	% of Population that is Self-Supplied Domestic	Residential Demand (R-GPCD)
Adair	39%	88(1)
Alfalfa	16%	85
Atoka	5%	86
Beaver	45%	86
Beckham	24%	85
Blaine	10%	89
Bryan	11%	84
Caddo	29%	85
Canadian	3%	85

County	% of Population that is Self-Supplied Domestic	Residential Demand (R-GPCD)
Carter	0%	81
Cherokee	22%	85
Choctaw	21%	84
Cimarron	14%	157
Cleveland	4%	85
Coal	13%	79
Comanche	3%	85
Cotton	2%	83
Craig	5%	86
Creek	9%	152
Custer	2%	79
Delaware	23%	85
Dewey	27%	88
Ellis	41%	86
Garfield	8%	85
Garvin	14%	142
Grady	42%	85
Grant	5%	95
Greer	3%	98
Harmon	0%	88[1]
Harper	11%	76
Haskell	43%	84
Hughes	1%	104
Jackson	0%	88[1]
Jefferson	1%	88[1]
Johnston	0%	88[1]
Kay	0%	88[1]
Kingfisher	33%	86
Kiowa	1%	76
Latimer	4%	97
Le Flore	0%	88[1]
Lincoln	51%	85
Logan	39%	85
Love	1%	94
Major	11%	83
Marshall	2%	86

County	% of Population that is Self-Supplied Domestic	Residential Demand (R-GPCD)
Mayes	2%	83
McClain	36%	85
McCurtain	12%	86
McIntosh	1%	91
Murray	4%	81
Muskogee	3%	85
Noble	13%	83
Nowata	13%	88
Okfuskee	11%	86
Oklahoma	9%	85
Okmulgee	0%	112
Osage	18%	85
Ottawa	29%	84
Pawnee	23%	86
Payne	6%	86
Pittsburg	0%	88(1)
Pontotoc	12%	86
Pottawatomie	37%	85
Pushmataha	8%	82
Roger Mills	33%	87
Rogers	10%	85
Seminole	21%	85
Sequoyah	1%	93
Stephens	8%	85
Texas	0%	95
Tillman	5%	76
Tulsa	1%	85
Wagoner	5%	85
Washington	5%	84
Washita	3%	85
Woods	16%	85
Woodward	7%	87
State Average	**9%**	**88**

Notes:
(1) These counties had an R-GPCD of 0 in the USGS data, so they were updated to be the statewide average R-GPCD of 88 GPCD for this analysis.

3.3 Forecast

The results of the Self-Supplied Domestic demand forecast are included in Appendix A for each county. Statewide demand for this sector is projected to increase from 34,650 AFY in 2020 to 40,446 AFY in 2075. This equates to a total increase of 17 percent between 2020 and 2075. Statewide Self-Supplied Domestic demand projections are shown in Figure 2.

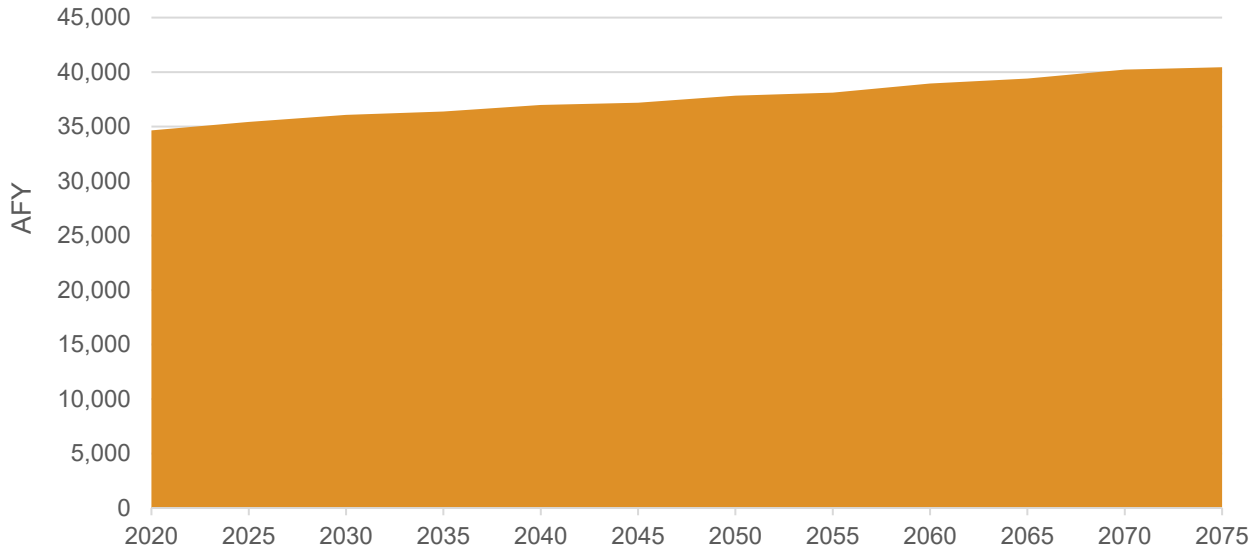


Figure 2 Statewide Self-Supplied Domestic Demand Projections (2020-2075)

3.4 Demand Allocation by Water Source and to Basins

It is assumed that all Self-Supplied Domestic water demands are met through groundwater in lieu of available data for this parameter. Based on typical rural residential water use patterns, it is more likely that residential water users have their own well than are diverting their water from a surface water source.

Self-Supplied Domestic water demand projections were developed for each county throughout the state since population and per capita water use data is most readily available by county. However, demand forecasts are needed for each basin to feed into the H2O Tool used in this OCWP. To allocate demand projections to basins, Self-Supplied Domestic demands within counties were assumed to be distributed equally throughout the portions of the county not served by a public water supply system. Spatial public water supply system boundaries were used in GIS to distribute demands across the county outside of these boundaries. This information was overlaid by the basins used in this OCWP to assign the demands, distributed equally over the identified self-supplied areas, to basins.

Demands by water source and OCWP planning basin are included in Appendix B.

SECTION 4 OIL AND GAS DEMANDS

Water is used in association with many Oil and Gas production activities, including use as a supplemental fluid in enhanced recovery of petroleum resources; during drilling and completion of an oil or gas well; during workover of an oil or gas well; as rig wash water; as coolant for internal combustion engines for rigs, compressors, and other equipment; and for sanitary purposes. Unconventional drilling techniques require more water use per well completion than conventional drilling techniques. Oil from shale deposits is often drilled using unconventional techniques and requires even more water to penetrate through the shale deposits.

There are challenges in estimating both current and future water demands from the Oil and Gas industry. Oklahoma law requires an active water use permit, either long-term or 90-day provisional temporary (PT). Often, companies apply for a PT water use permit for Oil and Gas drilling activities which do not require reporting of actual water used.

Future trends in the Oil and Gas industry rely on many factors, such as economy, price, and technology. Future trends are highly uncertain. Thus, the forecast for the Oil and Gas sector makes use of the best available data for both the present and future demands. Estimated water use per drilling activity is estimated at a level considered adequate to cover uncertainties related to future developments in technology and other contingencies that may require more water per activity.

4.1 Methodology

Given the statewide variability in recent drilling activities, water demands for the Oil and Gas industry are estimated by drilling type, or sub-sector: conventional, horizontal, and Woodford Shale. The basic methodology for estimating demands by drilling category is number of drilling activities times water used per activity in acre-feet (AF), as shown in the following equation. Sub-sector demands are then summed up to estimate total demands from all oil and gas activities. The equation for this approach is shown below:

$D_{OG,C,Y} = DA_{S,C,Y} \times WU_{S,C,Y}$ **Oil and Gas Demand Equation**

$D_{OG,C,Y}$ = Oil and Gas Demand in county (c) and year (y)

$DA_{S,C,Y}$ = Number of estimated drilling activities for sub-sector (s) in county (c) in year (y)

$WU_{S,C,Y}$ = Water use per drilling activity for sub-sector (s) in county (c) and in year (y) in AF

4.2 Data

Two key pieces of information were developed for the Oil and Gas forecast by sub-sector: 1) water use per drilling activity and 2) historical drilling activity.

4.2.1 Water Use Per Drilling Activity

Estimates of water use per drilling activity by sub-sector were developed for the 2012 OCWP based on input from industry leaders at Oklahoma Independent Petroleum Association and Mid-Continent Oil and Gas Association. These estimates were assumed to remain the same for this OCWP. Water use per activity captures water used for drilling and cementing as well as completion. Unique values are estimated for each county by sub-sector based on average well depth, i.e., deeper wells are assumed to require more water for drilling. Table 4 provides a summary of estimated current water use per drilled well for conventional, horizontal, and Woodford Shale drilling.

Table 4 Estimates of Current Water Use per Well

Operation		Conventional		Horizontal (includes horizontal and vertical sections)		Woodford Shale	
		Barrels	AF	Barrels	AF	Barrels	AF
Drilling and Cementing	< 12,000 feet	8,000	1.0	12,000	1.5	8,000	1.0
	> 12,000 feet	21,000	2.7	23,000	3.0	21,000	2.7
Completion		25,000	3.2	78,000	10.1	150,000	19.3

Unconventional drilling techniques require more water use per well. Hydraulic fracturing ("fracking") is reported to require substantially more water per well. This technique is common in the Woodford Shale region of the state, resulting in higher water use factors and therefore higher water demand for drilling activities in these counties. Based on the above table and given that one barrel is equivalent to 42 gallons, water use for conventional drilling ranges from 4 to 6 AF per well, horizontal drilling ranges from 12 to 13 AF per well, and drilling in the Woodford Shale region ranges from 20 to 22 AF per well. For conservative planning purposes, water use per well drilled is assumed to remain constant in the future. However, technological advancements and conservation practices could reduce the water use estimates used in this OCWP.

4.2.2 Drilling Activity

Statewide drilling activity, or number of wells drilled, by county and well type (horizontal, directional, and vertical) from 2011 through 2020 was provided to the project team by the Oklahoma Corporation Commission (OCorpC). Horizontal and directional drilling were grouped together as "horizontal drilling" for the purposes of this OCWP. As shown in Figure 3, well drilling activity increased from 2011 through 2014 before experiencing a sharp decline through 2016 and another decline in 2020.

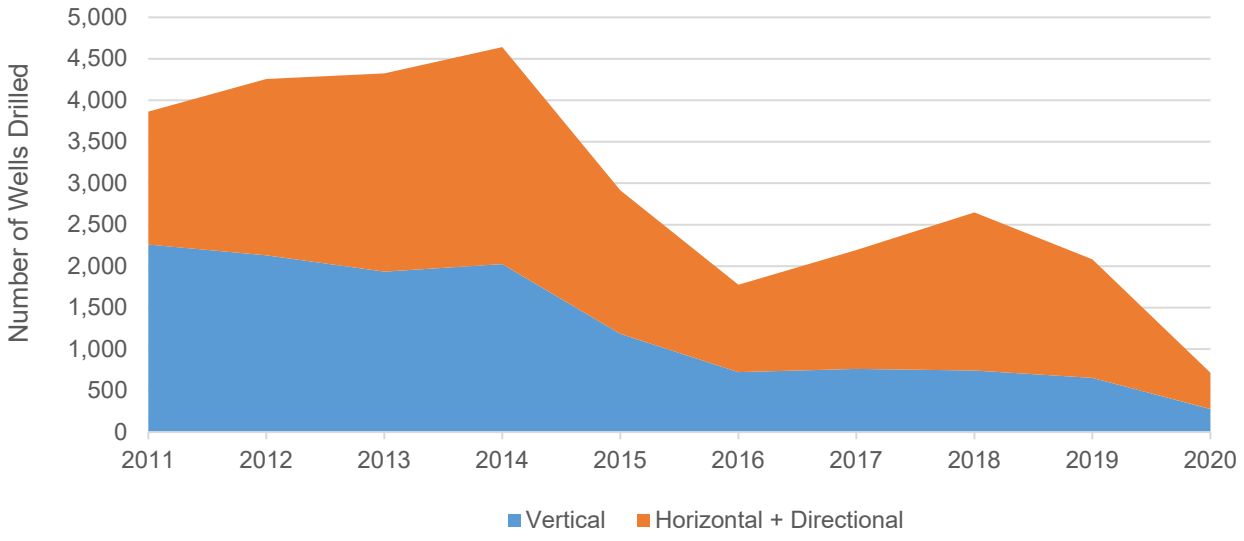
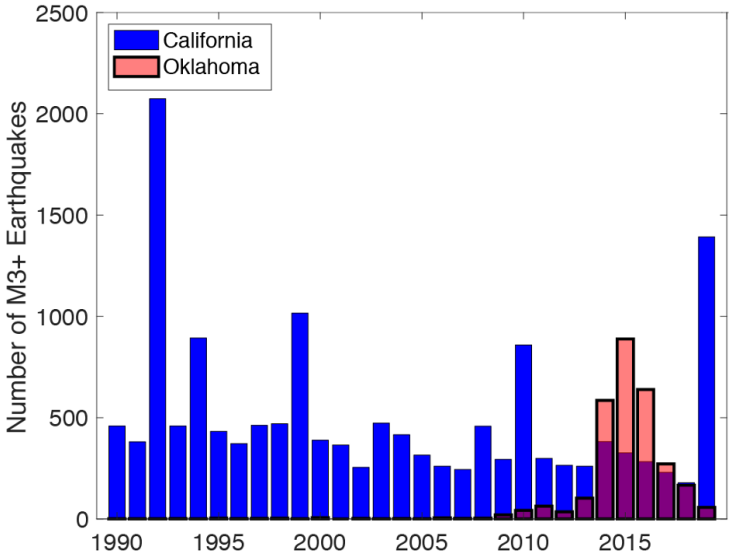


Figure 3 Oil and Gas Wells Drilled in Oklahoma (2011-2020)

While drilling activity is typically affected by the price of oil and can largely be attributed to fluctuating economic conditions, a specific set of conditions occurred in Oklahoma in the 2010s that resulted in the decrease in drilling activity, which is expected to keep drilling activity at levels lower than in the early 2010s. As shown in Figure 4, seismic activity in Oklahoma started increasing in the early 2010s before rapidly escalating and peaking in 2015. Unlike California, Oregon, and Washington, Oklahoma is not a "natural" earthquake zone; thus, this increase in seismic activity was dubbed "induced seismicity" and attributed to wastewater disposal processes and hydraulic fracturing undertaken to extract oil and gas. Starting in 2015 and continuing through 2018, the OCorpC issued a series of local and regional directives to manage drilling activity to reduce the frequency and magnitude of seismic activity occurring throughout the state (OCorpC, 2021).



Source: USGS Earthquake Hazards Program

Figure 4 Number of M3+ Earthquakes in Oklahoma vs. California (1990-2019)

The reduction in drilling activity (shown in Figure 3) coincided with a reduction in seismic activity (shown in Figure 4), and thus drilling activity is assumed to stay within the level seen from 2017 onward in lieu of available, reliable forecasts in drilling activity. The project team synthesized the drilling activity data provided by OCorpC as shown in Table 5. As discussed in the previous section, water used in drilling activities varies by well depth and type of well (vertical, horizontal, or Woodford Shale). Thus, the information shown in Table 5 including the maximum number of wells drilled post-seismic directives (from 2017 to 2020) and the average well depth for each county and each type of well was used to estimate current and future water used in Oklahoma by the Oil and Gas industry. Note that if a county's wells overlay the Woodford Shale formation, those wells are considered "Woodford Shale" wells and not vertical or horizontal wells for the purposes of water use estimates. If a county overlays the Woodford Shale formation, the average well depth of their horizontal wells was used as their average well depth for the purpose of selecting a water use factor for drilling and cementing activities given that there are generally more horizontal wells than vertical wells throughout the state.

Table 5 Drilling Activity and Average Well Depth by Well Type and County

County	Maximum Wells Drilled (2017-2020)		Average Well Depth (feet)		Woodford Shale (Y/N)
	Vertical	Horizontal + Directional	Vertical	Horizontal + Directional	
Adair	0	0	N/A	N/A	No
Alfalfa	12	42	3,762	10,495	No
Atoka	2	4	2,425	12,558	Yes
Beaver	9	1	2,206	11,998	No
Beckham	2	9	4,627	17,206	No

County	Maximum Wells Drilled (2017-2020)		Average Well Depth (feet)		Woodford Shale (Y/N)
	Vertical	Horizontal + Directional	Vertical	Horizontal + Directional	
Blaine	25	192	3,793	17,752	No
Bryan	0	1	N/A	9,841	No
Caddo	12	23	3,901	12,321	No
Canadian	20	190	3,187	16,613	Yes
Carter	59	29	1,495	14,341	Yes
Cherokee	0	0	N/A	N/A	No
Choctaw	0	0	N/A	N/A	No
Cimarron	5	0	2,927	N/A	No
Cleveland	3	2	4,249	8,405	No
Coal	3	22	4,376	13,654	Yes
Comanche	2	0	1,252	N/A	No
Cotton	3	0	1,029	N/A	No
Craig	4	0	620	N/A	No
Creek	51	1	1,881	4,598	No
Custer	8	37	3,336	17,229	No
Delaware	0	0	N/A	N/A	No
Dewey	14	95	3,617	15,069	No
Ellis	7	66	4,993	14,373	No
Garfield	15	52	3,332	10,752	No
Garvin	25	79	2,509	15,530	No
Grady	28	230	4,875	17,608	No
Grant	9	1	3,769	9,869	No
Greer	0	0	N/A	N/A	No
Harmon	1	0	7,250	N/A	No
Harper	3	0	2,501	N/A	No
Haskell	2	9	4,116	16,551	No
Hughes	11	97	2,525	11,762	Yes
Jackson	6	1	2,923	9,192	No
Jefferson	3	2	1,948	9,615	No
Johnston	0	12	N/A	15,156	No
Kay	30	4	2,635	7,022	No
Kingfisher	42	457	4,074	13,757	No
Kiowa	8	0	801	N/A	No
Latimer	4	2	3,044	2,958	No
LeFlore	1	0	4,555	N/A	No

County	Maximum Wells Drilled (2017-2020)		Average Well Depth (feet)		Woodford Shale (Y/N)
	Vertical	Horizontal + Directional	Vertical	Horizontal + Directional	
Lincoln	24	11	2,309	7,288	No
Logan	14	24	2,679	10,123	No
Love	16	9	4,879	17,848	No
McClain	24	67	4,782	13,176	No
McCurtain	0	0	N/A	N/A	No
McIntosh	3	17	2,737	12,053	No
Major	12	59	3,702	12,832	No
Marshall	2	8	4,947	14,305	Yes
Mayes	3	0	437	N/A	No
Murray	4	1	3,027	5,329	No
Muskogee	11	0	1,303	N/A	No
Noble	27	4	2,513	9,015	No
Nowata	9	0	846	N/A	No
Okfuskee	23	6	1,921	7,545	No
Oklahoma	16	28	1,906	7,882	No
Okmulgee	22	0	1,373	N/A	No
Osage	9	1	2,437	5,133	No
Ottawa	0	0	N/A	N/A	No
Pawnee	26	2	1,678	7,089	No
Payne	17	10	2,620	8,037	No
Pittsburg	6	27	2,252	13,749	Yes
Pontotoc	25	2	1,274	4,843	No
Pottawatomie	26	3	2,802	6,065	No
Pushmataha	0	2	N/A	13,187	No
Roger Mills	3	27	4,111	14,867	No
Rogers	3	0	616	N/A	No
Seminole	53	6	2,127	7,336	No
Sequoyah	0	0	N/A	N/A	No
Stephens	48	29	1,079	16,742	No
Texas	45	0	1,504	N/A	No
Tillman	18	1	3,967	6,000	No
Tulsa	14	0	705	N/A	No
Wagoner	11	0	558	N/A	No
Washington	22	0	910	N/A	No
Washita	3	5	7,253	16,972	No

County	Maximum Wells Drilled (2017-2020)		Average Well Depth (feet)		Woodford Shale (Y/N)
	Vertical	Horizontal + Directional	Vertical	Horizontal + Directional	
Woods	11	28	3,913	10,190	No
Woodward	8	23	4,535	14,002	No
Total/Average	**987**	**2060**	**2,852**	**11,497**	**N/A**

4.3 Forecast

The results of the Oil and Gas Demand forecast are included in Appendix A for each county. Since drilling activity is assumed to stay at or below the maximum observed drilling activity of approximately 3,000 wells per year in the period 2017 to 2020, water use projections are assumed to be constant between 2020 and 2075 with a statewide total Oil and Gas water demand of 35,557 AFY.

4.4 Demand Allocation by Water Source and Basin

Oil and Gas demands were divided between demands supplied by groundwater sources and demands supplied by surface water sources using USGS estimates for the proportion of mining-related demands supplied by groundwater and surface water sources for each county in Oklahoma in 2015 (Dieter, 2018).

Location data for oil and gas wells drilled between 2017 and 2020 were obtained in GIS from the OCorpC. Estimated water demands for oil and gas drilling activity for each county were divided evenly between all wells drilled in that county during the 2017 to 2020 period to spatially allocate demands to areas within counties that have drilling activity. Then the basins used in this OCWP were overlaid onto this map and the estimated demands associated with wells were allocated to those basins.

Demands by water source and OCWP planning basin are shown in Appendix B.

SECTION 5 THERMOELECTRIC POWER DEMANDS

The generation of electricity from nonrenewable energy sources requires water for cooling and generating electricity at steam-driven turbines. For plants that generate electricity from fossil fuels, power generation is highly dependent on water resources, requiring abundant water to cool equipment and condense the steam used to drive thermoelectric generators. The configuration and fuel sources of power plants can vary greatly and create unique water withdrawal and consumptive use patterns. Because it is typical for there to be onsite cooling ponds or direct use of return flows, which makes it difficult to accurately estimate and forecast withdrawals from a source, power generation forecasts were developed only for the consumptive portion of water demands.

Consumption rates vary from one plant to another due to variations in heat source, prime mover (a device that converts energy to electricity), cooling system type, evaporation rates, and thermal efficiency. For example, closed-loop cooling systems require less water to be withdrawn than what is required for once-through cooling; however, nearly all water is consumed in the closed-loop process while very little withdrawn water is consumed in once-through cooling. Water is also used by renewable electricity generating technologies, but to a much lesser degree. Water use for renewable electricity generation is often for cleaning purposes, such as solar panel washing for photovoltaic (PV) systems or washing of wind systems.

For completeness in the OCWP, all electricity generation types are included in the power generation demand sector. Though several power plants receive water from Public Supply sources, all water use attributed to power generation is allocated to this demand sector and excluded from the Public Supply demand sector to avoid double counting these demands.

Several data sources were combined to produce the power generation water demand forecast for Oklahoma, as discussed in the following sections.

5.1 Methodology

The basic methodology for estimating Thermoelectric Power demands is multiplying the water used per unit of power generated (megawatt-hour [MWh]) by the amount of power generated by facility, then summing all facilities within a county, as shown in the equation below. The equation for this approach is shown below:

$D_{PG,C,Y} = \sum(PG_{F,Y} \times WU_F)_C$ **Thermoelectric Power Demand Equation**

$D_{PG,C,Y}$ = Power generation demand in county (c) and year (y)

PG_F = Power generated by facility (f) in MWh in year (y)

$WU_{F,Y}$ = Water used per unit of power generated (MWh) by facility (f)

5.2 Data

5.2.1 Water Use per MWh Produced

As of 2020, there were a total of 121 power-producing facilities in Oklahoma: 8 solar, 11 hydroelectric, 58 wind, 31 natural gas, 7 distillate fuels, 4 coal, and 2 miscellaneous (municipal solid waste and black liquor). Net electricity generation from natural gas-fired and coal-fired plants is approximately 60 percent of total power generation in the state, but accounts for nearly all the water use in this sector.

Information from the U.S. Energy Information Administration (EIA) for power generation facilities in Oklahoma included the plant name, owning utility, location, rated generating capacity, and 2020 net MWh generated (EIA, 2020a, 2020b). EIA information also included the power plant water sources, generator operating status (e.g., operating, standby, out of service, retired), fuel type, and generator technology. Water consumption data for cooling water at thermoelectric power plants was also pulled from the EIA database. Additionally, two literature sources that assessed and compiled water use factors for various power generation technologies provided alternative water consumption factors. "Water use of electricity technologies: A global meta-analysis" by Jin, Y. et al. (2019) and "Operational water consumption and withdrawal factors for electricity generating technologies: a review of existing literature" by Macknick, J. et al. (2012).

Estimates of the gallons per day of water needed per MWh produced were developed for consumptive use for each power plant using 2020 EIA data where available. Where no historical water use data are available, literature-derived unit water use factors (gallons per MWh) were used. The water use factors categorized by fuel type, power generating technology, and cooling system type are summarized in Table 6.

As shown, the range for water consumption factors can vary significantly between facilities. The water use factors derived from the literature review consistently fall within the range seen in the EIA reported data. Note that water use associated with wind, solar, and hydroelectric facilities was not reported to the EIA and the literature review indicated that water use for these power generation types is negligible. Thus, the focus for this sector is on the 26 thermoelectric facilities in the state that use some form of fuel and require meaningful amounts of water for cooling. The water use factors were multiplied by the power (MWh) generated to provide an estimate of water needs for power generation for each power facility.

Table 6 Water Factors for Withdrawal and Consumption by Fuel, Generator, and Cooling System Type

Fuel Type	Generator Technology	Cooling System	Consumptive Use Water Factors (gal/MWh)	
			EIA Reported Data	Literature Review
Coal	Steam	Tower	246-3,664	687
Coal	Steam	Pond	2,909	545
Natural Gas	Combined Cycle	Tower	146-238	205
Natural Gas	Combined Cycle	Pond	79-670	240
Natural Gas	Steam	Tower	271-1,715	826
Petroleum	Petroleum Liquids	Tower	N/A	2,650
Biopower(1)	Steam	Tower	N/A	553
Wind	Wind Turbine	N/A	N/A	0
Solar	Solar PV	N/A	N/A	1
Hydroelectric	In-Stream and Reservoir	N/A	N/A	0

Notes:
gal/MWh - gallons per megawatt-hour
(1) Biopower includes municipal solid waste and wood/wood waste biomass.

Power plants were grouped by county to provide a county-level estimate of water demand for power generation.

5.2.2 MWh Produced

Through the EIA 2022 Annual Energy Outlook (AEO), annual power generation projections are available by Electricity Market Module Region and by power sector (natural gas, coal, petroleum, renewable, etc.) through 2050 (EIA, 2022). Oklahoma falls within Electricity Market Module Region 17 or the Southwest Power Pool – South and thus data for that region, shown in Figure 5, was used to produce power generation projections for Oklahoma. As shown, energy generated from renewable sources is expected to increase over the next 30 years, while energy generated from natural gas and coal is expected to decline.

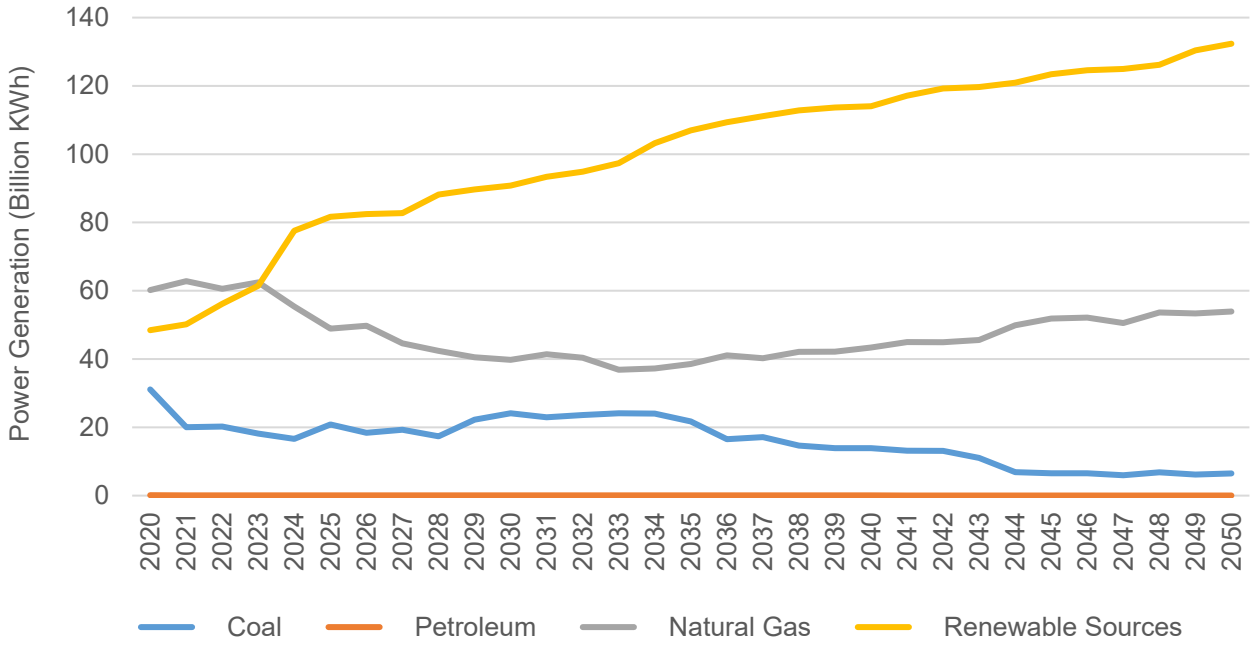


Figure 5 EIA Projected Power Generation by Fuel Type for Southwest Power Pool/South Region

The raw annual projection data from the AEO was smoothed using a 5-year running average. This adjusted projection was then used to calculate the power generation growth rate at 5-year intervals for each power sector from 2020 to 2050. For the period from 2050 to 2075, growth rates were determined by extrapolating the preceding raw annual projections via linear regression to 2075 and then calculating 5-year growth rates based on the extrapolated datapoints. Beginning with the known net power generation for each power plant in 2020, future power generation was iteratively calculated using the set of 5-year growth rates for the power sector that corresponded to the power plant's fuel type. For power plants with mixed fuel types, the cumulative growth rate across all power sectors was used.

5.3 Forecast

Results by county for Thermoelectric Power water consumption are included in Appendix A. Many counties do not have power generation-related water use demands and thus have been excluded from the summary tables. Statewide, water consumption for Thermoelectric Power is estimated to decrease by 12 percent between 2020 and 2075, as shown in Figure 6. The consumptive demand forecast reflects the EIA's projections of a decrease in natural gas-powered generation through the next 10 years and then a rebound through 2050, and a decrease in coal-powered generation from the mid-2030s through 2050. Consumptive demands for the Thermoelectric Power sector are estimated at 62,000 AFY in 2020 and projected to be 55,000 AFY in 2075.

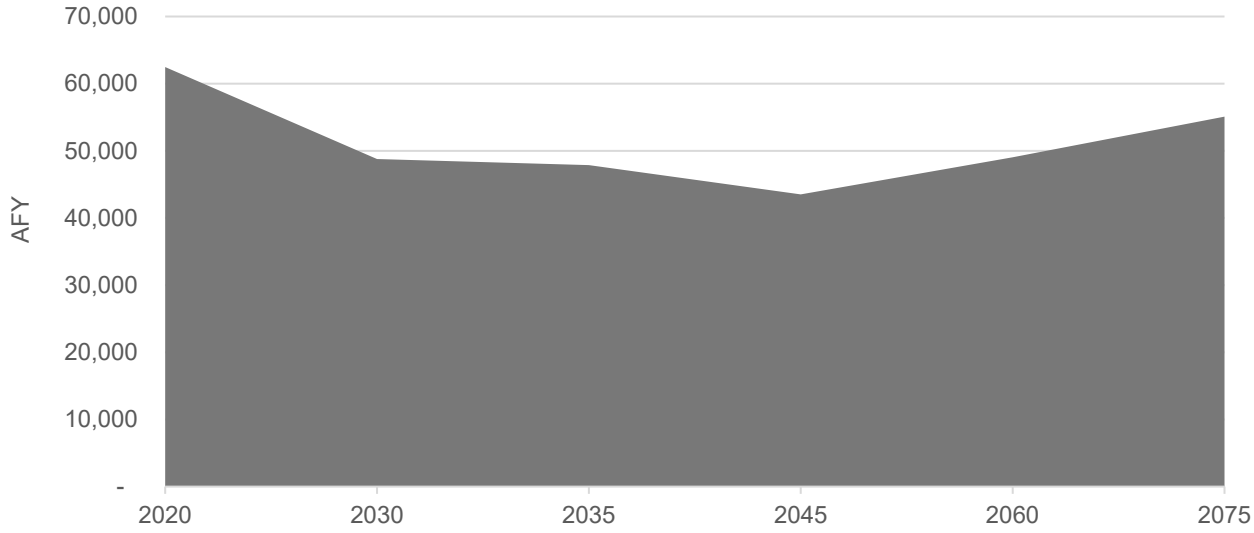


Figure 6 Statewide Power Generation Consumptive Use Projections through 2075

5.4 Demand Allocation by Water Source and to Basins

The EIA power plant data that formed the basis of the power generation demand projections included the water source for each power plant. This information was used to allocate demands from each power facility to either groundwater or surface water demands (EIA, 2020a, 2020b).

Since power generation facilities have discrete locations included in the EIA power plant data, demands for these facilities were simply allocated to the OCWP planning basins they are located in using GIS.

Demands by water source and OCWP planning basin are shown in Appendix B.

SECTION 6 SELF-SUPPLIED INDUSTRIAL DEMANDS

The Self-supplied Industrial demand sector of the OCWP demand forecast represents water use from large industrial users who do not receive public water supply. These industries use water for purposes such as fabricating, processing, washing, diluting, cooling, incorporating water into the product, or for sanitation needs within the manufacturing facility, among others. Large industrial water users can be responsible for producing essential commodities like food, paper, chemicals, refined petroleum, or primary metals. In the case of the OCWP, the large Self-supplied Industrial users include sand and gravel companies, gypsum production plants, weapons manufacturing plants, concrete producing plants, petroleum refineries, paper mills, and dairy manufacturing plants. The data used in this sector were obtained from OWRB annual surface and groundwater permit reports.

6.1 Methodology

The methodology for projecting Self-supplied Industrial demands is to multiply existing, baseline industrial demand, as reported to OWRB, by either the expected employment or population growth rates (depending on the year) through the planning horizon of 2075. The equations for this approach are shown below:

If the year is less than or equal to 2030:

$D_{SSI,I,C,Y} = \sum(D_{E,I,C,Y}) \times EGR_{I,C,Y}$ **Self-supplied Industrial Demand Equation (Until 2030)**

If the year is greater than 2030:

$D_{SSI,I,C,Y} = \sum(D_{E,I,C,Y}) \times PGR_{C,Y}$ **Self-supplied Industrial Demand Equation (After 2030)**

Total industrial demand (all years):

$D_{SSI,C,Y} = \sum(D_{SSI,I,C,Y})$ **Self-supplied Industrial Demand Equation (Total)**

$D_{SSI,I,C,Y}$ = Self-supplied Industrial demand for an industry (i) in county (c) and year (y)

$D_{E,I,C,Y}$ = Self-supplied Industrial demand for an establishment (e) in a classified industry (i) within county (c) and year (y)

$EGR_{I,C,Y}$ = Employment growth rate for an industry (i) in county (c) in year (y) since 2018

$PGR_{C,Y}$ = Population growth rate in county (c) in year (y) since 2030

$D_{SSI,C,Y}$ = Self-supplied Industrial demand in county (c) and year (y)

$\sum(D_{SSI,I,C,Y})$ = Sum of Self-supplied Industrial demand for each industry (i) in county (c) and year (y)

6.2 Data

The OWRB permit database was queried to identify all the active industrial water use permits in the state by filtering for permits with an industrial purpose. Given the volume of industrial water use permits, to streamline the data analysis process and to focus on the most meaningful water users, only those with an allocation greater than 500 AFY were carried forward for this sector. Using the OWRB permit database, annual surface and groundwater reports were obtained for each of the remaining industrial permits. The OWRB annual surface and groundwater reports were used to estimate current water use at each establishment to generate a water use baseline.

Where data is available and in line with historical water use trends, the chosen year for the water use reports was 2019 as the most recent year pre-COVID to reflect typical operations and water use. In special cases, where 2019 data were either not available or an outlier, the next closest year was chosen. The total statewide Self-supplied Industrial water use was then determined by summing all the industrial water uses per the water use reports for the year deemed most appropriate for each establishment.

Twenty industries holding twenty-three industrial water use permits reported qualifying data to the OWRB and are included in this forecast sector. To maintain the privacy of these establishments, data for individual water users is not included in this report.

Because future conditions at these individual facilities are unknown, this sector was forecasted into the future using a combination of employment and population projections. As a result, projected Self-supplied Industrial water demands do not account for new demands from new facilities or demands that do not scale with population and employment due to a lack of reliable data to support their incorporation in the forecast. 2018 baseline employment data by county and industry from the U.S. Bureau of Labor Statistics (2018) was projected through 2030 using 10-year industrial growth rate projections from the Oklahoma Employment Security Commission (2018). Population projection trends were then used to extend the

projections from 2030 through the 2075 planning horizon. Growth rates were specified by industry type and applied to each establishment according to their reported industry classification. Projections across establishments were then summed up to determine overall water use projections for the other large industry demand sector.

6.3 Forecast

Results of the demand forecast are included in Appendix A and illustrated in Figure 7. Many counties do not have Self-supplied Industrial-related water use demands and thus have been excluded from the summary table in Appendix A. Statewide water use among these large industries is projected to increase by about 10 percent from 67,107 AFY in 2020 to 73,522 AFY 2075. Water use is observed to decline between 2020 and 2030 due to projections of decline in the manufacturing industry, the industrial category that accounts for most of the Self-supplied Industrial water use. From 2030 on, a rebound in water use is observed based on projected population growth through the planning horizon of 2075, particularly in McCurtain County which accounts for greater than 50 percent of total sector water demand.

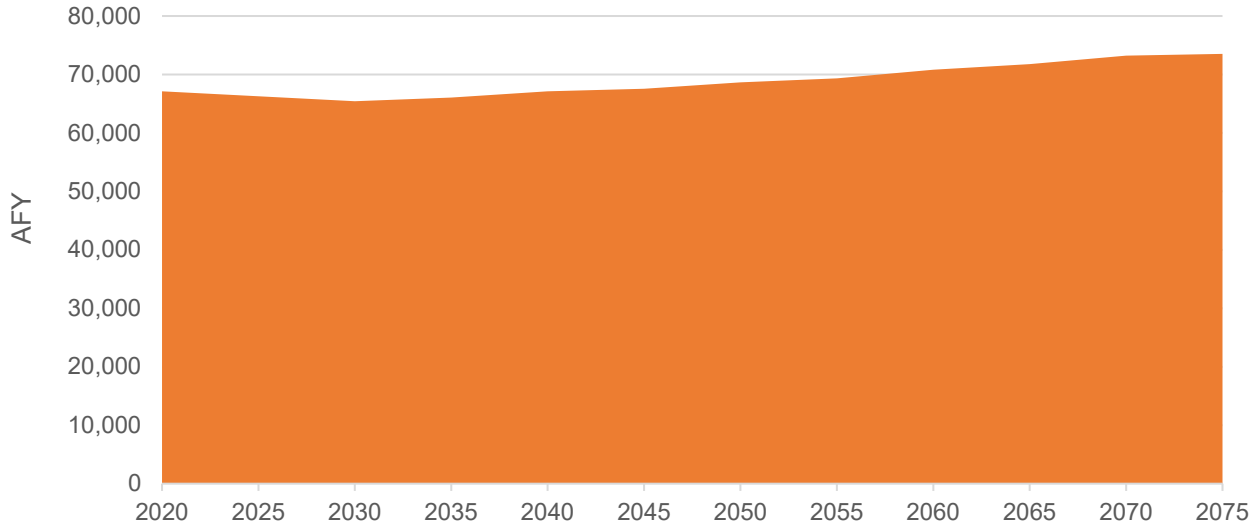


Figure 7 Statewide Self-Supplied Industrial Water Use Projections through 2075

6.4 Demand Allocation by Water Source and to Basins

The water use information provided by large industrial water users to OWRB as part of permit obligations includes the type of water source, groundwater or surface water, associated with each permit. This information was used to differentiate demand supplied by groundwater versus demand supplied by surface water.

Since large industrial facilities have discrete locations included in the OWRB permit data, demands for these facilities were simply allocated to the OCWP planning basins they are located in using GIS.

Demands by water source and OCWP planning basin are included in Appendix B.

SECTION 7 LIVESTOCK DEMANDS

Livestock require water for animal nutrition, animal cooling, sanitation, and waste removal. Current estimates of livestock water demands were developed based on the major livestock groups in Oklahoma and their respective daily water requirements. Major livestock categories evaluated include cattle, dairy cows, sheep, hogs, horses, and poultry.

7.1 Methodology

The annual livestock water demand was calculated by multiplying the daily water requirement for each category of livestock by the number of livestock in a county and then the number of days in a year. The annual demand in gallons is then converted to AFY. This computation is shown in the equation below.

$$\mathrm{QLS}_{c,y}^{\mathrm{AFY}} = \left[\sum\left(LSC_{c,y}^{n} \times DWR^{n} \times 365\right)\right]/321{,}851$$ **Livestock Demand Equation**

Where:

$\mathrm{QLS}_{c,y}^{\mathrm{AFY}}$ = Livestock water demand in AFY in county (c) in year (y)

$\mathrm{LSC}_{c,y}^{n}$ = Livestock count for animal group (n) in county (c) and year (y)

DWR^{n} = Daily water requirement per animal (n)

7.2 Data

7.2.1 Water Needs Per Animal

Data on daily animal water requirements from the 2012 OCWP was used for this OCWP and are based on the USGS Method for Estimating Water Withdrawals for Livestock in the U.S. (USGS 2005). Daily water requirements for each livestock group include those used for drinking water, cooling, and sanitation and waste removal requirements. As a part of the 2012 OCWP demand forecast development, a literature review was conducted to verify the USGS water requirements, as discussed below. A summary of daily animal water requirements selected for the OCWP is presented in Table 7.

Table 7 Average Daily Water Requirement per Animal by Livestock Group (gallons)

Cattle	Dairy Cows	Sheep/Goats	Hogs	Chickens	Horses
12	35	2	4.5	0.1	12

For cattle, feedlots provide drinking water 24 hours a day in water troughs placed in each pen. Water use at feedlots for beef cattle includes drinking water, trough overflow, trough cleaning, evaporation, and feedmill usage. Parker et al. (2000) performed a 2-year study at a 50,000 head beef cattle feed yard in the Texas High Plains. Flowmeters were installed at the incoming water supply and were monitored daily from November 1995 through October 1997. The average daily water use over the 2-year study period was 10.8 gallons per head per day (ghd), with variation between the summer and winter months. This average water use observed in the Parker et al. study is consistent with other literature reviewed (AGRI-FACTS 2008, Martin et al. 2001, and Ontario 2007). The USGS estimated water requirements for cattle at 12 ghd. Thus, the USGS value is assumed reasonable for the OCWP.

Milk cow operations require water to meet the nutritional needs of the animals and for cleaning the milking parlor and equipment. Brugger and Dorsey (2006) conducted a study in Ohio using 13 water meters to monitor water flows on a 1,000-cow dairy operation. The meters were used to monitor cow drinking water, plate cooler water, and parlor wash water as well as sanitation of the milking equipment. Cow drinking

water varied monthly from 12.0 to 32.4 ghd, with a yearly average of 20.5 ghd. In all, an average of 29.8 ghd was used for drinking and sanitation purposes on the dairy farm. The Brugger and Dorsey study was the only resource found that metered actual water use. Other resources report higher average drinking requirements for dairy cows ranging from 30 to 40 ghd (AGRI-FACTS 2008, Ontario 2007, and Martin et al. 2001) based on estimates of usage. According to the USGS, dairy cows require an average of 35 ghd. Thus, for the OCWP, the USGS value is assumed reasonable.

Grazing sheep and goats, particularly in the cooler seasons of the year, can require relatively little additional water beyond what they receive through forage. Ontario (2007) indicates that sheep require 2.6 ghd. According to the USGS, sheep and goats require an average of 2 ghd. This USGS rate of use is assumed as the daily requirement for sheep and goats for the OCWP.

Hog farms require water for animal drinking, cooling, and washing, and for waste disposal. Estimates of drinking water requirements for swine range from 4 to 20 ghd (AGRI-FACTS 2008, and Martin et al. 2001). The USGS reports an average daily water demand per hog of 4.5 gallons. This USGS rate of use is assumed as the daily requirement for hogs for the OCWP.

While water demand at poultry facilities can vary depending on individual cleaning programs, water requirements per animal are relatively low. According to several resources, chickens require 0.1 gallons of water per day (AGRI-FACTS 2008, Bell et al. 2002, and Martin et al. 2001). This is consistent with the USGS suggested values and is assumed to be sufficient for planning purposes.

Horses require 12 ghd on average, although these requirements vary depending on activity level, heat, and humidity (AGRI-FACTS 2008, American 2000, Ministry 2007, and Martin 2001). The USGS also reports that horses require 12 ghd. For the OCWP, 12 ghd is assumed for horses.

7.2.2 Livestock Inventory, Current and Future

Data on the current levels of animal inventory were collected from the most recent U.S. Department of Agriculture (USDA) Agriculture Census (2017). Data was collected from a few available National Agricultural Statistics Service pathways, including the Quick Stats Portal, the .GZ file for the entire nation (processed with PowerBI), and Oklahoma specific reports. For some animal categories in some counties, data was undisclosed. In those instances, the most recent known number was assumed (2012, generally). If no recent year was available, the undisclosed total, derived by subtracting the county known or estimated total from the state total, was evenly distributed between counties.

Two sources were utilized to forecast livestock inventory to 2075. The University of Missouri's Food and Agriculture Policy Research Institute (FAPRI) produces an annual U.S. Agriculture Market Outlook. Within the report, researchers project livestock production across the U.S. for the next 10 years. The most recent report at the time of this writing (2022) was consulted to determine U.S. growth in hogs, cattle, dairy, and poultry production. The growth rate from 2017 to 2021, and then to 2025 and 2030 for each category was calculated and applied to current livestock inventory by county. The underlying assumption is that Oklahoma will maintain its share of the national market over the next decade. Table 8 presents the FAPRI projections and growth rates.

Table 8 FAPRI Projections of Livestock Inventory and Food Production Growth (2017-2030)

	Amount				Growth Rate		
	2017	2021	2025	2030	2021	2025	2030
Cattle (million head)	137.9	139.3	133.3	135	1.0%	-4.3%	1.3%
Dairy Cows (million head)	2.629	2.604	2.565	2.549	-1.0%	-1.5%	-0.6%
Hogs (million head)	331.22	347.8	353.44	366.25	5.0%	1.6%	3.6%
Poultry (billion pounds)	41.146	44.405	46.758	49.478	7.9%	5.3%	5.8%

To extend projections past 2030, the United Nations Food and Agriculture Organization's (FAO) global projections of food and agriculture consumption and production to 2050 were collected. The FAO produces three scenarios of future U.S. production of cattle, raw milk, pigs, poultry, hogs, and sheep. The more conservative estimate, Business as Usual, was used and Oklahoma's portion of the U.S. market was assumed to remain consistent. Table 9 presents the FAO projections and growth rates from 2030 through 2050. To extend the projections to the OCWP planning horizon of 2075, the average FAO growth between 2040 and 2050 was assumed.

Table 9 FAO Projections of Livestock Inventory and Food Production Growth in U.S. (2030-3050)

		Amount					Growth in Herd Size, U.S.			
		2030	2035	2040	2045	2050	2035	2040	2045	2050
Raw Milk	kg/animal	8,832	8,614	8,433	8,295	8,157	-2.5%	-2.1%	-1.6%	-1.7%
Cattle	1,000 heads	87,573	87,373	86,398	84,960	83,522	-0.2%	-1.1%	-1.7%	-1.7%
Pigs	1,000 heads	66,956	68,631	70,419	72,151	73,883	2.5%	2.6%	2.5%	2.4%
Poultry	1,000,000 heads	3,401	3,523	3,584	3,582	3,579	3.6%	1.7%	-0.1%	-0.1%
Sheep	1,000 heads	6,414	6,634	6,871	7,141	7,411	3.4%	3.6%	3.9%	3.8%

Figure 8 summarizes the growth in livestock assumptions for Oklahoma from 2021 through 2075. Both the FAPRI and FAO project that dairy cow herd size will continue to decline into the future. Poultry production grew significantly from 2017 to 2021 and is projected to continue growing. Dairy and beef production are projected to decline in nearly all planning periods through 2075.

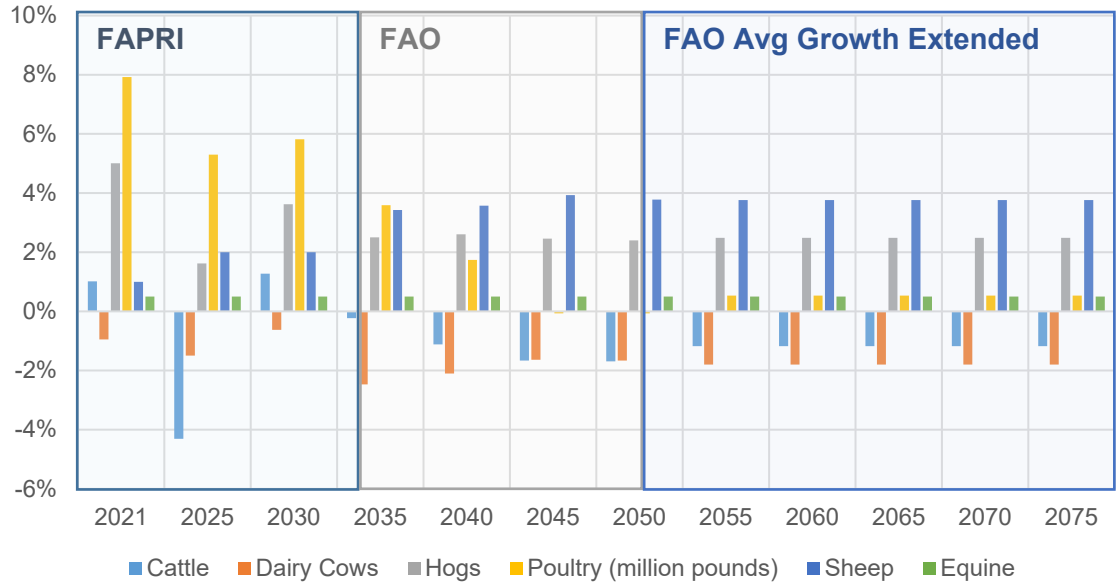


Figure 8 Livestock Forecast Assumed Growth Rates

7.3 Forecast

With the above combined assumptions, Livestock water demand is projected to remain between 82,000 and 88,000 AFY in the coming decades, with an overall decrease of approximately 5 percent between 2020 and 2075. The statewide forecast for the Livestock sector is shown in Figure 9 and detailed by county in Appendix A.

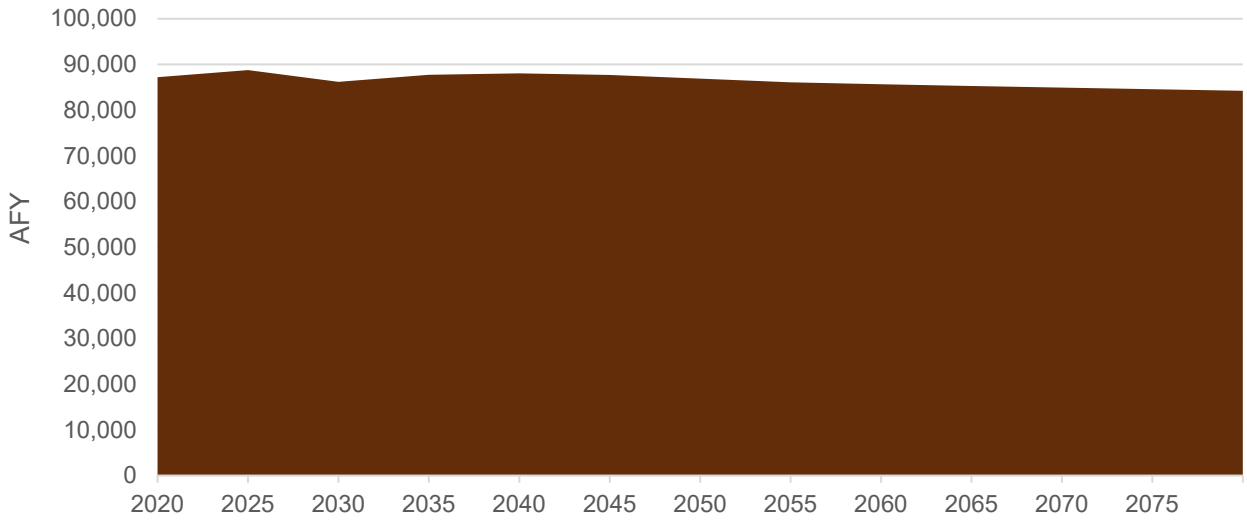


Figure 9 Statewide Livestock Water Use Projections through 2075

7.4 Demand Allocation by Water Source and to Basins

Livestock demands were divided between demands supplied by groundwater sources and demands supplied by surface water sources using USGS estimates for the proportion of livestock-related demands supplied by groundwater and surface water sources for each county in Oklahoma in 2015 (Dieter, 2018).

The livestock water demand projections were developed for each county throughout the state since livestock data is most readily available by county. However, demand forecasts are needed for each basin to feed into the H2O Tool used in this OCWP. To allocate demand projections to basins, demands within counties were assumed to be spread evenly throughout the county. An area-weighted analysis was used to determine the percentage of each county's demands within each OCWP planning basin.

Demands by water source and OCWP planning basin are shown in Appendix B.

SECTION 8 CROP IRRIGATION DEMANDS

This sector requires abundant water supplies to produce profitable yields. In the eastern regions of the state, rainfall is sufficient to meet average crops needs, with only supplemental water provided during critical growth times or during dry periods. In western parts of Oklahoma, however, crop production is predominantly reliant upon irrigation, primarily supplied by groundwater. The following describes the approach to capturing irrigation withdrawals to support crop production across Oklahoma's diverse 77 counties.

8.1 Methodology

Crop Irrigation water demand for a given county is driven by the type of crops planted, number of acres planted, climate and weather patterns, precipitation available to the crop, supplemental irrigation water required, and type of irrigation system utilized. The methodology to estimate the Crop Irrigation withdrawals is based on the best available data and a standard equation. The methodology is total irrigated acres times the weighted average crop irrigation water requirement (WCIR) per irrigated acre by county, as shown in the equations below.

$$Q_{c,y} = IA_{c,y} \times WCIR_{c,a}$$ **Crop Irrigation Demand Equation**

$$WCIR_{c,a} = \left(\sum_{n}^{i} (IA_{c,a}^{Crop_i} \times CIR_{c}^{Crop_i}) \right) / IA_{c,a}$$

Where:

$Q_{c,y}$ = Total Crop Irrigation requirements in AFY in county (c) in year (y)

$IA_{c,y}$ = Total irrigated acres in county (c) in year (y)

$WCIR_{c,a}$ = Weighted Crop Irrigation requirement in county (c) for average weather (a)

$IA_{c,a}^{Crop_i}$ = Irrigated acres in crop (i) in county (c) for an average year (a)

$CIR_{c}^{Crop_i}$ = Irrigation water required per acre in AFY for crop (i) in county (c)

$IA_{c,a}$ = Total irrigated acres in county (c) for an average year (a)

A final step is taken to adjust the irrigation water demands to capture on-farm losses from irrigation distribution systems. These losses need to be considered when estimating total irrigation water withdrawals. To adjust preliminary irrigation water demands to account for these losses, a field application efficiency factor was applied as a function of irrigation methods (surface, sprinkler, or drip irrigation). The gross irrigation water requirement, or the amount of water to be withdrawn and applied to the irrigation scheme, was calculated as:

$GQ_{c,y} = Q_{c,y} / WFAE_{c,a}$ **Gross Crop Irrigation Water Demand Equation**

Where:

$GQ_{c,y}$= Gross water requirement for irrigation in AF in county (c) in year (y)

$Q_{c,y}$ = Total Crop Irrigation requirements in AF in county (c) in year (y)

$WFAE_{c,a}$= Weighted field application efficiency in county (c) for an average year (a)

8.2 Data

8.2.1 Historical Irrigated Acres

Oklahoma Farm Service Agency (FSA) data were collected and serve as the estimate of irrigated acres by crop and county. The data are collected from producer reports and certified on an FSA-578 in the county offices each year using FSA's Crop Acreage Reporting Software. Data are reported using the National Agriculture Imagery Program imagery and common land unit boundaries. Nearly all USDA programs require certified acres to participate. Further, the crop acreage is used by crop insurance agencies for setting policies. Irrigated acres are identified within the data and separated from non-irrigated acres. FSA acreage data are considered accurate and complete. Staff from FSA provided the acreage data directly from 2013 through 2022 summarized by county, crop type, irrigation practice, intended use (e.g., grain, seed, cover only), and acres planted and failed. For the analysis, cover crop acreage was subtracted from county total irrigated acreage to avoid double counting. FSA staff provided a second file identifying double-cropped acreage. The total irrigated acreage by county was not adjusted for double cropping to assure full accounting of the water withdrawn for both crops. Figure 10 shows a summary of irrigated acres from 2013 through 2022 and a more detailed breakdown by county is included in Appendix D.

Statewide, the number of irrigated acres has increased by 2.1 percent annually since 2013. As of 2022, approximately 785,000 acres are irrigated. The Northwest Region accounts for 44 percent of statewide irrigated acres, followed by the Southwest Region at 35 percent. Counties with the highest irrigated acres include Texas, Cimarron, Beaver, Jackson, and Caddo.

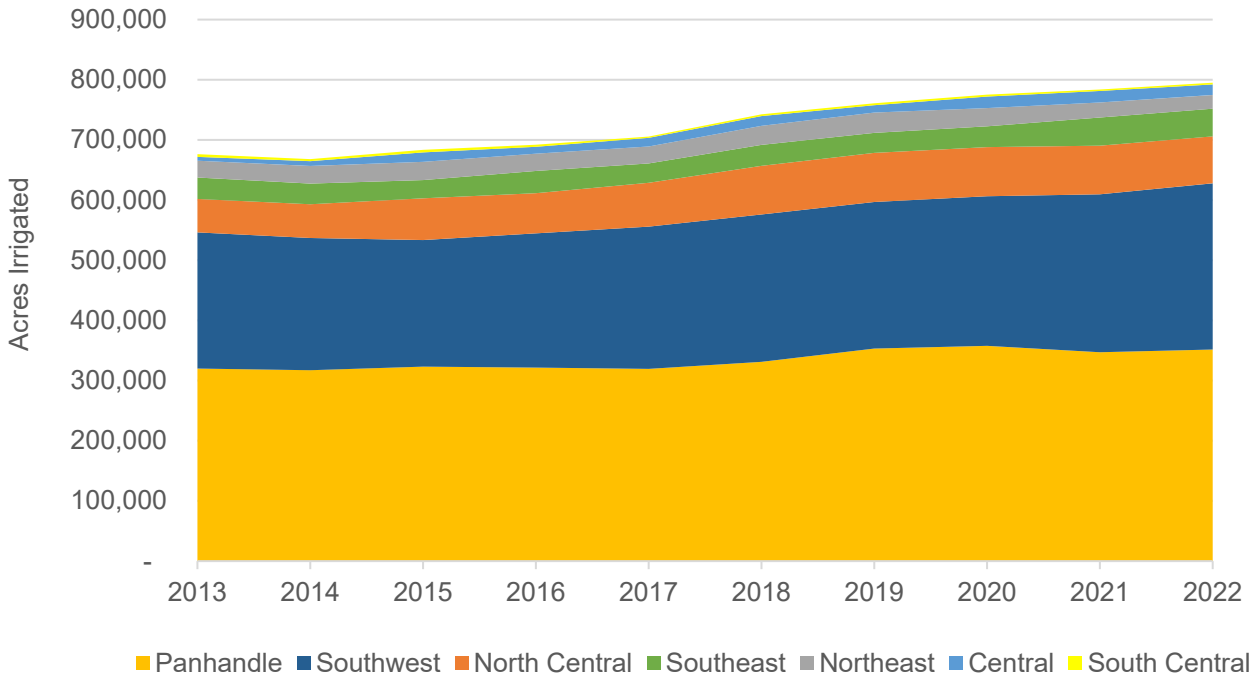


Figure 10 FSA Reported Historical Acres by Region

8.2.2 Forecasted Irrigated Acres

To project to 2075, the recent trend in irrigated acres was assessed by county and projected forward. In a small number of instances, the future irrigated acres were capped based on total cultivated acres available within a county. The National Land Cover Dataset in 2019 was the source for cultivated acres. This cap was imposed to assure irrigation of cropland does not exceed total cropland. Given the diverse agriculture conditions present across the state, several historical trends were observed, as described in Table 10. These trends guided the projections of irrigated acres to 2075.

Table 10 Guiding Assumptions for Projection of Irrigated Acres

Trend	Model Future Trend	Model Cap	Explanation
Decline	> County average change > Minimum of the 10- or 5-year annual growth rate	Zero	Counties with a decline in irrigated acres were assumed to continue that trend.
Stable	Maximum acreage from 2013-2022	N/A	Counties with little change in irrigated acres was assumed to be relatively stable with no change projected.
Slow Growth	> County average change > Minimum of the 10- or 5-year annual growth rate > Reduce growth rate by 1% every 5 years	Cultivated Acres (NLCD 2019)	Counties with slower growth were assumed to continue with that trend, with the rate slowing over time; the growth in irrigated acres was assumed not to exceed current row crop production.

Trend	Model Future Trend	Model Cap	Explanation
Fast Growth	> County average change > Minimum of the 10- or 5-year annual growth rate > Reduce growth rate by 0.5% every 5 years	Cultivated Acres (NLCD 2019)	Counties with faster growth were assumed to continue with that trend, with the rate slowing slightly over time; the growth in irrigated acres was assumed not to exceed current row crop production.

Notes:
NLCD - National Land Cover Dataset

Results of the county-level irrigated acreage projections are included in Appendix D and shown by region in Figure 11. Statewide, if current trends persist per the assumptions, irrigated acres will grow from the current estimate of 785,000 acres to reach approximately 915,000 acres by 2075. Most of this growth is spread out among the 77 counties. A small number of counties are projected to grow by 10,000 acres or more, including Beaver (21,695), Garfield (13,216), Dewey (11,059), LeFlore (10,990), and Muskogee (10,354).

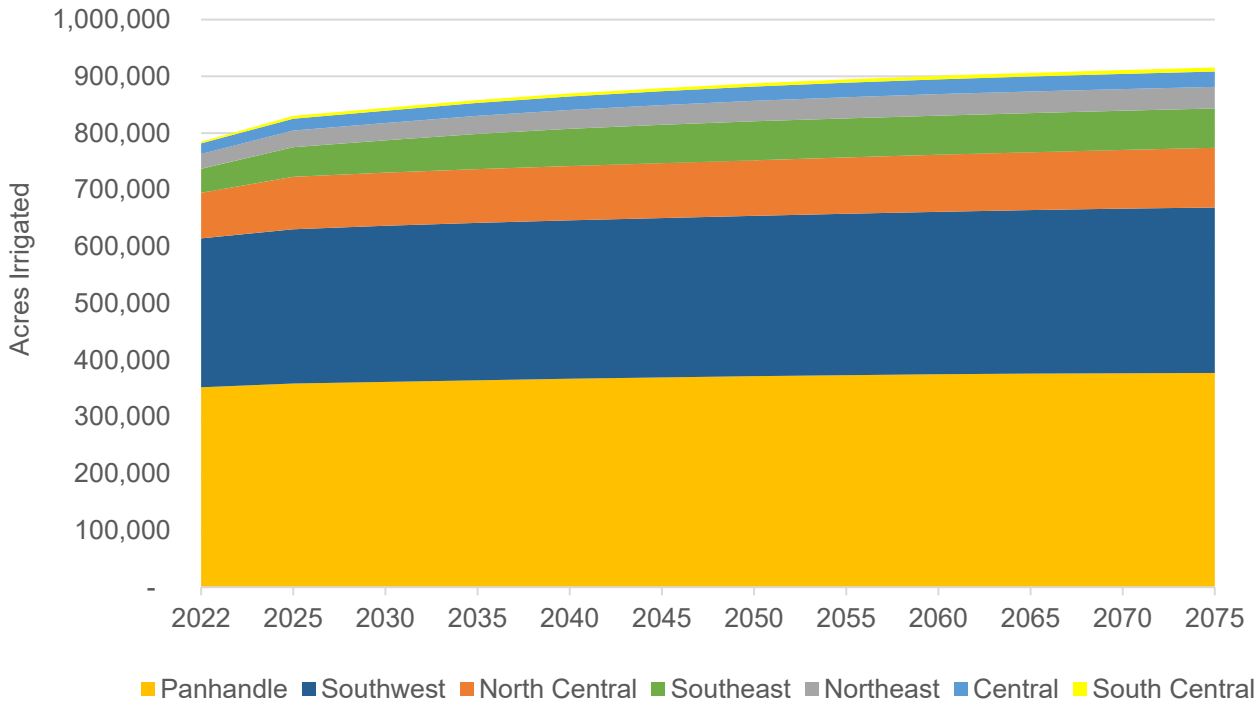


Figure 11 Projection of Irrigated Acres by Region through 2075

8.2.3 Crops Irrigated

From the FSA data primary crops irrigated were assessed, including corn, cotton, wheat, soybeans, hay, sorghum, and peanuts. All other crops irrigated were grouped into an "other" category. Figure 12 shows the current percentage of irrigated acreage attributed to each crop type statewide, while a more detailed table of current irrigated crop acreage by county is included in Appendix D.

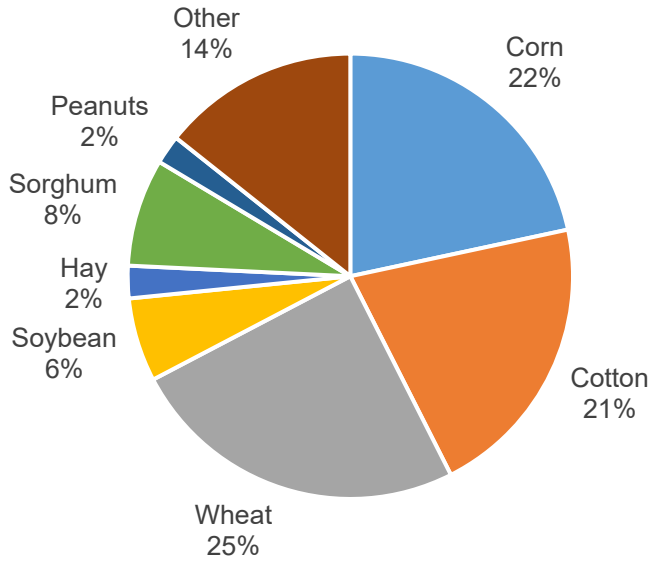


Figure 12 Crops Irrigated Statewide

8.2.4 Irrigation Application Rate

Crop Irrigation water requirements were obtained for all crops, except for wheat, from the Natural Resource Conservation Service (NRCS) Irrigation Guide Report, Oklahoma Supplement (USDA NRCS, 1997). The NRCS Irrigation Guide provides monthly crop irrigation water requirements at 11 locations across Oklahoma: Altus, Ardmore, Chickasha, Elk City, Goodwell, Hugo, Muskogee, Oklahoma City, Ponca City, Tulsa, and Woodward. The normal year assumes a 50 percent chance of effective rainfall. Irrigation requirements in the NRCS Irrigation Guide for the Panhandle counties were compared to the Kansas Water Use Report for Southwest Kansas, as irrigators are required to meter their water use in Kansas (Kansas Department of Agriculture 2017). Corn, soybeans, sorghum were found to be within a few percentage points. However, wheat values in the NRCS Irrigation Guide were found to be low compared to metered water applied to wheat. Thus, the wheat irrigation assumptions were adjusted to reflect the nearby metered use from Kansas. Wheat values from other irrigation stations were proportionally increased as well. Assumptions for the average year irrigation requirements for major crops are shown in Table 11. For "Other" crops, 1 AF per acre was assumed for annual water demand.

Table 11 Irrigation Water Requirements for Average Year by Station (inches per year)

	Corn	Cotton	Sorghum	Peanuts	Pasture Grasses	Soybeans	Wheat
Altus	17.9	14.6	15.8	12.7	22.5	13.4	12.0
Ardmore	15.2	12.6	14.0	11.8	18.7	11.1	12.0
Chickasha	15.3	11.8	12.8	11.5	17.5	8.9	12.0
Elk City	17.5	14.1	15.1	12.7	20.0	11.0	12.0
Goodwell	17.9	18.7	13.6	12.7	20.3	10.2	13.0
Hugo	12.7	14.2	11.3	12.7	15.8	8.2	12.0
Muskogee	13.5	10.5	11.0	11.8	15.0	7.9	10.0

	Corn	Cotton	Sorghum	Peanuts	Pasture Grasses	Soybeans	Wheat
Oklahoma City	14.5	11.2	12.1	10.9	16.5	8.7	12.0
Ponca City	14.0	11.2	11.2	11.8	17.8	8.7	10.0
Tulsa	13.6	11.2	10.6	11.8	16.2	7.4	10.0
Woodward	17.2	18.7	12.7	12.7	21.6	10.2	13.0

Notes:
Source: USDA NRCS 1997.
Wheat values derived from Kansas Water Use Reports for Goodwell.

Crop types from the FSA data by county were matched with irrigation requirements in the Irrigation Guide for one of the 11 reporting locations based on distance and rainfall zone. County assignment to location is shown in Figure 13. The weighted crop irrigation requirements by county are based on county assignments to stations, the acres of each crop type irrigated by county, and the crop irrigation requirements by station. A table of irrigation requirements by county is included in Appendix D. The crop irrigation requirement for each county is assumed to remain constant in the future. That is, under the baseline scenario, the mix of crops planted and irrigated, as well as the water required for these plants which is a function of plant genetics and climatic conditions, is assumed to remain the same in future years for each county as it is now.

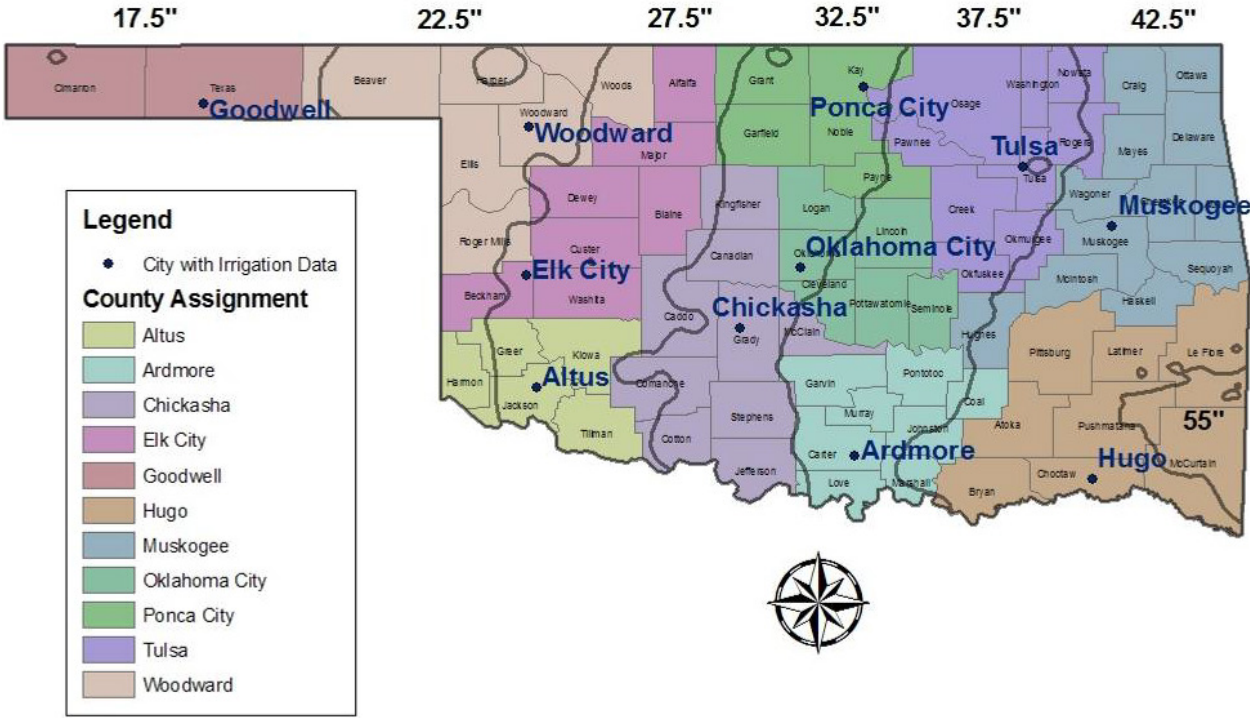


Figure 13 Assignment of Irrigation Data to County Based on Average Annual Precipitation

8.2.5 Irrigation Method and Source of Water

A final step is taken to adjust the irrigation water demands to capture on-farm losses from irrigation distribution systems. These losses need to be considered when estimating total irrigation water withdrawals. To adjust preliminary irrigation water demands to account for these losses, a field application efficiency factor was applied as a function of irrigation methods (surface, sprinkler, or drip irrigation). According to industry trends over the last decade, field application efficiencies were assumed to improve from the 2012 OCWP assumptions and are estimated for sprinkler systems, micro-irrigation (or drip), and surface canals at 90 percent, 95 percent, and 70 percent, respectively.

To assess the county specific sources of supply for irrigation water as well as the irrigation system used, USGS data were compiled for Oklahoma for the most recent year available, 2015. A detailed table that provides the assumptions for source of supply, irrigation method (as a percent of acres), and the calculated weighted efficiency of irrigation systems for each county is included in Appendix D. Overall, 85 percent of the water withdrawn to support Crop Irrigation comes from groundwater sources. Sprinkler systems are most commonly used, at 85 percent of the state total, followed by surface applications (10 percent), and micro-irrigation (5 percent).

8.3 Forecast

Given the assumptions presented herein, and equations noted in the Methodology section, Figure 14 shows the statewide water demand forecast for Crop Irrigation to 2075. Currently, approximately 1.07 million AFY are withdrawn to support Crop Irrigation. This is projected to increase to 1.22 million AFY by 2075, an increase of 153,000 AFY. A detailed table of projections by county is included in Appendix A.

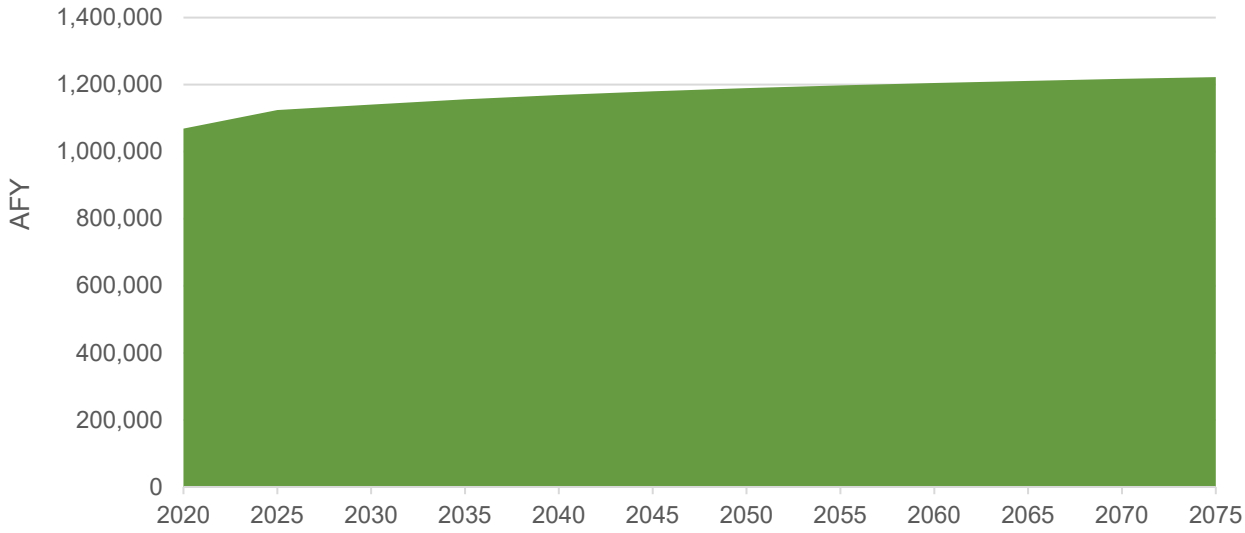


Figure 14 Statewide Crop Irrigation Water Use Projections through 2075

8.4 Demand Allocation by Water Source and to Basins

Crop Irrigation demands were divided between demands supplied by groundwater sources and demands supplied by surface water sources using USGS estimates for the proportion of irrigation-related demands supplied by groundwater and surface water sources for each county in Oklahoma in 2015 (Dieter, 2018).

The Crop Irrigation water demand projections were developed for each county throughout the state since crop data are most readily available by county. However, demand forecasts are needed for each basin to feed into the H2O Tool used in this OCWP. To allocate demand projections to basins, demands within counties were assumed to be spread evenly throughout the county. An area-weighted analysis was used to determine the percent of each county's demands within each OCWP planning basin.

Demands by water source and OCWP planning basin are shown in Appendix B.

SECTION 9 SUMMARY

The statewide total water demand forecast for Oklahoma for each demand sector is summarized in Figure 15 and Table 12. Total demand by county is shown in Table 12. Statewide demand is expected to increase from approximately 1.96 million AFY to 2.22 million AFY between 2020 and 2075, an increase of 13 percent. Crop Irrigation accounts for the majority, or 54 percent, of total demand in 2020. The next largest sector is Public Supply, accounting for 31 percent of total demand in 2020. Each of the other sectors accounts for 2 to 5 percent of the statewide total demand.

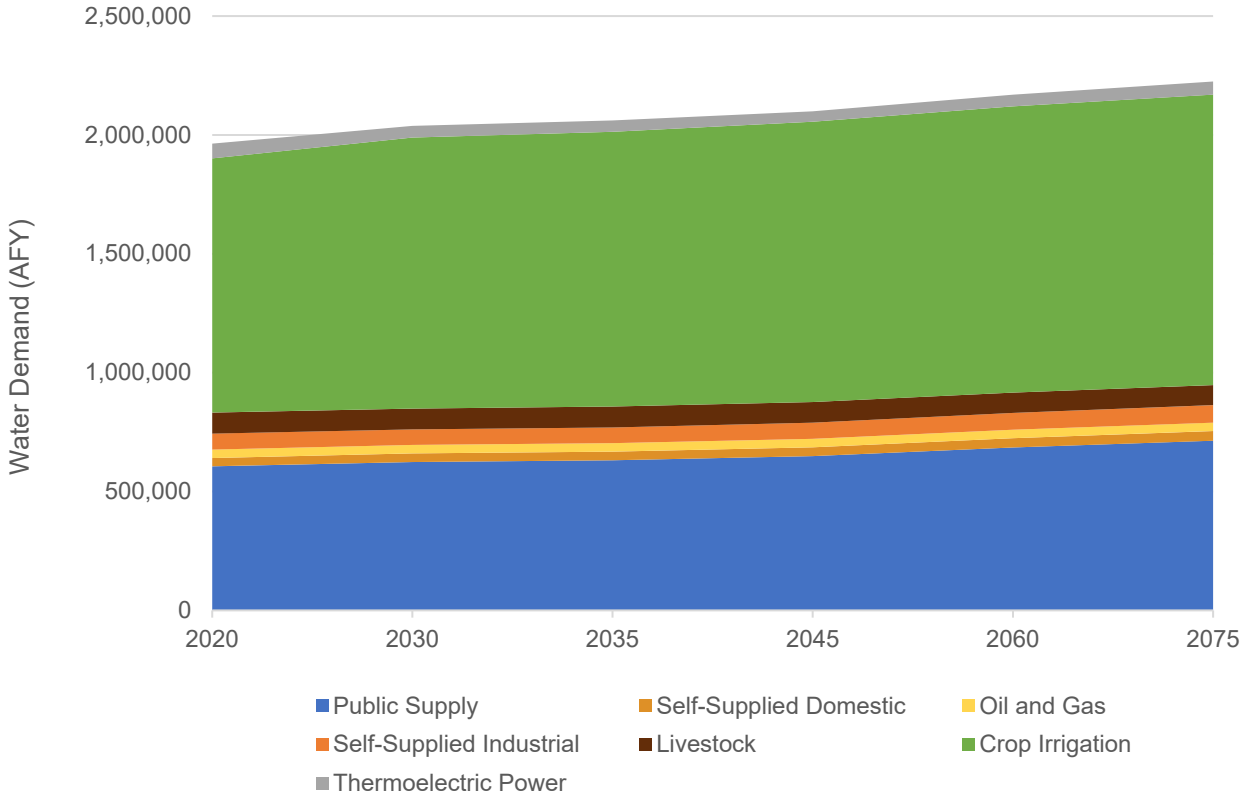


Figure 15 Statewide Total Demand by Sector through 2075

Table 12 Statewide Total Water Demand by Sector through 2075 (AFY)

Sector	2020	2030	2035	2045	2060	2075
Public Supply	606,251	624,288	631,654	649,144	685,270	713,935
Self-Supplied Domestic	34,650	36,070	36,384	37,196	38,954	40,446
Oil and Gas	35,562	35,562	35,562	35,562	35,562	35,562
Thermoelectric Power (Consumption)	62,473	48,786	47,863	43,520	49,043	55,093
Self-Supplied Industrial	67,107	65,416	66,042	67,552	70,818	73,522
Livestock	88,750	87,721	88,020	86,874	85,271	84,222
Crop Irrigation	1,068,913	1,140,116	1,155,591	1,179,455	1,204,608	1,221,984
Total	**1,963,706**	**2,037,959**	**2,061,115**	**2,099,302**	**2,169,526**	**2,224,764**

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APPENDIX A

DEMAND PROJECTIONS BY SECTOR AND COUNTY

APPENDIX A DEMAND PROJECTIONS BY SECTOR AND BY COUNTY

This appendix includes demand projections through 2075 by county for each demand sector. A summary table is included that shows total demand by county. Listed are the tables included herein.

Table A.1 Public Supply Demand Projection by County through 2075 (AFY)

County	2020	2030	2035	2045	2060	2075
Adair	2,163	2,375	2,320	2,209	2,085	1,988
Alfalfa	546	579	596	645	763	848
Atoka	1,165	1,083	1,050	994	916	830
Beaver	614	634	621	600	597	580
Beckham	4,644	4,598	4,629	4,614	4,745	4,755
Blaine	885	825	751	601	419	236
Bryan	7,718	8,586	8,884	9,568	10,767	11,887
Caddo	5,135	5,439	5,312	5,136	4,880	4,673
Canadian	4,319	4,838	5,266	6,232	8,053	9,572
Carter	16,156	16,449	16,483	16,485	16,742	16,864
Cherokee	412	435	433	436	448	457
Choctaw	292	294	284	272	262	247
Cimarron	359	311	296	259	228	183
Cleveland	33,649	34,457	35,263	36,963	40,068	42,672
Coal	559	549	526	475	424	364
Comanche	21,652	20,799	20,210	18,924	17,173	15,430
Cotton	864	783	705	585	419	240
Craig	1,936	1,852	1,776	1,675	1,560	1,410
Creek	7,922	7,962	7,950	7,944	8,057	8,100
Custer	6,245	6,779	7,098	7,714	9,006	10,010
Delaware	1,158	1,219	1,199	1,171	1,158	1,142
Dewey	69	78	83	94	118	137
Ellis	551	563	557	544	546	530
Garfield	9,657	9,695	9,786	10,038	10,565	10,906
Garvin	3,923	4,262	4,261	4,285	4,411	4,518
Grady	1,934	1,925	1,907	1,853	1,773	1,719
Grant	1,249	1,314	1,340	1,391	1,523	1,626
Greer	1,644	1,659	1,622	1,606	1,562	1,502
Harmon	731	736	707	651	551	467
Harper	427	488	473	466	478	478
Haskell	1,102	1,177	1,156	1,112	1,049	1,001
Hughes	1,646	1,575	1,550	1,543	1,546	1,510
Jackson	7,541	6,818	6,379	5,661	4,557	3,415
Jefferson	244	262	254	243	229	214
Johnston	1,042	1,115	1,092	1,075	1,075	1,063
Kay	11,665	11,149	10,832	10,205	9,508	8,650

County	2020	2030	2035	2045	2060	2075
Kingfisher	1,978	2,165	2,202	2,320	2,536	2,744
Kiowa	767	747	720	675	622	559
Latimer	907	883	831	731	609	480
Le Flore	11,151	11,326	11,087	10,772	10,362	9,966
Lincoln	891	930	917	902	891	881
Logan	2,937	3,081	3,197	3,443	3,802	4,170
Love	1,214	1,285	1,333	1,442	1,653	1,830
Major	982	1,029	1,075	1,211	1,457	1,643
Marshall	1,173	1,205	1,170	1,116	1,077	1,030
Mayes	1,459	1,560	1,552	1,524	1,470	1,447
McClain	2,145	2,183	2,206	2,290	2,428	2,574
McCurtain	6,744	7,694	7,919	8,414	9,302	10,097
McIntosh	3,029	2,880	2,713	2,499	2,314	2,020
Murray	4,628	4,743	4,751	4,766	4,806	4,847
Muskogee	21,002	20,718	20,156	19,162	17,995	16,686
Noble	204	204	200	193	187	179
Nowata	1,173	1,269	1,248	1,213	1,181	1,146
Okfuskee	302	316	310	306	305	300
Oklahoma	136,198	146,174	151,524	162,694	181,987	199,065
Okmulgee	5,231	5,272	5,142	4,864	4,534	4,205
Osage	5,180	5,193	5,080	4,834	4,514	4,217
Ottawa	2,863	2,921	2,878	2,837	2,828	2,779
Pawnee	1,911	1,958	1,916	1,840	1,740	1,647
Payne	8,723	9,286	9,515	9,810	10,749	11,358
Pittsburg	4,712	4,477	4,332	4,124	3,913	3,607
Pontotoc	2,745	2,824	2,830	2,863	2,944	3,000
Pottawatomie	5,617	5,758	5,785	5,852	5,961	6,066
Pushmataha	2,117	2,052	1,975	1,880	1,776	1,639
Roger Mills	579	614	609	611	631	642
Rogers	15,677	15,748	15,909	16,092	16,405	16,748
Seminole	2,101	2,129	2,078	1,989	1,890	1,772
Sequoyah	5,478	5,613	5,459	5,178	4,785	4,464
Stephens	4,066	3,916	3,802	3,581	3,332	3,036
Texas	2,319	2,218	2,216	2,209	2,156	2,103
Tillman	2,703	2,635	2,520	2,280	1,990	1,693
Tulsa	149,667	153,251	156,359	163,378	175,533	185,907
Wagoner	5,929	6,190	6,298	6,484	6,739	7,053
Washington	4,315	4,311	4,324	4,381	4,565	4,666

County	2020	2030	2035	2045	2060	2075
Washita	3,107	2,990	2,902	2,718	2,454	2,184
Woods	2,397	2,671	2,736	3,012	3,761	4,227
Woodward	8,116	8,212	8,231	8,383	8,826	9,039
Statewide Total	**606,255**	**624,293**	**631,658**	**649,142**	**685,271**	**713,940**

Table A.2 Self-Supplied Domestic Demand Projection by County through 2075 (AFY)

County	2020	2030	2035	2045	2060	2075
Adair	741	813	794	756	714	681
Alfalfa	87	92	95	103	122	135
Atoka	69	64	62	59	54	49
Beaver	218	225	220	213	211	206
Beckham	515	510	513	511	526	527
Blaine	90	83	76	61	42	24
Bryan	482	536	555	598	673	743
Caddo	751	796	777	751	714	684
Canadian	507	568	619	732	946	1,124
Carter	11	11	11	11	11	12
Cherokee	979	1,034	1,029	1,037	1,066	1,087
Choctaw	277	279	270	258	249	234
Cimarron	58	50	48	42	37	29
Cleveland	1,006	1,030	1,054	1,105	1,197	1,275
Coal	62	61	59	53	47	41
Comanche	314	302	293	275	249	224
Cotton	10	9	8	7	5	3
Craig	64	61	59	56	52	47
Creek	1,053	1,058	1,057	1,056	1,071	1,076
Custer	43	47	49	53	62	69
Delaware	892	939	924	902	892	879
Dewey	121	137	146	165	207	240
Ellis	148	152	150	146	147	143
Garfield	467	469	473	486	511	528
Garvin	560	609	609	612	630	645
Grady	2,166	2,155	2,135	2,075	1,985	1,925
Grant	21	22	22	23	25	27
Greer	20	20	20	20	19	18
Harmon	0	0	0	0	0	0
Harper	29	34	33	32	33	33
Haskell	472	504	495	476	449	428
Hughes	22	21	21	21	21	20
Jackson	4	3	3	3	2	2
Jefferson	4	4	4	4	4	3
Johnston	4	4	4	4	4	4
Kay	4	4	4	4	3	3

County	2020	2030	2035	2045	2060	2075
Kingfisher	482	527	536	565	617	668
Kiowa	10	10	10	9	8	8
Latimer	40	39	37	33	27	21
Le Flore	2	2	2	1	1	1
Lincoln	1,637	1,709	1,683	1,656	1,637	1,618
Logan	1,846	1,936	2,009	2,164	2,390	2,621
Love	11	12	13	14	16	17
Major	79	83	86	97	117	132
Marshall	32	33	32	30	29	28
Mayes	74	80	79	78	75	74
McClain	1,446	1,471	1,487	1,544	1,636	1,735
McCurtain	355	404	416	442	489	531
McIntosh	11	10	10	9	8	7
Murray	56	57	57	57	58	58
Muskogee	160	158	153	146	137	127
Noble	127	128	125	121	117	112
Nowata	119	129	127	123	120	116
Okfuskee	125	131	128	127	126	124
Oklahoma	6,689	7,179	7,441	7,990	8,937	9,776
Okmulgee	21	21	21	20	18	17
Osage	794	796	779	741	692	647
Ottawa	812	828	816	805	802	788
Pawnee	340	349	341	327	310	293
Payne	500	532	545	562	616	651
Pittsburg	2	2	2	1	1	1
Pontotoc	425	437	438	443	455	464
Pottawatomie	2,542	2,606	2,618	2,648	2,697	2,745
Pushmataha	76	74	71	68	64	59
Roger Mills	112	119	118	118	122	124
Rogers	890	894	903	914	932	951
Seminole	463	470	458	439	417	391
Sequoyah	43	44	42	40	37	35
Stephens	343	330	320	302	281	256
Texas	11	11	11	11	10	10
Tillman	31	31	29	26	23	20
Tulsa	705	722	737	770	827	876
Wagoner	403	420	428	440	458	479
Washington	261	260	261	265	276	282

County	2020	2030	2035	2045	2060	2075
Washita	32	30	30	28	25	22
Woods	135	151	154	170	212	238
Woodward	139	140	141	143	151	154
Statewide Total	**34,652**	**36,071**	**36,385**	**37,197**	**38,951**	**40,445**

Table A.3 Oil and Gas Demand Projection by County through 2075 (AFY)

County	2020	2025-2075
Adair	0	0
Alfalfa	538	538
Atoka	132	132
Beaver	50	50
Beckham	126	126
Blaine	2,606	2,606
Bryan	12	12
Caddo	350	350
Canadian	4,629	4,629
Carter	1,940	1,940
Cherokee	0	0
Choctaw	0	0
Cimarron	21	21
Cleveland	36	36
Coal	485	485
Comanche	9	9
Cotton	13	13
Craig	17	17
Creek	229	229
Custer	516	516
Delaware	0	0
Dewey	1,296	1,296
Ellis	889	889
Garfield	667	667
Garvin	1,135	1,135
Grady	3,113	3,113
Grant	50	50
Greer	0	0
Harmon	4	4
Harper	13	13
Haskell	126	126
Hughes	2,199	2,199
Jackson	37	37
Jefferson	36	36
Johnston	156	156

County	2020	2025-2075
Kay	174	174
Kingfisher	6,128	6,128
Kiowa	34	34
Latimer	40	40
Le Flore	4	4
Lincoln	230	230
Logan	338	338
Love	185	185
Major	974	974
Marshall	0	0
Mayes	234	234
McClain	819	819
McCurtain	198	198
McIntosh	13	13
Murray	29	29
Muskogee	47	47
Noble	161	161
Nowata	38	38
Okfuskee	167	167
Oklahoma	393	393
Okmulgee	94	94
Osage	50	50
Ottawa	0	0
Pawnee	134	134
Payne	188	188
Pittsburg	639	639
Pontotoc	130	130
Pottawatomie	145	145
Pushmataha	26	26
Roger Mills	364	364
Rogers	13	13
Seminole	295	295
Sequoyah	0	0
Stephens	582	582
Texas	191	191
Tillman	88	88
Tulsa	60	60

County	2020	2025-2075
Wagoner	47	47
Washington	94	94
Washita	78	78
Woods	372	372
Woodward	333	333
Statewide Total	**35,559**	**35,559**

Table A.4 Thermoelectric Power Generation Water Consumption Projections by County through 2075 (AFY)

County	2020	2030	2035	2045	2060	2075
Caddo	1,042	708	672	866	1,010	1,136
Canadian	9	6	6	2	2	2
Choctaw	2,335	1,657	1,554	555	474	464
Comanche	187	127	120	155	181	204
Kay	8	6	5	7	8	9
Le Flore	1,151	816	766	273	234	229
Mayes	4,652	3,955	4,003	4,716	5,511	6,290
McClain	1,797	1,221	1,158	1,493	1,742	1,959
McCurtain	824	1,554	1,797	2,087	2,493	2,946
Muskogee	6,962	7,363	7,814	8,606	10,068	11,629
Noble	21,318	15,125	14,186	5,064	4,327	4,236
Oklahoma	6,186	4,203	3,987	5,139	5,996	6,742
Pittsburg	3,392	2,304	2,186	2,817	3,287	3,696
Rogers	2,707	2,988	3,197	3,481	4,073	4,714
Seminole	621	422	401	516	602	677
Tulsa	4,940	3,379	3,213	4,136	4,827	5,430
Wagoner	4,178	2,839	2,693	3,471	4,050	4,553
Woodward	164	111	106	136	159	179
Statewide Total	**62,473**	**48,784**	**47,864**	**43,520**	**49,044**	**55,095**

Table A.5 Self-Supplied Industrial Demand Projections by County through 2075 (AFY)

County	2020	2030	2035	2045	2060	2075
Atoka	126	123	119	113	104	94
Beaver	163	159	156	151	150	146
Grady	5,004	4,878	4,833	4,696	4,492	4,356
Jackson	140	136	127	113	91	68
Kay	3,730	3,636	3,533	3,329	3,101	2,821
McCurtain	40,273	39,258	40,410	42,933	47,466	51,521
Muskogee	12,505	12,190	11,859	11,274	10,588	9,818
Osage	944	920	900	857	800	747
Pittsburg	536	523	506	482	457	421
Pontotoc	270	263	264	267	274	280
Rogers	408	397	401	406	414	423
Sequoyah	12	12	11	11	10	9
Texas	2,783	2,713	2,711	2,702	2,638	2,573
Tulsa	182	177	181	189	203	215
Statewide Total	**67,076**	**65,385**	**66,011**	**67,523**	**70,788**	**73,492**

Table A.6 Livestock Demand Projections by County through 2075 (AFY)

County	2021	2030	2035	2045	2060	2075
Adair	1,514	1,562	1,584	1,573	1,548	1,533
Alfalfa	1,087	1,054	1,052	1,023	983	949
Atoka	958	930	928	904	869	841
Beaver	1,731	1,747	1,767	1,789	1,825	1,874
Beckham	685	665	663	645	620	600
Blaine	1,325	1,285	1,282	1,247	1,198	1,156
Bryan	1,193	1,158	1,155	1,125	1,082	1,046
Caddo	1,777	1,750	1,755	1,735	1,709	1,694
Canadian	1,449	1,408	1,405	1,369	1,318	1,276
Carter	828	805	803	783	755	732
Cherokee	730	720	721	706	684	667
Choctaw	1,035	1,005	1,003	976	940	909
Cimarron	1,675	1,623	1,619	1,575	1,513	1,461
Cleveland	323	315	315	308	298	290
Coal	659	651	653	646	638	634
Comanche	1,095	1,063	1,060	1,032	993	961
Cotton	967	938	936	911	875	845
Craig	1,691	1,655	1,656	1,618	1,562	1,517
Creek	592	577	577	564	545	530
Custer	1,422	1,379	1,376	1,338	1,286	1,243
Delaware	2,161	2,236	2,272	2,259	2,227	2,209
Dewey	909	882	880	856	822	794
Ellis	1,325	1,330	1,343	1,352	1,370	1,397
Garfield	1,222	1,185	1,182	1,150	1,106	1,068
Garvin	1,154	1,121	1,118	1,090	1,049	1,016
Grady	2,513	2,456	2,443	2,386	2,308	2,243
Grant	497	483	482	469	452	437
Greer	417	404	404	393	378	365
Harmon	589	571	569	554	532	513
Harper	1,525	1,495	1,497	1,473	1,441	1,419
Haskell	1,127	1,134	1,144	1,130	1,107	1,092
Hughes	2,300	2,335	2,365	2,407	2,476	2,561
Jackson	433	420	419	408	392	379
Jefferson	1,299	1,260	1,257	1,223	1,175	1,136
Johnston	546	530	530	517	498	483
Kay	544	528	527	513	494	479

County	2021	2030	2035	2045	2060	2075
Kingfisher	2,056	2,047	2,060	2,059	2,061	2,077
Kiowa	904	876	875	851	818	791
Latimer	592	575	574	559	538	520
Le Flore	2,178	2,273	2,315	2,310	2,287	2,278
Lincoln	1,129	1,100	1,098	1,073	1,038	1,010
Logan	720	700	699	682	658	638
Love	438	426	426	416	401	390
Major	1,759	1,759	1,773	1,779	1,792	1,817
Marshall	405	394	393	383	369	357
Mayes	1,297	1,278	1,278	1,250	1,209	1,176
McClain	763	742	740	722	696	675
McCurtain	1,861	1,925	1,956	1,946	1,919	1,904
McIntosh	663	646	645	629	606	587
Murray	462	449	446	434	417	403
Muskogee	1,079	1,054	1,054	1,030	994	965
Noble	820	796	794	773	743	719
Nowata	995	966	964	938	902	873
Okfuskee	684	666	665	650	629	612
Oklahoma	258	252	251	246	239	233
Okmulgee	729	708	707	689	664	643
Osage	1,889	1,834	1,830	1,783	1,716	1,660
Ottawa	954	957	964	950	926	908
Pawnee	569	552	551	537	516	499
Payne	876	853	851	831	802	778
Pittsburg	1,211	1,176	1,173	1,142	1,098	1,062
Pontotoc	699	679	678	662	639	620
Pottawatomie	804	784	784	767	743	724
Pushmataha	505	491	490	478	460	445
Roger Mills	921	893	891	866	832	804
Rogers	1,002	976	975	951	917	890
Seminole	583	571	571	561	547	537
Sequoyah	629	622	624	612	594	579
Stephens	1,109	1,076	1,074	1,046	1,007	974
Texas	9,122	9,328	9,473	9,706	10,080	10,518
Tillman	1,049	1,019	1,011	981	940	904
Tulsa	187	183	183	179	174	171
Wagoner	504	490	489	477	459	445
Washington	543	528	527	513	494	479

County	2021	2030	2035	2045	2060	2075
Washita	1,484	1,439	1,436	1,397	1,342	1,296
Woods	1,343	1,302	1,299	1,263	1,213	1,172
Woodward	1,689	1,691	1,706	1,714	1,731	1,758
Statewide Total	**88,761**	**87,736**	**88,035**	**86,882**	**85,278**	**84,240**

Table A.7 Crop Irrigation Projections by County through 2075 (AFY)

County	Average 2020-2022	2030	2035	2045	2060	2075
Adair	21	297	297	297	297	297
Alfalfa	4,186	4,830	4,830	4,830	4,830	4,830
Atoka	464	634	634	634	634	634
Beaver	78,885	87,434	91,394	98,432	106,089	109,396
Beckham	24,320	25,267	25,375	25,375	25,375	25,375
Blaine	11,670	13,501	14,420	16,220	18,673	20,588
Bryan	14,150	16,390	17,516	19,727	20,712	20,712
Caddo	62,053	64,993	65,541	65,541	65,541	65,541
Canadian	6,244	7,284	7,812	8,861	10,333	11,540
Carter	470	565	565	565	565	565
Cherokee	48	143	143	143	143	143
Choctaw	1,430	1,712	1,860	2,166	2,627	3,055
Cimarron	127,919	133,147	133,147	133,147	133,147	133,147
Cleveland	386	510	510	510	510	510
Coal	2	816	816	816	816	816
Comanche	1,147	1,350	1,455	1,665	1,969	2,230
Cotton	131	164	164	164	164	164
Craig	0	0	0	0	0	0
Creek	0	0	0	0	0	0
Custer	14,201	16,490	16,490	16,490	16,490	16,490
Delaware	0	78	78	78	78	78
Dewey	7,015	8,807	9,803	11,980	15,642	19,593
Ellis	17,202	17,651	17,651	17,651	17,651	17,651
Garfield	5,105	6,752	7,715	9,940	14,061	19,104
Garvin	68	248	248	248	248	248
Grady	1,969	814	469	156	30	6
Grant	3,318	3,402	3,402	3,402	3,402	3,402
Greer	13,713	14,258	14,325	14,325	14,325	14,325
Harmon	55,731	57,517	57,569	57,569	57,569	57,569
Harper	22,188	24,931	24,931	24,931	24,931	24,931
Haskell	182	278	278	278	278	278
Hughes	1,402	2,189	2,719	3,848	3,848	3,848
Jackson	92,476	93,850	93,850	93,850	93,850	93,850
Jefferson	9	131	131	131	131	131
Johnston	442	660	802	1,171	1,999	3,287
Kay	6,790	9,208	9,208	9,208	9,208	9,208

County	Average 2020-2022	2030	2035	2045	2060	2075
Kingfisher	13,356	14,864	15,457	16,237	16,398	16,398
Kiowa	6,327	6,950	7,181	7,443	7,466	7,466
Latimer	34	236	236	236	236	236
Le Flore	12,540	18,104	21,617	23,609	23,609	23,609
Lincoln	33	100	100	100	100	100
Logan	497	818	818	818	818	818
Love	429	1,780	1,780	1,780	1,780	1,780
Major	28,630	35,522	35,522	35,522	35,522	35,522
Marshall	559	28	4	0	0	0
Mayes	0	0	0	0	0	0
McClain	269	606	606	606	606	606
McCurtain	3,744	5,822	5,822	5,822	5,822	5,822
McIntosh	0	100	100	100	100	100
Murray	24	25	25	25	25	25
Muskogee	14,036	16,560	17,864	20,498	23,650	23,650
Noble	42	102	102	102	102	102
Nowata	0	68	68	68	68	68
Okfuskee	300	526	526	526	526	526
Oklahoma	218	527	527	527	527	527
Okmulgee	140	400	400	400	400	400
Osage	1,488	2,344	2,344	2,344	2,344	2,344
Ottawa	36	75	75	75	75	75
Pawnee	220	1,980	1,980	1,980	1,980	1,980
Payne	52	207	207	207	207	207
Pittsburg	3	515	515	515	515	515
Pontotoc	0	9	9	9	9	9
Pottawatomie	958	1,597	1,597	1,597	1,597	1,597
Pushmataha	0	0	0	0	0	0
Roger Mills	10,044	11,349	11,349	11,349	11,349	11,349
Rogers	360	408	408	408	408	408
Seminole	0	362	362	362	362	362
Sequoyah	2,564	2	0	0	0	0
Stephens	1,379	2,047	2,047	2,047	2,047	2,047
Texas	315,250	315,250	315,250	315,250	315,250	315,250
Tillman	48,948	49,922	49,922	49,922	49,922	49,922
Tulsa	64	1	0	0	0	0

County	Average 2020-2022	2030	2035	2045	2060	2075
Wagoner	6,127	6,186	6,186	6,186	6,186	6,186
Washington	0	0	0	0	0	0
Washita	12,650	15,359	15,359	15,359	15,359	15,359
Woods	4,800	4,974	4,988	4,988	4,988	4,988
Woodward	7,593	8,558	8,558	8,558	8,558	8,558
Statewide Total	**1,069,051**	**1,140,584**	**1,156,059**	**1,179,924**	**1,205,077**	**1,222,453**

Table A.8 Total Water Withdrawal by County Through 2075 (AFY)[1]

County	2020	2030	2035	2045	2060	2075
Adair	4,439	5,047	4,995	4,835	4,644	4,499
Alfalfa	6,444	7,093	7,111	7,139	7,236	7,300
Atoka	2,914	2,966	2,925	2,836	2,709	2,580
Beaver	81,661	90,249	94,208	101,235	108,922	112,252
Beckham	30,290	31,166	31,306	31,271	31,392	31,383
Blaine	16,576	18,300	19,135	20,735	22,938	24,610
Bryan	23,555	26,682	28,122	31,030	33,246	34,400
Caddo	71,686	74,429	74,779	74,859	74,764	74,708
Canadian	17,163	18,738	19,741	21,827	25,282	28,144
Carter	19,405	19,770	19,802	19,784	20,013	20,113
Cherokee	2,169	2,332	2,326	2,322	2,341	2,354
Choctaw	5,384	4,957	4,980	4,230	4,555	4,912
Cimarron	130,032	135,152	135,131	135,044	134,946	134,841
Cleveland	35,400	36,348	37,178	38,922	42,109	44,783
Coal	1,767	2,562	2,539	2,475	2,410	2,340
Comanche	24,440	23,675	23,171	22,090	20,609	19,097
Cotton	1,985	1,907	1,826	1,680	1,476	1,265
Craig	3,708	3,585	3,508	3,366	3,191	2,991
Creek	9,796	9,826	9,813	9,793	9,902	9,935
Custer	22,427	25,211	25,529	26,111	27,360	28,328
Delaware	4,211	4,472	4,473	4,410	4,355	4,308
Dewey	9,410	11,200	12,208	14,391	18,085	22,060
Ellis	20,115	20,585	20,590	20,582	20,603	20,610
Garfield	17,118	18,768	19,823	22,281	26,910	32,273
Garvin	6,840	7,375	7,371	7,370	7,473	7,562
Grady	16,699	15,341	14,900	14,279	13,701	13,362
Grant	5,135	5,271	5,296	5,335	5,452	5,542
Greer	15,794	16,341	16,371	16,344	16,284	16,210
Harmon	57,055	58,828	58,849	58,778	58,656	58,553
Harper	24,182	26,961	26,947	26,915	26,896	26,874
Haskell	3,009	3,219	3,199	3,122	3,009	2,925
Hughes	7,569	8,319	8,854	10,018	10,090	10,138
Jackson	100,631	101,264	100,815	100,072	98,929	97,751
Jefferson	1,592	1,693	1,682	1,637	1,575	1,520
Johnston	2,190	2,465	2,584	2,923	3,732	4,993
Kay	22,917	24,706	24,285	23,442	22,498	21,346

County	2020	2030	2035	2045	2060	2075
Kingfisher	24,000	25,731	26,383	27,309	27,740	28,015
Kiowa	8,042	8,617	8,820	9,012	8,948	8,858
Latimer	1,613	1,773	1,718	1,599	1,450	1,297
Le Flore	27,164	32,624	35,883	37,002	36,525	36,114
Lincoln	3,920	4,069	4,028	3,961	3,896	3,839
Logan	6,338	6,873	7,061	7,445	8,006	8,585
Love	2,277	3,688	3,737	3,837	4,035	4,202
Major	32,424	39,367	39,430	39,583	39,862	40,088
Marshall	2,169	1,660	1,599	1,529	1,475	1,415
Mayes	8,664	7,946	8,002	8,798	9,663	10,552
McClain	7,582	7,275	7,237	7,758	8,259	8,741
McCurtain	54,484	57,769	59,574	63,069	69,154	74,750
McIntosh	3,716	3,649	3,481	3,250	3,041	2,727
Murray	5,199	5,303	5,308	5,311	5,335	5,362
Muskogee	71,502	69,542	70,055	74,647	79,687	81,236
Noble	774,779	550,109	516,057	185,058	158,305	154,955
Nowata	2,325	2,470	2,445	2,380	2,309	2,241
Okfuskee	1,578	1,806	1,796	1,776	1,753	1,729
Oklahoma	401,567	329,690	326,304	386,009	441,960	490,951
Okmulgee	6,215	6,495	6,364	6,067	5,710	5,359
Osage	10,345	11,137	10,983	10,609	10,116	9,665
Ottawa	4,665	4,781	4,733	4,667	4,631	4,550
Pawnee	3,174	4,973	4,922	4,818	4,680	4,553
Payne	10,339	11,066	11,306	11,598	12,562	13,182
Pittsburg	11,076	10,032	9,728	10,203	10,474	10,575
Pontotoc	4,269	4,342	4,349	4,374	4,451	4,503
Pottawatomie	10,066	10,890	10,929	11,009	11,143	11,277
Pushmataha	2,724	2,643	2,562	2,452	2,326	2,169
Roger Mills	12,020	13,339	13,331	13,308	13,298	13,283
Rogers	22,013	22,480	22,935	23,494	24,600	25,812
Seminole	710,765	484,404	459,658	591,206	689,067	774,183
Sequoyah	8,726	6,293	6,136	5,841	5,426	5,087
Stephens	7,479	7,951	7,825	7,558	7,249	6,895
Texas	329,676	329,711	329,852	330,069	330,325	330,645
Tillman	52,819	53,695	53,570	53,297	52,963	52,627
Tulsa	156,613	158,335	161,270	169,401	182,429	193,567
Wagoner	18,194	16,855	16,789	17,940	18,913	19,859
Washington	5,213	5,193	5,206	5,253	5,429	5,521

County	2020	2030	2035	2045	2060	2075
Washita	17,351	19,896	19,805	19,580	19,258	18,939
Woods	9,047	9,470	9,549	9,805	10,546	10,997
Woodward	18,377	19,278	19,295	19,552	20,090	20,394
Statewide Total	**3,696,217**	**3,240,023**	**3,196,387**	**3,094,917**	**3,275,382**	**3,446,161**

Notes:

(1) For Thermoelectric Power, consumptive demands are a small fraction of total withdrawals and a large portion is returned to the watershed; thus, both demand calculations are provided in Appendix A. All other sectors return only a small portion of withdrawals, which is not distinguished in this table. For those sectors, the return flow factor is accounted for in OWRB's H2O Tool to estimate water supply availability on a basin scale.

APPENDIX B

DEMANDS BY SECTOR BY PLANNING BASIN

APPENDIX B

DEMANDS BY SECTOR BY PLANNING BASIN

This appendix includes projected demands for each demand sector by OCWP Planning Basin for key planning periods. Demands for each sector are shown for groundwater, surface water, and total demands. Small differences between projections occur when county level projections are converted to basin level projections. Basin projections are used to evaluate water availability.

Table B.1 Public Supply Demand Projections by OCWP Planning Basin – Groundwater (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	-	-	-	-	-	-
2	Little River (McCurtain County) - 1	-	-	-	-	-	-
3	Little River (McCurtain County) - 2	-	-	-	-	-	-
4	Little River (McCurtain County) - 3	-	-	-	-	-	-
5	Kiamichi River - 1	243	244	236	226	218	205
6	Kiamichi River - 2	-	-	-	-	-	-
7	Muddy Boggy River - 1	10	10	9	9	9	8
8	Muddy Boggy River - 2	285	268	260	247	230	210
9	Clear Boggy Creek	215	221	220	220	224	225
10	Red River Mainstem (To Blue River)	37	37	36	35	34	32
11	Blue River - 1	60	67	69	75	84	93
12	Blue River - 2	756	830	853	909	1,008	1,099
13	Red River Mainstem (To Washita)	244	272	281	303	341	376
14	Lower Washita	3,022	3,148	3,141	3,134	3,167	3,189
15	Middle Washita - 1	158	165	166	169	177	184
16	Middle Washita - 2	1,481	1,511	1,489	1,443	1,377	1,328
17	Upper Washita - 1	219	232	227	219	208	200
18	Upper Washita - 2	217	210	204	192	174	156
19	Upper Washita - 3	2,845	2,934	2,976	3,051	3,260	3,397
20	Washita Headwaters	123	131	131	133	141	146
21	Red River Mainstem (To Walnut Bayou)	1,684	1,771	1,793	1,857	2,005	2,121
22	Walnut Bayou	185	188	188	188	191	193
23	Mud Creek	26	27	26	25	24	22
24	Beaver Creek - 1	131	140	136	130	123	115
25	Beaver Creek - 2	353	340	330	311	288	262
26	Beaver Creek - 3	145	142	138	130	121	111
27	Cache Creek - 1	72	65	59	49	35	20

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
28	Cache Creek - 2	1,646	1,590	1,539	1,437	1,297	1,158
29	Deep Red Creek and West Cache Creek - 1	215	202	191	171	144	115
30	Deep Red Creek and West Cache Creek - 2	119	116	111	100	88	75
31	Red River Mainstem (To North Fork of Red)	186	178	167	147	122	96
32	Lower North Fork Red River - 1	40	39	37	33	29	25
33	Lower North Fork Red River - 2	362	332	313	281	233	183
34	Lower North Fork Red River - 3	2,764	2,725	2,727	2,693	2,721	2,686
35	Lower North Fork Red River - 4	-	-	-	-	-	-
36	Upper North Fork Red River - 1	245	247	241	239	232	224
37	Upper North Fork Red River - 2	2,658	2,654	2,667	2,661	2,738	2,749
38	Salt Fork Red River - 1	507	496	479	461	428	392
39	Salt Fork Red River - 2	85	86	84	83	81	78
40	Prairie Dog Town Fork Red River - 1	21	19	18	16	13	10
41	Prairie Dog Town Fork Red River - 2	709	714	686	632	535	453
42	Elm Fork Red River - 1	972	980	958	949	923	887
43	Elm Fork Red River - 2	2	2	2	2	3	3
44	Poteau River - 1	-	-	-	-	-	-
45	Poteau River - 2	-	-	-	-	-	-
46	Lower Arkansas River - 1	3	3	3	3	3	2
47	Lower Arkansas River - 2	165	162	157	148	139	127
48	Canadian River (To North Canadian River)	2,426	2,421	2,364	2,280	2,189	2,069
49	Middle Arkansas River	326	327	324	318	315	310
50	Lower North Canadian River	6,545	7,003	7,252	7,785	8,723	9,543
51	Middle North Canadian River	2,562	2,766	2,915	3,262	3,971	4,546
52	Upper North Canadian River - 1	755	768	773	793	847	877
53	Upper North Canadian River - 2	7,919	8,051	8,054	8,181	8,591	8,779
54	Upper North Canadian River - 3	464	475	469	458	461	447
55	North Canadian Headwaters	2,895	2,753	2,732	2,681	2,596	2,491
56	Lower Canadian River - 1	898	904	904	914	940	954

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
57	Lower Canadian River - 2	1,041	1,055	1,062	1,090	1,135	1,187
58	Middle Canadian River	15,854	16,310	16,728	17,635	19,304	20,722
59	Upper Canadian River	1,666	1,789	1,839	1,941	2,171	2,346
60	Deep Fork River	4,349	4,651	4,802	5,122	5,681	6,174
61	Little River - 1	94	96	96	95	95	94
62	Little River - 2	3,986	4,112	4,204	4,401	4,761	5,064
63	Lower Cimarron River	1,062	1,121	1,154	1,215	1,331	1,432
64	Middle Cimarron River	9,062	9,682	9,986	10,782	12,354	13,616
65	Upper Cimarron River	781	863	866	912	1,061	1,147
66	Cimarron Headwaters	-	-	-	-	-	-
67	Lower Salt Fork Arkansas River - 1	3,356	3,208	3,117	2,937	2,736	2,489
68	Upper Salt Fork Arkansas River	2,688	2,885	2,947	3,141	3,655	3,999
69	Lower Salt Fork Arkansas River - 2	1,393	1,331	1,293	1,218	1,135	1,033
70	Lower Salt Fork Arkansas River - 3	94	90	88	83	77	70
71	Arkansas River - Cimarron Rivers to Keystone Lake	2,646	2,759	2,795	2,844	3,020	3,127
72	Arkansas River Mainstem (To Kansas State Line)	5,245	5,038	4,914	4,673	4,417	4,086
73	Bird Creek - 1	-	-	-	-	-	-
74	Bird Creek - 2	85	85	83	79	74	69
75	Caney River - 1	-	-	-	-	-	-
76	Caney River - 2	6	6	6	6	5	5
77	Verdigris River (To Oologah Dam) - 1	1	1	1	1	1	1
78	Verdigris River (To Oologah Dam) - 2	-	-	-	-	-	-
79	Verdigris River (To Kansas State Line)	-	-	-	-	-	-
80	Grand (Neosho) River - 1	253	250	243	232	221	207
81	Grand (Neosho) River - 2	3,039	3,106	3,060	3,015	3,003	2,952
82	Illinois River	70	74	73	71	70	69
	Total	**104,773**	**107,482**	**108,496**	**111,275**	**118,107**	**122,856**

Table B.2 Public Supply Demand Projections by OCWP Planning Basin – Surface Water (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	2,159	2,464	2,536	2,694	2,979	3,233
2	Little River (McCurtain County) - 1	1,267	1,445	1,487	1,580	1,747	1,896
3	Little River (McCurtain County) - 2	3,079	3,513	3,616	3,842	4,247	4,610
4	Little River (McCurtain County) - 3	239	272	280	298	329	357
5	Kiamichi River - 1	936	908	873	832	785	725
6	Kiamichi River - 2	1,248	1,214	1,169	1,114	1,053	975
7	Muddy Boggy River - 1	-	-	-	-	-	-
8	Muddy Boggy River - 2	1,485	1,415	1,369	1,285	1,186	1,071
9	Clear Boggy Creek	878	900	897	898	915	922
10	Red River Mainstem (To Blue River)	10	11	11	12	14	15
11	Blue River - 1	430	478	495	533	600	662
12	Blue River - 2	4,920	5,429	5,598	5,992	6,686	7,332
13	Red River Mainstem (To Washita)	1,740	1,936	2,003	2,157	2,427	2,680
14	Lower Washita	14,009	14,375	14,354	14,303	14,431	14,475
15	Middle Washita - 1	146	158	158	159	164	168
16	Middle Washita - 2	1,694	1,787	1,745	1,685	1,598	1,527
17	Upper Washita - 1	601	637	622	602	572	547
18	Upper Washita - 2	219	216	210	198	181	165
19	Upper Washita - 3	3,326	3,469	3,534	3,657	3,969	4,186
20	Washita Headwaters	41	44	44	44	46	48
21	Red River Mainstem (To Walnut Bayou)	7,171	7,362	7,349	7,337	7,464	7,524
22	Walnut Bayou	3,498	3,562	3,569	3,569	3,625	3,651
23	Mud Creek	99	99	98	96	95	92
24	Beaver Creek - 1	56	60	58	56	53	49
25	Beaver Creek - 2	1,883	1,812	1,760	1,654	1,527	1,386
26	Beaver Creek - 3	543	523	508	479	446	406
27	Cache Creek - 1	123	112	101	83	60	34
28	Cache Creek - 2	18,339	17,646	17,137	16,045	14,554	13,073

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	1,773	1,695	1,637	1,520	1,360	1,199
30	Deep Red Creek and West Cache Creek - 2	1,018	992	949	859	751	639
31	Red River Mainstem (To North Fork of Red)	1,189	1,152	1,097	986	850	710
32	Lower North Fork Red River - 1	337	328	314	284	248	211
33	Lower North Fork Red River - 2	4,661	4,221	3,953	3,513	2,839	2,141
34	Lower North Fork Red River - 3	491	473	458	428	388	346
35	Lower North Fork Red River - 4	46	45	43	41	37	34
36	Upper North Fork Red River - 1	-	-	-	-	-	-
37	Upper North Fork Red River - 2	110	116	115	116	119	121
38	Salt Fork Red River - 1	2,184	1,975	1,848	1,640	1,320	989
39	Salt Fork Red River - 2	-	-	-	-	-	-
40	Prairie Dog Town Fork Red River - 1	332	300	281	249	200	150
41	Prairie Dog Town Fork Red River - 2	-	-	-	-	-	-
42	Elm Fork Red River - 1	-	-	-	-	-	-
43	Elm Fork Red River - 2	-	-	-	-	-	-
44	Poteau River - 1	3,004	3,052	2,987	2,902	2,792	2,685
45	Poteau River - 2	8,165	8,256	8,048	7,744	7,354	6,967
46	Lower Arkansas River - 1	6,734	6,925	6,748	6,431	5,992	5,627
47	Lower Arkansas River - 2	16,530	16,300	15,823	15,014	14,085	13,018
48	Canadian River (To North Canadian River)	11,032	10,746	10,401	9,853	9,278	8,544
49	Middle Arkansas River	103,550	105,757	107,478	111,430	118,501	124,448
50	Lower North Canadian River	58,127	62,206	64,372	68,902	76,728	83,657
51	Middle North Canadian River	1,886	2,024	2,098	2,253	2,521	2,758
52	Upper North Canadian River - 1	-	-	-	-	-	-
53	Upper North Canadian River - 2	-	-	-	-	-	-
54	Upper North Canadian River - 3	-	-	-	-	-	-
55	North Canadian Headwaters	-	-	-	-	-	-
56	Lower Canadian River - 1	2,325	2,369	2,387	2,441	2,553	2,635
57	Lower Canadian River - 2	75	76	77	80	85	90

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	6,420	6,642	6,816	7,184	7,843	8,405
59	Upper Canadian River	2,415	2,598	2,655	2,776	3,049	3,261
60	Deep Fork River	43,051	46,060	47,643	50,961	56,731	61,824
61	Little River - 1	397	407	409	414	422	429
62	Little River - 2	19,068	19,850	20,379	21,493	23,470	25,174
63	Lower Cimarron River	8,341	8,410	8,509	8,762	9,264	9,618
64	Middle Cimarron River	20,295	21,766	22,559	24,220	27,072	29,612
65	Upper Cimarron River	-	-	-	-	-	-
66	Cimarron Headwaters	-	-	-	-	-	-
67	Lower Salt Fork Arkansas River - 1	717	686	666	628	585	532
68	Upper Salt Fork Arkansas River	12	11	11	10	10	9
69	Lower Salt Fork Arkansas River - 2	297	284	276	260	242	220
70	Lower Salt Fork Arkansas River - 3	20	19	19	18	16	15
71	Arkansas River - Cimarron Rivers to Keystone Lake	10,574	11,048	11,178	11,328	11,972	12,355
72	Arkansas River Mainstem (To Kansas State Line)	1,420	1,376	1,340	1,267	1,181	1,083
73	Bird Creek - 1	46,055	47,100	48,014	50,047	53,577	56,600
74	Bird Creek - 2	5,550	5,635	5,656	5,708	5,843	5,949
75	Caney River - 1	4,824	4,934	5,031	5,250	5,631	5,955
76	Caney River - 2	4,380	4,380	4,388	4,436	4,604	4,691
77	Verdigris River (To Oologah Dam) - 1	9,684	9,939	10,102	10,413	10,915	11,409
78	Verdigris River (To Oologah Dam) - 2	14,506	14,666	14,858	15,168	15,695	16,205
79	Verdigris River (To Kansas State Line)	1,183	1,276	1,256	1,222	1,192	1,159
80	Grand (Neosho) River - 1	5,144	5,184	5,093	4,949	4,773	4,592
81	Grand (Neosho) River - 2	572	599	589	574	563	552
82	Illinois River	2,849	3,080	3,013	2,890	2,756	2,648
	Total	**501,479**	**516,806**	**523,158**	**537,869**	**567,163**	**591,078**

Table B.3 Public Supply Demand Projections by OCWP Planning Basin – Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	2,159	2,464	2,536	2,694	2,979	3,233
2	Little River (McCurtain County) - 1	1,267	1,445	1,487	1,580	1,747	1,896
3	Little River (McCurtain County) - 2	3,079	3,513	3,616	3,842	4,247	4,610
4	Little River (McCurtain County) - 3	239	272	280	298	329	357
5	Kiamichi River - 1	1,179	1,152	1,110	1,058	1,003	930
6	Kiamichi River - 2	1,248	1,214	1,169	1,114	1,053	975
7	Muddy Boggy River - 1	10	10	9	9	9	8
8	Muddy Boggy River - 2	1,770	1,684	1,630	1,532	1,417	1,281
9	Clear Boggy Creek	1,093	1,122	1,118	1,119	1,138	1,147
10	Red River Mainstem (To Blue River)	47	48	47	47	47	47
11	Blue River - 1	490	545	564	608	684	755
12	Blue River - 2	5,676	6,259	6,452	6,901	7,694	8,431
13	Red River Mainstem (To Washita)	1,984	2,207	2,284	2,460	2,768	3,056
14	Lower Washita	17,031	17,522	17,495	17,437	17,599	17,664
15	Middle Washita - 1	304	323	324	328	341	352
16	Middle Washita - 2	3,175	3,298	3,234	3,128	2,975	2,855
17	Upper Washita - 1	821	869	849	821	780	747
18	Upper Washita - 2	436	426	414	390	356	321
19	Upper Washita - 3	6,170	6,403	6,509	6,708	7,229	7,583
20	Washita Headwaters	164	175	175	177	187	194
21	Red River Mainstem (To Walnut Bayou)	8,855	9,133	9,142	9,193	9,470	9,646
22	Walnut Bayou	3,683	3,750	3,757	3,758	3,817	3,844
23	Mud Creek	125	126	124	121	119	115
24	Beaver Creek - 1	187	200	194	186	176	164
25	Beaver Creek - 2	2,236	2,152	2,090	1,965	1,815	1,648
26	Beaver Creek - 3	688	665	646	609	567	517
27	Cache Creek - 1	195	177	159	132	95	54
28	Cache Creek - 2	19,985	19,236	18,677	17,482	15,852	14,231

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	1,988	1,897	1,828	1,691	1,504	1,314
30	Deep Red Creek and West Cache Creek - 2	1,137	1,108	1,060	960	838	714
31	Red River Mainstem (To North Fork of Red)	1,375	1,330	1,263	1,133	973	806
32	Lower North Fork Red River - 1	376	367	351	317	277	236
33	Lower North Fork Red River - 2	5,023	4,554	4,266	3,794	3,072	2,324
34	Lower North Fork Red River - 3	3,255	3,199	3,185	3,121	3,109	3,031
35	Lower North Fork Red River - 4	46	45	43	41	37	34
36	Upper North Fork Red River - 1	245	247	241	239	232	224
37	Upper North Fork Red River - 2	2,767	2,770	2,782	2,776	2,857	2,870
38	Salt Fork Red River - 1	2,691	2,471	2,327	2,101	1,748	1,381
39	Salt Fork Red River - 2	85	86	84	83	81	78
40	Prairie Dog Town Fork Red River - 1	353	319	299	265	213	160
41	Prairie Dog Town Fork Red River - 2	709	714	686	632	535	453
42	Elm Fork Red River - 1	972	980	958	949	923	887
43	Elm Fork Red River - 2	2	2	2	2	3	3
44	Poteau River - 1	3,004	3,052	2,987	2,902	2,792	2,685
45	Poteau River - 2	8,165	8,256	8,048	7,744	7,354	6,967
46	Lower Arkansas River - 1	6,737	6,928	6,751	6,433	5,995	5,630
47	Lower Arkansas River - 2	16,695	16,462	15,980	15,162	14,224	13,145
48	Canadian River (To North Canadian River)	13,457	13,167	12,765	12,133	11,468	10,612
49	Middle Arkansas River	103,876	106,084	107,802	111,749	118,816	124,758
50	Lower North Canadian River	64,672	69,209	71,624	76,687	85,452	93,200
51	Middle North Canadian River	4,448	4,790	5,014	5,515	6,492	7,303
52	Upper North Canadian River - 1	755	768	773	793	847	877
53	Upper North Canadian River - 2	7,919	8,051	8,054	8,181	8,591	8,779
54	Upper North Canadian River - 3	464	475	469	458	461	447
55	North Canadian Headwaters	2,895	2,753	2,732	2,681	2,596	2,491
56	Lower Canadian River - 1	3,223	3,273	3,291	3,355	3,493	3,588
57	Lower Canadian River - 2	1,116	1,132	1,139	1,170	1,220	1,277

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	22,274	22,953	23,544	24,819	27,146	29,127
59	Upper Canadian River	4,081	4,388	4,495	4,717	5,221	5,606
60	Deep Fork River	47,400	50,711	52,445	56,083	62,412	67,999
61	Little River - 1	492	504	505	509	516	523
62	Little River - 2	23,054	23,962	24,584	25,894	28,230	30,238
63	Lower Cimarron River	9,403	9,531	9,663	9,977	10,596	11,049
64	Middle Cimarron River	29,356	31,448	32,545	35,002	39,426	43,228
65	Upper Cimarron River	781	863	866	912	1,061	1,147
66	Cimarron Headwaters	-	-	-	-	-	-
67	Lower Salt Fork Arkansas River - 1	4,074	3,894	3,783	3,564	3,321	3,021
68	Upper Salt Fork Arkansas River	2,700	2,897	2,958	3,151	3,664	4,008
69	Lower Salt Fork Arkansas River - 2	1,690	1,615	1,569	1,478	1,377	1,253
70	Lower Salt Fork Arkansas River - 3	115	110	106	100	93	85
71	Arkansas River - Cimarron Rivers to Keystone Lake	13,220	13,807	13,973	14,171	14,993	15,482
72	Arkansas River Mainstem (To Kansas State Line)	6,664	6,415	6,254	5,939	5,598	5,170
73	Bird Creek - 1	46,055	47,100	48,014	50,047	53,577	56,600
74	Bird Creek - 2	5,634	5,720	5,739	5,787	5,917	6,018
75	Caney River - 1	4,824	4,934	5,031	5,250	5,631	5,955
76	Caney River - 2	4,386	4,386	4,394	4,441	4,609	4,696
77	Verdigris River (To Oologah Dam) - 1	9,685	9,940	10,103	10,414	10,916	11,410
78	Verdigris River (To Oologah Dam) - 2	14,506	14,666	14,858	15,168	15,695	16,205
79	Verdigris River (To Kansas State Line)	1,183	1,276	1,256	1,222	1,192	1,159
80	Grand (Neosho) River - 1	5,397	5,435	5,336	5,180	4,994	4,799
81	Grand (Neosho) River - 2	3,611	3,704	3,648	3,589	3,567	3,504
82	Illinois River	2,919	3,154	3,086	2,962	2,826	2,718
	Total	**606,251**	**624,288**	**631,654**	**649,144**	**685,270**	**713,935**

Table B.4 Self-Supplied Domestic Demand Projections by OCWP Planning Basin – Groundwater/Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	36	39	40	41	44	46
2	Little River (McCurtain County) - 1	54	62	64	68	75	81
3	Little River (McCurtain County) - 2	205	228	232	242	262	280
4	Little River (McCurtain County) - 3	110	126	129	137	152	165
5	Kiamichi River - 1	114	115	111	106	102	96
6	Kiamichi River - 2	59	57	55	51	48	43
7	Muddy Boggy River - 1	93	93	90	86	82	77
8	Muddy Boggy River - 2	94	91	88	84	79	73
9	Clear Boggy Creek	269	281	282	287	299	308
10	Red River Mainstem (To Blue River)	96	102	103	107	115	121
11	Blue River - 1	161	179	186	200	225	248
12	Blue River - 2	205	216	218	225	238	249
13	Red River Mainstem (To Washita)	93	104	107	116	130	144
14	Lower Washita	1,178	1,208	1,198	1,180	1,169	1,158
15	Middle Washita - 1	1,016	1,028	1,029	1,033	1,043	1,062
16	Middle Washita - 2	1,081	1,094	1,081	1,050	1,007	975
17	Upper Washita - 1	44	47	46	44	42	40
18	Upper Washita - 2	243	257	251	243	231	221
19	Upper Washita - 3	66	68	67	66	66	66
20	Washita Headwaters	76	80	80	80	84	85
21	Red River Mainstem (To Walnut Bayou)	85	90	91	92	97	100
22	Walnut Bayou	5	6	6	6	7	7
23	Mud Creek	59	57	56	52	49	44
24	Beaver Creek - 1	0	0	0	0	0	0
25	Beaver Creek - 2	233	230	226	217	204	193
26	Beaver Creek - 3	15	14	14	13	12	11
27	Cache Creek - 1	0	0	0	0	0	0
28	Cache Creek - 2	170	165	160	151	138	125

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	86	82	80	75	68	61
30	Deep Red Creek and West Cache Creek - 2	8	8	8	7	6	5
31	Red River Mainstem (To North Fork of Red)	20	19	18	16	13	11
32	Lower North Fork Red River - 1	6	6	6	5	4	4
33	Lower North Fork Red River - 2	16	15	15	14	12	11
34	Lower North Fork Red River - 3	8	7	7	7	6	5
35	Lower North Fork Red River - 4	4	4	4	4	3	3
36	Upper North Fork Red River - 1	2	2	2	2	2	2
37	Upper North Fork Red River - 2	350	348	350	349	359	360
38	Salt Fork Red River - 1	5	5	5	5	4	4
39	Salt Fork Red River - 2	3	3	3	3	3	3
40	Prairie Dog Town Fork Red River - 1	3	2	2	2	2	1
41	Prairie Dog Town Fork Red River - 2	0	0	0	0	0	0
42	Elm Fork Red River - 1	4	4	4	4	4	4
43	Elm Fork Red River - 2	187	185	186	186	191	191
44	Poteau River - 1	0	0	0	0	0	0
45	Poteau River - 2	85	89	87	83	77	71
46	Lower Arkansas River - 1	605	650	636	610	575	548
47	Lower Arkansas River - 2	307	316	312	306	301	294
48	Canadian River (To North Canadian River)	180	182	177	169	161	151
49	Middle Arkansas River	845	862	872	895	937	973
50	Lower North Canadian River	3,830	4,070	4,187	4,434	4,865	5,245
51	Middle North Canadian River	236	257	272	307	378	436
52	Upper North Canadian River - 1	110	116	118	126	143	155
53	Upper North Canadian River - 2	158	164	161	157	158	155
54	Upper North Canadian River - 3	82	84	83	82	83	82
55	North Canadian Headwaters	108	105	102	96	93	86
56	Lower Canadian River - 1	1,293	1,325	1,336	1,369	1,428	1,482
57	Lower Canadian River - 2	654	662	667	683	711	743

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	725	757	779	830	926	1,010
59	Upper Canadian River	343	364	367	374	402	420
60	Deep Fork River	6,172	6,518	6,654	6,963	7,515	8,009
61	Little River - 1	885	905	906	909	917	924
62	Little River - 2	1,288	1,319	1,335	1,369	1,432	1,486
63	Lower Cimarron River	934	978	999	1,045	1,124	1,197
64	Middle Cimarron River	1,907	2,029	2,092	2,244	2,508	2,745
65	Upper Cimarron River	142	152	152	156	173	181
66	Cimarron Headwaters	21	19	18	16	14	11
67	Lower Salt Fork Arkansas River - 1	8	8	8	8	7	7
68	Upper Salt Fork Arkansas River	149	158	162	173	200	219
69	Lower Salt Fork Arkansas River - 2	1	1	1	1	0	0
70	Lower Salt Fork Arkansas River - 3	4	4	4	4	4	5
71	Arkansas River - Cimarron Rivers to Keystone Lake	1,162	1,197	1,198	1,195	1,223	1,233
72	Arkansas River Mainstem (To Kansas State Line)	297	300	294	284	271	259
73	Bird Creek - 1	174	177	180	186	197	206
74	Bird Creek - 2	451	455	450	441	431	421
75	Caney River - 1	142	142	143	145	148	151
76	Caney River - 2	527	530	525	517	512	503
77	Verdigris River (To Oologah Dam) - 1	174	180	183	188	194	202
78	Verdigris River (To Oologah Dam) - 2	319	321	324	328	334	341
79	Verdigris River (To Kansas State Line)	366	374	374	373	375	376
80	Grand (Neosho) River - 1	1,198	1,255	1,246	1,239	1,246	1,252
81	Grand (Neosho) River - 2	1,059	1,088	1,071	1,053	1,046	1,028
82	Illinois River	1,143	1,228	1,210	1,184	1,167	1,153
	Total	**34,650**	**36,070**	**36,384**	**37,196**	**38,954**	**40,446**

Table B.5 Oil and Gas Demand Projections by OCWP Planning Basin – Groundwater (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	38	38	38	38	38	38
2	Little River (McCurtain County) - 1	35	35	35	35	35	35
3	Little River (McCurtain County) - 2	-	-	-	-	-	-
4	Little River (McCurtain County) - 3	-	-	-	-	-	-
5	Kiamichi River - 1	2	2	2	2	2	2
6	Kiamichi River - 2	25	25	25	25	25	25
7	Muddy Boggy River - 1	8	8	8	8	8	8
8	Muddy Boggy River - 2	192	192	192	192	192	192
9	Clear Boggy Creek	128	128	128	128	128	128
10	Red River Mainstem (To Blue River)	0	0	0	0	0	0
11	Blue River - 1	0	0	0	0	0	0
12	Blue River - 2	55	55	55	55	55	55
13	Red River Mainstem (To Washita)	0	0	0	0	0	0
14	Lower Washita	2,117	2,117	2,117	2,117	2,117	2,117
15	Middle Washita - 1	432	432	432	432	432	432
16	Middle Washita - 2	899	899	899	899	899	899
17	Upper Washita - 1	60	60	60	60	60	60
18	Upper Washita - 2	62	62	62	62	62	62
19	Upper Washita - 3	133	133	133	133	133	133
20	Washita Headwaters	21	21	21	21	21	21
21	Red River Mainstem (To Walnut Bayou)	471	471	471	471	471	471
22	Walnut Bayou	504	504	504	504	504	504
23	Mud Creek	264	264	264	264	264	264
24	Beaver Creek - 1	5	5	5	5	5	5
25	Beaver Creek - 2	191	191	191	191	191	191
26	Beaver Creek - 3	90	90	90	90	90	90
27	Cache Creek - 1	2	2	2	2	2	2
28	Cache Creek - 2	54	54	54	54	54	54

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	6	6	6	6	6	6
30	Deep Red Creek and West Cache Creek - 2	46	46	46	46	46	46
31	Red River Mainstem (To North Fork of Red)	35	35	35	35	35	35
32	Lower North Fork Red River - 1	10	10	10	10	10	10
33	Lower North Fork Red River - 2	17	17	17	17	17	17
34	Lower North Fork Red River - 3	29	29	29	29	29	29
35	Lower North Fork Red River - 4	-	-	-	-	-	-
36	Upper North Fork Red River - 1	2	2	2	2	2	2
37	Upper North Fork Red River - 2	2	2	2	2	2	2
38	Salt Fork Red River - 1	14	14	14	14	14	14
39	Salt Fork Red River - 2	1	1	1	1	1	1
40	Prairie Dog Town Fork Red River - 1	11	11	11	11	11	11
41	Prairie Dog Town Fork Red River - 2	3	3	3	3	3	3
42	Elm Fork Red River - 1	-	-	-	-	-	-
43	Elm Fork Red River - 2	1	1	1	1	1	1
44	Poteau River - 1	0	0	0	0	0	0
45	Poteau River - 2	9	9	9	9	9	9
46	Lower Arkansas River - 1	78	78	78	78	78	78
47	Lower Arkansas River - 2	59	59	59	59	59	59
48	Canadian River (To North Canadian River)	511	511	511	511	511	511
49	Middle Arkansas River	168	168	168	168	168	168
50	Lower North Canadian River	378	378	378	378	378	378
51	Middle North Canadian River	559	559	559	559	559	559
52	Upper North Canadian River - 1	453	453	453	453	453	453
53	Upper North Canadian River - 2	75	75	75	75	75	75
54	Upper North Canadian River - 3	33	33	33	33	33	33
55	North Canadian Headwaters	210	210	210	210	210	210
56	Lower Canadian River - 1	298	298	298	298	298	298
57	Lower Canadian River - 2	84	84	84	84	84	84

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	504	504	504	504	504	504
59	Upper Canadian River	833	833	833	833	833	833
60	Deep Fork River	485	485	485	485	485	485
61	Little River - 1	83	83	83	83	83	83
62	Little River - 2	102	102	102	102	102	102
63	Lower Cimarron River	746	746	746	746	746	746
64	Middle Cimarron River	3,234	3,234	3,234	3,234	3,234	3,234
65	Upper Cimarron River	163	163	163	163	163	163
66	Cimarron Headwaters	10	10	10	10	10	10
67	Lower Salt Fork Arkansas River - 1	42	42	42	42	42	42
68	Upper Salt Fork Arkansas River	181	181	181	181	181	181
69	Lower Salt Fork Arkansas River - 2	26	26	26	26	26	26
70	Lower Salt Fork Arkansas River - 3	31	31	31	31	31	31
71	Arkansas River - Cimarron Rivers to Keystone Lake	316	316	316	316	316	316
72	Arkansas River Mainstem (To Kansas State Line)	167	167	167	167	167	167
73	Bird Creek - 1	-	-	-	-	-	-
74	Bird Creek - 2	21	21	21	21	21	21
75	Caney River - 1	-	-	-	-	-	-
76	Caney River - 2	92	92	92	92	92	92
77	Verdigris River (To Oologah Dam) - 1	30	30	30	30	30	30
78	Verdigris River (To Oologah Dam) - 2	-	-	-	-	-	-
79	Verdigris River (To Kansas State Line)	-	-	-	-	-	-
80	Grand (Neosho) River - 1	249	249	249	249	249	249
81	Grand (Neosho) River - 2	4	4	4	4	4	4
82	Illinois River	-	-	-	-	-	-
	Total	**16,199**	**16,199**	**16,199**	**16,199**	**16,199**	**16,199**

Table B.6 Oil and Gas Demand Projections by OCWP Planning Basin – Surface Water (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	2	2	2	2	2	2
2	Little River (McCurtain County) - 1	2	2	2	2	2	2
3	Little River (McCurtain County) - 2	88	88	88	88	88	88
4	Little River (McCurtain County) - 3	42	42	42	42	42	42
5	Kiamichi River - 1	-	-	-	-	-	-
6	Kiamichi River - 2	48	48	48	48	48	48
7	Muddy Boggy River - 1	3	3	3	3	3	3
8	Muddy Boggy River - 2	534	534	534	534	534	534
9	Clear Boggy Creek	184	184	184	184	184	184
10	Red River Mainstem (To Blue River)	1	1	1	1	1	1
11	Blue River - 1	3	3	3	3	3	3
12	Blue River - 2	15	15	15	15	15	15
13	Red River Mainstem (To Washita)	4	4	4	4	4	4
14	Lower Washita	314	314	314	314	314	314
15	Middle Washita - 1	521	521	521	521	521	521
16	Middle Washita - 2	953	953	953	953	953	953
17	Upper Washita - 1	2	2	2	2	2	2
18	Upper Washita - 2	7	7	7	7	7	7
19	Upper Washita - 3	266	266	266	266	266	266
20	Washita Headwaters	364	364	364	364	364	364
21	Red River Mainstem (To Walnut Bayou)	107	107	107	107	107	107
22	Walnut Bayou	32	32	32	32	32	32
23	Mud Creek	25	25	25	25	25	25
24	Beaver Creek - 1	-	-	-	-	-	-
25	Beaver Creek - 2	91	91	91	91	91	91
26	Beaver Creek - 3	9	9	9	9	9	9
27	Cache Creek - 1	-	-	-	-	-	-
28	Cache Creek - 2	1	1	1	1	1	1

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	0	0	0	0	0	0
30	Deep Red Creek and West Cache Creek - 2	1	1	1	1	1	1
31	Red River Mainstem (To North Fork of Red)	-	-	-	-	-	-
32	Lower North Fork Red River - 1	-	-	-	-	-	-
33	Lower North Fork Red River - 2	1	1	1	1	1	1
34	Lower North Fork Red River - 3	24	24	24	24	24	24
35	Lower North Fork Red River - 4	4	4	4	4	4	4
36	Upper North Fork Red River - 1	8	8	8	8	8	8
37	Upper North Fork Red River - 2	117	117	117	117	117	117
38	Salt Fork Red River - 1	0	0	0	0	0	0
39	Salt Fork Red River - 2	0	0	0	0	0	0
40	Prairie Dog Town Fork Red River - 1	0	0	0	0	0	0
41	Prairie Dog Town Fork Red River - 2	0	0	0	0	0	0
42	Elm Fork Red River - 1	-	-	-	-	-	-
43	Elm Fork Red River - 2	20	20	20	20	20	20
44	Poteau River - 1	-	-	-	-	-	-
45	Poteau River - 2	16	16	16	16	16	16
46	Lower Arkansas River - 1	30	30	30	30	30	30
47	Lower Arkansas River - 2	2	2	2	2	2	2
48	Canadian River (To North Canadian River)	1,570	1,570	1,570	1,570	1,570	1,570
49	Middle Arkansas River	1	1	1	1	1	1
50	Lower North Canadian River	191	191	191	191	191	191
51	Middle North Canadian River	2,165	2,165	2,165	2,165	2,165	2,165
52	Upper North Canadian River - 1	170	170	170	170	170	170
53	Upper North Canadian River - 2	114	114	114	114	114	114
54	Upper North Canadian River - 3	379	379	379	379	379	379
55	North Canadian Headwaters	1	1	1	1	1	1
56	Lower Canadian River - 1	510	510	510	510	510	510
57	Lower Canadian River - 2	259	259	259	259	259	259

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	1,469	1,469	1,469	1,469	1,469	1,469
59	Upper Canadian River	1,310	1,310	1,310	1,310	1,310	1,310
60	Deep Fork River	94	94	94	94	94	94
61	Little River - 1	3	3	3	3	3	3
62	Little River - 2	3	3	3	3	3	3
63	Lower Cimarron River	400	400	400	400	400	400
64	Middle Cimarron River	5,920	5,920	5,920	5,920	5,920	5,920
65	Upper Cimarron River	89	89	89	89	89	89
66	Cimarron Headwaters	0	0	0	0	0	0
67	Lower Salt Fork Arkansas River - 1	2	2	2	2	2	2
68	Upper Salt Fork Arkansas River	496	496	496	496	496	496
69	Lower Salt Fork Arkansas River - 2	1	1	1	1	1	1
70	Lower Salt Fork Arkansas River - 3	2	2	2	2	2	2
71	Arkansas River - Cimarron Rivers to Keystone Lake	168	168	168	168	168	168
72	Arkansas River Mainstem (To Kansas State Line)	114	114	114	114	114	114
73	Bird Creek - 1	15	15	15	15	15	15
74	Bird Creek - 2	7	7	7	7	7	7
75	Caney River - 1	15	15	15	15	15	15
76	Caney River - 2	5	5	5	5	5	5
77	Verdigris River (To Oologah Dam) - 1	-	-	-	-	-	-
78	Verdigris River (To Oologah Dam) - 2	7	7	7	7	7	7
79	Verdigris River (To Kansas State Line)	40	40	40	40	40	40
80	Grand (Neosho) River - 1	0	0	0	0	0	0
81	Grand (Neosho) River - 2	-	-	-	-	-	-
82	Illinois River	-	-	-	-	-	-
	Total	**19,363**	**19,363**	**19,363**	**19,363**	**19,363**	**19,363**

Table B.7 Oil and Gas Demand Projections by OCWP Planning Basin – Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	40	40	40	40	40	40
2	Little River (McCurtain County) - 1	37	37	37	37	37	37
3	Little River (McCurtain County) - 2	88	88	88	88	88	88
4	Little River (McCurtain County) - 3	42	42	42	42	42	42
5	Kiamichi River - 1	2	2	2	2	2	2
6	Kiamichi River - 2	73	73	73	73	73	73
7	Muddy Boggy River - 1	11	11	11	11	11	11
8	Muddy Boggy River - 2	726	726	726	726	726	726
9	Clear Boggy Creek	312	312	312	312	312	312
10	Red River Mainstem (To Blue River)	1	1	1	1	1	1
11	Blue River - 1	3	3	3	3	3	3
12	Blue River - 2	70	70	70	70	70	70
13	Red River Mainstem (To Washita)	4	4	4	4	4	4
14	Lower Washita	2,431	2,431	2,431	2,431	2,431	2,431
15	Middle Washita - 1	953	953	953	953	953	953
16	Middle Washita - 2	1,852	1,852	1,852	1,852	1,852	1,852
17	Upper Washita - 1	62	62	62	62	62	62
18	Upper Washita - 2	69	69	69	69	69	69
19	Upper Washita - 3	399	399	399	399	399	399
20	Washita Headwaters	385	385	385	385	385	385
21	Red River Mainstem (To Walnut Bayou)	577	577	577	577	577	577
22	Walnut Bayou	536	536	536	536	536	536
23	Mud Creek	289	289	289	289	289	289
24	Beaver Creek - 1	5	5	5	5	5	5
25	Beaver Creek - 2	282	282	282	282	282	282
26	Beaver Creek - 3	99	99	99	99	99	99
27	Cache Creek - 1	2	2	2	2	2	2
28	Cache Creek - 2	56	56	56	56	56	56

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	6	6	6	6	6	6
30	Deep Red Creek and West Cache Creek - 2	46	46	46	46	46	46
31	Red River Mainstem (To North Fork of Red)	35	35	35	35	35	35
32	Lower North Fork Red River - 1	10	10	10	10	10	10
33	Lower North Fork Red River - 2	18	18	18	18	18	18
34	Lower North Fork Red River - 3	53	53	53	53	53	53
35	Lower North Fork Red River - 4	4	4	4	4	4	4
36	Upper North Fork Red River - 1	10	10	10	10	10	10
37	Upper North Fork Red River - 2	119	119	119	119	119	119
38	Salt Fork Red River - 1	14	14	14	14	14	14
39	Salt Fork Red River - 2	1	1	1	1	1	1
40	Prairie Dog Town Fork Red River - 1	11	11	11	11	11	11
41	Prairie Dog Town Fork Red River - 2	3	3	3	3	3	3
42	Elm Fork Red River - 1	-	-	-	-	-	-
43	Elm Fork Red River - 2	21	21	21	21	21	21
44	Poteau River - 1	0	0	0	0	0	0
45	Poteau River - 2	26	26	26	26	26	26
46	Lower Arkansas River - 1	109	109	109	109	109	109
47	Lower Arkansas River - 2	61	61	61	61	61	61
48	Canadian River (To North Canadian River)	2,081	2,081	2,081	2,081	2,081	2,081
49	Middle Arkansas River	169	169	169	169	169	169
50	Lower North Canadian River	569	569	569	569	569	569
51	Middle North Canadian River	2,724	2,724	2,724	2,724	2,724	2,724
52	Upper North Canadian River - 1	624	624	624	624	624	624
53	Upper North Canadian River - 2	189	189	189	189	189	189
54	Upper North Canadian River - 3	412	412	412	412	412	412
55	North Canadian Headwaters	210	210	210	210	210	210
56	Lower Canadian River - 1	808	808	808	808	808	808
57	Lower Canadian River - 2	343	343	343	343	343	343

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	1,973	1,973	1,973	1,973	1,973	1,973
59	Upper Canadian River	2,144	2,144	2,144	2,144	2,144	2,144
60	Deep Fork River	579	579	579	579	579	579
61	Little River - 1	86	86	86	86	86	86
62	Little River - 2	105	105	105	105	105	105
63	Lower Cimarron River	1,146	1,146	1,146	1,146	1,146	1,146
64	Middle Cimarron River	9,154	9,154	9,154	9,154	9,154	9,154
65	Upper Cimarron River	252	252	252	252	252	252
66	Cimarron Headwaters	10	10	10	10	10	10
67	Lower Salt Fork Arkansas River - 1	44	44	44	44	44	44
68	Upper Salt Fork Arkansas River	677	677	677	677	677	677
69	Lower Salt Fork Arkansas River - 2	27	27	27	27	27	27
70	Lower Salt Fork Arkansas River - 3	33	33	33	33	33	33
71	Arkansas River - Cimarron Rivers to Keystone Lake	484	484	484	484	484	484
72	Arkansas River Mainstem (To Kansas State Line)	281	281	281	281	281	281
73	Bird Creek - 1	15	15	15	15	15	15
74	Bird Creek - 2	29	29	29	29	29	29
75	Caney River - 1	15	15	15	15	15	15
76	Caney River - 2	97	97	97	97	97	97
77	Verdigris River (To Oologah Dam) - 1	30	30	30	30	30	30
78	Verdigris River (To Oologah Dam) - 2	7	7	7	7	7	7
79	Verdigris River (To Kansas State Line)	40	40	40	40	40	40
80	Grand (Neosho) River - 1	249	249	249	249	249	249
81	Grand (Neosho) River - 2	4	4	4	4	4	4
82	Illinois River	-	-	-	-	-	-
	Total	**35,562**	**35,562**	**35,562**	**35,562**	**35,562**	**35,562**

Table B.8 Thermoelectric Power Generation Water Consumption Demand Projections by OCWP Planning Basin – Groundwater (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
17	Upper Washita - 1	94	64	61	78	91	103
28	Cache Creek - 2	14	10	9	12	14	15
50	Lower North Canadian River	21	14	13	17	20	22
51	Middle North Canadian River	9	6	6	2	2	2
52	Upper North Canadian River - 1	164	111	106	136	159	179
58	Middle Canadian River	1,628	1,106	1,049	1,352	1,578	1,774
60	Deep Fork River	569	387	367	473	552	620
67	Lower Salt Fork Arkansas River - 1	3	2	2	2	3	3
	Total	**2,502**	**1,700**	**1,613**	**2,073**	**2,418**	**2,719**

Table B.9 Thermoelectric Power Generation Water Consumption Demand Projections by OCWP Planning Basin – Surface Water (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	824	1,554	1,797	2,087	2,493	2,946
5	Kiamichi River - 1	2,335	1,657	1,554	555	474	464
8	Muddy Boggy River - 2	3,392	2,304	2,186	2,817	3,287	3,696
17	Upper Washita - 1	947	644	611	787	918	1,033
28	Cache Creek - 2	173	117	111	144	168	188
44	Poteau River - 1	1,151	816	766	273	234	229
47	Lower Arkansas River - 2	6,962	7,363	7,814	8,606	10,068	11,629
49	Middle Arkansas River	4,940	3,379	3,213	4,136	4,827	5,430
50	Lower North Canadian River	2,278	1,548	1,468	1,892	2,208	2,483
56	Lower Canadian River - 1	621	422	401	516	602	677
58	Middle Canadian River	169	115	109	141	164	185
60	Deep Fork River	3,319	2,255	2,139	2,757	3,216	3,616
67	Lower Salt Fork Arkansas River - 1	5	4	3	4	5	6
72	Arkansas River Mainstem (To Kansas State Line)	21,318	15,125	14,186	5,064	4,327	4,236
77	Verdigris River (To Oologah Dam) - 1	4,178	2,839	2,693	3,471	4,050	4,553
78	Verdigris River (To Oologah Dam) - 2	2,707	2,988	3,197	3,481	4,073	4,714
80	Grand (Neosho) River - 1	4,652	3,955	4,003	4,716	5,511	6,290
	Total	**59,971**	**47,086**	**46,250**	**41,447**	**46,625**	**52,374**

Table B.10 Thermoelectric Power Generation Water Consumption Demand Projections by OCWP Planning Basin – Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	824	1,554	1,797	2,087	2,493	2,946
5	Kiamichi River - 1	2,335	1,657	1,554	555	474	464
8	Muddy Boggy River - 2	3,392	2,304	2,186	2,817	3,287	3,696
17	Upper Washita - 1	1,041	708	671	865	1,010	1,135
28	Cache Creek - 2	187	127	120	156	182	203
44	Poteau River - 1	1,151	816	766	273	234	229
47	Lower Arkansas River - 2	6,962	7,363	7,814	8,606	10,068	11,629
49	Middle Arkansas River	4,940	3,379	3,213	4,136	4,827	5,430
50	Lower North Canadian River	2,299	1,562	1,481	1,909	2,228	2,505
51	Middle North Canadian River	9	6	6	2	2	2
52	Upper North Canadian River - 1	164	111	106	136	159	179
56	Lower Canadian River - 1	621	422	401	516	602	677
58	Middle Canadian River	1,797	1,221	1,158	1,493	1,742	1,959
60	Deep Fork River	3,888	2,641	2,506	3,230	3,768	4,236
67	Lower Salt Fork Arkansas River - 1	8	6	5	6	8	9
72	Arkansas River Mainstem (To Kansas State Line)	21,318	15,125	14,186	5,064	4,327	4,236
77	Verdigris River (To Oologah Dam) - 1	4,178	2,839	2,693	3,471	4,050	4,553
78	Verdigris River (To Oologah Dam) - 2	2,707	2,988	3,197	3,481	4,073	4,714
80	Grand (Neosho) River - 1	4,652	3,955	4,003	4,716	5,511	6,290
	Total	**62,473**	**48,785**	**47,864**	**43,519**	**49,044**	**55,093**

Table B.11 Self-Supplied Industrial Demand Projections by OCWP Planning Basin – Groundwater (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	2,520	2,456	2,528	2,686	2,970	3,223
38	Salt Fork Red River - 1	140	136	127	113	91	68
49	Middle Arkansas River	182	177	181	189	203	215
55	North Canadian Headwaters	2,946	2,872	2,866	2,853	2,787	2,718
56	Lower Canadian River - 1	270	263	264	267	274	280
58	Middle Canadian River	3,513	3,425	3,393	3,297	3,154	3,059
67	Lower Salt Fork Arkansas River - 1	3,324	3,241	3,148	2,966	2,764	2,514
72	Arkansas River Mainstem (To Kansas State Line)	944	920	900	857	800	747
	Total	**13,839**	**13,491**	**13,409**	**13,228**	**13,043**	**12,824**

Table B.12 Self-Supplied Industrial Demand Projections by OCWP Planning Basin – Surface Water (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	37,753	36,802	37,881	40,247	44,497	48,298
8	Muddy Boggy River - 2	126	123	119	113	104	94
14	Lower Washita	31	31	31	31	31	31
47	Lower Arkansas River - 2	12,505	12,190	11,859	11,274	10,588	9,818
48	Canadian River (To North Canadian River)	536	523	506	482	457	421
58	Middle Canadian River	1,490	1,453	1,440	1,399	1,338	1,297
67	Lower Salt Fork Arkansas River - 1	406	396	385	362	338	307
77	Verdigris River (To Oologah Dam) - 1	408	397	401	406	414	423
82	Illinois River	12	12	11	11	10	9
	Total	**53,268**	**51,926**	**52,633**	**54,324**	**57,775**	**60,698**

Table B.13 Self-Supplied Industrial Demand Projections by OCWP Planning Basin – Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	40,273	39,258	40,410	42,933	47,466	51,521
8	Muddy Boggy River - 2	126	123	119	113	104	94
14	Lower Washita	31	31	31	31	31	31
38	Salt Fork Red River - 1	140	136	127	113	91	68
47	Lower Arkansas River - 2	12,505	12,190	11,859	11,274	10,588	9,818
48	Canadian River (To North Canadian River)	536	523	506	482	457	421
49	Middle Arkansas River	182	177	181	189	203	215
55	North Canadian Headwaters	2,946	2,872	2,866	2,853	2,787	2,718
56	Lower Canadian River - 1	270	263	264	267	274	280
58	Middle Canadian River	5,004	4,878	4,833	4,696	4,492	4,356
67	Lower Salt Fork Arkansas River - 1	3,730	3,636	3,533	3,329	3,101	2,821
72	Arkansas River Mainstem (To Kansas State Line)	944	920	900	857	800	747
77	Verdigris River (To Oologah Dam) - 1	408	397	401	406	414	423
82	Illinois River	12	12	11	11	10	9
	Total	**67,107**	**65,416**	**66,042**	**67,552**	**70,818**	**73,522**

Table B.14 Livestock Demand Projections by OCWP Planning Basin – Groundwater (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	41	43	43	43	42	42
2	Little River (McCurtain County)	34	36	36	36	36	35
3	Little River (McCurtain County)	-	-	-	-	-	-
4	Little River (McCurtain County)	-	-	-	-	-	-
5	Kiamichi River	41	39	39	39	37	36
6	Kiamichi River	156	159	160	158	155	153
7	Muddy Boggy River	41	40	40	39	37	36
8	Muddy Boggy River	180	179	180	179	179	180
9	Clear Boggy Creek	127	124	124	121	117	114
10	Red River Mainstem (To Blue River)	44	43	43	42	40	39
11	Blue River	85	82	82	80	77	74
12	Blue River	83	80	80	78	75	73
13	Red River Mainstem (To Washita)	126	122	122	119	114	110
14	Lower Washita	256	248	247	241	232	224
15	Middle Washita	343	334	333	325	313	304
16	Middle Washita	370	363	363	357	349	343
17	Upper Washita	98	97	97	96	95	94
18	Upper Washita	128	125	125	123	121	119
19	Upper Washita	567	550	549	534	513	497
20	Washita Headwaters	273	265	265	258	247	239
21	Lower Washita - Mainstem Red River (To Lake Texoma)	194	187	187	182	175	170
22	Walnut Bayou	31	30	30	30	28	27
23	Mud Creek	93	90	90	87	84	81
24	Beaver Creek	18	18	18	17	16	16
25	Beaver Creek	123	119	119	116	111	108
26	Beaver Creek	26	25	25	25	24	23
27	Cache Creek	40	39	39	38	36	35
28	Cache Creek	214	209	209	205	199	194

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek	140	136	135	132	127	122
30	Deep Red Creek and West Cache Creek	183	178	177	172	165	158
31	Red River Mainstem (To North Fork of Red)	154	150	149	144	139	133
32	Lower North Fork Red River	30	29	29	28	27	26
33	Lower North Fork Red River	68	66	66	64	61	59
34	Lower North Fork Red River	210	204	204	198	190	184
35	Lower North Fork Red River	-	-	-	-	-	-
36	Upper North Fork Red River	36	35	35	34	33	32
37	Upper North Fork Red River	131	127	127	124	119	115
38	Salt Fork Red River	90	88	87	85	82	79
39	Salt Fork Red River	41	39	39	38	37	35
40	Prairie Dog Town Fork Red River	44	42	42	41	40	38
41	Prairie Dog Town Fork Red River	65	63	63	61	59	57
42	Elm Fork Red River	17	17	17	16	16	15
43	Elm Fork Red River	85	83	82	80	77	74
44	Poteau River	35	37	37	37	37	37
45	Poteau River	359	373	379	378	373	371
46	Lower Arkansas River	200	203	205	203	199	196
47	Lower Arkansas River	121	120	120	117	113	110
48	Lower Canadian River (To Lake Eufaula)	579	578	583	582	584	590
49	Middle Arkansas River	104	101	101	99	95	93
50	Lower North Canadian River	133	130	130	128	125	122
51	Middle North Canadian River	284	275	275	267	257	248
52	Upper North Canadian River	803	802	809	811	816	826
53	Upper North Canadian River	1,682	1,684	1,698	1,706	1,721	1,748
54	Upper North Canadian River	737	740	747	751	761	775
55	North Canadian Headwaters	10,257	10,425	10,567	10,768	11,096	11,495
56	Lower Canadian River	302	299	301	298	297	296
57	Lower Canadian River	223	217	216	211	203	197

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	277	269	269	263	253	246
59	Upper Canadian River	1,066	1,054	1,059	1,051	1,043	1,041
60	Deep Fork River	200	194	194	191	184	179
61	Little River	31	30	30	30	29	28
62	Little River	47	46	46	46	44	43
63	Lower Cimarron River	1,138	1,109	1,108	1,084	1,051	1,023
64	Middle Cimarron River	1,945	1,910	1,914	1,887	1,848	1,824
65	Upper Cimarron River	2,742	2,717	2,731	2,715	2,700	2,702
66	Cimarron Headwaters	709	692	692	678	659	644
67	Lower Salt Fork Arkansas River	16	15	15	15	14	14
68	Upper Salt Fork Arkansas River	1,298	1,259	1,255	1,221	1,173	1,133
69	Lower Salt Fork Arkansas River	9	9	9	8	8	8
70	Lower Salt Fork Arkansas River	13	12	12	12	12	11
71	Arkansas - Cimarron Rivers (To Keystone Lake)	207	201	200	197	188	182
72	Arkansas River Mainstem (To Kansas State Line)	131	127	127	124	119	115
73	Bird Creek	-	-	-	-	-	-
74	Bird Creek	75	73	72	71	68	66
75	Caney River	-	-	-	-	-	-
76	Caney River	109	105	105	102	98	95
77	Verdigris River (To Oologah Dam)	39	37	37	36	35	34
78	Verdigris River (To Oologah Dam)	-	-	-	-	-	-
79	Verdigris River (To Kansas State Line)	-	-	-	-	-	-
80	Grand (Neosho) River	464	464	467	460	449	438
81	Grand (Neosho) River	328	334	337	333	326	321
82	Illinois River	183	187	189	187	183	181
	Total	**31,873**	**31,729**	**31,933**	**31,852**	**31,782**	**31,928**

Table B.15 Livestock Demand Projections by OCWP Planning Basin – Surface Water (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	373	384	389	386	380	376
2	Little River (McCurtain County) - 1	310	321	326	324	319	317
3	Little River (McCurtain County) - 2	1,014	1,039	1,053	1,044	1,026	1,014
4	Little River (McCurtain County) - 3	599	622	632	630	622	618
5	Kiamichi River - 1	363	352	351	342	329	318
6	Kiamichi River - 2	779	775	780	766	745	728
7	Muddy Boggy River - 1	367	356	356	346	333	322
8	Muddy Boggy River - 2	1,175	1,158	1,161	1,148	1,131	1,122
9	Clear Boggy Creek	941	918	918	898	871	850
10	Red River Mainstem (To Blue River)	235	228	228	222	213	206
11	Blue River - 1	193	188	187	182	175	170
12	Blue River - 2	385	374	374	364	351	340
13	Red River Mainstem (To Washita)	288	279	279	271	261	252
14	Lower Washita	2,132	2,072	2,066	2,013	1,939	1,876
15	Middle Washita - 1	508	495	493	481	465	451
16	Middle Washita - 2	1,707	1,672	1,667	1,633	1,588	1,552
17	Upper Washita - 1	216	212	213	210	207	205
18	Upper Washita - 2	305	298	299	294	287	282
19	Upper Washita - 3	1,472	1,428	1,425	1,387	1,334	1,289
20	Washita Headwaters	731	710	708	689	662	639
21	Red River Mainstem (To Walnut Bayou)	1,508	1,465	1,462	1,425	1,373	1,329
22	Walnut Bayou	280	272	271	265	255	247
23	Mud Creek	826	802	801	779	749	725
24	Beaver Creek - 1	160	155	155	151	145	140
25	Beaver Creek - 2	613	596	594	579	557	540
26	Beaver Creek - 3	236	229	229	223	214	207
27	Cache Creek - 1	120	116	116	113	108	105
28	Cache Creek - 2	584	569	569	557	539	526

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	424	412	411	400	384	372
30	Deep Red Creek and West Cache Creek - 2	555	540	536	521	499	481
31	Red River Mainstem (To North Fork of Red)	521	507	504	490	470	453
32	Lower North Fork Red River - 1	90	87	86	84	81	78
33	Lower North Fork Red River - 2	201	195	194	189	181	175
34	Lower North Fork Red River - 3	620	601	600	583	561	542
35	Lower North Fork Red River - 4	112	108	108	105	101	98
36	Upper North Fork Red River - 1	109	106	106	103	99	96
37	Upper North Fork Red River - 2	387	375	374	364	350	338
38	Salt Fork Red River - 1	266	258	257	250	241	232
39	Salt Fork Red River - 2	121	117	117	113	109	105
40	Prairie Dog Town Fork Red River - 1	126	122	121	118	114	110
41	Prairie Dog Town Fork Red River - 2	189	183	183	178	171	165
42	Elm Fork Red River - 1	54	53	52	51	49	47
43	Elm Fork Red River - 2	257	250	249	242	233	225
44	Poteau River - 1	97	101	103	103	102	102
45	Poteau River - 2	1,183	1,217	1,234	1,227	1,207	1,197
46	Lower Arkansas River - 1	1,802	1,818	1,834	1,811	1,772	1,743
47	Lower Arkansas River - 2	1,109	1,091	1,093	1,070	1,037	1,010
48	Canadian River (To North Canadian River)	3,384	3,338	3,350	3,315	3,269	3,243
49	Middle Arkansas River	906	883	882	861	832	808
50	Lower North Canadian River	794	776	776	761	740	724
51	Middle North Canadian River	767	744	743	723	696	672
52	Upper North Canadian River - 1	361	355	357	352	347	344
53	Upper North Canadian River - 2	-	-	-	-	-	-
54	Upper North Canadian River - 3	-	-	-	-	-	-
55	North Canadian Headwaters	-	-	-	-	-	-
56	Lower Canadian River - 1	955	947	952	946	941	941
57	Lower Canadian River - 2	82	81	80	78	76	74

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	747	728	726	708	684	665
59	Upper Canadian River	1,187	1,153	1,151	1,121	1,079	1,045
60	Deep Fork River	1,632	1,590	1,589	1,552	1,500	1,459
61	Little River - 1	248	243	243	238	231	226
62	Little River - 2	404	395	395	386	374	365
63	Lower Cimarron River	186	182	183	181	176	174
64	Middle Cimarron River	3,743	3,704	3,719	3,693	3,664	3,657
65	Upper Cimarron River	15	15	15	15	16	16
66	Cimarron Headwaters	-	-	-	-	-	-
67	Lower Salt Fork Arkansas River - 1	138	134	133	130	125	121
68	Upper Salt Fork Arkansas River	617	599	597	582	560	542
69	Lower Salt Fork Arkansas River - 2	77	75	74	73	70	68
70	Lower Salt Fork Arkansas River - 3	111	108	108	105	101	98
71	Arkansas River - Cimarron Rivers to Keystone Lake	1,874	1,821	1,817	1,771	1,706	1,653
72	Arkansas River Mainstem (To Kansas State Line)	1,179	1,145	1,142	1,112	1,070	1,035
73	Bird Creek - 1	97	94	94	92	89	87
74	Bird Creek - 2	694	674	673	655	631	610
75	Caney River - 1	174	169	169	165	159	154
76	Caney River - 2	964	936	934	910	876	848
77	Verdigris River (To Oologah Dam) - 1	344	335	334	326	314	305
78	Verdigris River (To Oologah Dam) - 2	439	427	427	416	402	389
79	Verdigris River (To Kansas State Line)	1,452	1,413	1,410	1,375	1,324	1,283
80	Grand (Neosho) River - 1	3,465	3,448	3,463	3,400	3,304	3,228
81	Grand (Neosho) River - 2	1,732	1,760	1,778	1,758	1,722	1,696
82	Illinois River	1,464	1,495	1,512	1,497	1,469	1,450
	Total	**56,877**	**55,992**	**56,086**	**55,022**	**53,489**	**52,295**

Table B.16 Livestock Demand Projections by OCWP Planning Basin – Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	415	426	432	429	422	418
2	Little River (McCurtain County) - 1	344	356	362	360	355	352
3	Little River (McCurtain County) - 2	1,014	1,039	1,053	1,044	1,026	1,014
4	Little River (McCurtain County) - 3	599	622	632	630	622	618
5	Kiamichi River - 1	403	391	391	381	366	354
6	Kiamichi River - 2	935	934	939	924	900	881
7	Muddy Boggy River - 1	408	396	396	385	371	358
8	Muddy Boggy River - 2	1,355	1,336	1,342	1,327	1,310	1,302
9	Clear Boggy Creek	1,069	1,042	1,042	1,019	988	965
10	Red River Mainstem (To Blue River)	280	271	271	264	254	245
11	Blue River - 1	278	270	269	262	252	244
12	Blue River - 2	468	455	454	442	426	413
13	Red River Mainstem (To Washita)	414	401	400	390	375	363
14	Lower Washita	2,387	2,320	2,313	2,254	2,172	2,101
15	Middle Washita - 1	851	829	826	806	778	755
16	Middle Washita - 2	2,077	2,034	2,030	1,990	1,936	1,895
17	Upper Washita - 1	314	309	310	307	302	299
18	Upper Washita - 2	432	423	424	417	407	401
19	Upper Washita - 3	2,039	1,978	1,974	1,922	1,847	1,786
20	Washita Headwaters	1,005	975	973	947	909	878
21	Red River Mainstem (To Walnut Bayou)	1,702	1,652	1,649	1,607	1,548	1,499
22	Walnut Bayou	311	302	302	294	284	275
23	Mud Creek	919	892	890	867	833	806
24	Beaver Creek - 1	178	173	173	168	161	156
25	Beaver Creek - 2	736	715	713	695	669	647
26	Beaver Creek - 3	262	254	254	247	238	230
27	Cache Creek - 1	160	155	155	151	145	140
28	Cache Creek - 2	799	779	778	762	738	720

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	564	547	546	531	511	494
30	Deep Red Creek and West Cache Creek - 2	739	718	713	693	664	640
31	Red River Mainstem (To North Fork of Red)	675	656	652	634	608	586
32	Lower North Fork Red River - 1	119	116	115	112	107	103
33	Lower North Fork Red River - 2	269	261	260	253	243	234
34	Lower North Fork Red River - 3	830	805	803	781	751	725
35	Lower North Fork Red River - 4	112	108	108	105	101	98
36	Upper North Fork Red River - 1	145	141	141	137	132	127
37	Upper North Fork Red River - 2	518	503	501	488	469	453
38	Salt Fork Red River - 1	356	345	344	335	323	311
39	Salt Fork Red River - 2	161	156	156	152	146	141
40	Prairie Dog Town Fork Red River - 1	169	164	164	159	153	148
41	Prairie Dog Town Fork Red River - 2	254	246	246	239	230	221
42	Elm Fork Red River - 1	71	69	69	67	65	63
43	Elm Fork Red River - 2	342	332	331	322	310	299
44	Poteau River - 1	132	138	141	140	139	138
45	Poteau River - 2	1,542	1,590	1,614	1,605	1,581	1,568
46	Lower Arkansas River - 1	2,002	2,021	2,039	2,014	1,970	1,939
47	Lower Arkansas River - 2	1,231	1,211	1,213	1,188	1,150	1,120
48	Canadian River (To North Canadian River)	3,964	3,917	3,933	3,897	3,853	3,833
49	Middle Arkansas River	1,010	984	983	960	927	901
50	Lower North Canadian River	927	906	905	889	864	846
51	Middle North Canadian River	1,050	1,019	1,017	990	952	921
52	Upper North Canadian River - 1	1,164	1,158	1,165	1,163	1,163	1,170
53	Upper North Canadian River - 2	1,682	1,684	1,698	1,706	1,721	1,748
54	Upper North Canadian River - 3	737	740	747	751	761	775
55	North Canadian Headwaters	10,257	10,425	10,567	10,768	11,096	11,495
56	Lower Canadian River - 1	1,257	1,246	1,252	1,244	1,237	1,237
57	Lower Canadian River - 2	305	297	296	289	279	271

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	1,024	997	995	971	938	911
59	Upper Canadian River	2,252	2,206	2,210	2,172	2,122	2,086
60	Deep Fork River	1,832	1,785	1,783	1,742	1,684	1,638
61	Little River - 1	279	273	273	267	260	254
62	Little River - 2	452	441	441	431	418	408
63	Lower Cimarron River	1,324	1,292	1,291	1,265	1,227	1,197
64	Middle Cimarron River	5,688	5,614	5,633	5,580	5,512	5,482
65	Upper Cimarron River	2,757	2,732	2,746	2,731	2,715	2,718
66	Cimarron Headwaters	709	692	692	678	659	644
67	Lower Salt Fork Arkansas River - 1	153	149	148	145	139	135
68	Upper Salt Fork Arkansas River	1,915	1,858	1,853	1,803	1,733	1,675
69	Lower Salt Fork Arkansas River - 2	86	83	83	81	78	75
70	Lower Salt Fork Arkansas River - 3	124	120	120	117	113	109
71	Arkansas River - Cimarron Rivers to Keystone Lake	2,081	2,022	2,017	1,967	1,894	1,835
72	Arkansas River Mainstem (To Kansas State Line)	1,310	1,272	1,269	1,236	1,189	1,150
73	Bird Creek - 1	97	94	94	92	89	87
74	Bird Creek - 2	769	747	745	726	699	676
75	Caney River - 1	174	169	169	165	159	154
76	Caney River - 2	1,073	1,041	1,039	1,012	974	943
77	Verdigris River (To Oologah Dam) - 1	382	372	371	362	349	339
78	Verdigris River (To Oologah Dam) - 2	439	427	427	416	402	389
79	Verdigris River (To Kansas State Line)	1,452	1,413	1,410	1,375	1,324	1,283
80	Grand (Neosho) River - 1	3,930	3,912	3,931	3,860	3,752	3,666
81	Grand (Neosho) River - 2	2,060	2,094	2,115	2,091	2,048	2,017
82	Illinois River	1,647	1,682	1,701	1,684	1,653	1,630
	Total	**88,750**	**87,721**	**88,020**	**86,874**	**85,271**	**84,222**

Table B.17 Crop Irrigation Demand Projections by OCWP Planning Basin – Groundwater (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	2,371	3,686	3,686	3,686	3,686	3,686
2	Little River (McCurtain County) - 1	-	-	-	-	-	-
3	Little River (McCurtain County) - 2	-	-	-	-	-	-
4	Little River (McCurtain County) - 3	-	-	-	-	-	-
5	Kiamichi River - 1	180	216	234	273	331	385
6	Kiamichi River - 2	-	-	-	-	-	-
7	Muddy Boggy River - 1	42	50	54	63	77	89
8	Muddy Boggy River - 2	73	115	143	202	202	202
9	Clear Boggy Creek	663	768	821	924	970	970
10	Red River Mainstem (To Blue River)	409	488	529	614	733	841
11	Blue River - 1	-	-	-	-	-	-
12	Blue River - 2	3	5	6	8	13	20
13	Red River Mainstem (To Washita)	2,387	2,765	2,955	3,328	3,494	3,494
14	Lower Washita	271	364	357	350	347	346
15	Middle Washita - 1	133	102	82	64	56	55
16	Middle Washita - 2	7,046	7,289	7,329	7,321	7,335	7,354
17	Upper Washita - 1	7,351	7,699	7,764	7,764	7,764	7,764
18	Upper Washita - 2	40,348	42,811	43,138	43,138	43,138	43,138
19	Upper Washita - 3	13,989	16,395	16,424	16,456	16,486	16,517
20	Washita Headwaters	7,854	8,919	8,920	8,920	8,920	8,920
21	Red River Mainstem (To Walnut Bayou)	549	1,286	1,296	1,340	1,429	1,562
22	Walnut Bayou	87	353	353	353	353	353
23	Mud Creek	15	67	67	67	67	67
24	Beaver Creek - 1	-	-	-	-	-	-
25	Beaver Creek - 2	414	424	404	393	402	418
26	Beaver Creek - 3	77	116	116	116	116	116
27	Cache Creek - 1	6	7	7	7	7	7
28	Cache Creek - 2	171	188	194	204	219	231

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	66	79	84	95	110	124
30	Deep Red Creek and West Cache Creek - 2	730	744	744	744	744	744
31	Red River Mainstem (To North Fork of Red)	11,061	11,299	11,299	11,299	11,299	11,299
32	Lower North Fork Red River - 1	19,151	19,532	19,532	19,532	19,532	19,532
33	Lower North Fork Red River - 2	17,522	17,972	18,019	18,073	18,078	18,078
34	Lower North Fork Red River - 3	4,043	4,441	4,480	4,516	4,519	4,519
35	Lower North Fork Red River - 4	185	204	210	218	219	219
36	Upper North Fork Red River - 1	7,879	8,270	8,351	8,407	8,412	8,412
37	Upper North Fork Red River - 2	20,831	21,759	21,847	21,847	21,847	21,847
38	Salt Fork Red River - 1	17,872	18,303	18,326	18,326	18,326	18,326
39	Salt Fork Red River - 2	2,790	2,888	2,895	2,895	2,895	2,895
40	Prairie Dog Town Fork Red River - 1	4,324	4,433	4,436	4,436	4,436	4,436
41	Prairie Dog Town Fork Red River - 2	49,617	51,163	51,207	51,207	51,207	51,207
42	Elm Fork Red River - 1	4,078	4,240	4,260	4,260	4,260	4,260
43	Elm Fork Red River - 2	456	474	477	477	477	477
44	Poteau River - 1	-	-	-	-	-	-
45	Poteau River - 2	732	1,056	1,261	1,377	1,377	1,377
46	Lower Arkansas River - 1	5,104	6,583	7,860	8,584	8,584	8,584
47	Lower Arkansas River - 2	2,264	2,671	2,881	3,306	3,814	3,814
48	Canadian River (To North Canadian River)	67	616	638	684	684	684
49	Middle Arkansas River	451	417	426	446	469	469
50	Lower North Canadian River	203	558	558	558	559	559
51	Middle North Canadian River	6,557	7,696	8,279	9,454	11,155	12,637
52	Upper North Canadian River - 1	9,916	11,787	11,870	12,048	12,345	12,659
53	Upper North Canadian River - 2	46,471	51,507	53,299	56,484	59,949	61,446
54	Upper North Canadian River - 3	14,121	14,667	14,667	14,667	14,667	14,667
55	North Canadian Headwaters	420,342	427,608	428,846	431,045	433,438	434,472
56	Lower Canadian River - 1	772	1,399	1,607	2,051	2,051	2,051
57	Lower Canadian River - 2	20	27	25	24	23	23

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	1,567	1,724	1,764	1,874	2,060	2,220
59	Upper Canadian River	27,912	31,751	33,102	35,822	40,081	44,277
60	Deep Fork River	57	137	137	137	137	137
61	Little River - 1	14	23	23	23	23	23
62	Little River - 2	67	91	91	91	91	91
63	Lower Cimarron River	725	985	1,093	1,335	1,770	2,300
64	Middle Cimarron River	44,745	53,553	54,788	57,038	59,922	63,168
65	Upper Cimarron River	49,598	52,129	53,061	54,707	56,498	57,271
66	Cimarron Headwaters	19,327	19,859	19,859	19,859	19,859	19,859
67	Lower Salt Fork Arkansas River - 1	2,561	3,473	3,473	3,473	3,473	3,473
68	Upper Salt Fork Arkansas River	5,611	6,467	6,513	6,618	6,813	7,051
69	Lower Salt Fork Arkansas River - 2	42	56	56	56	56	56
70	Lower Salt Fork Arkansas River - 3	963	1,306	1,306	1,306	1,306	1,306
71	Arkansas River - Cimarron Rivers to Keystone Lake	929	1,277	1,437	1,808	2,495	3,335
72	Arkansas River Mainstem (To Kansas State Line)	1,355	2,045	2,073	2,139	2,262	2,411
73	Bird Creek - 1	-	-	-	-	-	-
74	Bird Creek - 2	181	285	285	285	285	285
75	Caney River - 1	-	-	-	-	-	-
76	Caney River - 2	-	-	-	-	-	-
77	Verdigris River (To Oologah Dam) - 1	26	27	28	29	31	31
78	Verdigris River (To Oologah Dam) - 2	-	-	-	-	-	-
79	Verdigris River (To Kansas State Line)	-	-	-	-	-	-
80	Grand (Neosho) River - 1	0	0	0	0	0	0
81	Grand (Neosho) River - 2	36	153	153	153	153	153
82	Illinois River	0	0	0	0	0	0
	Total	**907,780**	**961,850**	**972,505**	**989,405**	**1,008,935**	**1,023,798**

Table B.18 Crop Irrigation Demand Projections by OCWP Planning Basin – Surface Water (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	966	1,490	1,494	1,501	1,512	1,522
2	Little River (McCurtain County) - 1	116	181	181	181	181	181
3	Little River (McCurtain County) - 2	213	332	332	332	332	332
4	Little River (McCurtain County) - 3	112	174	174	174	174	174
5	Kiamichi River - 1	136	163	177	206	249	290
6	Kiamichi River - 2	1	8	8	8	8	8
7	Muddy Boggy River - 1	237	294	312	349	405	457
8	Muddy Boggy River - 2	191	742	753	774	774	774
9	Clear Boggy Creek	276	716	724	744	786	847
10	Red River Mainstem (To Blue River)	599	713	773	894	1,059	1,205
11	Blue River - 1	157	182	194	219	230	230
12	Blue River - 2	476	606	683	866	1,190	1,658
13	Red River Mainstem (To Washita)	10,361	12,001	12,826	14,445	15,166	15,166
14	Lower Washita	389	509	504	499	497	497
15	Middle Washita - 1	92	149	141	134	131	130
16	Middle Washita - 2	1,036	824	758	692	666	661
17	Upper Washita - 1	1,209	1,266	1,277	1,277	1,277	1,277
18	Upper Washita - 2	200	242	242	242	242	242
19	Upper Washita - 3	3,611	4,229	4,246	4,258	4,259	4,259
20	Washita Headwaters	1,046	1,183	1,183	1,183	1,183	1,183
21	Red River Mainstem (To Walnut Bayou)	874	824	881	1,066	1,470	2,092
22	Walnut Bayou	-	-	-	-	-	-
23	Mud Creek	9	39	39	39	39	39
24	Beaver Creek - 1	5	75	75	75	75	75
25	Beaver Creek - 2	1,106	1,542	1,553	1,582	1,631	1,675
26	Beaver Creek - 3	-	-	-	-	-	-
27	Cache Creek - 1	76	95	95	95	95	95
28	Cache Creek - 2	793	919	981	1,106	1,285	1,439

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	119	142	150	166	189	209
30	Deep Red Creek and West Cache Creek - 2	1,888	1,925	1,925	1,925	1,925	1,925
31	Red River Mainstem (To North Fork of Red)	4	4	4	4	4	4
32	Lower North Fork Red River - 1	-	-	-	-	-	-
33	Lower North Fork Red River - 2	14,775	14,996	14,997	14,998	14,998	14,998
34	Lower North Fork Red River - 3	2,659	2,890	2,959	3,037	3,044	3,044
35	Lower North Fork Red River - 4	-	-	-	-	-	-
36	Upper North Fork Red River - 1	42	46	48	50	50	50
37	Upper North Fork Red River - 2	661	687	690	690	690	690
38	Salt Fork Red River - 1	61,020	61,926	61,926	61,926	61,926	61,926
39	Salt Fork Red River - 2	-	-	-	-	-	-
40	Prairie Dog Town Fork Red River - 1	1,360	1,381	1,381	1,381	1,381	1,381
41	Prairie Dog Town Fork Red River - 2	357	368	368	368	368	368
42	Elm Fork Red River - 1	-	-	-	-	-	-
43	Elm Fork Red River - 2	-	-	-	-	-	-
44	Poteau River - 1	899	1,297	1,549	1,692	1,692	1,692
45	Poteau River - 2	1,200	1,887	2,215	2,401	2,401	2,401
46	Lower Arkansas River - 1	6,517	7,595	9,045	9,867	9,867	9,867
47	Lower Arkansas River - 2	9,872	11,703	12,605	14,428	16,609	16,609
48	Canadian River (To North Canadian River)	621	1,117	1,311	1,724	1,724	1,724
49	Middle Arkansas River	667	752	796	884	990	990
50	Lower North Canadian River	459	776	777	781	783	784
51	Middle North Canadian River	920	1,066	1,140	1,286	1,485	1,643
52	Upper North Canadian River - 1	208	235	235	235	235	235
53	Upper North Canadian River - 2	545	613	613	613	613	613
54	Upper North Canadian River - 3	79	81	81	81	81	81
55	North Canadian Headwaters	247	251	253	257	261	263
56	Lower Canadian River - 1	633	1,038	1,104	1,247	1,247	1,247
57	Lower Canadian River - 2	100	215	214	213	213	213

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	3,321	3,296	3,370	3,658	4,182	4,642
59	Upper Canadian River	779	843	863	894	937	971
60	Deep Fork River	55	142	142	142	142	142
61	Little River - 1	-	-	-	-	-	-
62	Little River - 2	160	267	267	267	267	267
63	Lower Cimarron River	247	389	417	480	598	742
64	Middle Cimarron River	1,901	2,330	2,387	2,485	2,589	2,689
65	Upper Cimarron River	9,927	11,154	11,156	11,160	11,164	11,166
66	Cimarron Headwaters	2,492	2,594	2,594	2,594	2,594	2,594
67	Lower Salt Fork Arkansas River - 1	10	14	14	14	14	14
68	Upper Salt Fork Arkansas River	677	700	700	700	700	700
69	Lower Salt Fork Arkansas River - 2	730	989	989	989	989	989
70	Lower Salt Fork Arkansas River - 3	1,914	2,329	2,329	2,329	2,329	2,329
71	Arkansas River - Cimarron Rivers to Keystone Lake	272	2,121	2,121	2,121	2,121	2,121
72	Arkansas River Mainstem (To Kansas State Line)	-	-	-	-	-	-
73	Bird Creek - 1	22	20	20	20	20	20
74	Bird Creek - 2	272	426	426	426	426	426
75	Caney River - 1	125	141	141	141	141	141
76	Caney River - 2	-	-	-	-	-	-
77	Verdigris River (To Oologah Dam) - 1	5,677	5,785	5,814	5,872	5,941	5,941
78	Verdigris River (To Oologah Dam) - 2	218	247	247	247	247	247
79	Verdigris River (To Kansas State Line)	-	-	-	-	-	-
80	Grand (Neosho) River - 1	1,422	1,635	1,744	1,963	2,226	2,226
81	Grand (Neosho) River - 2	-	-	-	-	-	-
82	Illinois River	772	356	355	355	355	355
	Total	**161,134**	**178,267**	**183,086**	**190,050**	**195,673**	**198,186**

Table B.19 Crop Irrigation Demand Projections by OCWP Planning Basin – Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	3,337	5,176	5,179	5,187	5,198	5,208
2	Little River (McCurtain County) - 1	116	181	181	181	181	181
3	Little River (McCurtain County) - 2	213	332	332	332	332	332
4	Little River (McCurtain County) - 3	112	174	174	174	174	174
5	Kiamichi River - 1	316	378	411	478	580	675
6	Kiamichi River - 2	1	8	8	8	8	8
7	Muddy Boggy River - 1	279	344	366	412	482	546
8	Muddy Boggy River - 2	264	858	896	976	976	976
9	Clear Boggy Creek	939	1,483	1,544	1,668	1,756	1,818
10	Red River Mainstem (To Blue River)	1,009	1,201	1,302	1,508	1,793	2,046
11	Blue River - 1	157	182	194	219	230	230
12	Blue River - 2	479	611	688	874	1,202	1,678
13	Red River Mainstem (To Washita)	12,748	14,766	15,781	17,772	18,660	18,660
14	Lower Washita	660	873	860	849	844	843
15	Middle Washita - 1	225	251	223	197	187	185
16	Middle Washita - 2	8,081	8,113	8,087	8,013	8,001	8,015
17	Upper Washita - 1	8,560	8,965	9,041	9,041	9,041	9,041
18	Upper Washita - 2	40,548	43,053	43,380	43,380	43,380	43,380
19	Upper Washita - 3	17,600	20,624	20,670	20,714	20,745	20,776
20	Washita Headwaters	8,901	10,102	10,103	10,103	10,103	10,103
21	Red River Mainstem (To Walnut Bayou)	1,423	2,110	2,178	2,406	2,899	3,655
22	Walnut Bayou	87	353	353	353	353	353
23	Mud Creek	24	106	106	106	106	106
24	Beaver Creek - 1	5	75	75	75	75	75
25	Beaver Creek - 2	1,520	1,966	1,957	1,975	2,034	2,092
26	Beaver Creek - 3	77	116	116	116	116	116
27	Cache Creek - 1	82	103	103	103	103	103
28	Cache Creek - 2	964	1,106	1,175	1,310	1,504	1,671

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	185	221	234	261	300	333
30	Deep Red Creek and West Cache Creek - 2	2,617	2,669	2,669	2,669	2,669	2,669
31	Red River Mainstem (To North Fork of Red)	11,066	11,304	11,304	11,304	11,304	11,304
32	Lower North Fork Red River - 1	19,151	19,532	19,532	19,532	19,532	19,532
33	Lower North Fork Red River - 2	32,297	32,969	33,016	33,071	33,076	33,076
34	Lower North Fork Red River - 3	6,702	7,331	7,439	7,553	7,564	7,564
35	Lower North Fork Red River - 4	185	204	210	218	219	219
36	Upper North Fork Red River - 1	7,921	8,317	8,398	8,457	8,462	8,462
37	Upper North Fork Red River - 2	21,492	22,446	22,537	22,537	22,537	22,537
38	Salt Fork Red River - 1	78,893	80,230	80,252	80,252	80,252	80,252
39	Salt Fork Red River - 2	2,790	2,888	2,895	2,895	2,895	2,895
40	Prairie Dog Town Fork Red River - 1	5,685	5,814	5,816	5,816	5,816	5,816
41	Prairie Dog Town Fork Red River - 2	49,974	51,531	51,575	51,575	51,575	51,575
42	Elm Fork Red River - 1	4,078	4,240	4,260	4,260	4,260	4,260
43	Elm Fork Red River - 2	456	474	477	477	477	477
44	Poteau River - 1	899	1,297	1,549	1,692	1,692	1,692
45	Poteau River - 2	1,932	2,943	3,476	3,779	3,779	3,779
46	Lower Arkansas River - 1	11,621	14,178	16,905	18,452	18,452	18,452
47	Lower Arkansas River - 2	12,136	14,374	15,486	17,733	20,423	20,423
48	Canadian River (To North Canadian River)	688	1,733	1,949	2,408	2,408	2,408
49	Middle Arkansas River	1,118	1,169	1,222	1,330	1,459	1,459
50	Lower North Canadian River	662	1,334	1,336	1,340	1,341	1,342
51	Middle North Canadian River	7,476	8,762	9,420	10,740	12,640	14,280
52	Upper North Canadian River - 1	10,124	12,022	12,104	12,283	12,579	12,893
53	Upper North Canadian River - 2	47,016	52,120	53,912	57,097	60,562	62,059
54	Upper North Canadian River - 3	14,199	14,747	14,747	14,747	14,747	14,747
55	North Canadian Headwaters	420,589	427,859	429,099	431,302	433,699	434,735
56	Lower Canadian River - 1	1,404	2,437	2,712	3,298	3,298	3,298
57	Lower Canadian River - 2	120	242	240	237	236	236

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	4,888	5,020	5,134	5,532	6,242	6,862
59	Upper Canadian River	28,692	32,594	33,965	36,716	41,018	45,248
60	Deep Fork River	111	279	279	279	279	279
61	Little River - 1	14	23	23	23	23	23
62	Little River - 2	227	359	359	359	359	359
63	Lower Cimarron River	972	1,374	1,509	1,816	2,368	3,042
64	Middle Cimarron River	46,647	55,884	57,175	59,523	62,511	65,858
65	Upper Cimarron River	59,525	63,283	64,218	65,867	67,662	68,437
66	Cimarron Headwaters	21,819	22,453	22,453	22,453	22,453	22,453
67	Lower Salt Fork Arkansas River - 1	2,571	3,487	3,487	3,487	3,487	3,487
68	Upper Salt Fork Arkansas River	6,288	7,167	7,214	7,319	7,513	7,752
69	Lower Salt Fork Arkansas River - 2	771	1,046	1,046	1,046	1,046	1,046
70	Lower Salt Fork Arkansas River - 3	2,877	3,634	3,634	3,634	3,634	3,634
71	Arkansas River - Cimarron Rivers to Keystone Lake	1,200	3,397	3,558	3,928	4,615	5,456
72	Arkansas River Mainstem (To Kansas State Line)	1,355	2,045	2,073	2,139	2,262	2,411
73	Bird Creek - 1	22	20	20	20	20	20
74	Bird Creek - 2	453	712	712	712	712	712
75	Caney River - 1	125	141	141	141	141	141
76	Caney River - 2	-	-	-	-	-	-
77	Verdigris River (To Oologah Dam) - 1	5,704	5,813	5,842	5,901	5,972	5,972
78	Verdigris River (To Oologah Dam) - 2	218	247	247	247	247	247
79	Verdigris River (To Kansas State Line)	-	-	-	-	-	-
80	Grand (Neosho) River - 1	1,422	1,636	1,744	1,964	2,227	2,227
81	Grand (Neosho) River - 2	36	153	153	153	153	153
82	Illinois River	772	356	355	355	355	355
	Total	**1,068,913**	**1,140,116**	**1,155,591**	**1,179,455**	**1,204,608**	**1,221,984**

Table B.20 Total Water Withdrawal by OCWP Planning Basin – Total (AFY)

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	47,568	49,871	51,489	54,638	60,107	65,142
2	Little River (McCurtain County) - 1	1,818	2,081	2,130	2,225	2,394	2,547
3	Little River (McCurtain County) - 2	4,600	5,200	5,320	5,548	5,956	6,324
4	Little River (McCurtain County) - 3	1,102	1,236	1,258	1,281	1,319	1,356
5	Kiamichi River - 1	4,364	3,705	3,587	2,583	2,531	2,524
6	Kiamichi River - 2	2,316	2,285	2,243	2,171	2,081	1,979
7	Muddy Boggy River - 1	801	854	872	904	955	1,002
8	Muddy Boggy River - 2	8,308	7,517	7,361	8,058	8,462	8,782
9	Clear Boggy Creek	3,682	4,240	4,298	4,404	4,493	4,549
10	Red River Mainstem (To Blue River)	1,431	1,623	1,724	1,926	2,209	2,460
11	Blue River - 1	1,089	1,179	1,216	1,291	1,393	1,479
12	Blue River - 2	6,898	7,609	7,881	8,511	9,630	10,842
13	Red River Mainstem (To Washita)	15,243	17,482	18,576	20,742	21,937	22,226
14	Lower Washita	23,719	24,384	24,328	24,182	24,245	24,229
15	Middle Washita - 1	3,348	3,385	3,355	3,318	3,302	3,307
16	Middle Washita - 2	16,266	16,393	16,283	16,034	15,771	15,592
17	Upper Washita - 1	11,421	11,353	11,352	11,620	11,797	11,955
18	Upper Washita - 2	41,727	44,228	44,538	44,498	44,442	44,391
19	Upper Washita - 3	26,274	29,471	29,619	29,809	30,286	30,608
20	Washita Headwaters	10,531	11,718	11,716	11,693	11,668	11,646
21	Red River Mainstem (To Walnut Bayou)	12,643	13,563	13,637	13,876	14,591	15,477
22	Walnut Bayou	4,622	4,947	4,954	4,947	4,996	5,016
23	Mud Creek	1,417	1,470	1,464	1,434	1,395	1,359
24	Beaver Creek - 1	376	453	446	434	417	400
25	Beaver Creek - 2	5,008	5,345	5,268	5,134	5,004	4,863
26	Beaver Creek - 3	1,140	1,149	1,128	1,084	1,031	973
27	Cache Creek - 1	439	437	419	388	344	299
28	Cache Creek - 2	22,196	21,493	20,990	19,945	18,503	17,045

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
29	Deep Red Creek and West Cache Creek - 1	2,829	2,754	2,694	2,565	2,389	2,208
30	Deep Red Creek and West Cache Creek - 2	4,547	4,550	4,496	4,375	4,225	4,075
31	Red River Mainstem (To North Fork of Red)	13,171	13,344	13,273	13,122	12,933	12,741
32	Lower North Fork Red River - 1	19,663	20,031	20,014	19,976	19,931	19,885
33	Lower North Fork Red River - 2	37,623	37,816	37,575	37,149	36,421	35,663
34	Lower North Fork Red River - 3	10,848	11,394	11,488	11,516	11,483	11,379
35	Lower North Fork Red River - 4	352	365	370	372	365	357
36	Upper North Fork Red River - 1	8,323	8,716	8,792	8,844	8,837	8,824
37	Upper North Fork Red River - 2	25,247	26,186	26,290	26,269	26,341	26,339
38	Salt Fork Red River - 1	82,098	83,202	83,070	82,820	82,433	82,031
39	Salt Fork Red River - 2	3,040	3,134	3,139	3,133	3,125	3,117
40	Prairie Dog Town Fork Red River - 1	6,221	6,311	6,292	6,254	6,196	6,137
41	Prairie Dog Town Fork Red River - 2	50,940	52,494	52,510	52,449	52,342	52,252
42	Elm Fork Red River - 1	5,125	5,294	5,291	5,280	5,251	5,213
43	Elm Fork Red River - 2	1,009	1,015	1,017	1,008	1,001	990
44	Poteau River - 1	5,325	5,402	5,535	5,041	4,885	4,772
45	Poteau River - 2	11,749	12,903	13,251	13,236	12,816	12,411
46	Lower Arkansas River - 1	21,074	23,886	26,439	27,617	27,100	26,677
47	Lower Arkansas River - 2	65,607	63,428	63,833	68,214	73,021	74,804
48	Canadian River (To North Canadian River)	20,906	21,602	21,410	21,170	20,427	19,506
49	Middle Arkansas River	112,948	113,386	114,980	120,117	128,143	134,812
50	Lower North Canadian River	322,634	247,287	241,027	293,229	337,312	375,799
51	Middle North Canadian River	15,951	17,563	18,456	20,280	23,190	25,667
52	Upper North Canadian River - 1	13,284	15,031	15,111	15,410	15,847	16,271
53	Upper North Canadian River - 2	56,964	62,207	64,014	67,330	71,221	72,929
54	Upper North Canadian River - 3	15,896	16,458	16,459	16,452	16,464	16,464
55	North Canadian Headwaters	437,006	444,225	445,576	447,910	450,481	451,736
56	Lower Canadian River - 1	715,579	489,930	465,558	597,902	696,095	781,520
57	Lower Canadian River - 2	2,538	2,676	2,685	2,722	2,789	2,869

OCWP Basin #	OCWP Basin Name	2020	2030	2035	2045	2060	2075
58	Middle Canadian River	38,028	38,031	38,637	40,597	43,791	46,571
59	Upper Canadian River	37,512	41,696	43,180	46,123	50,906	55,503
60	Deep Fork River	61,932	63,838	65,502	70,495	78,126	84,864
61	Little River - 1	1,755	1,791	1,792	1,794	1,802	1,809
62	Little River - 2	25,126	26,186	26,823	28,159	30,544	32,595
63	Lower Cimarron River	13,779	14,321	14,609	15,248	16,461	17,632
64	Middle Cimarron River	92,753	104,129	106,600	111,503	119,112	126,467
65	Upper Cimarron River	63,458	67,282	68,234	69,918	71,863	72,736
66	Cimarron Headwaters	22,559	23,173	23,172	23,156	23,136	23,118
67	Lower Salt Fork Arkansas River - 1	10,591	11,225	11,010	10,585	10,110	9,526
68	Upper Salt Fork Arkansas River	11,728	12,756	12,863	13,122	13,787	14,330
69	Lower Salt Fork Arkansas River - 2	2,575	2,772	2,726	2,633	2,529	2,402
70	Lower Salt Fork Arkansas River - 3	3,152	3,902	3,898	3,889	3,878	3,866
71	Arkansas River - Cimarron Rivers to Keystone Lake	18,147	20,907	21,230	21,747	23,210	24,490
72	Arkansas River Mainstem (To Kansas State Line)	784,277	559,951	525,747	194,444	167,396	163,700
73	Bird Creek - 1	46,361	47,406	48,322	50,360	53,897	56,927
74	Bird Creek - 2	7,337	7,661	7,675	7,694	7,787	7,855
75	Caney River - 1	5,279	5,402	5,500	5,716	6,094	6,417
76	Caney River - 2	6,084	6,055	6,056	6,067	6,192	6,240
77	Verdigris River (To Oologah Dam) - 1	21,567	20,255	20,272	21,608	22,900	24,025
78	Verdigris River (To Oologah Dam) - 2	19,152	19,712	20,189	20,877	22,197	23,568
79	Verdigris River (To Kansas State Line)	3,040	3,102	3,080	3,010	2,931	2,858
80	Grand (Neosho) River - 1	17,796	17,280	17,365	18,205	19,143	19,814
81	Grand (Neosho) River - 2	6,770	7,042	6,991	6,889	6,818	6,706
82	Illinois River	6,492	6,431	6,364	6,196	6,011	5,865
	Total	**3,696,096**	**3,239,567**	**3,195,933**	**3,094,474**	**3,274,942**	**3,445,704**

APPENDIX C

POPULATION PROJECTIONS BY COUNTY AND BASIN

APPENDIX C POPULATION PROJECTIONS BY COUNTY

This appendix includes a table of population projections for each county in Oklahoma from 2025 through 2075. Population estimates for 2020 reflect historical data from the 2020 U.S. Census.

Small differences between population projections occur when county level projections are converted to basin level projections.

Table C.1 Population Projection by County through 2075

County	2020[1]	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075
Adair	19,495	21,697	21,410	20,907	20,503	19,910	19,529	19,066	18,790	18,390	18,134	17,918
Alfalfa	5,699	5,862	6,047	6,224	6,537	6,739	7,174	7,492	7,976	8,456	8,996	8,857
Atoka	14,143	13,438	13,158	12,748	12,474	12,070	11,781	11,393	11,120	10,740	10,434	10,075
Beaver	5,049	5,283	5,211	5,104	5,070	4,935	4,927	4,855	4,905	4,906	4,952	4,771
Beckham	22,410	21,931	22,188	22,341	22,438	22,269	22,436	22,449	22,901	23,077	23,407	22,945
Blaine	8,735	8,752	8,137	7,406	6,695	5,934	5,328	4,671	4,136	3,540	3,101	2,327
Bryan	46,067	49,112	51,246	53,025	55,404	57,108	59,580	61,566	64,264	66,391	69,241	70,953
Caddo	26,945	28,874	28,541	27,877	27,578	26,949	26,583	25,890	25,606	25,058	24,766	24,522
Canadian	154,405	158,329	172,981	188,275	205,460	222,789	243,470	263,867	287,920	311,638	339,197	342,194
Carter	48,003	48,435	48,872	48,972	49,320	48,978	49,345	49,144	49,743	49,710	50,087	50,105
Cherokee	47,078	48,989	49,697	49,478	50,058	49,868	50,577	50,446	51,245	51,290	52,087	52,283
Choctaw	14,204	14,483	14,294	13,815	13,599	13,227	13,127	12,782	12,732	12,496	12,437	12,000
Cimarron	2,296	2,092	1,987	1,891	1,761	1,657	1,577	1,509	1,459	1,397	1,356	1,168
Cleveland	295,528	291,292	302,622	309,697	318,471	324,628	334,764	340,935	351,901	358,201	368,526	374,767
Coal	5,266	5,353	5,179	4,961	4,764	4,481	4,313	4,118	4,002	3,811	3,679	3,428
Comanche	121,125	118,391	116,351	113,057	110,101	105,864	102,928	98,651	96,065	92,145	89,446	86,319
Cotton	5,527	5,448	5,007	4,508	4,129	3,744	3,398	2,964	2,680	2,280	2,000	1,534
Craig	14,107	13,812	13,494	12,938	12,647	12,203	11,944	11,539	11,367	11,025	10,885	10,275
Creek	71,754	71,519	72,112	72,009	72,375	71,955	72,482	72,279	72,977	72,859	73,468	73,367
Custer	28,513	29,571	30,950	32,410	33,806	35,222	37,095	38,623	41,118	43,120	45,847	45,703

[1] 2020 population estimates reflect data gathered for the 2020 census, while 2025-2075 population estimates were forecasted by ODOC based on historical population trends and current demographic data.

County	2020[1]	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075
Delaware	40,397	42,559	42,511	41,816	41,622	40,860	40,842	40,330	40,386	39,864	39,722	39,818
Dewey	4,484	4,958	5,067	5,406	5,745	6,116	6,575	7,020	7,659	8,355	9,148	8,886
Ellis	3,749	3,834	3,833	3,789	3,793	3,701	3,714	3,654	3,718	3,687	3,695	3,609
Garfield	62,846	62,012	63,096	63,690	64,905	65,326	66,381	67,181	68,755	69,746	71,110	70,974
Garvin	25,656	27,671	27,872	27,865	28,230	28,025	28,201	28,279	28,846	29,117	29,546	29,546
Grady	54,795	54,526	54,527	54,026	53,801	52,494	51,710	50,420	50,214	49,313	48,817	48,694
Grant	4,169	4,294	4,387	4,474	4,598	4,643	4,730	4,840	5,083	5,335	5,600	5,427
Greer	5,491	5,652	5,539	5,416	5,411	5,363	5,369	5,246	5,215	5,160	5,159	5,014
Harmon	2,488	2,640	2,504	2,407	2,333	2,217	2,154	1,997	1,876	1,751	1,655	1,588
Harper	3,272	3,783	3,737	3,625	3,635	3,572	3,674	3,679	3,660	3,627	3,659	3,662
Haskell	11,561	12,486	12,343	12,123	12,000	11,668	11,481	11,166	11,010	10,727	10,561	10,502
Hughes	13,367	12,919	12,793	12,589	12,672	12,529	12,561	12,440	12,553	12,586	12,724	12,265
Jackson	24,785	23,113	22,409	20,966	20,267	18,607	17,518	15,957	14,977	13,448	12,552	11,226
Jefferson	5,337	5,874	5,714	5,536	5,430	5,303	5,228	5,085	5,009	4,886	4,825	4,678
Johnston	10,272	10,982	10,987	10,759	10,765	10,590	10,673	10,536	10,598	10,486	10,522	10,479
Kay	43,700	42,573	41,769	40,581	39,681	38,233	37,364	36,149	35,622	34,627	33,990	32,405
Kingfisher	15,184	16,130	16,619	16,902	17,619	17,805	18,504	18,821	19,462	20,089	20,851	21,058
Kiowa	8,509	8,589	8,284	7,993	7,759	7,487	7,327	7,037	6,900	6,711	6,595	6,201
Latimer	9,444	9,685	9,195	8,653	8,170	7,615	7,167	6,687	6,345	5,929	5,611	5,000
Le Flore	48,129	49,319	48,885	47,854	47,419	46,497	46,106	45,167	44,724	43,895	43,478	43,016
Lincoln	33,458	34,945	34,933	34,408	34,279	33,857	33,789	33,401	33,460	33,130	33,136	33,070
Logan	49,555	49,515	51,989	53,947	56,322	58,107	60,167	61,898	64,166	66,135	68,442	70,361
Love	10,146	10,380	10,741	11,146	11,658	12,056	12,599	13,153	13,823	14,457	15,251	15,298

County	2020[1]	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075
Major	7,782	7,788	8,153	8,520	9,051	9,590	10,203	10,810	11,543	12,290	13,130	13,019
Marshall	15,312	16,058	15,730	15,272	15,016	14,568	14,371	14,094	14,058	13,887	13,832	13,438
Mayes	39,046	41,466	41,761	41,549	41,526	40,800	40,495	39,694	39,353	38,541	37,932	38,733
McClain	41,662	41,455	42,405	42,846	43,932	44,493	45,472	45,878	47,164	47,825	49,189	49,994
McCurtain	30,814	33,911	35,153	36,184	37,429	38,444	39,787	40,953	42,503	43,803	45,372	46,133
McIntosh	18,941	18,672	18,008	16,960	16,375	15,624	15,296	14,683	14,468	14,038	13,807	12,631
Murray	13,904	14,086	14,250	14,274	14,397	14,317	14,523	14,386	14,437	14,324	14,305	14,560
Muskogee	66,339	66,553	65,442	63,667	62,566	60,528	59,395	57,687	56,841	55,347	54,417	52,707
Noble	10,924	11,006	10,929	10,720	10,578	10,361	10,234	10,070	10,030	9,917	9,871	9,606
Nowata	9,320	10,169	10,084	9,913	9,809	9,634	9,536	9,401	9,380	9,251	9,203	9,103
Okfuskee	11,310	11,938	11,828	11,630	11,649	11,466	11,482	11,400	11,416	11,341	11,379	11,234
Oklahoma	796,292	819,801	854,619	885,896	921,555	951,205	989,174	1,021,074	1,064,003	1,100,832	1,145,555	1,163,852
Okmulgee	36,706	37,525	36,995	36,076	35,410	34,127	33,373	32,338	31,815	30,939	30,404	29,505
Osage	45,818	46,387	45,931	44,934	44,181	42,757	41,809	40,534	39,920	38,822	38,102	37,298
Ottawa	30,285	30,991	30,894	30,440	30,370	30,010	30,026	29,799	29,915	29,780	29,906	29,395
Pawnee	15,553	16,114	15,937	15,591	15,389	14,975	14,737	14,329	14,161	13,790	13,570	13,400
Payne	81,646	83,912	86,914	89,062	90,086	91,823	95,432	96,023	100,611	101,474	105,438	106,308
Pittsburg	43,773	42,423	41,590	40,241	39,495	38,310	37,784	36,779	36,351	35,525	35,120	33,508
Pontotoc	38,065	38,623	39,157	39,246	39,747	39,700	40,179	40,220	40,818	40,861	41,360	41,600
Pottawatomie	72,454	73,114	74,281	74,626	75,526	75,493	76,259	76,132	76,891	76,755	77,400	78,250
Pushmataha	10,812	10,810	10,485	10,087	9,953	9,606	9,467	9,184	9,072	8,854	8,778	8,374
Roger Mills	3,442	3,671	3,649	3,621	3,655	3,632	3,676	3,714	3,750	3,818	3,883	3,817
Rogers	95,240	93,606	95,670	96,650	97,885	97,763	98,635	98,364	99,660	99,582	100,501	101,745
Seminole	23,556	24,193	23,873	23,296	22,904	22,307	22,068	21,398	21,190	20,644	20,360	19,874
Sequoyah	39,281	40,842	40,245	39,144	38,319	37,130	36,314	35,093	34,314	33,233	32,516	32,007

County	2020[1]	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075
Stephens	42,848	41,908	41,270	40,072	39,247	37,739	36,946	35,659	35,116	34,073	33,446	31,994
Texas	21,384	20,428	20,456	20,438	20,546	20,373	20,277	19,988	19,888	19,718	19,597	19,398
Tillman	6,968	7,039	6,793	6,496	6,223	5,877	5,614	5,285	5,130	4,897	4,768	4,364
Tulsa	669,279	665,580	685,303	699,203	718,526	730,589	750,638	763,034	784,945	799,567	822,204	831,337
Wagoner	80,981	82,295	84,547	86,028	87,802	88,565	90,010	90,592	92,053	92,643	93,700	96,347
Washington	52,455	51,699	52,411	52,565	53,288	53,263	54,144	54,426	55,503	56,011	57,103	56,723
Washita	10,924	10,677	10,510	10,202	9,974	9,554	9,231	8,848	8,628	8,294	8,038	7,679
Woods	8,624	9,060	9,613	9,846	10,304	10,838	11,718	12,477	13,535	14,336	15,524	15,211
Woodward	20,470	20,412	20,711	20,758	21,069	21,143	21,538	21,737	22,260	22,571	23,032	22,797

Table C.2 Population Projection by Basin through 2075

OCWP Planning Basin	OCWP Planning Basin Name	OCWP Planning Region	2020	2030	2035	2045	2060	2075
1	Red River Mainstem (To Kiamichi River)	Southeast	6,742	7,611	7,796	8,221	9,009	9,701
2	Little River (McCurtain County) - 1	Southeast	5,700	6,503	6,694	7,112	7,863	8,534
3	Little River (McCurtain County) - 2	Southeast	17,981	19,656	19,896	20,589	21,976	23,136
4	Little River (McCurtain County) - 3	Southeast	11,061	12,051	12,172	12,523	13,216	13,824
5	Kiamichi River - 1	Southeast	5,786	5,797	5,600	5,358	5,146	4,838
6	Kiamichi River - 2	Southeast	20,157	19,831	19,188	18,276	17,194	15,944
7	Muddy Boggy River - 1	Blue-Boggy	5,726	5,668	5,481	5,235	4,996	4,673
8	Muddy Boggy River - 2	Blue-Boggy	19,344	18,697	18,256	17,556	16,808	15,813
9	Clear Boggy Creek	Blue-Boggy	25,031	25,577	25,484	25,519	25,985	26,202
10	Red River Mainstem (To Blue River)	Blue-Boggy	5,811	6,173	6,199	6,358	6,739	7,044
11	Blue River - 1	Blue-Boggy	10,726	11,932	12,347	13,297	14,964	16,521
12	Blue River - 2	Blue-Boggy	16,214	17,378	17,593	18,232	19,495	20,595
13	Red River Mainstem (To Washita)	Blue-Boggy	15,969	17,765	18,381	19,797	22,277	24,596
14	Lower Washita	Lower Washita	78,767	80,608	80,190	79,379	79,376	78,970
15	Middle Washita - 1	Lower Washita	28,002	28,656	28,750	29,181	30,014	30,989
16	Middle Washita - 2	Lower Washita	44,146	44,616	44,112	42,983	41,435	40,323
17	Upper Washita - 1	West Central	4,760	5,042	4,925	4,761	4,524	4,332
18	Upper Washita - 2	West Central	5,603	5,849	5,726	5,542	5,292	5,071
19	Upper Washita - 3	West Central	26,044	26,890	27,253	27,941	29,912	31,188
20	Washita Headwaters	West Central	9,650	10,288	10,577	11,162	12,501	13,499
21	Red River Mainstem (To Walnut Bayou)	Lower Washita	45,012	47,083	46,921	47,095	48,589	49,572
22	Walnut Bayou	Lower Washita	14,528	14,884	15,002	15,212	15,810	16,239
23	Mud Creek	Lower Washita	16,233	16,144	15,834	15,281	14,765	14,064
24	Beaver Creek - 1	Beaver-Cache	733	785	760	728	688	643

OCWP Planning Basin	OCWP Planning Basin Name	OCWP Planning Region	2020	2030	2035	2045	2060	2075
25	Beaver Creek - 2	Beaver-Cache	36,244	34,909	33,918	31,843	29,133	26,342
26	Beaver Creek - 3	Beaver-Cache	7,428	7,189	6,979	6,578	6,126	5,588
27	Cache Creek - 1	Beaver-Cache	914	828	745	619	443	254
28	Cache Creek - 2	Beaver-Cache	53,142	51,403	49,934	46,833	42,596	38,409
29	Deep Red Creek and West Cache Creek - 1	Beaver-Cache	41,993	40,283	39,074	36,498	32,984	29,472
30	Deep Red Creek and West Cache Creek - 2	Beaver-Cache	6,794	6,522	6,218	5,635	4,887	4,110
31	Red River Mainstem (To North Fork of Red)	Beaver-Cache	4,032	3,875	3,643	3,236	2,710	2,155
32	Lower North Fork Red River - 1	Southwest	1,795	1,670	1,576	1,409	1,172	928
33	Lower North Fork Red River - 2	Southwest	7,599	7,046	6,676	6,035	5,099	4,128
34	Lower North Fork Red River - 3	Southwest	10,788	10,395	10,132	9,607	8,984	8,227
35	Lower North Fork Red River - 4	Southwest	1,422	1,379	1,333	1,248	1,146	1,029
36	Upper North Fork Red River - 1	Southwest	2,505	2,485	2,463	2,424	2,410	2,348
37	Upper North Fork Red River - 2	Southwest	13,610	13,506	13,592	13,551	13,938	13,972
38	Salt Fork Red River - 1	Southwest	10,708	9,856	9,286	8,382	6,966	5,504
39	Salt Fork Red River - 2	Southwest	1,052	1,060	1,028	984	900	822
40	Prairie Dog Town Fork Red River - 1	Southwest	7,538	6,833	6,397	5,683	4,581	3,446
41	Prairie Dog Town Fork Red River - 2	Southwest	1,613	1,564	1,490	1,356	1,129	922
42	Elm Fork Red River - 1	Southwest	941	949	928	919	894	859
43	Elm Fork Red River - 2	Southwest	5,944	5,928	5,894	5,838	5,839	5,734
44	Poteau River - 1	Lower Arkansas	2,935	2,982	2,919	2,836	2,727	2,622
45	Poteau River - 2	Lower Arkansas	31,871	32,240	31,419	30,195	28,628	27,075
46	Lower Arkansas River - 1	Lower Arkansas	53,780	55,690	54,270	51,679	48,182	45,264
47	Lower Arkansas River - 2	Lower Arkansas	60,128	59,932	58,402	55,893	53,121	49,912
48	Canadian River (To North Canadian River)	Eufaula	94,591	92,014	88,990	84,482	79,850	73,627
49	Middle Arkansas River	Middle Arkansas	453,971	463,929	471,316	488,114	518,169	543,640

OCWP Planning Basin	OCWP Planning Basin Name	OCWP Planning Region	2020	2030	2035	2045	2060	2075
50	Lower North Canadian River	Central	374,448	399,941	413,265	441,403	490,456	533,627
51	Middle North Canadian River	Central	71,489	79,053	84,989	98,382	123,882	145,090
52	Upper North Canadian River - 1	Northwest	10,790	11,054	11,175	11,585	12,590	13,222
53	Upper North Canadian River - 2	Northwest	7,005	7,250	7,169	7,119	7,300	7,302
54	Upper North Canadian River - 3	Northwest	3,702	3,762	3,749	3,751	3,873	3,882
55	North Canadian Headwaters	Northwest	23,288	22,251	22,144	21,887	21,290	20,600
56	Lower Canadian River - 1	Central	101,956	104,293	105,788	109,316	115,951	121,450
57	Lower Canadian River - 2	Central	13,630	13,827	13,932	14,334	14,995	15,728
58	Middle Canadian River	Central	136,001	143,904	150,421	164,909	191,976	214,761
59	Upper Canadian River	West Central	19,459	20,813	21,369	22,546	25,439	27,580
60	Deep Fork River	Central	360,313	382,893	393,531	416,374	456,844	492,458
61	Little River - 1	Central	19,773	20,220	20,186	20,187	20,276	20,320
62	Little River - 2	Central	213,896	220,682	225,843	236,766	256,470	273,219
63	Lower Cimarron River	Upper Arkansas	70,130	73,008	74,630	77,815	84,153	89,316
64	Middle Cimarron River	Central	245,902	264,091	275,040	299,505	343,893	381,874
65	Upper Cimarron River	Northwest	12,871	13,623	13,609	13,977	15,244	15,920
66	Cimarron Headwaters	Northwest	1,062	939	903	817	739	627
67	Lower Salt Fork Arkansas River - 1	Upper Arkansas	9,711	9,305	9,045	8,534	7,969	7,272
68	Upper Salt Fork Arkansas River	Upper Arkansas	23,600	24,194	24,436	25,253	27,584	29,033
69	Lower Salt Fork Arkansas River - 2	Upper Arkansas	6,880	6,576	6,389	6,020	5,608	5,102
70	Lower Salt Fork Arkansas River - 3	Upper Arkansas	7,847	7,524	7,322	6,924	6,496	5,956
71	Arkansas River - Cimarron Rivers to Keystone Lake	Upper Arkansas	120,288	125,002	126,350	128,179	135,079	139,310
72	Arkansas River Mainstem (To Kansas State Line)	Upper Arkansas	44,541	43,977	43,276	41,955	40,680	38,995
73	Bird Creek - 1	Middle Arkansas	162,214	166,011	169,327	176,767	189,653	200,671

OCWP Planning Basin	OCWP Planning Basin Name	OCWP Planning Region	2020	2030	2035	2045	2060	2075
74	Bird Creek - 2	Middle Arkansas	77,500	78,917	79,733	81,619	85,293	88,320
75	Caney River - 1	Middle Arkansas	65,299	66,538	67,695	70,229	74,717	78,527
76	Caney River - 2	Middle Arkansas	58,141	58,236	58,106	58,135	59,326	59,699
77	Verdigris River (To Oologah Dam) - 1	Middle Arkansas	58,112	60,199	61,185	62,886	65,358	68,204
78	Verdigris River (To Oologah Dam) - 2	Middle Arkansas	52,030	52,506	53,156	54,143	55,828	57,483
79	Verdigris River (To Kansas State Line)	Middle Arkansas	30,764	31,375	31,300	31,119	31,098	31,036
80	Grand (Neosho) River - 1	Grand	111,954	116,917	116,293	115,348	114,542	114,347
81	Grand (Neosho) River - 2	Grand	49,007	50,494	49,689	48,770	48,370	47,499
82	Illinois River	Lower Arkansas	42,504	45,300	44,672	43,852	43,348	42,910
		Statewide Totals	**3,959,171**	**4,094,626**	**4,149,476**	**4,279,621**	**4,547,508**	**4,764,040**

APPENDIX D

IRRIGATION DATA BY COUNTY

APPENDIX D IRRIGATION DATA BY COUNTY

This appendix includes tables of irrigation data by County in Oklahoma. Tables included herein are:

Table D.1 FSA Reported Historical Irrigated Acres by County

County	Region	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average 2020-2022
Adair	Northeast	85	-	89	-	1	240	4	9	-	42	17
Alfalfa	North Central	1,917	2,227	2,285	2,946	2,821	3,137	3,669	2,973	3,421	3,147	3,181
Atoka	Southeast	509	346	278	269	248	295	296	350	310	459	373
Beaver	Northwest	42,462	40,576	41,071	43,560	45,275	45,743	51,361	53,296	56,170	58,807	56,091
Beckham	Southwest	16,145	15,214	16,455	15,981	18,619	18,173	15,730	18,534	18,848	22,059	19,814
Blaine	Southwest	5,931	6,046	6,583	7,621	6,573	7,661	8,492	8,294	10,396	10,374	9,688
Bryan	Southeast	9,170	8,288	8,427	8,420	8,586	10,509	10,601	10,439	13,711	13,780	12,643
Caddo	Southwest	45,916	50,619	39,459	41,180	42,976	49,315	55,027	47,210	57,227	62,146	55,528
Canadian	Central	3,424	2,065	4,638	4,583	4,884	4,592	3,101	4,977	6,984	4,737	5,566
Carter	South Central	174	450	464	503	298	225	385	471	454	330	418
Cherokee	Northeast	11	-	-	-	-	-	-	-	-	127	42
Choctaw	Southeast	771	1,141	786	1,070	1,337	998	1,129	1,115	1,628	1,370	1,371
Cimarron	Northwest	80,363	83,697	86,261	83,825	79,782	85,436	85,495	89,639	86,220	82,498	86,119
Cleveland	Central	86	230	145	520	250	443	433	440	301	443	395
Coal	Southeast	-	726	694	694	-	35	-	4	-	-	1
Comanche	Southwest	752	790	502	501	694	726	784	963	801	1,114	959
Cotton	Southwest	31	22	18	41	41	145	61	122	122	104	116
Craig	Northeast	-	-	-	74	74	37	37	37	-	1	13
Creek	Northeast	-	-	-	-	-	-	-	-	-	-	0
Custer	Southwest	9,520	9,657	11,448	13,140	13,578	13,276	11,142	10,955	11,533	12,592	11,693
Delaware	Northeast	70	-	-	-	-	-	-	-	1	-	0
Dewey	Southwest	2,419	3,577	2,881	3,711	4,196	4,099	4,523	5,835	5,781	6,887	6,168
Ellis	North Central	6,550	7,982	8,252	9,384	10,245	13,035	10,501	13,286	12,018	13,779	13,027
Garfield	North Central	4,208	1,518	3,653	2,729	3,125	2,650	3,487	4,307	5,109	5,043	4,820
Garvin	South Central	113	95	68	216	-	-	221	31	76	76	61
Grady	Southwest	4,190	3,513	3,685	2,983	2,584	2,722	1,952	1,331	1,829	2,004	1,721
Grant	North Central	1,850	2,165	2,834	5,935	2,990	2,447	2,838	3,048	2,847	3,613	3,169
Greer	Southwest	8,051	7,384	8,583	8,663	9,235	9,676	9,765	9,831	11,235	10,507	10,524
Harmon	Southwest	30,976	28,681	25,775	30,088	32,861	31,861	30,960	32,978	35,577	37,062	35,206
Harper	North Central	13,942	13,929	13,469	13,504	12,067	15,338	17,911	18,629	17,494	13,614	16,579
Haskell	Southeast	22	22	22	22	-	-	-	-	211	220	144
Hughes	Southeast	885	820	713	731	297	351	1,202	1,406	1,382	1,837	1,541
Jackson	Southwest	59,231	56,018	56,840	59,313	61,072	62,238	60,253	62,031	60,073	62,422	61,508
Jefferson	Southwest	118	118	-	-	-	-	-	-	-	25	8

County	Region	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average 2020-2022
Johnston	South Central	149	-	-	38	173	301	265	247	320	512	360
Kay	North Central	8,957	6,518	6,669	7,655	7,125	6,685	4,853	5,779	7,054	6,983	6,605
Kingfisher	Central	2,502	5,623	10,661	6,129	8,356	9,948	8,079	12,730	11,589	11,760	12,026
Kiowa	Southwest	2,366	2,141	2,100	1,904	3,876	3,590	3,563	4,429	4,588	4,286	4,435
Latimer	Southeast	-	210	-	209	30	30	30	30	30	30	30
LeFlore	Southeast	9,295	9,677	8,585	8,238	8,257	8,935	5,823	7,417	14,596	15,337	12,450
Lincoln	Central	-	-	-	-	12	-	-	-	-	74	25
Logan	Central	9	-	-	-	660	728	334	665	331	331	442
Love	South Central	1,536	1,184	830	496	365	437	464	422	361	329	371
Major	North Central	11,185	12,288	22,475	17,201	26,854	28,130	26,245	22,913	23,632	21,473	22,672
Marshall	South Central	1,328	841	987	1,274	621	991	956	956	268	266	497
Mayes	Northeast	12	31	8	14	43	8	9	9	9	13	11
McClain	South Central	441	496	227	419	217	151	196	151	133	376	220
McCurtain	Southeast	2,243	3,407	1,824	5,788	4,699	4,814	3,889	3,640	3,976	3,551	3,722
McIntosh	Northeast	89	-	-	89	-	-	-	-	-	-	0
Murray	South Central	-	-	-	-	-	-	22	21	21	21	21
Muskogee	Northeast	9,575	10,525	8,230	11,141	10,025	10,546	11,245	15,418	15,219	14,716	15,118
Noble	North Central	-	-	25	-	-	-	-	91	21	-	37
Nowata	Northeast	48	48	48	-	-	-	-	-	-	-	0
Okfuskee	Northeast	395	367	137	271	290	511	478	284	440	150	291
Oklahoma	Central	40	-	-	176	246	469	224	227	181	175	194
Okmulgee	Northeast	-	160	144	209	-	309	324	324	16	0	114
Osage	Northeast	903	336	768	276	1,503	2,503	2,066	1,639	2,920	1,001	1,853
Ottawa	Northeast	-	-	-	3	3	68	36	3	46	47	32
Pawnee	Northeast	1,782	1,741	993	450	251	188	217	188	188	217	198
Payne	Central	124	97	186	175	1	34	-	42	-	99	47
Pittsburg	Southeast	452	452	6	459	8	8	-	4	4	-	3
Pontotoc	South Central	8	8	-	-	-	-	-	-	-	-	0
Pottawatomie	South Central	822	213	1,389	273	112	804	725	940	585	975	833
Pushmataha	Southeast	-	-	-	-	-	-	-	-	-	-	0
Roger Mills	Southwest	5,251	5,224	5,967	5,530	5,339	6,085	6,895	8,199	6,954	6,616	7,256
Rogers	Northeast	175	131	317	150	310	307	342	367	302	302	324
Seminole	South Central	138	133	316	322	168	-	-	-	-	-	0

County	Region	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average 2020-2022
Sequoyah	Northeast	9,085	9,940	14,001	10,733	10,635	11,625	13,659	5,926	136	52	2,038
Stephens	Southwest	1,102	373	1,183	1,090	1,177	1,086	1,216	1,093	1,287	221	867
Texas	Northwest	197,225	192,993	195,891	194,212	194,498	199,926	216,440	214,806	204,892	210,359	210,019
Tillman	Southwest	34,332	30,474	28,941	31,332	33,519	34,393	33,180	36,827	36,135	37,748	36,903
Tulsa	Northeast	742	811	299	21	106	300	319	12	87	71	57
Wagoner	Northeast	5,056	5,207	5,367	5,232	5,068	5,072	5,162	6,138	5,547	5,936	5,874
Washington	Northeast	-	-	-	-	-	-	-	-	-	-	0
Washita	Southeast	12,256	9,308	9,078	10,899	8,770	8,790	10,203	10,057	10,849	9,377	10,094
Woods	North Central	1,922	2,674	2,933	1,966	1,792	2,582	5,022	4,010	3,440	3,923	3,791
Woodward	North Central	4,979	6,656	6,620	5,587	5,738	6,819	7,168	6,680	5,823	6,576	6,360
Statewide Total		**1,102**	**373**	**1,183**	**1,090**	**1,177**	**1,086**	**1,216**	**1,093**	**1,287**	**221**	**867**

Notes:
Excludes cover crop acreage

Table D.2 Projection of Irrigated Acres by County

County	10-Year AAG	5-year AAG	Selected Model Trend	Average 2020-2022	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	Cultivated Acres
Adair	-6.9%	-67.7%	Stable	17	240	240	240	240	240	240	240	240	240	240	240	0
Alfalfa	5.4%	-0.7%	Stable	3,181	3,669	3,669	3,669	3,669	3,669	3,669	3,669	3,669	3,669	3,669	3,669	310,628
Atoka	-0.4%	10.0%	Stable	373	509	509	509	509	509	509	509	509	509	509	509	250
Beaver	4.3%	5.8%	Fast Growth	56,091	59,193	62,170	64,986	67,604	69,990	72,110	73,934	75,435	76,588	77,376	77,786	249,077
Beckham	3.0%	5.8%	Slow Growth	19,814	20,295	20,585	20,674	20,674	20,674	20,674	20,674	20,674	20,674	20,674	20,674	118,624
Blaine	6.4%	8.1%	Fast Growth	9,688	10,445	11,208	11,971	12,726	13,465	14,180	14,862	15,502	16,092	16,625	17,092	252,420
Bryan	5.8%	8.2%	Fast Growth	12,643	13,639	14,645	15,651	16,649	17,627	18,507	18,507	18,507	18,507	18,507	18,507	18,507
Caddo	3.4%	5.1%	Slow Growth	55,528	57,106	58,159	58,649	58,649	58,649	58,649	58,649	58,649	58,649	58,649	58,649	257,805
Canadian	6.0%	8.6%	Fast Growth	5,566	6,026	6,493	6,964	7,434	7,899	8,354	8,793	9,211	9,603	9,963	10,287	225,852
Carter	1.7%	7.5%	Stable	418	503	503	503	503	503	503	503	503	503	503	503	10,795
Cherokee	45.9%	100.0%	Stable	42	127	127	127	127	127	127	127	127	127	127	127	16
Choctaw	5.5%	10.0%	Fast Growth	1,371	1,504	1,641	1,783	1,929	2,076	2,225	2,373	2,519	2,661	2,798	2,929	8,041
Cimarron	0.5%	-0.6%	Stable	86,119	89,639	89,639	89,639	89,639	89,639	89,639	89,639	89,639	89,639	89,639	89,639	340,454
Cleveland	9.4%	-3.2%	Stable	395	520	520	520	520	520	520	520	520	520	520	520	9,788
Coal	-29.8%	-89.1%	Stable	1	726	726	726	726	726	726	726	726	726	726	726	878
Comanche	5.2%	9.0%	Fast Growth	959	1,043	1,129	1,216	1,304	1,392	1,479	1,564	1,646	1,724	1,797	1,864	93,338
Cotton	17.4%	-1.9%	Stable	116	145	145	145	145	145	145	145	145	145	145	145	175,480
Craig	1.1%	-48.3%	None	13	0	0	0	0	0	0	0	0	0	0	0	18,100
Creek	0.0%	0.0%	None	0	0	0	0	0	0	0	0	0	0	0	0	1,689
Custer	1.7%	-0.8%	Stable	11,693	13,578	13,578	13,578	13,578	13,578	13,578	13,578	13,578	13,578	13,578	13,578	224,107
Delaware	-53.2%	50.0%	Stable	0	70	70	70	70	70	70	70	70	70	70	70	2,938
Dewey	10.0%	12.6%	Fast Growth	6,168	6,926	7,744	8,618	9,549	10,533	11,565	12,640	13,752	14,893	16,055	17,227	131,976
Ellis	7.2%	2.4%	Slow Growth	13,027	13,262	13,368	13,368	13,368	13,368	13,368	13,368	13,368	13,368	13,368	13,368	78,062
Garfield	6.4%	15.6%	Fast Growth	4,820	5,555	6,375	7,284	8,286	9,384	10,581	11,878	13,275	14,769	16,358	18,036	390,815
Garvin	-4.3%	0.9%	Stable	61	221	221	221	221	221	221	221	221	221	221	221	45,824
Grady	-10.4%	-7.9%	Decline	1,721	1,236	712	410	236	136	78	45	26	15	9	5	129,558
Grant	2.4%	7.9%	Slow Growth	3,169	3,225	3,249	3,249	3,249	3,249	3,249	3,249	3,249	3,249	3,249	3,249	398,989
Greer	3.9%	3.1%	Slow Growth	10,524	10,784	10,943	10,994	10,994	10,994	10,994	10,994	10,994	10,994	10,994	10,994	132,944
Harmon	2.7%	4.5%	Slow Growth	35,206	35,942	36,334	36,367	36,367	36,367	36,367	36,367	36,367	36,367	36,367	36,367	121,982
Harper	2.6%	-2.3%	Stable	16,579	18,629	18,629	18,629	18,629	18,629	18,629	18,629	18,629	18,629	18,629	18,629	120,754
Haskell	34.4%	75.5%	Stable	144	220	220	220	220	220	220	220	220	220	220	220	1,099
Hughes	11.0%	25.5%	Fast Growth	1,541	1,930	2,407	2,989	3,698	4,230	4,230	4,230	4,230	4,230	4,230	4,230	4,230
Jackson	0.9%	0.0%	Stable	61,508	62,422	62,422	62,422	62,422	62,422	62,422	62,422	62,422	62,422	62,422	62,422	312,632
Jefferson	-38.7%	100.0%	Stable	8	118	118	118	118	118	118	118	118	118	118	118	74,743

County	10-Year AAG	5-year AAG	Selected Model Trend	Average 2020-2022	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	Cultivated Acres
Johnston	22.8%	14.5%	Fast Growth	360	441	538	653	791	953	1,144	1,368	1,628	1,929	2,277	2,676	2,756
Kay	-2.4%	4.5%	Stable	6,605	8,957	8,957	8,957	8,957	8,957	8,957	8,957	8,957	8,957	8,957	8,957	287,613
Kingfisher	9.9%	6.6%	Slow Growth	12,026	12,747	13,383	13,918	14,334	14,620	14,765	14,765	14,765	14,765	14,765	14,765	323,533
Kiowa	9.4%	5.9%	Slow Growth	4,435	4,670	4,872	5,033	5,149	5,217	5,233	5,233	5,233	5,233	5,233	5,233	326,041
Latimer	-13.9%	0.0%	Stable	30	210	210	210	210	210	210	210	210	210	210	210	0
LeFlore	4.8%	20.7%	Fast Growth	12,450	14,990	17,974	21,462	23,440	23,440	23,440	23,440	23,440	23,440	23,440	23,440	23,440
Lincoln	45.9%	100.0%	Stable	25	74	74	74	74	74	74	74	74	74	74	74	12,225
Logan	19.1%	-16.7%	Stable	442	728	728	728	728	728	728	728	728	728	728	728	86,001
Love	-17.6%	-7.9%	Stable	371	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	12,115
Major	5.8%	-6.5%	Stable	22,672	28,130	28,130	28,130	28,130	28,130	28,130	28,130	28,130	28,130	28,130	28,130	210,546
Marshall	-10.2%	-31.1%	Decline	497	162	25	4	1	0	0	0	0	0	0	0	2,821
Mayes	-7.2%	11.0%	None	11	0	0	0	0	0	0	0	0	0	0	0	12,581
McClain	-9.2%	19.2%	Stable	220	496	496	496	496	496	496	496	496	496	496	496	38,654
McCurtain	3.1%	-6.1%	Stable	3,722	5,788	5,788	5,788	5,788	5,788	5,788	5,788	5,788	5,788	5,788	5,788	22,115
McIntosh	-36.4%	0.0%	Stable	0	89	89	89	89	89	89	89	89	89	89	89	1,601
Murray	36.2%	24.2%	Stable	21	22	22	22	22	22	22	22	22	22	22	22	4,934
Muskogee	6.0%	9.2%	Fast Growth	15,118	16,458	17,836	19,240	20,658	22,077	23,483	24,862	25,472	25,472	25,472	25,472	25,472
Noble	21.3%	9.5%	Stable	37	91	91	91	91	91	91	91	91	91	91	91	153,663
Nowata	-42.4%	0.0%	Stable	0	48	48	48	48	48	48	48	48	48	48	48	10,502
Okfuskee	-0.2%	-20.4%	Stable	291	511	511	511	511	511	511	511	511	511	511	511	4,405
Oklahoma	13.9%	-24.7%	Stable	194	469	469	469	469	469	469	469	469	469	469	469	20,399
Okmulgee	2.2%	-47.5%	Stable	114	324	324	324	324	324	324	324	324	324	324	324	5,805
Osage	12.9%	-10.6%	Stable	1,853	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	34,277
Ottawa	27.4%	-7.6%	Stable	32	68	68	68	68	68	68	68	68	68	68	68	35,177
Pawnee	-29.0%	1.5%	Stable	198	1,782	1,782	1,782	1,782	1,782	1,782	1,782	1,782	1,782	1,782	1,782	21,842
Payne	-16.9%	37.0%	Stable	47	186	186	186	186	186	186	186	186	186	186	186	26,233
Pittsburg	-37.4%	-34.1%	Stable	3	459	459	459	459	459	459	459	459	459	459	459	502
Pontotoc	-48.5%	0.0%	Stable	0	8	8	8	8	8	8	8	8	8	8	8	1,053
Pottawatomie	3.3%	2.5%	Stable	833	1,389	1,389	1,389	1,389	1,389	1,389	1,389	1,389	1,389	1,389	1,389	14,504
Pushmataha	0.0%	0.0%	None	0	0	0	0	0	0	0	0	0	0	0	0	6
Roger Mills	3.9%	1.6%	Stable	7,256	8,199	8,199	8,199	8,199	8,199	8,199	8,199	8,199	8,199	8,199	8,199	72,807
Rogers	7.1%	-1.5%	Stable	324	367	367	367	367	367	367	367	367	367	367	367	7,340
Seminole	-27.5%	0.0%	Stable	0	322	322	322	322	322	322	322	322	322	322	322	1,597
Sequoyah	-12.8%	-58.4%	Decline	2,038	147	2	0	0	0	0	0	0	0	0	0	17,319
Stephens	-1.0%	-16.9%	Stable	867	1,287	1,287	1,287	1,287	1,287	1,287	1,287	1,287	1,287	1,287	1,287	43,315

County	10-Year AAG	5-year AAG	Selected Model Trend	Average 2020-2022	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	Cultivated Acres
Texas	1.1%	0.4%	Slow Growth	210,019	210,019	210,019	210,019	210,019	210,019	210,019	210,019	210,019	210,019	210,019	210,019	505,044
Tillman	2.1%	2.7%	Slow Growth	36,903	37,454	37,637	37,637	37,637	37,637	37,637	37,637	37,637	37,637	37,637	37,637	325,667
Tulsa	-25.1%	-43.7%	None	57	0	0	0	0	0	0	0	0	0	0	0	5,968
Wagoner	1.6%	3.8%	Slow Growth	5,874	5,931	5,931	5,931	5,931	5,931	5,931	5,931	5,931	5,931	5,931	5,931	52,645
Washington	0.0%	0.0%	None	0	0	0	0	0	0	0	0	0	0	0	0	12,190
Washita	-0.7%	1.8%	Stable	10,094	12,256	12,256	12,256	12,256	12,256	12,256	12,256	12,256	12,256	12,256	12,256	351,216
Woods	7.8%	2.9%	Slow Growth	3,791	3,878	3,928	3,939	3,939	3,939	3,939	3,939	3,939	3,939	3,939	3,939	204,584
Woodward	1.4%	-2.8%	Stable	6,360	7,168	7,168	7,168	7,168	7,168	7,168	7,168	7,168	7,168	7,168	7,168	116,015
Statewide Total				**784,695**	**830,353**	**844,641**	**858,345**	**869,951**	**879,202**	**887,537**	**894,656**	**900,802**	**906,084**	**911,067**	**915,711**	**7,698,919**

Notes:
AAG - average annual growth

Table D.3 Irrigated Acres by Major Crop Type, 2022

County	Corn	Cotton	Wheat	Soybean	Hay	Sorghum	Peanuts	Other
Adair	34	0	0	0	0	0	0	8
Alfalfa	439	0	1,528	137	109	556	0	377
Atoka	0	247	0	0	0	0	203	9
Beaver	8,914	5,708	22,191	1,124	1,643	7,473	0	11,754
Beckham	122	5,929	1,115	0	813	1,219	5,162	7,699
Blaine	593	1,620	3,026	2,108	425	588	483	1,530
Bryan	1,975	0	1,800	1,046	319	328	0	8,313
Caddo	6,548	14,624	16,873	5,670	306	1,276	8,379	8,470
Canadian	531	1,084	1,506	301	124	0	0	1,192
Carter	0	0	0	0	0	0	0	330
Cherokee	0	0	0	0	0	0	0	127
Choctaw	310	0	242	370	0	0	0	447
Cimarron	25,996	2,622	31,948	0	4,358	12,415	0	5,159
Cleveland	17	0	221	204	0	0	0	0
Coal	0	0	0	0	0	0	0	0
Comanche	0	306	442	0	0	167	0	198
Cotton	0	0	0	0	0	0	0	104
Craig	0	0	0	0	0	0	0	1
Creek	0	0	0	0	0	0	0	0
Custer	1,298	1,397	4,033	1,162	184	530	709	3,278
Delaware	0	0	0	0	0	0	0	0
Dewey	62	120	4,870	349	110	185	0	1,192
Ellis	2,390	936	3,264	752	346	850	0	5,242
Garfield	2,114	0	791	1,805	82	0	0	250
Garvin	0	0	0	0	0	0	0	76
Grady	196	290	208	341	77	183	115	595
Grant	1,035	641	1,100	689	0	0	0	148
Greer	97	6,895	696	0	453	163	347	1,854
Harmon	988	27,672	3,810	0	1,123	1,295	61	2,114
Harper	492	126	6,631	0	1,022	1,498	0	3,845
Haskell	220	0	0	0	0	0	0	0
Hughes	97	0	771	652	111	11	0	195
Jackson	81	58,422	1,092	0	659	452	62	1,654

County	Corn	Cotton	Wheat	Soybean	Hay	Sorghum	Peanuts	Other
Jefferson	0	0	0	0	0	0	0	25
Johnston	46	0	146	73	0	0	0	247
Kay	2,004	881	1,448	2,228	169	0	0	254
Kingfisher	798	66	985	827	261	0	0	8,823
Kiowa	317	1,122	698	0	894	615	407	234
Latimer	0	0	0	0	0	0	0	30
LeFlore	6,776	0	178	6,594	177	226	0	1,385
Lincoln	74	0	0	0	0	0	0	0
Logan	0	0	331	0	0	0	0	0
Love	44	0	0	0	0	0	75	210
Major	6,538	328	3,403	3,873	73	253	327	6,678
Marshall	0	0	0	0	0	0	0	266
Mayes	0	0	0	0	0	0	0	13
McClain	137	0	0	0	0	0	0	239
McCurtain	1,536	293	98	1,625	0	0	0	0
McIntosh	0	0	0	0	0	0	0	0
Murray	0	0	0	0	0	0	0	21
Muskogee	4,715	0	1,261	8,616	0	0	0	123
Noble	0	0	0	0	0	0	0	0
Nowata	0	0	0	0	0	0	0	0
Okfuskee	0	0	76	0	0	0	0	74
Oklahoma	0	0	0	0	0	0	0	175
Okmulgee	0	0	0	0	0	0	0	0
Osage	0	0	207	653	0	0	0	141
Ottawa	0	0	0	0	0	0	0	47
Pawnee	0	0	0	0	0	0	0	217
Payne	0	0	0	0	0	0	0	99
Pittsburg	0	0	0	0	0	0	0	0
Pontotoc	0	0	0	0	0	0	0	0
Pottawatomie	541	0	121	285	0	0	0	28
Pushmataha	0	0	0	0	0	0	0	0
Roger Mills	205	993	1,511	44	1,277	188	0	2,398
Rogers	0	0	0	0	0	0	0	302
Seminole	0	0	0	0	0	0	0	0
Sequoyah	50	0	0	0	0	0	0	2

County	Corn	Cotton	Wheat	Soybean	Hay	Sorghum	Peanuts	Other
Stephens	221	0	0	0	0	0	0	0
Texas	87,153	8,094	65,195	4,930	1,878	30,560	0	12,550
Tillman	3,998	22,171	5,326	0	1,103	684	236	4,230
Tulsa	0	0	0	0	0	0	0	71
Wagoner	896	562	79	1,332	0	0	0	3,066
Washington	0	0	0	0	0	0	0	0
Washita	1,323	3,041	3,326	229	0	120	121	1,217
Woods	0	0	1,970	0	345	240	0	1,368
Woodward	126	0	2,512	372	322	127	0	3,117
Statewide Total	**172,047**	**166,192**	**197,031**	**48,393**	**18,760**	**62,202**	**16,686**	**113,811**

Table D.4 Irrigation Application Rate by County

County	Weighted Crop Application Per Acre	
	AF	Inches
Adair	1.10	13.22
Alfalfa	1.18	14.22
Atoka	1.12	13.45
Beaver	1.27	15.19
Beckham	1.10	13.26
Blaine	1.08	13.01
Bryan	1.00	11.95
Caddo	1.01	12.07
Canadian	1.01	12.12
Carter	1.00	12.00
Cherokee	1.00	12.00
Choctaw	0.93	11.13
Cimarron	1.34	16.04
Cleveland	0.88	10.58
Coal	1.00	12.00
Comanche	1.06	12.76
Cotton	1.00	12.00
Craig	0	0
Creek	0	0
Custer	1.09	13.12
Delaware	1.00	12.00
Dewey	1.02	12.28
Ellis	1.19	14.26
Garfield	0.94	11.31
Garvin	1.00	12.00
Grady	1.02	12.21
Grant	0.93	11.18
Greer	1.17	14.07
Harmon	1.21	14.56
Harper	1.19	14.29
Haskell	1.12	13.49
Hughes	0.81	9.72
Jackson	1.21	14.56
Jefferson	1.00	12.00
Johnston	1.01	12.16
Kay	0.91	10.98

County	Weighted Crop Application Per Acre	
	AF	Inches
Kingfisher	1.00	11.99
Kiowa	1.27	15.24
Latimer	1.00	12.00
LeFlore	0.90	10.76
Lincoln	1.21	14.48
Logan	1.00	12.00
Love	1.03	12.37
Major	1.14	13.64
Marshall	1.00	12.00
Mayes	0	0
McClain	1.10	13.19
McCurtain	0.90	10.74
McIntosh	1.00	12.00
Murray	1.00	12.00
Muskogee	0.83	9.92
Noble	1.00	12.00
Nowata	1.00	12.00
Okfuskee	0.92	10.99
Oklahoma	1.00	12.00
Okmulgee	1.00	12.00
Osage	0.71	8.57
Ottawa	1.00	12.00
Pawnee	1.00	12.00
Payne	1.00	12.00
Pittsburg	1.00	12.00
Pontotoc	1.00	12.00
Pottawatomie	1.03	12.41
Pushmataha	0	0
Roger Mills	1.25	14.95
Rogers	1.00	12.00
Seminole	1.00	12.00
Sequoyah	1.12	13.43
Stephens	1.27	15.27
Texas	1.35	16.21

County	Weighted Crop Application Per Acre	
	AF	Inches
Tillman	1.20	14.43
Tulsa	0	0
Wagoner	0.93	11.14
Washington	0	0
Washita	1.13	13.53
Woods	1.14	13.68
Woodward	1.07	12.90

Table D.5 Irrigation Source of Supply and Type of System

County	Source of Supply (by acreage)		Irrigation Methods (efficiency assumption)			Weighted Efficiency
	Percent Ground Water	Percent Surface Water	Sprinkler (90%)	Micro-Irrigation (95%)	Surface (70%)	
Adair	0%	100%	95%	0%	5%	89%
Alfalfa	93%	7%	100%	0%	0%	90%
Atoka	0%	100%	100%	0%	0%	90%
Beaver	100%	0%	100%	0%	0%	90%
Beckham	97%	3%	100%	0%	0%	90%
Blaine	92%	8%	100%	0%	0%	90%
Bryan	22%	78%	95%	0%	5%	89%
Caddo	95%	5%	100%	0%	0%	90%
Canadian	55%	45%	100%	0%	0%	90%
Carter	4%	96%	95%	0%	5%	89%
Cherokee	0%	100%	95%	0%	5%	89%
Choctaw	41%	59%	95%	0%	5%	89%
Cimarron	98%	2%	100%	0%	0%	90%
Cleveland	81%	19%	100%	0%	0%	90%
Coal	0%	100%	95%	0%	5%	89%
Comanche	16%	84%	95%	0%	5%	89%
Cotton	18%	82%	91%	0%	9%	88%
Craig	0%	0%	0%	0%	0%	0%
Creek	0%	0%	0%	0%	0%	0%
Custer	99%	1%	100%	0%	0%	90%
Delaware	100%	0%	100%	0%	0%	90%
Dewey	100%	0%	100%	0%	0%	90%
Ellis	99%	1%	100%	0%	0%	90%
Garfield	96%	4%	95%	0%	5%	89%
Garvin	37%	63%	95%	0%	5%	89%
Grady	35%	65%	95%	0%	5%	89%
Grant	57%	43%	95%	0%	5%	89%
Greer	100%	0%	100%	0%	0%	90%
Harmon	99%	1%	2%	25%	73%	77%
Harper	54%	46%	95%	0%	5%	89%
Haskell	0%	100%	94%	0%	6%	89%
Hughes	49%	51%	95%	0%	5%	89%
Jackson	16%	84%	26%	22%	52%	81%
Jefferson	43%	57%	100%	0%	0%	90%

County	Source of Supply (by acreage)		Irrigation Methods (efficiency assumption)			Weighted Efficiency
	Percent Ground Water	Percent Surface Water	Sprinkler (90%)	Micro-Irrigation (95%)	Surface (70%)	
Johnston	11%	89%	0%	50%	50%	83%
Kay	73%	27%	95%	0%	5%	89%
Kingfisher	95%	5%	100%	0%	0%	90%
Kiowa	65%	35%	95%	0%	5%	89%
Latimer	0%	100%	94%	0%	6%	89%
Le Flore	42%	58%	95%	0%	5%	89%
Lincoln	0%	100%	95%	0%	5%	89%
Logan	48%	52%	95%	0%	5%	89%
Love	86%	14%	95%	0%	5%	89%
Major	98%	2%	100%	0%	0%	90%
Marshall	32%	68%	95%	0%	5%	89%
Mayes	0%	0%	0%	0%	0%	0%
McClain	39%	61%	100%	0%	0%	90%
McCurtain	63%	37%	95%	0%	5%	89%
McIntosh	0%	100%	95%	0%	5%	89%
Murray	8%	92%	100%	0%	0%	90%
Muskogee	17%	83%	95%	0%	5%	89%
Noble	0%	100%	95%	0%	5%	89%
Nowata	100%	0%	0%	0%	100%	70%
Okfuskee	33%	67%	95%	0%	5%	89%
Oklahoma	83%	17%	95%	0%	5%	89%
Okmulgee	100%	0%	0%	44%	56%	81%
Osage	82%	18%	95%	0%	5%	89%
Ottawa	100%	0%	100%	0%	0%	90%
Pawnee	0%	100%	100%	0%	0%	90%
Payne	61%	39%	100%	0%	0%	90%
Pittsburg	100%	0%	95%	0%	5%	89%
Pontotoc	69%	31%	95%	0%	5%	89%
Pottawatomie	10%	90%	100%	0%	0%	90%
Pushmataha	0%	0%	0%	0%	0%	0%
Roger Mills	90%	10%	100%	0%	0%	90%
Rogers	0%	100%	100%	0%	0%	90%
Seminole	100%	0%	95%	0%	5%	89%
Sequoyah	21%	79%	95%	0%	5%	89%
Stephens	34%	66%	50%	0%	50%	80%

County	Source of Supply (by acreage)		Irrigation Methods (efficiency assumption)			Weighted Efficiency
	Percent Ground Water	Percent Surface Water	Sprinkler (90%)	Micro-Irrigation (95%)	Surface (70%)	
Texas	100%	0%	100%	0%	0%	90%
Tillman	96%	4%	72%	25%	3%	91%
Tulsa	0%	0%	0%	0%	0%	0%
Wagoner	5%	95%	95%	0%	5%	89%
Washington	0%	0%	0%	0%	0%	0%
Washita	77%	23%	100%	0%	0%	90%
Woods	100%	0%	100%	0%	0%	90%
Woodward	93%	7%	100%	0%	0%	90%
Statewide Total	**85%**	**15%**	**85%**	**4%**	**10%**	